Learn how one computer will unleash your unlimited creative potential

A book for those who recognize the word “computer” but do not know exactly what they can do

Aaron Rosenzweig
Old Fart’s Guide™ to the Macintosh

Cocoa n0ts.
ACKNOWLEDGEMENTS

This book is dedicated to my lovely and talented wife, Jen-Lien Fang. It was with her caring heart and supportive talents that this book was brought from the realm of ideas to the world of reality.

A word of thanks is due to my parents for bringing computers into my life. My parents, Harry and Ginger Rosenzweig, waited till I was ten years old to buy a computer for me. Though this was the first computer my parents would buy, they purposely chose to include me in the buying decision. In 1984, we began to study what computers were available. There were many to choose from, including the brand new Apple Macintosh which was introduced that year. A year later, in 1985, we bought the Mac 512kE. This was not my parents’ first choice; they wanted something more proven with more software available. The truth is, the Mac and I “clicked” because it was the first computer to let me feel like the computer was a creative tool rather than a piece of machinery.

Special thanks go to my extended family in Taiwan. It is very special when you find yourself with a new family by virtue of marriage and everyone acts as if you were part of their family all along. It is even more exceptional when your skin color is different and the language you speak is different. I feel like a long lost son. As this book was written while living in Taipei, I would like to say “thanks” to them for the inspiration and energy to write this book.

Thank you Apple, Steve Jobs, Steve Wozniak, and all the Apple engineers for the wonderful Mac.
From the Reviewers

By the way, if you’ve never used a Macintosh, you wonder what is so special about it. I warn you: reading this book may lead to an uncontrollable desire to adopt a Mac of your own, purchase one, or maybe even steal one. You will see that there truly is “a better way.”

— Guy Kawasaki, former MacWorld columnist

Aaron is, how shall I say? - a bit of a character, and that is reflected in his text, which also has character, something that helps make it a pleasure to read.

— Charles W. Moore, well-known columnist

If you own a Mac computer, but barely know how to turn the thing on, let alone actually use it, as my old granny used to say, “Have I gotta book for you!” The OLD FART’S GUIDE TO THE MACINTOSH by Aaron Rosenzweig, is without a doubt one of the most comprehensive, easy to understand “how to” guides on getting the best from your Mac computer. And guess what? You really don’t even have to be an old fart to benefit from it! ... The OLD FART’S GUIDE TO THE MACINTOSH is one of those priceless books I will keep right beside my trusty Mac computer, along with my dictionary and thesaurus, at least until the author comes out with an updated version. It is a valuable and amazingly easy to use resource for Mac newbies and veterans alike, whether they are fifteen, fifty or far beyond.

— Marie D. Jones, BookIdeas.com

Aside from basic "how to use the computer" information, also included are some basic information on how to do word processing and even spreadsheet operations (both via AppleWorks). While this is not likely to be the last book for many people, for a surprising number, this may be all the 3rd party book some may ever require...

— Gary Coyne, www.applelinks.com

Author Aaron Rosenzweig has produced a well written, well organized, and, most importantly, clear book on the use of the Macintosh. One should not be fooled. While the book starts off expecting that the reader is as just described, it ends with subjects that are quite advanced. The writing style is very easy and clear. There is no techno-babble and, when specific computer terms are introduced, they are clearly explained. The book is comprehensive and up-to-date. I would strongly recommend this book for any Mac beginner and I think any Mac user would benefit from it...

— Stuart Bonwit, Washington Apple PI

Watch for these other titles in 2004:

• Old Fart’s Guide to Internet Searches
• Old Fart’s Guide to Digital Photography
• Old Fart’s Guide to Home Movies
• Old Fart’s Guide to Film Photography
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FOREWORD

With a title like the "The Old Fart’s Guide to the Macintosh," you might be a little curious about its content. Can’t say that I blame you. Truth be known, the title is why I agreed to consider writing the foreword.

Macintosh, for all of its elegance and simplicity, is still doing a lot of sophisticated stuff. Like any power tool, you have to learn how to master it. If you’re a computer novice, then this book will speed you along the power curve. I know I learned a few things reading it.

By the way, if you’ve never used a Macintosh, you wonder what is so special about it. I warn you: reading this book may lead to an uncontrollable desire to adopt a Mac of your own, purchase one, or maybe even steal one. You will see that there truly is “a better way.”

Diehard Mac fans know the virtues of Macintosh ownership. One is that you age less — due to frustration avoidance. You live a sheltered life — free of computer viruses. You are more attractive to the opposite sex — because you have cool hardware.

Long time Mac owners may assume this book is only useful to neophytes. This book has a fair amount of hand holding, but Aaron’s keen insight into the Macintosh experience will undoubtedly lead you to a more profound mastery of the machine you already adore.

What is the real definition of “Old Fart” anyway? There is the cute explanation offered in the glossary of this book. But seriously, if you purchase this book, does it make you an old fart? Perhaps it does and maybe that’s a good thing.

People who consider themselves old farts are often very opinionated and capable of thinking independently; even if that means going against the norm. Mac enthusiasts are constantly prodded by friends and acquaintances to justify their choice in computing machinery. If you choose to use a Mac, it’s because you know how superior they are.

If you are considering giving this book as a gift to a loved one, there is one little problem. They might be insulted by the fact that you are calling them an old fart. For example, were you to say, “Honey, I saw this book and immediately thought of you,” it may not go over too well.

In fact, what you may really want to do is give them the gift of computer literacy. This book does this in a very down to earth way which will bring a person from knowing hardly anything to nearly a power user. Don’t just take my word for it, crack the book open and see for yourself.
Still, what do you do about the title? How do you give the gift of love without the negative innuendo? Simple, adjust the title with a little constructive graffiti like so:

Wife's
Old Fart's Guide

This way, you are the old fart and the recipient is simply your loved one.

Guy Kawasaki
CEO of Garage Technology Ventures
Macintosh evangelist
Author of seven books including Rules for Revolutionaries, How to Drive Your Competition Crazy, Selling the Dream, and The Macintosh Way, Coming soon is his new book titled The Art of the Start.
INTRODUCTION

Over the past six years, I've reviewed dozens of books about the Macintosh and related topics as a columnist for the Macintosh-oriented Websites AppleLinks, MacOpinion, Low End Mac, Mac OS Daily, MacSimple, and The Mac Times Network.

There have been hundreds – maybe thousands by now – of books written about the Macintosh. There are books about how Macs work, books about how the Internet works, books about operating systems, and other software, and digital photography, and making movies or music on the Mac, and how to troubleshoot and upgrade your Mac. So many different books.

Some of these books are excellent; many very good, and a few mediocre, but Aaron Rosenzweig's "Old Fart's Guide to the Macintosh" stands out as unique. I've not encountered anything quite like it in the Macintosh book canon.

Many computer books are technically competent but lack an imaginative spark. In short, they provide an informative but dry and dull read. What I noticed very quickly about "Old Fart's Guide" author Aaron Rosenzweig is that he is genuinely enamored with computers and especially with the Macintosh, as well as a whole lot of other topics. Aaron says he wants to recreate for the reader the same feelings of wonder and passion that were so evident in the early days of Apple Computer. I think he's succeeded admirably in that quest with this book.

Among many other things, Aaron revisits the time when Apple's founders had to prove to the world that consumers wanted and needed their own computers. You won't just learn about the Macintosh in this book, you'll get a capsule personal computer history in general. While I'm familiar with the story of how DOS/Windows PCs, Macs, and Linux computers came to be, I really enjoyed reading Aaron's particular take on the topic. He has a unique writing style that somehow incorporates an incredible amount of information into relatively short passages of text, while making it all very readable and interesting.

Aaron is, how shall I say? – a bit of a character, and that is reflected in his text, which also has character, something that helps make it a pleasure to read.

Most of the books I review on Applelinks and other Websites are targeted to a readership of intermediate to advanced users, or at least to folks who are familiar with the basic computer use. The Old Fart's Guide to the Macintosh: Second Edition, is pitched as "a book for those who recognize the word 'computer' but do not know exactly what they do," in other words, the complete newbie, neophyte, or computerphobe who is looking for a guide to help them scale the learning curve.
However, an extremely interesting thing about this book is that while it fulfills its stated purpose well, Aaron Rosenzweig has compiled a body of expository and instructional material that is so well written and organized that even veteran Mac users like myself for instance will find it a good, entertaining, and informational read.

You might pick up a book on how to use Apple's AppleWorks productivity software suite. I bought such a book for AppleWorks 5 several years ago, and have reviewed another that covers AppleWorks 6. These books are great if you want to master AppleWorks, but what if you're only interested in learning the basics? To research how to use your Mac might require six or seven books - or you could pick up one copy of the Old Fart's Guide to the Macintosh, which does a masterful job of providing the complete Mac novice a solid understanding of what the Macintosh is and how to get the best from it.

See for yourself; thumb through the pages of this guide and you'll quickly see what I mean. The historical theme Aaron has woven through the text acts like a glue that puts technology into perspective and makes it all fall into place. I'm honored by Aaron's request that I write this introduction, and that I've been able to play a small consultative role in the late stages of the book's gestation.

This delightful book is an excellent gift idea for any new or prospective Mac users on your list, but check it out for yourself as well. You'll be glad you did.

Charles W. Moore
Port Hilford, Nova Scotia,
November 2, 2003.
This unique book caters to the person who has never used a computer. It is intended to be a self-help guide allowing the reader to develop a feeling of independence and self satisfaction. The creation of the computer is one of our greatest achievements but very few of us are fortunate enough to be able to utilize them. Personally, I’ve found the computer invaluable. I would like to instill in you, the reader, the same feelings of freedom and creativity that I’ve obtained through interaction with a computer.

If you are considering this book for yourself, please browse the table of contents then glance at a chapter or two. The only assumption this book makes, with regard to technology, is that you’ve heard the word computer but I don’t go so far as to assume that you even like this word. There is so much media hype and other nonsense surrounding technology that it often scares and confuses people. My purpose in writing this book is to share my experiences with you in a way which makes sense. I don’t simply throw new jargon in front of you without an explanation. More importantly, I often redefine jargon throughout the book, so you never have to go searching for some strange definition.

If you are someone who has used a computer before but feel like you can never get it to work right, or you just feel like computers are the world’s biggest mystery, this book is for you. Believe me, the problem is definitely not you. The truth is most of the people who use computers operate in a fog. Typically, people just do a few very small things which they’ve found to work by trial and error. Some parts of this book will cover information you already understand; however, most of the book is filled with content which explains why computers behave the way they do and teaches you how to fully utilize them. After reading this book, computers will no longer be scary, they’ll be fun!

Some people may be picking up this book and thinking about buying it for their parents. If this is you, read on! When buying a computer, I recommend including your parents in the purchasing decision. Picking a computer is a very personal decision, and you should take the extra time to be sure you are getting something your parents will actually enjoy using. Don’t shock them by bringing some strange machine home one day just because it’s what you use. This book talks about computer technology in general but about the Macintosh specifically. You should consider finding a few other books which focus on other types of computers, so you can easily introduce various computer options to your parents. Remember that you are doing all this for your parents’ sake. Consider the education process as part of the fun. My mother is so confident with her computer abilities that she learns new things all the time now, all by herself, and has taught me a thing or two.
Though this book's target audience are those of us who are a bit wiser in years, women and men both, it is also a good book for people who simply are not yet comfortable with computers. I have quite a bit of first hand experience explaining those little things which need to be understood.

Aaron Rosenzweig
WHo’S THE OLD FART?

When we look in a dictionary of English slang, we find that the term Old Fart usually describes a grumpy man in a negative way. However, if a person were to describe themselves as an old fart, the term takes on a positive connotation to the effect of “I am what I am and proud of it!”

Make no doubt about it, this book is just as much for ladies as it is for gentlemen. There is also no expected age requirement. After all, the ability to use a computer has everything to do with the age of the mind but absolutely nothing to do with the age of the body. “Growing old is mandatory, growing up is optional.” If you pick up this book expecting to learn with the intent of having fun, you will achieve all of that plus more. Get ready for a brave new world.

Many people will find something worthwhile in this book but those who are fifty years wise and wiser are the ones who were specifically in my mind when writing this book. I have many friends in this age range; most of them use computers. Many of these friends are highly educated people who want to be creative and use computers to do things which would be impossible to do otherwise. Other friends are not as educated but just as smart and very active. These friends like to organize social events, create newsletters, and even lobby for changes in local government. As an outgrowth of our friendship, I turned them on to computers thus helping them reach their goals.

I, the author, am physically not very old. I was born at the time when computers were just starting to hit the $3,000 range where the middle class of America could afford to buy them, this was the 1970’s. Because I grew up with computers, I can speak their language. In other words we “click.” More importantly, I still remember my first experiences with computers and each new technology. I remember what confused me and how I was able to find answers to my questions. These questions, curiously enough, are exactly the same ones people have who are just starting to experience computers later in life. My peers are often fairly adept with computers but if you were to ask them why they do things, they don’t know. Most of my peers either forgot why they know how to use the computer or don’t care because they followed the footsteps of a buddy.

Many twenty-somethings and thirty-somethings subscribe to the buddy system. This means they learn about technology just through social interaction. It is a little like osmosis, the knowledge of how to use computers creeps into their skin but then they don’t know where the information came from. I was a strange boy for two reasons: 1) I was obsessed with why computers work and 2) I was more likely to go to the movies with my classmates’ parents than I was to go with my classmates. There have been many
The term PC stands for Personal Computer. This means a computer which is affordable for the average middle class person. The term PC does not mean Politically Correct when people talk about technology.

"Mac" is common shorthand for Macintosh

Computer literacy is an important skill. It is every bit as important as the ability to read and write in your mother tongue.

nicknames given to me, most of them good, but the two that stick out in my mind at this moment are Old Fart and Superman. It was my classmates who called me an Old Fart because of all the time I spent with my friends (their parents). The title of Superman was given to me by one particular friend in his sixties who found I could help him with nearly any computer related question he had. It seemed like whenever he needed my advice, I always had a solution or an explanation which made sense to him. The title of this book is "The Old Fart's Guide to the Macintosh." This is obviously a play on words because one of my nicknames is Old Fart. Notice that the title conveys special interest in the Macintosh.

In the United States people are familiar with the story of Johnny Appleseed who went around planting apple groves wherever he visited. The state of Washington is quite famous for the apples it produces and exports around the world. We all know that "an apple a day keeps the doctor away." In America, we also have a tradition of giving apples to teachers on our first day of class. It appears apples are deeply rooted in our culture. There are so many varieties: Fuji, Red delicious, Granny Smith, McIntosh, etc. Well, about the time I was born, two Steves created a computer company named Apple. Their names are Steve Jobs and Steve Wozniak. They gave their computers names like the Apple I and Apple II, then they started attaching letters to the names of newer computers such as the Apple Ile, Apple IIc, and Apple Ilgs. The Apple I was the first personal computer. The term "PC" stands for Personal Computer. This means a computer which is affordable for the average middle class American. PC does not mean Politically Correct when people talk about technology.

A special event happened in 1984, Apple brought us the first Macintosh computer with a purchase price of less than $3,000. Notice the spelling of Macintosh and not McIntosh. The correct spelling for the type of apple we eat should be McIntosh, so it seems that Apple Computer needs to go check a dictionary about the spelling of their computer. Story has it that one of the developers of this new computer couldn't spell well and first thought of calling their new invention the Macintosh. This mistake has worked out well because most people refer to this computer as simply the Mac, it would've been difficult to call it the Mc (it just doesn't roll of the tongue).

This book focuses on the Mac because it is the best choice for people like us. The chapter "What is a Computer?" will go into detail about what types of computers are available and explain why the Mac is better. If you've got a bad impression about computers, the Mac will change your mind.

Nobody should purposely choose to be without access to a computer. Hundreds of years ago, those who learned to read and write found themselves with many more options and opportunities. In much the same way, the handful of people who are computer literate today find themselves in a very envious position. I want you to be among the literate and soon start teaching your friends and family to be literate too. With this book and your trusty Mac, it will happen.
HOW TO READ THIS BOOK

This book was designed to be read from front to back one page at a time. It is a good idea to quickly browse through the book once before reading it for the first time. Technically, each chapter of this book is independent of the others but for someone new to computers the order of the chapters was carefully chosen to lead you down the path of computer literacy. You can always refer to the Table of Contents or the Index when you want to refresh your memory of a particular topic.

All technical terms are defined clearly in normal English. These terms are not just defined once; they are redefined again and again throughout the book. I realize that it’s not always easy to remember new terminology, and I don’t want you to have to constantly jump to another part of the book just to understand the page you’re currently reading. You can find repeated definitions in the margin. The margin on each page is especially wide and large. The purpose for this is to enable you to take notes and keep your notes close to the information it is relevant to.

Should you come across an unknown term in a newspaper or even somewhere in this book, you can try checking the glossary in the back. Again, I tried to minimize the amount of page flipping by re-defining terms in the margins, so the glossary is there only as an additional convenience.

Don’t forget to make use of empty space in the margins to take notes. Some people are reluctant to do so because they think it is messy. Nevertheless, I highly recommend that you try taking notes in the margins of this book. It is so nice not to have to refer to a separate notepad which might get lost or flip to the back of the book where there are blank pages.

Generally speaking, self-help guides are not the most entertaining reading material. Hopefully, this book will give you a more exciting experience. Learning to control a computer is a powerfully fun feeling. You’ll start to get all kinds of creative ideas and by all means go with them. For example, if you feel like you can make your own movie, then you probably can. There are chapters in this book which talk about how this is done. You need to be willing to try and perhaps make mistakes. If there’s one thing I’d like you to know, it is that you can’t hurt your Mac by experimenting. There is nothing you can do which is so bad that it can’t be fixed.

The current chapter is always displayed at the bottom of the margin, as is the page number. Sometimes special tips are listed in the margins. Take the time to read them.

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WHAT IS A COMPUTER?

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WHAT IS A COMPUTER?

Nowadays, nearly everyone has heard the word *computer* but what is this contraption really? The first computers were large machines that literally required a whole room to store them. They had vacuum tubes and special air conditioning units to stop the machine from overheating. Basically, the only function these machines could provide was addition, subtraction, and multiplication. That's right! They were glorified adding machines useful to the government and some large businesses. This is what a computer was like only thirty to forty years ago.

The word *compute* means to find an answer to a question using mathematics, hence the word "computer" makes us think of a fancy adding machine. This isn't the whole story. It is helpful to look at how other cultures name the computer, especially those who became more acquainted with it after the machine had a chance to mature. In Chinese, the word for computer, when translated literally, is "electric brain." Now that is something, isn't it? To tell you the truth, this is actually a more appropriate name.

Today's computer is a fantastic communications tool; this is the best way to think of it. Computers present us with limitless ways of organizing and presenting our ideas. Sure the adding machine functionality is still there, but now we can write books, make movies, create art, make slides, the list goes on and on. We can also use our computers to speak with people from around the world, face to face if we have a camera attached. Perhaps someday, if the human race visits an alien galaxy, we'll introduce computers to a race of people similar to ourselves. Maybe this race will give the computer a new name which when translated from their language literally into English would be "Communicator."

Many people would say that the computer's primary contribution is as a productivity tool. This is an incorrect statement. The computer's primary contribution lies in its ability to help you communicate and be creative. When you are creative, you can often find smart solutions to problems large and small, so as a side result you are more productive. The computer's main gift to us is that we can now do more than we ever thought possible. We can be more precise in our measurements, more accurate in our manufacturing, more clear in our presentations, and more stimulating with our movies.

When you purchase a computer, you need to view it as an investment in your own education. Computers cost a fair amount of money but their monetary worth drops quickly. A new computer begins to feel old after two years. That same new computer becomes practically outdated after four to five years. So a $2,000 computer today will probably be worth around $300 five years from now. As a computer user, you should expect to reserve a
Software is a lot like a recipe. If you want to teach your computer to do something new, you need to give it a new recipe.

The terms "Software Engineer" and "Computer Programmer" are interchangeable.

Software

Picture in your mind a chef in a famous restaurant. She or he is able to make a lot of wonderful dishes and if needed can quickly learn to make something new. The chef has a collection of recipes which are nothing more than instructions on how to do something. If you’d like to introduce the chef to a new type of dish, all you need to do is supply her or him with a new recipe.

Software is a lot like a recipe, and a computer is very similar to the chef. If you want to teach your computer to do something new, you need to give it a new recipe. Software is soft because it is easily changed and even replaced. It is a list of steps written in a language which only a computer can understand. The computer follows the steps outlined in the software to, for example, print a document.

As you use your computer, you will start to develop a collection of software much in the same way that a chef will maintain a collection of recipes. When you purchase your computer, it already comes with some software but you will invariably purchase more which will enable you to be more creative.

Software is created by people called “Software Engineers” who have studied how to logically instruct a computer to operate. Typically, these people have a mathematical background and often go to college for at least four years to learn how to program a computer. The terms "Software Engineer" and “Computer Programmer” are interchangeable.

Some software is free, created by people who want to give something away to the community. Most software is commercialized and can range in price from $10 to over $8,000. Typically, you purchase software when you have a particular need to be creative, and you think someone has made some software which can help you do that. For example, suppose you want to relandscape your backyard. You have a pretty good idea of how you want your yard to look; however, you’re not sure how you are going to convey your ideas to other people. Your trusty computer already has software which will let you sketch designs but it is not ideally suited for landscap-
ing. With a little bit of shopping at a software store, you find some software designed specifically for making prototype landscapes. You decide to purchase this software because it allows you to quickly and easily place trees, plant flowers, and look at your ideas from different vantage points. When you're done creating your new backyard on your computer, you can print out the results then share them with a contractor you've hired to actually do your relandscaping.

Most software costs between $50 to $250 dollars. While this is expensive, it is nothing like that $8,000 price tag mentioned earlier. I didn't mean to scare you with that astronomical price. Rest assured that very little software costs so much. People pay that much for software only if they have a very special professional need where this software will help them with their job. For example, the special effects we see in movies is done with expensive software which usually costs more than the computers it runs on.

The term "software title" refers to the name of a particular piece of software. For example, a good name for the software title listed in the earlier example might be “Landscaper Pro.”

**Hardware**

I know what you’re thinking, hearing the word *hardware* immediately brings to mind lumber yards, drills, and power tools. Well, when we are talking about technology, hardware means computer components which we can physically touch if we want to. For example, our computer is hardware, its keyboard is hardware, and the screen is also hardware.

People generally divide computer technology into two parts, software and hardware. If we go back to our cooking analogy, then Software Engineers would be the people who write recipes, and Hardware Engineers would be the people who design the cooking utensils, such as pots, pans, ovens, etc. It is the Hardware Engineers who design the shape of our computers, the insides of our computers, and all the gadgets we attach to our computers, such as printers.

The gadgets we connect to our computers are called *peripherals*. Examples of peripherals are keyboards, printers and cameras. The word “peripheral” basically means additional or supplementary. We add peripherals when we want to bring information either into our or out of our computer.

An interesting fact about the computer industry is that some companies focus on creating hardware while others focus on making software. Few companies create both the hardware and the software. Apple Computer is unique because they do it all, both hardware and software. This is a major reason why their products work so well together.
A computer virus is software which was intentionally created to cause harm.

A virus can never harm any of your computer’s components but it can make life miserable by destroying your work.

The Macintosh is practically immune to computer viruses.

## Computer virus

Computers are machines which means they never get tired and never get sick. It is possible that a computer might physically break down at some point but a computer virus? what could that be?

A computer virus is actually software. When software is good and beneficial, it is called a “software program” or “software application.” When software is created for the purpose of causing problems, it is called a virus. When your computer has a virus, it is said to be infected.

A virus will enter your computer when you are adding software. What usually happens is some smart, but evil, software engineer will take a normally good software program and rewrite part of it. When you install this software on your computer, the virus will be there waiting to cause trouble. A virus will never harm your computer hardware but it can delete documents you may have spent hours creating. A virus can also do strange things, like send messages to people in other countries or transmit random documents on your computer to other people. Some types of viruses do not wreak havoc but are there to be cute, like maybe flash a rainbow on your screen every thirty minutes.

Going back to our cooking analogy, lets consider a recipe. Suppose an evil chef were to take a recipe for meatloaf and secretly add a healthy dose of hot chili pepper to the list of ingredients. Somebody using the recipe might follow it exactly and create a dish which looks normal and good. It wouldn’t be until somebody tasted it that they realized there was a problem. The computer virus works in much the same way as the chili pepper.

It is possible to buy anti-virus software for your computer. Unfortunately, this software is often cumbersome and difficult to use. It works by keeping track of all known viruses and maintaining a list of all known solutions for their removal. The software periodically checks all software on your computer to see if it matches a known virus, if it does find a match, then it will take steps to remove the virus from your computer. It sounds nice in theory but, unfortunately, the anti-virus software often causes problems of its own. When you install new software, you are often asked to first turn the anti-virus software off which may appear a bit counterproductive, and well...it is counterproductive. Sometimes anti-virus software will look at new software and think it contains a virus when actually the software is good and clean. To make matters worse, there are new computer viruses every week, so you need to constantly update your anti-virus software so that it knows how to deal with these freshly developed viruses.

The best solution for dealing with viruses is to use a computer in which viruses are a rare occurrence. The Macintosh is an example of a computer which rarely, if ever, gets infected by computer viruses. For some reason,
evil people don’t seem to have fun making viruses for the Macintosh. The few viruses that are created are usually of the cute variety which are annoying but usually don’t cause any harm.

**Pointing gadgets**

When the Macintosh was introduced in 1984, it was the first widely available computer which allowed you to position a pointer on your computer screen using your own arm movements. In 1984, the only gadget you could use was the mouse but now there are many more choices available.

**Mouse**

A mouse is a special peripheral used to manipulate information on your computer’s screen. Almost every computer needs to use a mouse. It looks like a puck with one or more buttons on the top and one long cable which you attach to the computer or keyboard. In the case of the current Macintosh mouse, there is no button on top! The whole puck acts as one big button because when you press on it from the top it will make a “click” noise.

In the not too distant past, roughly fifteen years ago, most computers did not have a mouse. Manipulating your computer required lots of typing. You had to use typed commands to tell your computer what to do and you could only do one thing at a time. This meant you had to study a list of commands, so you could learn how to talk to your computer. It was a little bit like trying to learn one of those short foreign language booklets to help you get around as a tourist in another country. If you typed just one character wrong, it might do the wrong thing or you’d have to type it over again.

In 1984, Apple released the first computer with a mouse that the middle class could afford. As you move the mouse left, right, up, and down on your desk, you’ll see an arrow on the computer screen mimic those same movements. When you want to touch something on the screen or interact with it, you simply push the mouse button when the arrow is touching an object. Moving a file from one place to another was as simple as picking it up and putting it there. No longer did people have to learn how to type commands.

The simplest explanation of the mouse is that it’s a pointing device. Much like the laser pointers or retractable metal pointers people use when giving a slide show presentation.
The trackball needs only a small amount of space on your desk. Some people find it easier to use than a mouse.

Trackball

A trackball is another version of the mouse. The first mouse worked because it had a ball on the bottom which would roll as you moved the mouse. Moving the mouse would cause the ball to roll, the rolling ball would cause the pointer to move on the screen. For some people, the mouse just never seems to work well as a pointing device, so new devices, such as the trackball, were developed.

Imagine taking the mouse and turning it upside down, thus exposing the ball. Now envision using your index finger to move the ball, thus directly moving the pointer on the screen. This, in essence, is what a trackball is.

Strictly speaking, the trackball does not offer as much control of the pointer as a mouse but it does have some nice advantages. People who have a cluttered desk almost always prefer a trackball. The reason is that the device fits in one place, and you can put it on top of papers if you want. A mouse needs considerably more room and a flat surface because you need to slide it around. Some people also have a problem of not holding a mouse vertical when sliding it. The result is that when they slide it east, the pointer might travel north-east which is very frustrating. The trackball easily sits in one spot and is more intuitive for some people, less intuitive for others.

Trackpad (touchpad)

The trackpad is yet another version of the mouse which came after the trackball. The idea is to use a thin piece of material to run your index finger across. Moving your finger across this material will cause the pointer to move on the screen. The trackpad is quite small, it is usually about four inches square and less than a quarter of an inch thick.

The advantages gained with using a trackpad are essentially the same as those gained from using a trackball. If you have a cluttered desk or think the mouse is hard to use, you might be at home with either a trackball or trackpad. Again, strictly speaking, a mouse is more accurate but not everyone finds a mouse intuitive. One extra advantage the trackpad has is that it never has to be cleaned. The trackball needs to be cleaned every once in a while to remove the oily buildup left from your sweaty fingers.

How does a trackpad work? This is a good question because it had me stumped the first time I used one. It actually has nothing to do with the weight of your finger, nothing at all. You may not know it, but the human body has a fair amount of electricity flowing through it all the time. It is this electricity that the trackpad senses as you move your finger across it. This is good to know because if your body has a lot of static electricity built up, you may have a hard time controlling the trackpad. Either the pointer will jump around crazily as you try to move it or it simply won’t even move at
all. If static electricity is a constant problem for you, don't use a trackpad. Alternatively, you may want to invest in a humidifier for your computer room to reduce problems with static electricity.

**Tablet**

The best pointing device for a computer is called a tablet. Every literate person knows how to hold a pen and paper. A tablet consists of two parts: 1) a pen called the *stylus* and 2) a writing surface called the *tablet*. You hold the stylus just like you would a pen or pencil. As long as the stylus is close to the surface of the tablet, it will control the movement of the pointer on the computer screen. When you bring the stylus down all the way to press against the tablet, that is a signal that you want to touch or move something on the screen.

Artists swear by the tablet. When used with special painting software, it can tell how much force you press down on the stylus with. This allows the artist to simulate real tools. For example, when we use a pencil and press lightly, the graphite trail is very thin and faint but when we press hard, the trail is dark and thick. Special software can let you mimic pencils, charcoal, airbrushes, etc. On the end of almost every stylus is an eraser. Just turn the stylus upside down and use the eraser to remove painted strokes.

The Macintosh allows you to write with either cursive or printed script which will be automatically converted to typed text. This neat ability is discussed later in the book but you need a tablet to use it. We don't have to know how to type to use the computer. We can write with our stylus instead.

Truly, the stylus is the best way to interact with the computer. It is more precise and intuitive than the mouse, the trackball, and the trackpad. The starting price for a tablet is $100 but can go up to $400 for an extremely accurate tablet with a large surface area. There are even some tablets which are a combination of computer screen and writing surface which allow you to write on the screen, almost like what you would do with a normal pen and paper, but they cost thousands of dollars.

**Purpose of so many pointing gadgets**

There was a time when the only way to control what you see on the computer screen was with the keyboard. First, you'd have to learn a cryptic language, and then you'd have to type every command. The Mac's single biggest new idea to computing was the addition of a pointing device, the mouse. Since then, people have tried to improve that idea and have created many different types of gadgets.
In this chapter, we discussed the four most common pointing gadgets: the mouse, trackball, trackpad and tablet. Not everyone likes the mouse, so it’s good to know there are other options. Also, part of being computer literate means being able to manage whatever strange computer comes your way, at least to a certain degree. It is very possible that many people you’ll meet will use one of these four pointing gadgets, so it’s useful to at least know a little about them.

There is no universally perfect pointing gadget for every situation. Many people choose to use a combination of gadgets. After we learn how to turn your Mac on, we’ll come back to the topic of mice and how to use them in the chapter entitled “Understanding your Mac’s ‘Desktop’.”

Note: If you suffer from Parkinson’s disease or another form of palsy, you should use a trackball or trackpad. The reason for this is that clicking and moving happen on two different locations of the pointing gadget. You can move the trackball over an object and once it’s there, move your hand away. Now you can click on the separate clicker button. Contrast this with a mouse where when you try to click your arm may involuntarily move the pointer from its desired location. This will become more clear in the chapter titled “Understanding Your Mac’s ‘Desktop.’”
WHAT IS AN OPERATING SYSTEM?

In this chapter...

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• What about Mac OS version 1 through version 8?... 36
• When to use Mac OS 9 versus Classic... 37
WHAT IS AN OPERATING SYSTEM?

Let's take the example of a famous chef in New York city. She or he also learned their culinary art from a well known school in New York. This chef has a basic working knowledge of how to do their job which entails how to measure ingredients, how to use an oven, how to use a stove and how to read a recipe. Consider now a Chinese chef who lives in Taipei. This chef has knowledge which is similar though not the same as the New York chef. The Taipei chef can measure ingredients, use a wok and read a recipe.

Both chefs have a systematic way of operating which they learned from other master chefs. They both are similar in so much as they can both prepare food and read a recipe. Where they differ is in the types of food they can prepare and the types of recipes that they can understand. For example, the New York chef can bake a wide variety of cakes whereas the Taipei chef can hardly bake at all. The Taipei chef, on the other hand, can make fantastic dumplings and scrumptious sauces which would leave the New York chef speechless. Let us also not forget the language barriers. Giving a New York chef a recipe written in Chinese would be of no use.

The brain of the chef is like an operating system. The brain defines what the chef knows how to do and what recipes the chef can read. Likewise, the operating system defines what the computer knows how to do and what software titles the computer can utilize. It is important to choose a good operating system because it will dictate what your computer can do.

Technically, the operating system is software which is always active as long as your computer is turned on. It is the operating system which controls most of how your computer operates. You could say that it is the operating system which gives your computer its personality.

If we try to dissect the words independently, we find that operating means "a way of working" or "a way of functioning" and system means "a methodology." So really what we’re talking about is a method of functioning.

The phrase “operating system” is often simply called OS. Computer literate people need to learn all types of short two to four letter acronyms. It’s just part of the culture. Government agencies seem to like these types of acronyms too. It is common for someone to ask you “What OS are you running?” What they are really asking you is “What operating system do you have on your computer?”

Software is the instructions you give to your computer. If we use the cooking analogy from the previous chapter, then software titles are like recipes.

An operating system is like the brain of your computer. It controls how your computer functions.

OS is short for Operating System.
The operating system is the most important part of the computer.

**Upgrade** means to get a new version of a particular software title.

"Mac OS X" is pronounced "Mac OS ten" because X is the Roman numeral for 10.

Defaults are the common configuration for software set at the factory. When you install something new and don’t change any settings, then it is on the default settings. Many software titles allow you to adjust settings and also have an option to go back to the factory defaults.

Honesty, the OS is the most important part of your computer. Learning your OS is a bit like learning to live in your home. You learn and become accustomed to where information is stored and how to manipulate the screen. Using a different OS is a lot like living in a hotel room for one night. You know that there are cabinets, drawers and probably a refrigerator but you don’t immediately know where to find them, and when you do find them, you may not like the way they are because it’s not like home. People often get so attached to “their” OS that they often fight heated verbal battles over which OS is best. This is called “OS wars.”

One point of struggle all computer literate people have is when a new version of their favorite OS becomes available. A new version means extra features and sometimes new ways of doing things. We know, deep inside, that these changes are probably good but it’s always sad to leave your current OS for a new one. It’s like moving from your home to a bigger house. Eventually, the new house will become your home, and you know you’ll be happier because there’s more room and it’s in a better community. One thing to keep in mind, if upgrading to a new version of your current OS is like moving into a nicer house, then switching to a different OS would be just like moving to a foreign country.

### Difference between OS X and OS 9

The operating system which runs on the Macintosh is called Mac OS. The current version number is ten but it is represented with the Roman numeral X. The version just prior to Mac OS X is version nine or Mac OS 9. The difference between these two operating systems is colossal and has caused mixed reactions amongst the Macintosh community. Though the version number is only off by one, these two operating systems are actually completely different beasts. For people migrating from OS 9 to OS X, it feels like they’ve moved to a foreign country. If you have a travelling spirit and love new experiences, then you are happy about the switch. If you’re more of the humble sort, you may feel a bit disoriented and upset. In the past, all Macs sold came with both Mac OS 9 and Mac OS X installed but when you turned on your new Mac, the operating system which started up was OS X. If you wanted to just use OS 9, you’d have to make some minor modifications. The common way to say this is that “the default setting was OS X.” Since mid 2003, all new Macs will only start up in OS X, you no longer have the option of choosing OS 9 to start up your computer. This was most likely done not to force people to use the new operating system, but because Apple didn’t want to spend resources for Software Engineers to modify OS 9 to run on new Macintoshes. Personally, I feel that would have been time and money well spent because a large number of people still feel happy with OS 9 but want a faster computer.

The long story surrounding Mac OS X is an interesting one and explains why it is so different. First, we need to go back into history to the year 1976,
when Steve Jobs and his partner Steve Wozniak released the first computer made by Apple Computer named the Apple I. Steve Jobs has always been a man with a great deal of vision and enthusiasm when it comes to computers. At the time the Apple I was created, most experts believed there was no market for a computer to be used by an individual in their home or office. Actually, there was a big market for this type of machine, even bigger than Steve Jobs had anticipated, and they sold lots of computers.

The Apple I and Apple II computers were some of the first personal computers, or PC for short. For the most part, you could consider them fancy typewriters. Even their printers used a typewriter head to pound out letters onto a printed page. The key advantage was you could type out your document on screen and easily make corrections. When you were done, you could save the document and print as many copies as you like. These computers also had fairly sophisticated screens so a number of accounting related software titles were created, as were games and educational titles.

Steve Jobs liked the personal computers they had built during the 1970's and early 1980's but he felt they could do better. He visited a research department at Xerox where they were building an interesting computer. For some unknown reason, the management at Xerox just didn't understand what their own researchers were doing. They had created a few $50,000 computers which had a dead "mouse" connected to them and something called "windows" displayed on the screen. Steve Jobs decided to create a new team of employees to develop a totally different type of computer, something that was user friendly and powerful.

In 1984, Apple released the first Macintosh personal computer for about $3,000. It was so radical and so revolutionary that people no longer called it a PC. It was either referred to as simply the Mac or as a workstation. For the first time, instead of presenting us with a text interface, we could see pictures on the screen. Instead of typing commands, we could drag a pointer around with a mouse. Files that we create would look like documents on the screen, and we could even move them into an image of a trash can when we wanted to delete them. Those were fun times; I still remember them clearly. I got my first Macintosh in 1985. At the time, all the competitors to Apple were so scared but they didn't admit it. I remember the experts and competitors comparing the Macintosh to a toy because it showed pictures on the screen and came with software which artists could use to paint and be creative. Other experts tried to say that the mouse was inefficient, and claimed it was much faster to use only the keyboard. It is funny to think that today all computers have a mouse, and all computers display windowed documents on the screen. To a casual observer, all computers today look like the Macintosh did back in 1984.

Unfortunately, though the Macintosh was a great product, Steve Jobs made some managerial mistakes as CEO. He divided Apple Computer into two teams, the new cool secret Mac development team and the old worn out

PC stands for personal computer. This is a computer intended for use by one person in a home or office.

A mouse is a pointing device to move a pointer on the computer screen.

Windows on a computer are synonymous with documents on your desk. You can open multiple windows on your computer and stack them on top of each other, even move them around with your mouse. This is just like piling papers on your desk and moving them around with your hands.

A user is the person working at the computer. User friendly means that software is intuitive and easy to use.

Workstation is another name for personal computer. Usually a workstation is viewed as being more expensive and more powerful.
If you think I've lost the point of comparing Mac OS X to Mac OS 9, well I haven’t, just hang on a little bit longer.

Apple I-II development team. When the Macintosh was released, Apple still continued to sell many Apple II computers because they were slightly cheaper and had more software available. But internally, within Apple, there was some bitter resentment on the part of employees connected with the Apple II development versus those other employees developing the Macintosh. This problem started to tear the company apart and Steve Jobs seemed to encourage it. Eventually, Steve Jobs was basically forced to resign in 1985.

Mr. Jobs still had a lot of vision and ample energy plus a hefty amount of cash from his success at Apple Computer. After leaving Apple, he decided to found and become the the CEO of two very interesting companies. One is PIXAR, which is a computer animation company and a little bit like Walt Disney. They create movies using computer generated images. Perhaps the most famous movie they created is “Toy Story.” Next, Steve decides to create another computer company and named it NeXT. This is a very cute name for a very serious company. Perhaps it was a mistake to pick the name “NeXT.” If you were not extremely into the computer industry, hearing someone say “I just bought my NeXT computer” might sound the same as “I just bought my next computer.” In my experience, trying to describe the NeXT always caused a bit of confusion. For example, if I’d ask someone “Have you tried the NeXT OS?” They might reply “Do you mean OS X?”

In late 1986, more like early 1987, NeXT released their first computer called the Cube. Remember, Steve left Apple in 1985, so this was a quick turn of events. This was an opportunity to start clean and create something fantastic. Some Apple engineers were mean and created their own spoof of a logo called NeVR, as in this NeXT computer will NeVeR become a reality. The truth was that NeXT created a high tech robotic factory and put together some fantastic hardware and software. The company was somewhat successful but most people have never heard of it. This is because the computers costed well over $10,000 each and were too far advanced for most businesses to understand why they were worth so much. I remember the Cube, it was 12” x 12” x 12”, made out of black magnesium and was designed to be connected to the Internet. The Internet is the name given to the huge collection of computers connected to each other on a worldwide network. In 1986, few people had even heard of the Internet much less knew anything about how to use it. The NeXT Cube came with no way for software companies to sell you software on any type of economical hardware. When people asked how they would sell software for this computer, Steve Jobs said something to the effect of “Just use the Internet, ask people to purchase online and they’ll get their software instantly. You don’t even have to stock a product to ship anymore.” What Steve meant was that computers could now connect to each other and transfer software over electric wires around the world. People would use their credit cards to make purchases and computer A would send software to computer B to complete the deal.

The NeXT was sold mostly to US government agencies, such as the CIA and Fannie Mae as well as to several universities. Not only was the OS sta-
ble and flexible, but NeXT also provided fantastic tools for software engineers which enabled scientists and other talented people to create software better and more quickly than they could on any other computer.

In late 1996, basically early 1997, Apple made the decision to acquire NeXT for $400 million dollars. Steve Jobs soon became an interim CEO or “iCEO” for short and is now the real CEO. Apple decided to do this because their current OS, though good, was lacking some important functionality. Other companies had been mimicking parts of the NeXT experience for years, and none of them doing a good job of it. Apple decided to go ahead and purchase this unique computer company and use them to create the next Macintosh (please pardon the pun!). So from 1997 to 2001, Apple worked to release a new operating system. In 2001, Mac OS X was released - it is basically a more polished NeXT operating system with some extra care taken to ensure previous Macintosh software could run on the new OS. The name for NeXT's operating system was NeXTSTEP. NeXTSTEP got to version 4 before the company was acquired by Apple. Honestly, Mac OS X would be more correctly named NeXTSTEP 5.

To understand the single biggest advantage OS X has over OS 9, we need to understand what it means for a software title to crash. Recall that software is a set of instructions that the computer follows in order to perform a task. If for some reason there is a mistake in these instructions, then possibly the computer will get confused and cause a crash. Take our cooking analogy; suppose a chef is preparing a complicated recipe but is recalling it from memory and perhaps she or he makes a mistake somewhere along the way. Once he tastes his creation he gets a mild shock (and perhaps diarrhea), this is essentially what happens to a computer when it experiences a crash.

In Mac OS 9, when one software title crashes, it usually causes the whole operating system to crash too. The result is a computer which is frozen and unresponsive. Your only option in this case is to turn the power off and then turn it back on. Anything you had been working on at that time will be lost. For example, suppose you were drawing a picture in software title A and decided to start typing a document in software title B. For some strange reason, while you are typing software title B decides to crash. It's not your fault; sometimes it just happens. Your mouse becomes unresponsive and you have no choice but to turn the power off and then back on again. Both your picture from software title A and your document from software title B will be lost plus you have to wait a few minutes for your computer to turn on again.

In Mac OS X, when one software title crashes, the rest of the computer remains unharmed. Take the same example above. Suppose you are creating a picture in software title A but then decide to start typing a document in software title B. All the sudden, software title B decides to crash. You will have lost any work you had been doing in software title B; however, your picture is still fine and unharmed. Also the operating system is still fine.
you don’t need to turn the computer off and then back on. All you need to do now is open software title B again. If you realize a certain series of steps always create a crash, then you’ll need to avoid them and think of another way to do what you want.

Unfortunately, crashes happen sometimes. If a software engineer is good, then the software she or he creates is very clear and rarely, if ever, causes a crash. In Mac OS X, at least the crash is limited to the bad software title, and everything else remains safe. This saves you a lot of time and frustration. In general, you need to learn to save changes you make to your documents as you are working on them. That way, if you do experience a crash, then you only lose the most recent changes and not the whole document. I tend to save roughly every fifteen minutes, so at most I only lose fifteen minutes of work should I experience a crash.

What about Mac OS version 1 through version 8?

I have never seen version 1 and 2 of the Mac OS. The Macintosh came out in 1984, and I got a hold of my first Mac in 1985, just one year later. At that time, the version was already 3. Versions 3 through 7 were called “System.” For example, System 7. When version 8 came around, instead of calling it System 8, they called it Mac OS 8. The name change doesn’t mean much. All the operating systems versions 3 through 9 are very similar.

Throughout Apple’s history, they have enjoyed being the only company to sell the Macintosh. There was a brief period of time; however, when Mac OS 8 was introduced that Apple decided to let a few select companies produce Mac clones. These clones were basically the same as the computers Apple sold but were made with cheaper components and were a bit uglier in appearance. Apple made money by selling these other companies the right to produce Macintoshes. In other words, the clone makers had to pay royalties. The end user would purchase a clone if their bottom line was the purchase price of the computer. Because the components in the clones were lesser quality, the buyer could save a few hundred dollars. Apple decided that instead of the clones having an operating system called “System 8,” it would be better to call it “Mac OS 8,” so that the buyer would easily know they are using a Macintosh. When Apple acquired NeXT and Steve Jobs became CEO, he quickly removed alliances with the clone makers and once again made Apple the only Macintosh supplier.

If you are curious about experiencing what the previous Mac OS versions are like, you don’t have to look much further than Mac OS 9 which is already part of any new Macintosh. The differences between version 9 and prior versions is quite minor. It’s just that OS 9 feels the most polished. You could say that Mac OS 9 is the perfect classical Macintosh operating system.
If you're curious about seeing the very first OS version, you may have to look for a computer named the Lisa. A year or so before the Macintosh was introduced, Apple actually sold a computer called the Lisa for $10,000. It was very much like the first Macintosh but didn't sell well because the price tag was too high. Steve Jobs has a daughter named Lisa. He apparently wanted to name his new computer after her. Technically, the Lisa was the first personal computer to have a mouse and the Macintosh was second. But since both were made by Apple, and the Lisa didn't sell well, people mistakenly think the Mac was first. Actually, the two computers were similar, and the Lisa could use the newer Mac operating systems. People who purchased the Lisa were not left in the cold.

**When to use Mac OS 9 versus Classic**

There is a lot of great software created for the Macintosh. Because OS X is so drastically different than the previous versions of Mac OS, it is impossible for most software to be used directly on OS X. What Apple cleverly did was allowed for Mac OS 9 to operate behind the scenes in OS X which will allow you to use practically any software created for the Mac. When OS 9 is operating secretly in the background of OS X, it is given the name Classic. This gives us the notion that it is not the same as software designed for OS X (really the NeXT OS) but that it is software designed for the classic quintessential Mac.

Classic works really well. When you want to use software written for older operating systems, OS X will automatically spend about half a minute starting Classic, and then it will let you use your software title just as if it was being used in Mac OS 9. There are no major problems with it. The integration is seamless. If Classic is already working behind the scenes, then your software title will open immediately with no thirty second wait.

There are a few games which don't work in Classic, and there are a few software titles which communicate directly to parts of Macintosh hardware which won't work in Classic. These examples are few. For the most part, using Classic is just as good as using Mac OS 9 directly.

I have found that the Video CD, or VCD for short, does not work in OS X or Classic either. A VCD is much the same as a DVD and is used to view movies. VCD movies are not readily available in America but are widely used in Asia. Because half of my family lives in Asia, I end up watching quite a few VCD movies. When I do this, I need to switch to Mac OS 9 for a moment. After the movie is over, I switch back to Mac OS X.

Today there are already many software titles which work directly in OS X. In a few more years, it will be hard to find software titles for the classical Macintosh.
THE MACINTOSH FOR YOU

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The Macintosh for You

To be fair, let's first consider what options there are when making a computer purchase. A few years ago, there were many computer models and types to choose from. Unfortunately, many interesting computers and computer operating systems have disappeared because the companies who designed them have gone bankrupt. When purchasing a new computer today, there are only two types of hardware to choose from and only three operating systems.

Why the Mac is King

Or why the Mac is Queen as the case may be. This is a book about the Macintosh, often affectionately known simply as the Mac. There are no books planned in the Old Fart’s series on how to use other computers because I’m not going to waste our time. The fact is the Mac is top dog, and in this chapter, we discuss why this is.

The most common type of computer is something called the PC. At one time, this meant a computer which you used in your home and stood for personal computer. Today the meaning of PC has changed to simply mean a computer designed to work just like an IBM PC and is short for 100% compatible IBM PC clone. IBM is a famous computer company. Their name stands for International Business Machines. A computer clone is simply a computer made by another company to be compatible with the first company. Today, the IBM PC clone manufacturers produce many more computers than IBM does, and since nearly all the other types of computers have disappeared, it’s simply enough to call this type of computer a PC. For the most part, all PCs are ugly boxy looking things made of poor quality materials. Here is a short list of computer companies who make PCs, you may have heard of some of them: Dell, Compaq, HP, NEC, Sony, Gateway, Acer, Lemel, Leo, Asus, and, of course, the original company IBM. There is also an uncountable number of small PC companies who make and sell computers. There are even companies who will sell you PC parts so you can make your own PC from scratch.

The most common type of computer operating system is called Windows. A company named Microsoft sells Windows. They are very successful because the Windows operating system runs on nearly all PCs. Windows is a little bit like the Macintosh in that it is graphical, and lets you use a mouse to position windows on the screen, hence the inventive name “Microsoft Windows.” Sometimes people call Windows just “Win” for short. There are many different versions of Windows which have come out over the years. Here is a short list: Win95, Win98, WinME, WinNT, Win2000, WinXP and

Today the word PC denotes a type of computer first designed by IBM but is now made by many companies. When people hear the word “computer,” most people think of a PC. This is unfortunate because PCs are a bear to use.

Operating System - defines the personality of a computer and how it works. Called OS for short.

Windows - denotes an operating system from Microsoft which runs on a PC. The name implies that it can display multiple documents on the computer screen each in its own window. The Mac was the first computer to do this.
The Mac is not anything like a PC. The fact that today they both use a mouse should not fool you. Some people say the PC is to the Mac as a Chevy is to a Cadillac. This is wrong! It should really be more like the comparison of a car to a jet. The Macintosh can do a lot more than a PC can.

**DVD** - stands for Digital Video Disk. It is a new format for watching movies. It is an improvement over the VHS video cassette.

**WWW** - stands for World Wide Web. Think of it as a super newspaper which you can never finish reading with photos and movies.

**Server** - a computer not used in the home but operates twenty four hours a day, seven days a week. These computers are what really make the Internet work because they assist your home computer in communicating with other computers. They serve you.

**Internet** - the name given to the global collection of computers which communicate with each other.

**Newsgroups** - an Internet bulletin board system.

WinCE. Notice how the last one looks an awful lot like “wince,” as in to be in pain. This particular OS is a crippled version of the other six as it is made to work in a computer that can fit in your pocket which works like a calendar and address book. To be honest, there are not large differences between Win95, which is one of the earliest, and WinXP, which is currently the newest operating system. Most software titles written for Windows will run on any OS version Win95 through WinXP. There are only minor differences in the stability and feature enhancements of the different versions.

The second most common type of computer is the Macintosh. Also, the second most common type of computer operating system is the Macintosh operating system or Mac OS. This is because the two go hand in hand. The only computer which can run the Mac OS is the Macintosh. Apple Computer is the only company to manufacture the Macintosh, and they are unique in the computer industry because they design the computer, the operating system and also many of the software titles which run on the Macintosh. Apple takes pride in creating the world’s most beautiful computers. After all, if you’re going to spend your hard earned money on something, shouldn’t it at least look nice? Macintoshs are often featured in movies because their designs are so innovative. Apple also takes advantage of their control of both the software and hardware to not only create the most stable and easy to use computer, but also the most functional. Today, only the Macintosh is uniquely suited to creating your own hi-tech home movies on DVD video.

The third type of operating system in use today is called Linux. There are many different types of Linux but the most common ones run on PC computers and the most common variant of that is called “Red Hat Linux.” Linux is the least popular OS for a couple of reasons. One is that it is free. People can freely develop and install Linux but there is not a lot of marketing resources put into promoting it. The second reason is that it is not so easy to use. It is a very good and stable operating system with a lot of free software available; however, you will be hard pressed to find software in a store. The software is free, after all, and usually requires a somewhat complex installation process. Linux is based on a more general type of operating system called UNIX. It is UNIX which runs most of the Email servers and WWW servers on the Internet. UNIX was also what the Internet was developed on back when it was a university project. For many years, UNIX would only run on $20,000 computers but then professor Andrew S. Tanenbaum wrote a book and a simple UNIX-like operating system called MINIX which stood for “minimal unix.” Later, a young man in Europe named Linus Torvalds started modifying MINIX to make it a real UNIX. He asked for help from people around the world using the Newsgroups also known as USENET. Before long, this ad hoc group of software engineers created something called “Linux’ MINIX” or simply just Linux for short. Linux has retained the “anyone can make a contribution” spirit and has grown into a well respected (don’t forget free) operating system every bit as good as the expensive commercial versions of UNIX, perhaps even better.
To recap, there are three types of operating systems: Windows, Mac OS and Linux. There are only two types of computers, PC and Mac. It might seem that the PC is preferable. Even though the Mac is more beautiful, the PC is more common, and it can run either Windows or Linux. It appears the Mac can only run Mac OS. This makes the Mac sound limiting but this is a typical mistake many people make.

Let's assume for the sake of argument that you choose to purchase a PC. Let's look at what your experience will be like. First, you need to choose a company to buy a PC from. There are so many, such as Compaq, Dell and HP, just to name a few. You'll need to spend lots of time researching the different configurations and try to decide if any of them has used any really inferior components just to cut prices to undersell the competition. There is also the option to buy all the components on your own and put them together yourself. For some people, finding all the pieces would be torture but other people really enjoy researching and building their own computers. Unfortunately, no matter what PC you end up purchasing, you'll find that Microsoft Windows often gets confused and doesn't operate well. In addition, it's hard to attach other gadgets to your computer and have them work correctly. That's because Microsoft makes Windows and a zillion different other companies produce the PC and PC components. It is obviously a very difficult task to make them all work together properly. There is a lot of software available for the PC but most of it is junk. Most software titles barely work properly. To make matters worse, there are literally tens of thousands of computer viruses out there ready to make your Windows experience hellish, over 60,000 at current count to be exact. If you decide to install Linux on your PC, you may find out that a few of your components are incompatible; you may also have to remove Windows first before you install Linux. Does the PC still sound like a great choice? To be fair, there are three types of people who should buy a PC: 1) the person who likes to build their own computer from components 2) the person who wants what most people have, so that they can copy (read "steal") software from their friends 3) the person who uses a PC at work and feels secure about having the exact same setup at home and at work.

Another low point of using a PC, which I seldom see noted, is that the experience feels rather shallow and empty. You feel like you are using a machine which is unloved. It feels that you've purchased something with sloppy workmanship and design both in the computer hardware and in the Windows operating system. The new Windows XP is glitzy in a gross sort of way. You feel like you've been suckered into some media hype. There is no extra functionality to speak of compared to previous Windows OS versions and the colors and layout just don't look pleasing to most people.

If you go back into history, you'll see a trend and you'll understand why the PC running Windows is the most common computer. After Apple showed the world that there was a need for a home computer back in 1975, many major companies took note. One of them was IBM, they wanted to create

The Macintosh can actually utilize several operating systems, including a few versions of Linux. But really there is little reason to ever want to do so. Mac OS X is currently the ideal operating system.

With a software package named "Virtual PC," you can emulate an IBM PC clone on your Mac. This will allow you to run Microsoft Windows and Red Hat Linux, though it does this a bit slowly. With a Mac, there is hardly any software which you can not utilize if you really want to do so.

As a Macintosh enthusiast since 1985, I have yet to find a software title which I wanted to use but was not available for the Mac. The converse is not true. I would be a sad man if I could no longer use the many software titles which are only available for the Mac. In recent years, many of the Mac-only software titles have been re-released for Microsoft Windows; however, few of them work as smoothly as they do on the Macintosh.
To sum up the PC, it is a computer which was designed to be sold and make money. Its primary goals have nothing to do with productivity and innovation.

The IBM personal computer or IBM PC. They already sold expensive computers for businesses but the idea of creating something for the home was so new that they didn’t even have much of an idea for an operating system. Microsoft went to IBM and said they had an operating system for the home, and they would sell it to them on one condition — that Microsoft retained the right to sell the operating system to other companies. At the time, IBM didn’t see a problem with this because they thought that the real money was in the computer sales, and they didn’t think anybody would make a PC as good as they could. That may have sounded dumb but the real shocker here is that Microsoft didn’t even have an operating system. IBM paid them for something they didn’t even see. One of Microsoft’s handful of employees quickly scrambled to find an old college classmate who had created an operating system called DOS which stood for Disk Operating System. He told his classmate that Microsoft would like to buy it just to see if they could do something with it. He didn’t say they already got a multi-million dollar contract with IBM. He purchased DOS from his classmate for $50,000, made a few changes to call it MS-DOS (Microsoft DOS) and then licensed it to IBM. Soon the market became flooded with 100% compatible IBM PC clones made by all kinds of companies around the world who instantly could have a computer by using Microsoft MS-DOS. Government agencies and large corporations began to think this was an advantage because if one company started charging too much for computers, they could switch to another PC clone maker. When the Macintosh was created, Microsoft was quick to try to say “It is a toy,” “It is only for artists,” and my favorite “The mouse is counterproductive.” Then several years later, they would come out with the first version of Windows where the key feature was that it could use a mouse and show windowed documents on the screen. The first version of Windows to get popular was Windows 3.1; all prior versions were just too horrible that people preferred to use MS-DOS.

Let’s take a look at the real computer. The computer which drives the technology industry forward, the Macintosh. Apple has always been the most innovative computer company. They created the first computer that people could afford to own. In 1975, they released the Apple I for less than $2,000. This was at a time when everybody else thought computers were only useful for big businesses who needed to use computers simply as glorified adding machines. The Apple I could be used to type papers, to do accounting, to play games, and to teach with some educational software titles. The Apple I made people see that computers can do much more than merely add numbers.

In 1984, Apple released the first computer which was actually intuitive and fun to use. It was the Macintosh. Apple also gave us the first laser printers that we could connect to our computers and software to make professional looking documents and manuscripts. In 2001, Apple brought us a brand new operating system called OS X (pronounced “ten”) and gave us the ability to create movies and use the famous UNIX. That’s right, though it is not advertised that much, Mac OS X is actually a version of UNIX, so it shares...
the same advantages as Linux. In fact, almost all the free software which runs on Linux will run just as well in Mac OS X. The greatest part of this is that Mac OS X is easy to use. You don’t even need to use the UNIX features unless you want to.

The Macintosh provides the best user experience. There have only been a few dozen computer viruses in the history of the Macintosh. Most of them were of the cute variety that would do things like put X-mas lights on your screen but usually not cause any real damage. There is a lot of software available; most of which is very good quality. With Mac OS X, we can now run all of the free UNIX software. Any peripheral you want to use may cost slightly more than something for the PC but it is almost always better quality and will just plug in without hassles.

I guess the main point I’m trying to make is that Macs are fun. You feel great using them. You even feel great looking at them when they are turned off. Many people throw parties when they buy a new Mac; it’s almost like buying a new sculpture and wanting to share it with your friends. The things you can do with your Mac today will be similar to what “common” people can do with their computers in three to four years. History has proved this to always be the case and I suspect it will be this way for years to come. “Think different,” adopt a Macintosh!

The remaining sections of this chapter serves as a buyer’s guide. Your purchase options are fully discussed and recommendations are given. This chapter was last updated on August 16, 2003. All prices and computer descriptions reflect what was available at that time. Let’s begin!

Mac on your desk

When a computer is meant to stay on your desk and not be moved, it is called a desktop computer. Some computers are designed to be portable which is why we need to make a distinction. Generally speaking, you’ll find desktops to be less expensive but more powerful than their portable cousins. Also desktops are more comfortable to use and better for your posture than a portable computer.

The recommended desktop computer is called the new iMac with a SuperDrive. It looks a little bit like a desk lamp because it has an adjustable arm, so you can position the viewing angle of the screen. The base of the iMac is not merely a platform to hold the screen; it is the actual computer itself. This computer is very easy to set up. Just plug in the mouse, keyboard and included speakers then you’re ready to go. The iMac is fairly light. If you want, you can conveniently lift it and carry it by grabbing the stainless steel arm.

Peripheral - any gadget which you want to hook into your computer. Examples are cameras and printers.

“Think Different” is one of Apple’s advertising campaigns. They say “Here’s to the crazy ones, the ones crazy enough to think they can change the world are precisely the ones who do.” They give examples of Einstein, Kennedy and others.

Desktop - a computer which is placed on a desk and too big to be carried in a briefcase.

Drive - a device to read and write information.

SuperDrive - the name of the best type of Mac drive because it can use many different types of disks.
**DVD - Digital Video Disk.** This new standard has replaced VHS tapes.

The **SuperDrive** is a very special part of this computer. You can see it in the picture on the previous page. It looks like a black tongue with a circular disc lying on top. The tongue can “stick in or stick out.” Most people prefer to say “open or close.” You open the SuperDrive to put a different circular disc in the tray and then close it. A drive is a device which reads and writes information, or you could say it transfers information. The SuperDrive can read and write many different types of information; that’s why it’s called super. The most important feature of the iMac with SuperDrive is that it lets you make your own movies and put them on a DVD disk. You will need a video camera but everything else is included. Home movies have never been more entertaining.

The cost of this computer is $1,800. That’s a lot of money but you get a lot for your money. If you were to buy something similar to the SuperDrive from another company, it alone would cost $200. The price of a screen with similar quality would be $500.

In calculating the cost of your computer, you’ll also need to consider the cost of RAM. In the case of the iMac with SuperDrive, they also include 256 megabytes of RAM. I’d recommend increasing that number by 128 for a total of 384 megabytes of RAM; this should cost an additional $75 or less. Some companies will actually give you another 256 megabytes of RAM at no extra charge for a total of 512 megabytes. What is RAM? What is a megabyte? Well, for all practical purposes, we can think of a megabyte as simply a unit of measure, like inches or pounds. RAM literally stands for Random Access Memory; you should equate this to your brain. Whenever you want to recall something from your past or think about a problem, you are using all sorts of random areas of your brain. When a computer needs to do its calculating and thinking, it uses RAM. Inside your computer are little sticks about the size of chewing gum. They are called RAM chips. The more megabytes of RAM your computer has, the easier it will be able to go about its business. Complicated software needs more RAM than simpler software.

The display (or screen) used on most Macintosh models is called an LCD which stands for Liquid Crystal Display. Traditional computer displays are similar to your TV and are called a CRT which stands for Cathode Ray Tube. The LCD display is about twice as expensive but it has many great advantages. LCD displays are light and very thin, perhaps the thickness of ten sheets of paper. These displays are also easy on your eyes and alleviate eyestrain. Perhaps what is most important is that they use little energy and produce no radiation.

Comparing the screen size of a CRT to a LCD display is confusing if you don’t know the trick. Somewhere back in history, a sneaky display maker started marketing their display sizes not by the actual screen area you see from the front, but rather, by the total size of the plastic casing as seen from the back. They did this because it made their displays sound bigger than
their competitors. Soon, all the CRT display manufacturers started playing the same deceiving game. When the LCD display was introduced, everyone decided to go back to advertising the true size of what you can actually use. The following table shows the CRT size and the comparable LCD size.

<table>
<thead>
<tr>
<th>CRT</th>
<th>LCD</th>
<th>Pixels</th>
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<tr>
<td>15”</td>
<td>12”</td>
<td>800x600</td>
</tr>
<tr>
<td>17”</td>
<td>15”</td>
<td>1024x768</td>
</tr>
<tr>
<td>19”</td>
<td>17”</td>
<td>1280x1024</td>
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As you can see in the above table, a 15” LCD display is actually the size of a traditional 17” CRT display. The word “pixel” literally means a dot on your computer screen. Your screen is made up of many dots. The 15” LCD has 1024 dots in the horizontal direction and 768 dots in the vertical direction. The new iMac with SuperDrive comes with a 17” LCD. Having a big screen, such as this one, is nice. If your eyesight is not so good, you can enlarge everything much more with the bigger screen. If your eyes are great, then having the 17” display means you’ll have more room to think while you work at the computer. It would be like having a bigger desk to spread out your documents and papers on.

Let’s recap a little bit. The price of the new iMac with SuperDrive is $1,800. If you don’t think you’ll be making DVD movies, then you can save some money by passing on the SuperDrive. For $1,300, you can get a new iMac with a simple CD read/write drive, instead of the SuperDrive, and a smaller 15” LCD display. This means you’ll be able to create Compact Discs such as what you may use with your home stereo system. What you won’t be able to do with a CD read/write drive is make DVD disks. I must caution you — the best value for the money is the $1,800 iMac with SuperDrive.

Now we look at the two remaining Macintosh desktop computers: the PowerMac Tower and the eMac. All of these are good computers but they are not recommended. You should still read their descriptions then decide for yourself if they may be a better fit for you.

The PowerMac G5 Tower is the most powerful Macintosh your money can buy. The person who chooses the PowerMac G5 Tower is usually someone who needs to use some very complicated software as part of their profession. To be honest, all the Macintosh computers currently on the market are quite powerful machines and speed-wise are good enough for all but the most demanding individuals. There is another reason to purchase a PowerMac G5 Tower, to make use of the largest displays and also
The PowerMac G5 Tower is the most powerful Macintosh your money can buy.

Note: the original iMac used a 15 inch CRT display, not an LCD. The eMac is very similar to the early iMacs, only a bit larger and faster.

be able to upgrade the video capabilities over time. Most Macs will not let you upgrade video; however, I don’t see this as a major problem since you usually need to buy a new computer every four years on average. Better video is really only important in 3D games and 3D design tools anyway. To purchase the least expensive PowerMac G5 Tower with the largest screen (a 23" LCD screen) and a SuperDrive, you’ll be set back $4,000. The bulk of the cost is the large $2,000 display. If you choose the 17” LCD display, the total price will be $2,700 for the computer with display. While this is a great computer, it takes up too much room on your desk and the price is just too high which is why it’s not recommended.

The eMac is a Macintosh which was originally only sold to universities and other educational institutions. It is very similar in many ways to the iMac, but by switching the “i” to an “e,” Apple subtly lets you know they made some compromises in quality to bring the price down for educational users. Because customers who were not in education were interested in this computer, Apple decided to make the eMac available to everyone. This proves that while Apple is all about making the best computers possible, what most people really care about is a good computer for as little money as necessary. My major complaint with the eMac is that it uses a 17” CRT display. This is heavy and hard on the eyes, plus it gives off radiation. Additionally, the 17” CRT has the utility of a 15” LCD. In the photo to the left, you see the eMac on top of a stand. There is no separate computer; the computer is built into the 17” CRT display. The price is $800 but comes with too little RAM. If you want to increase the RAM to 384 megabytes and get the tilt and swivel stand that you see in the picture, you’ll need to spend a total of $958. To get the model with the SuperDrive, 256 Megabytes of RAM and the stand will cost $1,358.

Please note that when I say that the display on the eMac is “hard on the eyes,” I’m reflecting the fact that it uses a CRT display. The colors are bright and vibrant, but, after more than thirty minutes of continual use, you’ll begin to feel tired due to eyestrain. For many people, this is subconscious but for others it is a noticeable irritation. Imagine staring at your TV set from one or two feet away for thirty minutes. That is about the same experience you’ll have with a CRT display.

**Mac on your lap**

A portable computer is called a laptop because you can pull it out of a briefcase, then set it on top of your lap. Instead of the term laptop, sometimes people will use the word notebook or PowerBook; they all have roughly the same meaning.

Portability is a huge benefit. Whenever you need to wait in the doctor’s office or are otherwise stuck doing nothing for fifteen minutes or more, you
can always pull out your computer to do something productive with your time. If your computer has a problem, it is very easy to take it somewhere to let somebody help you look at it. When you want to share something with other people or just do a small presentation, you can use your computer to do it. If your laptop has a DVD drive, then you can view a movie on it no matter where you might be. You can even plug your laptop into a TV to view a movie if you are at a friend’s home who doesn’t have a DVD player. Laptop computers are a great way to attract the opposite sex! Just open one up at your local coffee shop and see what will happen.

Laptops have a few disadvantages. They are expensive because the components need to be made smaller than what you’ll find in a desktop computer. Perhaps the biggest disadvantage is that they are uncomfortable to use for extended periods of time. This is because the screen (or display) is attached directly to the keyboard. If a laptop is literally on your lap, you have to look down at the computer which puts stress on your neck. If you put the laptop computer on a desk with a couple of books underneath it, it is comfortable for your neck but now too high for you to type. The workaround is to purchase a nice laptop stand for your desk and to also purchase an additional keyboard and mouse. This way, you can have the display at a good height and your keyboard also at a good height when you are at home.

Some advertisements show people using their laptop computers out in an open field on a sunny day. This is a myth. It sure does look relaxing but direct sunlight will make your screen temporarily unreadable. The truth is laptops only work well indoors.

It is very nice to be able to change your work positions. Have you ever spent a few hours reading a book or a few magazines and newspapers? If you’re like me, your legs get numb and you get bored sitting in one place. Sometimes picking up your book and going to a different room just does the trick and makes you feel more open, relaxed, and ready to read again. It’s the same with the computer. If you have a laptop, you can easily get up and move to a different room.

Apple makes two types of laptop computers, the iBook and the PowerBook. Both computers are recommended. The iBook is considerably more affordable than the PowerBook but both machines are a good deal for the money.

Let’s start with the Titanium PowerBook. Some people consider this to be the best Macintosh, portable or otherwise. This mostly is due to its immense screen which is larger than the display most people have with their desktops. Strictly speaking, it is a 15.2” screen but it feels like a 17” inch screen because it has a pixel resolution of 1280x854. In other words, there are 1280 dots in the horizontal resolution and 854 dots in the vertical. The dots on the screen happen to be more dense than normal, hence the 15.2” screen can show nearly the same amount of information as a 17”

Laptop - a computer designed to fit in a briefcase and used on the go. Both “notebook” and “PowerBook” are synonyms for “laptop.”

You never know when the portable nature of a laptop will be useful. Recently, while my father in law had a one week hospital stay, I was able to bring movies for him to watch during my visits by toting a laptop.

Apple has two laptop lines. The PowerBook line is the cream of the crop. The iBook line is the more affordable portable computer. Both lines offer computers which are a great deal for the money.
DVD - stands for Digital Video Disk. It is a new format for watching movies. It is an improvement over the VHS video cassette.

The display also happens to be at an unusual ratio; it is unusually wide for its height, very similar to the ratio you see on the big screen at the movie theaters. This not only makes using the computer a joy but also gives this Mac a striking appearance.

The Titanium PowerBook is made out of an unusual material called, guess what? titanium! This is the same material which is used to make fighter jets because it is extremely light, extremely strong even when thin, and can be folded into many wonderful shapes. Titanium is simply "Ti" on the periodic table of any chemistry book, so some people call this computer the Ti Book. The properties of this element is what gives the Titanium PowerBook its sex appeal. Apple was able to make the thinnest laptop in history. With the screen closed, the computer is only 1" thick. The width of the display is only half the width of most people's pinky finger.

Recently, the Titanium PowerBook was replaced with an Aluminum version. Aluminum is not as strong as Titanium and it forced Apple to increase the thickness of the PowerBook slightly from 1" to 1.1" to give it increased durability. You see, Titanium is almost the perfect material for portable computers were it not for the fact that it blocks radio frequencies. The Titanium PowerBook can connect to the Internet wirelessly but its range was limited in comparison to other laptop computers. All PowerBooks have fantastic processing power and can handle many difficult tasks with finesse. You may think that something so slim would not have room for a disk drive but it does. It can be purchased with a SuperDrive which can make DVD movies. There is a slot in the front on the right hand side where you can slip in a disk partially, and the computer will pull it in the rest of the way. The video prowess is so capable that you can even attach the largest 23" LCD monitor to the back of the laptop and use both the 23" screen as well as the built-in 15.2" screen. The mouse cursor will magically jump between both screens as you move the mouse, and you can put different documents in each display. It is truly amazing. There is an adapter on the back of the computer to allow you to connect to a TV as well if you'd like to use that to display a movie or a presentation.

The price of the 15.2" Aluminum PowerBook with SuperDrive is $2,600. This is a lot of money but it is a great deal for what you get. A lot of thought went into the design of this computer; it's undeniably clear that it is dearly loved by its creators.

The top of the line PowerBook is actually a freakish beast; it sports a 17" display. This portable computer is only 1" thick but it is quite wide and
deep. A picture does not do it justice. You really need to see one up close in person to get an accurate feel for the sheer proportions of this computer. Because of its extreme size, you will need to choose your carrying case very carefully. Perhaps the only place to find such cases is from Tom Bihn, a bag maker from California. You can visit his web site at www.tombihn.com or phone him at 1-800-729-9607. Peculiar to the 15.2" aluminum and 17" PowerBook models is a built-in illuminated keyboard. When the lights dim, the keyboard’s lettering will begin to glow which makes finding keys quite simple in the dark. For most people, this is just a curiosity but it does help the musicians who perform live who are not touch typists. This is a feature they have been requesting and finally are getting.

The outer body is made out of high quality aluminum. The inner frame is made out of magnesium. The cost of the 17" monster laptop is $3000 with a SuperDrive.

The 12" PowerBook with SuperDrive is a computer to seriously consider. The price is just $1,800 which makes it cost exactly the same as the iMac with SuperDrive. In comparison to the iMac, you get a slightly slower computer, a much smaller screen and a slightly smaller capacity for storing files. On the upside, you get a computer which can still make DVD movies and can follow you wherever you go. It is made out of the same material as its 17" cousin; namely aluminum on the outside but magnesium for the inner frame. It is slightly thicker at 1.18” thick. The depth and width amounts to roughly the size as an 8.5” x 11” sheet of paper, the standard US Letter size.

The iBook is a nice portable computer with a more affordable price. It is extremely durable because it is made out of magnesium and has a rather thick clear plastic coating. It is a fast computer but not as fast as the PowerBooks. The reason for it being less expensive is mainly due to the size of the screen and its lack of a SuperDrive. The iBook actually has two versions, one with a 12” screen and the other with a 14” screen. They both display 1024 dots in the horizontal direction and 768 dots in the vertical. On the 12” screen, this miracle is accomplished by making the dots smaller, more condensed so to speak. This makes it difficult to decide which screen is right for you since they both show the same amount of information. You’ll need to see both screens for yourself and experiment with them.

The video capabilities of the iBook are pretty good. You can connect the computer to your TV to display video, and you can connect an external computer display but the video only mirrors your built-in display. It can not do the same trick as the PowerBooks where when you move your mouse, the mouse cursor will jump back and forth between your built-in laptop screen and the external screen. You won’t be able to use the really
Note: iBook video is very capable. It is puzzling to consider why only PowerBooks support dual monitor spanning (where the mouse jumps between the built-in display and an external display). Perhaps Apple intentionally cripples the iBook to make the PowerBook a bit more desirable. Some people have modified their iBooks to get the dual monitor support. Here is a Web page describing the process:
www.macparts.de/ibook

Pixel - a dot on your computer screen.

Processor - the place where your computer actually does its thinking, the place where it processes information. This is sometimes called the CPU or “Central Processing Unit.”

When buying a used computer, you should look for a model which originally shipped with a G3 processor and has 128 megabytes of RAM. These are the minimum requirements as stated by Apple to use OS X. Note: OS 10.3 requires a G3 and built-in USB.

large displays. You also won’t be able to hook into any of the Apple made LCD displays because they use a special connector. You can, however, hook into common displays like you’ll find on a PC or presentation projector.

The latest iBooks have no option for a SuperDrive, they all come with a drive that can read DVD disks and also read/write CD disks. The cost of an iBook with 12” screen is $1,100. To upgrade the RAM to 384 megabytes will be an additional $150 but some companies will give you the extra RAM for free. Honestly, you would probably be better off passing up the iBook in favor of the slightly more expensive 12” PowerBook with SuperDrive. You’ll get a faster computer and the ability to make DVD movies.

The graphic below gives about the best possible representation of how the different portable Macintosh computers compare in size and pixels:

12” - 1024x768
15” - 1280x854
17” - 1440x900

Second hand Mac

In general, it is a good idea to buy a new computer. You can be sure that you have a working system and any software titles you buy will likely work on your computer. That said, it doesn’t hurt to talk about buying a used Macintosh.

The most important thing to know when looking for used Macs is that Apple only supports Mac OS X on a computer which originally came with a G3 processor or better. The part of your computer which does most of the thinking is called the processor. It just so happens that Apple created a name for the processors they use based on generations. The G3 processor is a third generation processor which means it is relatively new. The newest processor is called the G5 which stands for fifth generation and is only available in the PowerMac G5 Tower. If you buy a used computer and want to have no problems using Mac OS X, make sure you have a G3 processor and 128 megabytes of RAM at the bare minimum. Of course, a G4 processor would be even better. The G4 is only faster than the G3 processor if software is written to take advantage of the additional capabilities of the G4.

Buying a refurbished computer is a pretty good deal. You know the computer has been used before but it has gone back to the factory to be checked out and given a new warranty. You can very often find computers that are
identical to new computers for $200 or sometimes $300 less. A store called "MacConnection" is a good place to look for these types of deals. Their phone number is 1-888-213-0260. Just call them and ask to hear about their selection of refurbished Macintoshes.

Another way to find a computer that you can be pretty confident will work well is if you buy from a company that specializes in repairing and reselling Macintoshes. An example is "Sun Remarketing." Their phone number is 1-800-821-3221. You'll find that you can probably put together a G3 Macintosh for around $300 to $400. This is not a great deal when you consider that a new eMac costs $800 but if you can save $400, then that's enough money for you to buy a printer and other items. If you have a tight budget, it may be a worthwhile compromise. You may also want to give the following three companies a call: PowerMax at 1-888-769-7629, Mac Of All Trades at 404-355-5144 and Small Dog Electronics at 1-802-496-7171.

Lastly, there is a trick to get many of the older Macintoshes without G3 processors to work with Mac OS X. If you can find one of these older Macintoshes, such as the PowerMac 7300, for a good deal, then you may consider this route. Only do this if you have somebody fairly knowledgeable about Macintoshes to help you because it is not completely straightforward. You'll need to contact the kind people at a company called OWC (Other World Computing). Their phone number is 1-800-275-4576. They produced a piece of software which will trick OS X into working on many older computers. They request $10 if you decide to use their software trick. You'll need to discuss with them about which older systems their trick will work with.

Where to buy your Mac

Buying a computer is a very personal decision. You'll need the freedom to be able to actually touch and use all the different Macintosh models in order to come to any sort of conclusion.

Apple realized that many resellers were not doing a good job of letting people experience for themselves what a Mac is like, so they started building their own stores in shopping malls. There are currently about fifty different official "Apple Store" locations throughout America. This means that practically anyone living in the USA can make a day trip to visit one of these stores. You don't have to buy; you can just look around and ask questions. They have a "genius bar" with a guy behind the counter who is supposed to be able to answer many questions and has a phone to call Apple headquarters if she or he needs some help. All the different Mac models are on display and you can hook up all kinds of neat gadgets to them to really test them out; you can hook up video cameras, music players, etc.
There are many interesting small stores which aren’t directly affiliated with Apple. These are stores where the owner usually has a strong interest in the Macintosh, so decided to create a business selling Macs. They may not have all the Macs on display like the Apple Store but then again they might, it really depends. One of the more famous of these stores is MacSensei in Pennsylvania where the owner even made a portable Mac clone back in 1986. You can contact MacSensei at 1-610-734-2222.

Once you’ve decided which Mac you’d like to buy, you can then start doing some comparison shopping at the different mail order resellers. You can order directly from Apple buy dialing 1-800-MY-APPLE. Here are some of the mail order resellers you can purchase from: MacConnection at 1-888-213-0260, MacWarehouse at 1-800-397-8508, MacZone at 1-800-454-3686, PowerMax at 1-888-769-7629 and Small Dog Electronics at 1-802-496-7171.

The next four pages list the various Apple Store locations with “genius bar” that are run by Apple:
Official Apple Store locations

Arizona
Chandler Fashion Center
3111 W. Chandler Blvd.
Chandler, AZ 85226
480-726-8082

Biltmore
2430 E. Camelback Rd.
Phoenix, AZ 85016
602-977-0285

California
1301 Burlingame Ave.
Burlingame, CA 94010
650-340-1167

South Coast Plaza
3333 Bear St
Costa Mesa, CA 92626
714-424-6331

5664 Bay Street
Emeryville, CA 94608
510-658-8700

Glendale Galleria
2148 Glendale Galleria
Glendale, CA 91210
818-502-8310

The Grove
189 The Grove Drive
Los Angeles, CA 90036
323-965-8400

Fashion Island
367 Newport Center Drive
Newport Beach, CA 92660
949-729-4433

Northridge
9301 Tampa Ave
Northridge, CA 91324
818-709-2253

Palo Alto
451 University Avenue
Palo Alto, CA 94301
650-617-9000

54 West Colorado Boulevard
Pasadena, CA 91105
626-577-2685

Arden Fair
1689 Arden Way STE 2134
Sacramento, CA 95815
916-643-0960

Fashion Valley
7007 Friars Road
San Diego, CA 92108
619-682-3477

Valley Fair
2855 Stevens Creek Blvd.
Santa Clara, CA 95050
408-551-2150

1248 Third Street Promenade
Santa Monica, CA 90401
310-576-1011

1129 S. Main Street
Walnut Creek, CA 94596
925-210-2020

Alabama
961 First Street
San Diego, CA 92101
619-682-4310

The Macintosh 55
for You
Connecticut
Westfarms
500 Westfarms Mall
Farmington, CT 06032
860-521-7997

Florida
6000 West Glades Rd, Ste. 1121
Boca Raton, FL 33431
561-338-0478

The Falls
8888 SW 136th Street
Miami, FL 33176
305-234-4565

Millenia
4200 Conroy Road
Orlando, FL 32839
407-352-5551

International Plaza
2223 N West Shore Blvd.
Tampa, FL 33607
813-354-3868

Wellington Green
10300 W. Forest Hill Blvd.
Wellington, FL 33414
561-795-5630

Georgia
Lenox Square
3393 Peachtree Road NE
Atlanta, GA 30326
404-926-3085

Hawaii
1450 Ala Moana Blvd. STE 2243
Honolulu, HI 96814
808-949-1075

Illinois
679 North Michigan Ave.
Chicago, IL 60611
312-981-4104

402 Oakbrook Center
Oak Brook, IL 60523
630-573-7008

Woodfield
K303 Woodfield Mall
Schaumburg, IL 60173
847-240-6280

Indiana
8702 Keystone Crossing Blvd.
STE 128
Indianapolis, IN 46240
317-574-8601

Maryland
Towson Town Center
825 Dulaney Valley Rd
Towson, MD 21204
410-823-1988

Massachusetts
CambridgeSide
100 CambridgeSide Place
Cambridge, MA 02141
617-225-0442

Northshore
210 Andover Street, STE W145
Peabody, MA 01960
978-531-2802

Michigan
Twelve Oaks
27520 Novi Road
Novi, MI 48377
248-344-7100

Somerset
2800 W Big Beaver Rd.
Troy, MI 48084
248-822-0081
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<td>Mall of America</td>
<td>132 South Avenue, Bloomington, MN 55425, 952-854-4870</td>
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<td>Southdale Center</td>
<td>1575 Southdale Center, Edina, MN 55435, 952-920-8260</td>
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<tr>
<td>Missouri</td>
<td>West County</td>
<td>131 West County Center, Des Peres, MO 63131, 314-965-3213</td>
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<tr>
<td>Nevada</td>
<td>Fashion Show</td>
<td>3200 Las Vegas Blvd. S. STE 1760, Las Vegas, NV 89109, 702-650-9550</td>
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<tr>
<td>New Hampshire</td>
<td>Rockingham Park</td>
<td>99 Rockingham Park Blvd. Salem, NH 03079, 603-890-3518</td>
</tr>
<tr>
<td>New Jersey</td>
<td>Menlo Park</td>
<td>55 Parsonage Ave, Space Number 2125, Edison, NJ 08837, 732-321-5506</td>
</tr>
<tr>
<td></td>
<td>Short Hills</td>
<td>1200 Morris Turnpike, Short Hills, NJ 07078, 973-467-4890</td>
</tr>
<tr>
<td></td>
<td>Tice's Corner</td>
<td>441 Chestnut Ridge Road, Woodcliff Lake, NJ 07677, 201-782-1750</td>
</tr>
<tr>
<td>New York</td>
<td>160 Walt Whitman Rd. STE</td>
<td>1041A, Huntington Station, NY 11746, 631-425-1563</td>
</tr>
<tr>
<td></td>
<td>Crossgates</td>
<td>1 Crossgates Mall Road, Albany, NY 12203, 518-869-3192</td>
</tr>
<tr>
<td></td>
<td>Walden Galleria</td>
<td>1 Walden Galleria Drive, Buffalo, NY 14225, 716-685-2762</td>
</tr>
<tr>
<td></td>
<td>Roosevelt Field</td>
<td>630 Old Country Road, Garden City, NY 11530, 516-248-3347</td>
</tr>
<tr>
<td></td>
<td>SoHo</td>
<td>103 Prince Street, New York, NY 10012, 212-226-3126</td>
</tr>
<tr>
<td></td>
<td>Palisades</td>
<td>1591 Palisades Center Drive, West Nyack, NY 10994, 845-353-6756</td>
</tr>
<tr>
<td></td>
<td>The Westchester</td>
<td>125 Westchester Ave, White Plains, NY 10601, 914-428-1877</td>
</tr>
<tr>
<td>North Carolina</td>
<td>Southpoint</td>
<td>8030 Renaissance Pkwy STE 835, Durham, NC 27713, 919-544-0931</td>
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</tbody>
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The Macintosh for You 57
Ohio
Kenwood Towne Centre
7875 Montgomery Road
Cincinnati, OH 45236
513-791-9866

Easton Town Center
4070 The Strand East
Columbus, OH 43219
614-478-5592

Pennsylvania
160 N. Gulph Rd. STE 1222
King of Prussia, PA 19406
610-265-2321

Tennessee
Saddle Creek
7615 W Farmington Blvd
Germantown, TN 38138
901-309-6000

Texas
3101 Knox St.
Highland Park, TX 75205
214-520-8532

Houston Galleria
5085 Westheimer Rd. STE 3740
Houston, TX 77056
713-850-8924

Willow Bend
6121 West Park Blvd.
Suite C120
Plano, TX 75093
972-202-5651

Virginia
Clarendon
2700 Clarendon Blvd.
Arlington, VA 22201
703-875-9880

Tysons Corner
1961 Chain Bridge Rd
Space 8087
McLean, VA 22102
703-893-5055

Short Pump Town Center
11800 W. Broad St. Ste. 1134
Richmond, VA 23233

Washington
106 Bellevue Square
Bellevue, WA 98004
425-709-2555

Wisconsin
Mayfair
2500 N. Mayfair Rd STE 416
Wauwatosa, WI 53226
414-258-1614
Other important equipment

Desks and Chairs

Where you put your Mac is important. You should take a few steps to ensure that your computing environment is comfortable. If you don’t, you may find that you’ll injure your body with what is called a “repetitive stress injury.” This type of injury is like getting a crick in your neck, perhaps from watching TV with your head turned sideways. Typically, it is your wrists and your neck which will become sore and hard to move if you don’t make a comfortable workspace for you and your Mac. This is nothing to scoff at. Bad cases are very similar to severe arthritis. If you start off with good habits, you won’t have any problem.

First, let’s consider your screen. Your display should be out one arms length in front of you. The top of your screen should be at eye level or slightly lower. In a nutshell, that is all that you have to worry about.

You should never have to tilt your head up to view the screen. If there is a glare on your screen, usually just adjusting the angle of the display slightly will correct that. However, in some situations, you may need to move your table or close the blinds on a window. If your display sits too low on the table causing you to arch your neck downwards, you can temporarily put some books underneath the display to raise it up but a better long term solution would be to find a small riser for your display.

If you wear glasses, and who doesn’t these days, you will need a special pair of glasses to use the computer. You may want to skip the cost of buying special glasses but don’t do it. The problem is most of us have a pair of reading glasses and another pair of normal everyday glasses; some of us have bifocals (or trifocals). But none of these are good for working at your computer. You will need a prescription similar in strength to your reading glasses. The reason you can’t use your reading glasses is because they were meant for you to read a paper that is lying on a table. In other words, your eyes are looking down. If you try to use your reading glasses on the computer, you would have to tilt your head up at an unnatural angle to look at your computer screen through the bottom of your glasses. You should visit your eye doctor and discuss with them about what glasses you should use with your computer.

With respect to keyboard and mouse, the “number one” piece of advice to remember is that when you are not using them, place your hands on your
What is touch typing? It is the ability to use the keyboard without looking at any of the keys.

lap, on your arm rests, on your table or even better yet just let them hang freely beside your body. The point is that you should not keep your wrists locked in one position for too long.

The next big idea to remember when using a keyboard and mouse is the correct posture for your arms, wrists and hands. Imagine yourself standing up straight but with your arms relaxed to both sides of your body. Your arms are not crossed, and they are not in your pockets either. They are just resting loosely alongside your body. The angle that your forearm, wrist and hand is in at that moment is the *perfect* posture for typing or moving a mouse. Basically, your forearm, wrist and hand form a straight line. Someone really should create a new type of pants where you could put half a keyboard on your left pelvis and the other half on your right pelvis which would force us all to type with perfect posture! Another good way to visualize this is if you can think of those half-dead human creatures in scary movies. Usually, the monsters chase the good guys with their arms stretched out straight in front of them. The monster’s forearms, wrists and hands are in the perfect alignment for typing or using the mouse.

Correct typing posture and mouse handling requires a surprising amount of upper body strength and mental control. You need to continuously be aware of the position that your wrists are in while you’re typing. If you have a lot of upper body strength, it will be easier. You should not rest any part of your arms, wrists or hands on anything while you type. The only part of your arm to touch anything should be your fingertips when they press the keys on the keyboard. It’s not easy but is part of what it takes to be a touch typist. Your arms might be tired and hurt during the first month of typing training but after that, you’ll build up strength. Musicians generally do pretty well with typing posture especially if they have experience playing the piano. The rest of us are used to resting our arms on the desk as we write and our gut instinct is to do that when we type, fight the urge!

If you know yourself and have found that you just can’t seem to keep from resting your arms down as you type, there is something you can do. Again, I’d recommend that if you can you should follow the advice of the previous paragraph but for some of us, it’s just too difficult; especially if we’re physically weak. You can purchase some foam pads from most office supply stores which are specifically designed for working at the keyboard and using the mouse. You place the foam pad in front of your keyboard and rest your wrists and arms down while you type. You’ll need to adjust your desk and chair to be sure that while you are resting your arm on the foam pad, that your forearm, wrist and hand form a straight line. You can also find foam risers for use with a mouse. Again, this is not the best solution because any time that you rest your arm down on the table, you are tempted to put your wrist at an unnatural angle. Our arms are heavy; they are not weightless. Hold them out from your body at a ninety degree angle for a minute or two and you’ll know it. So even if you are using a foam pad to rest your arms on, try not to put all your weight on the foam. Try to slowly
develop strength in your arms and be conscious of the straight line your forearm, wrist and hand should form.

Generally speaking, most desks are at a good height for writing letters with pen and paper but these desks are too high for typing. If this is the kind of desk you have, you really should find a different one as soon as possible. A good compromise would be to take your keyboard off the table and place it on your lap. It is better for a keyboard to be a little low rather than a little high. Actually, typing on your lap is a very comfortable position and you may want to do it sometimes regardless of what kind of desk you have. It is a good idea to vary your working posture at least twice per hour.

There are many different types of chairs. Some chairs don’t have a back but they have special pads for you to rest your knees on. Basically, when you sit in them you go into a type of squatting position. Some people claim these are the best kind to have, so you may want to check them out for yourself but personally, I don’t like them. The main reason I don’t like them is that you can’t put your keyboard in your lap. Secondly, you can’t rock when you’re thinking. Let’s concentrate on the more traditional type of chair. Honestly, the most important thing to look for in a chair is one that does not sit too high. You want a chair that when you sit in it, your feet will be flat on the floor. Also, you want your knees to be just slightly higher than your pelvis or at least at the same level. The reason is if you have a chair that’s too high, you will cut off the circulation to the lower part of your legs and it will be painful; it might also cause your legs to go to sleep.

Don’t be tempted to buy a really expensive chair. The main thing is to find a chair that is not too high. You don’t want a chair that is too comfortable because you should be tempted to get up and walk around a little bit. In fact, you should stand up and walk just a little bit roughly every fifteen minutes and if your chair is not so comfortable, you’ll do this subconsciously. I prefer a nice hardwood chair. For one thing, I like the feel of wood. When I’m not using the keyboard, I often grip the sides of the chair. Secondly, I have a bony butt. This means I can’t sit for much longer than fifteen minutes in a hardwood chair. I’ll get up and get a drink of water; then come back or else have a potty break. You may think I’m being funny but I’m serious. This is a good habit which I suggest you mimic. Drinking a half glass to full glass of water many times throughout the day will ensure that your pee is copious and colorless. It is a known fact that drinking water is the best way to prevent the formation of kidney stones. It also is a good way to subconsciously take many small breaks throughout the day. Some people smoke to force themselves to take breaks. I choose to drink water.

Furniture is expensive but you need good furniture. I suggest you find a government auction where they are selling office furniture. You should be able to find good deals on computer desks there for around $50. If you purchase a new desk, you can expect to pay between $300 to $500. Here is a short list of various furniture companies which make good desks: Anthro
Example of a posture which is good for the neck but bad for the wrists. An additional keyboard and mouse is what this person needs.

This posture is great for the wrists and is fine if only done for fifteen minutes at a time. Using this posture for more than thirty minutes might give you a crick in your neck.

Portable computers deserve some special attention because they have some extra requirements. Previously, we discussed how the display needs to be relatively high. The top of the display needs to be at eye level. We also discussed how the keyboard should be relatively low, so that it will be comfortable for our arms. Because with a laptop computer, the display is attached to the keyboard, you are stuck with a dilemma. Either the display is just right but the keyboard is too high or the keyboard is just right but the display is too low.

When you take your computer with you on the road, you may not be at a place where you can put your computer on a table. You can put your computer on your lap and type fairly comfortably. Just be sure every ten minutes you take a small break to rotate your head around a few times. You can get a crick in your neck if you look down at the display for too long.

When you work at home, you should have a special elevated place to put your laptop, so that the display is at the right height. Then you should purchase an additional keyboard and mouse to plug into the laptop. This way you can have the display at the correct level and have the keyboard and mouse also at the correct level.

There is one gadget which I consider to be essential for any laptop computer owner. It is called the "Podium CoolPad" and costs $30 from OWC at 1-800-275-4576 or direct from the manufacturer RoadTools at 1-877-696-9600. It is a swivel stand which performs a number of functions. One thing it does is raise the back of the computer up several inches making it much more comfortable for your neck when you are using your laptop away from home. The second thing it does is allow for air currents to travel underneath your computer to keep your computer from getting too hot. On a Titanium PowerBook, the whole case of the computer acts as a heat sink to dissipate heat. With the Podium CoolPad, the computer's internal fan rarely, if ever, needs to turn on. Third, the fact that the Podium Coolpad can easily swivel comes in very handy when you take your computer somewhere to show people something you've been working on. Fourth, the height of the Podium Coolpad is adjustable, so it gives you much more freedom at home to get your display to sit at the right height. Fifth, it makes it easier to plug cables into the back of a Titanium PowerBook.

If you spend a fair amount of time in bed, or if you plan to be in the hospital for an extended period of time, you may like to purchase a portable table, such as the "Laptop Laidback" from LaidBack We 'R' Inc. The table costs $80 US dollars or $100 Canadian dollars. It's a smart unit that is collapsible and easy to take with you. The legs straddle both sides of your body while you are in a bed or sofa. It has a cradle to support your portable
computer which can be tilted to any angle. Depending on the shape of your desk, it could act like as a good laptop stand to hold your display up to the right height while you use an additional keyboard and mouse. You can order the Laptop Laidback by calling 1-902-226-3092.

Computer bags

When you take your laptop with you, it’s important to find a good backpack or briefcase to carry it in. The best place to buy laptop luggage is from a man named Tom Bihn who designs his own bags specially for Macintosh laptop computers. You can reach him at 1-800-729-9607.

Printers

One of the greatest things you can do with a Mac is print documents. Compared to a typewriter, the Macintosh is a whole new world. You can make documents that are sharper, more stunning and easier to read. When you write a document, you can make changes as often as you like, whenever you like; then print it as often as you like at the drop of a hat.

There are two types of printers you can purchase for your home, a laser printer and an inkjet printer. There are advantages and disadvantages to each. Let’s discuss them.

I recommend you purchase a laser printer. Affordable ones only print in shades of gray but most of what we need to print is text, so often black and white printing is all we need. Laser printers are fast and produce incredibly sharp looking results. There is no fear of smudging the printout from a laser printer since the ink is burned into the paper. The cost of ink for a laser printer is relatively cheap.

There was a time when Apple made printers for all types of budgets and most of them were great printers. They performed well and were easy to install and use. For some reason, unknown to me, Apple decided to stop making printers a few years ago. This has made finding good printers difficult and requires some compromises.

The best laser printers, for the money, are the new ones made by Samsung. I recommend the Samsung ML-1430 for $200, the Samsung ML-1250 for $220 or the ML-1750 for $200. These are nice printers which produce sharp output. The ML-1430 and ML-1750 has twice as much RAM (thinking capacity) as the ML-1250 model. The advantage of the ML-1250 model is that it can have the RAM upgraded, and its print quality is a bit finer. The ink costs around $70 but is supposed to last for 2,500 pages of printed text. If the printer does not come with good instructions in the box for how to install in Mac OS X, you may need to call Samsung’s support line. At the

If you own a laptop computer, you should invest in a special stand because they’ll make your computer much more comfortable to use.

RAM - Random Access Memory. This is the place where a computer can temporarily store information while it is thinking or working on a task. A laser printer uses RAM to layout the page before it prints.
Inkjet printers and bubble jet printers are two names for the same thing. No matter the name, the theory is the same. The real price of these printers lies in the replacement of their ink. The ink is so expensive you can consider the purchase price of the printer to be a giveaway price. Only use these printers on the rare occasion where you need color output.

Inkjet printers are sometimes called bubble jet printers. They lay down small droplets of wet ink onto paper as it is fed through. This ink then quickly dries but it's a good idea not to touch the printout from an inkjet for a few minutes. Text can look pretty sharp but never quite as sharp as that from a laser. The speed of an inkjet is nothing near what you get with a laser. Inkjet printers are cheap to buy, some as low as $80, but they are expensive to operate. Generally, to purchase one container of black ink will cost about $40 and last for 400 pages. The main advantage they have over lasers is that they can print color.

It is often the case that when you buy a Mac, there will be a promotion to give you a free inkjet printer. This is something to look for. That way you'd have the inkjet for printing color documents but then you should purchase a laser for the bulk of your printing needs.

My favorite inkjet printer company is Canon. They have a long history of writing good software to make their printers work well with the Macintosh. They also have a long history of writing good documentation. Their printers are nice and fun. They can even print custom T-shirts which is always neat to do. Canon has many printer models to choose from; it's best to do some of your own research to see which one you like best. You can find Canon inkjet printers in most retail computer stores. Remember the cost of an inkjet is not really the printer's purchase price; it is the cost of operation you should be more concerned about.
THE IMPORTANCE OF PASSWORDS
THE IMPORTANCE OF PASSWORDS

In a small town, people often form a tight knit community. Everyone knows the name of each person in town. Property often has clearly defined ownership, such as “Chuck’s tractor” or “Mark’s plow.” But even in a small town, if something is important enough to keep private, it is often locked up with a key.

When we look at the Internet, the global network of computers, it’s obvious that we need a way to define who we are and keep certain information private. There are two pieces of information which define who we are when we use a computer: the username and the password.

The username is a little like your first name. Anybody who uses a computer is considered a user therefore we are asked for a name, a username. If your first name is “Steve,” you might choose your username to be “steve.” You could instead pick a pen-name if you wish such as “golfpro” or maybe “techno_hag” for example. If you’ve ever used a CB radio (citizen’s band radio), you know the idea already. Picking a username is like choosing a CB handle to identify yourself. One important thing to keep in mind is that a username should be in lowercase and contain no spaces.

The password is something to prove that you are who you say you are. For example, if you claim to be “steve,” you need to tell the computer a special password to prove that you are, in fact, steve. You should pick a password that is not easy for someone to guess. If you pick the name of your cat, you should also throw in a few numbers and exclamation points before and after the name of the cat. Of course, passwords are not real strong protection. If a person knows you, they might be able to guess what your password is. Even if a person doesn’t know you, if they have enough time, they can tell their computer to try all possible password combinations until they find one that works (though it would take a while).

I suggest that you keep a notepad under lock and key with your username and password in it. Because people may be able to guess your password, you may want to change it every once in a while and update your notepad. One unfortunate part of using the Internet is that many places you visit will ask you to create a username and password. If you keep a good notepad with all your access information and clearly mark what places they are for, you’ll be all set. It’s a hassle with no easy solution. Some people simply use the same username and password over and over again but it’s best to keep a notepad no matter what usernames and passwords you use.
Together "who you are," "what you own," and "what you know," form the strongest method of validating the identity of a person.

As stated earlier, the password is a weak way of proving a person's identity. To truly verify the identity of a person we need to look for three things: 1) who you are, 2) what you own, 3) what you know.

"Who you are" refers to physical characteristics of your body, such as your fingerprints. Other examples are the shape of your eye's retina, the sound your voice makes, the shape of your face, your DNA and even the rhythm with which your fingers hit the keyboard. This type of information sounds like pretty strong proof of your identity but actually it is not. People can construct fake material that is indistinguishable to skin and copy someone's fingerprints to it. Theoretically, people can even be cloned in a laboratory so "who you are" is not enough by itself to prove your identity.

"What you own" refers to physical property, such as your keys or your wallet, even your credit card. These physical items are known to belong to you and should be something you have. Generally speaking, the person holding your driver's license is probably you. If you were cloned in a laboratory, the clone would not have immediate access to your driver's license. Of course, you could get mugged, so it's possible that at any given time an imposter might be holding your property. Therefore "what you own" is not enough to prove your identity.

"What you know" refers to information stuck in your brain. A password is a perfect example but so is your mother's maiden name, the name of your first pet, the name of your favorite city or the date of your first kiss. A mugging would not know the name of your favorite shampoo and neither would your clone from the laboratory. Of course, someone could guess "what you know," so it is not enough by itself to prove your identity.

Together "who you are," "what you own" and "what you know" form the strongest method of validating the identity of a person. The only possibility to trick the system is for a clone of you to be made, for the clone to steal all your stuff and for the clone to guess all your passwords.

In my past existence, I helped develop software to recognize the shape of a person's face. This is called facial recognition. A nice benefit of this is that you could simply look at a camera rather than type a password, no more lost or forgotten passwords! Of course, it is not perfect either; someone could build a mannequin with a face shaped just like yours. Facial recognition is only the "who you are" piece of the identity puzzle; it says nothing about "what you own" or "what you know." In developing this technology, we felt it was better than passwords but if you wanted ultimate security, you'd need to add a password and an identity card for a person to carry as well. Today, if a person wants to mug you, they'll just take your wallet. My colleagues and I used to joke that in the future, the mugger will need your whole body too because they might need your face, your eyes, your fingerprints, etc. It's actually not so funny because it might turn out to be true.
Mac OS 9 has a feature that Mac OS X lacks, voice recognition. In Mac OS 9, you can use your voice to gain access to your computer. You would speak a phrase like “open sesame,” and it would let you in but if someone else tried, they’d be blocked. It was fun but didn’t work really well which is probably why we don’t see it in Mac OS X. The problem was that if you moved your computer to a different room, the acoustics of that room would make your voice sound different to the computer, forcing you to type a password when the computer failed to recognize your voice three times in a row. Also, if you got sick, your voice would sound different too, and you’d still have to type your password. Technically, these problems can be overcome with some smarter software but it’s not an easy task for the software designer.

What I’d like you to understand is that passwords are the way which computers check your identity but passwords aren’t perfect. Be aware that people might guess your password. Be sure to pick a fairly difficult password and write it down in a safe place where you can lock it up with a key. Some people have a photographic memory but for the rest of us, we need to write it down in case we forget.

Think of passwords as just one more little thing to remember; just like phone numbers, postal addresses and people’s names. I know what you’re saying “I can’t remember any more little things without forgetting something” which is why you need to write your passwords down in a little notepad where you can refer to them often. Someday, maybe Apple will perfect its voice recognition technology, and we won’t have to remember so many passwords anymore.
TURNING YOUR Mac ON AND OFF

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TURNING YOUR MAC ON AND OFF

Everything is easy when you’ve done it a few times. Take turning on your computer for instance. You’ve got an expensive piece of equipment which you may be afraid of damaging. Don’t worry, this section answers all of your questions.

Starting for the first time

All Macintoshes made today only use one power cord. Most other types of computers use at least two, one for the computer and one for the display. This makes things as simple as possible and reduces desk clutter. First, find the pronged power cord which can plug into a standard wall outlet. The other end is what you’ll plug into your computer. Carefully find the place on the back of your Mac to insert the plug. It’s not so hard. Because of the shape of the plug, it will only fit into one hole. After the plug is in your Mac, you can now put the pronged end into the wall outlet. Actually, it really doesn’t matter much whether you plug into the Mac first or the wall outlet first; however, if you choose to plug into the Mac first, it reduces the chance of creating a spark. Err on the side of caution. Plug the power cable into your Mac first then into the wall outlet second.

If you have a desktop Mac, you’ll need to attach the mouse and keyboard. Plug the mouse into the keyboard. If you are right handed, plug the mouse into the right side of the keyboard. Alternatively, if you are left handed, plug the mouse into the left side of the keyboard. Both the mouse and keyboard are USB devices. The term USB literally means Universal Serial Bus. It is a standard for hooking up gadgets with low power requirements and moderate information transfer requirements. The word device is another word for gadget. It’s not necessary for you to know what USB means right now; that will come in time. Just find your USB cable to hook your keyboard into the back or side of your Macintosh. You have an open USB inlet on one side of your keyboard exactly opposite to where you plugged your mouse in. Plug the USB cable in the open inlet on your keyboard. Note: on some keyboards, the USB cable is built into the keyboard. If that’s the case, just plug the other end of the cable directly into the back of the Macintosh. One more note: it shouldn’t take much force to insert a USB cable. Make sure you are putting it into the small rectangular outlet. There is another type of plug on the back of every Mac which looks similar but is not the same. That one is called FireWire.

USB - Universal Serial Bus. This is a cabling standard for connecting gadgets to your Mac with moderate information transfer requirements.

FireWire - also known as IEEE 1394. This is a cabling standard created by Apple for connecting gadgets to your Mac which need to communicate at a very high speed.
All Macs have speakers built into the computer internally. Some Macs also come with external speakers. These are USB speakers and need to be plugged into the back of your Mac. They get power directly from your Mac.

Turning on the computer is either done from the keyboard or the screen. In the upper right hand corner of the keyboard is a power button, just press it once and then let go. You should hear a noise come from the speakers which sounds like a chime or a bell; several seconds later your Mac will come to life! Macs which don't have a built-in screen are actually turned on from a button on the display (not the keyboard). If you have a portable computer, such as the iBook or PowerBook, you'll need to first lift the display before you can get to the keyboard and power button. Push in the long thin silver button on the front of your laptop computer then slowly lift the lid to a comfortable position. When you're ready, press the power button located in the top right corner of the keyboard (actually slightly off of the keyboard).

The very first time your computer starts up, it will ask you many different questions. This will only happen one time. You'll be asked what the time and date is as well as a time zone. This is because the computer has an internal clock which is always working even when the computer is turned off. Every time you create a document, or even modify a document, your Mac will record that date with the document for future reference.

The most important bit of information you'll be asked the first time you start up the computer is "what is the owner's name?" and "what will be your username and password?" You might want to review the chapter in this book about passwords. Basically, you want to pick a username similar to your first name but in lowercase. If your name is Jerry, you should pick "jerry" for your username. For your password, you should try to think of something difficult for other people to guess. Be sure to write it and your username down in a notepad for future reference.

That's about it. After you finish answering all the questions, your Mac will be up and running waiting for you to ask it to help you do something creative. The questions are all pretty much straightforward. They may even ask you to register your Macintosh. To do that you'll need to plug a phone cord into the phone plug in the back (or side) of your Macintosh. Next, you'll need to find an open phone outlet, so that your Macintosh can dial Apple and register itself "Hello Apple, I belong to...please register their warranty."

### Starting at any other time

To turn on your Mac, simply touch the power button in the upper right corner of your keyboard. If you have a laptop Mac, you'll need to lift the display first. If you have a desktop Mac, the power button is on the screen.
Soon your Mac will be alive and going through some preparations. Eventually, it will show you the login screen. The word “log” means to record. So “log in” or simply “login” is roughly equivalent to a worker punching their time card for hours worked at a factory. In the login screen, you should see your name. There may even be a short list of names if after you’ve owned your computer for a short while, you decide to make personalized user accounts for your friends and family. Making a user account is just like creating a new punch card for a new employee at a factory.

Select your name in the login screen by clicking on it. You do this by moving the mouse until the cursor is over top of your name then push down on the mouse till it makes a slight “click” noise. The screen will change and give you space to type your password. Type in your password then press the “return” key on the keyboard. In a few moments, you’ll be logged in and ready to go. Login/Logout is discussed in more detail later in this chapter.

**Putting your Macintosh to sleep**

No no no, we’re not talking about peacefully putting your computer out of its misery. After all, Macs never get truly sick and if they develop a problem, they can always be repaired. When we say “put a computer to sleep,” we mean to freeze its operation. For all practical purposes, a sleeping computer is a computer which is turned off but can be started at a moment’s notice.

When a computer is sleeping, the display is off and the hard drive is off. In fact, nearly everything is turned off. There are, however, a few pieces on the inside which must continue to draw current, so you must leave your computer connected to an electrical outlet if it is to remain sleeping for anything longer than a day’s time.

Let’s say you have a few software titles open, and you are in the middle of being creative. Suppose your significant other suddenly needs your attention, and you know you’ll probably take a few hours away from the computer. You could turn your computer off completely but then when you came back you’d have to wait for the computer to start up, and you’d have to open up all your documents you had been working on. Turning your computer off is ok but it’s a minor hassle. Another option you have is to leave your computer turned on. It’s actually ok to leave your computer on for many hours. In fact, some people never turn their computers off. The best option of all; however, is to put your computer to sleep. It takes a second to do and when you wake your computer up, it will remain just as you last left it.

The easiest way to put your computer to sleep is to press the power button in the upper right hand corner of your keyboard for just a brief moment. This happens to be the same button you use to turn your computer on. You
Are you sure you want to shut down your computer now?

Restart  Sleep  Cancel  Shutdown

Restarting your Mac can sometimes cure strange behavior. If you are experiencing something odd, try restarting your Mac to see if things clear up.

The battery on laptop Macintoshes have a button which, when pressed, will cause battery level indicator lights to shine letting you know how close to full your current charge is.

Roughly one day of sleep, without recharging, will use up about one third of your battery's juice.

The Restart button will turn your computer off and immediately turn it right back on for you. This probably sounds a bit strange. Why on earth would you want to flip your computer from on to off, then immediately back on again? One answer is that sometimes you install a software title that suggests you start up your computer all over again. Not all software does this, and most that require you to do this will automatically ask you if they can turn your computer off and then back on again. The second reason is that it's possible your Mac might at some point start behaving in a confusing way. If so, when you turn it off then turn it back on again, it just might magically fix what was happening. Choosing the “Restart” button puts the “off and then on again” into a single step.

The Sleep button is used to put your computer to sleep. The Cancel button is needed if you accidentally press the power button. Just press the “cancel” button and get back to your work. Lastly, the Shutdown button is used to turn your computer completely off.

When you press the “Sleep” button, almost instantly your computer will cease working. You'll start to see a light on your Mac begin pulsating, almost like a heart beat. Every Mac has this sleeping heart beat but the color and location depends on the Macintosh model. It's easy to discern in a dark room but perhaps more difficult in a brightly lit room. When you see the electronic heart beating, you know your Mac is sleeping. If you have a laptop Mac, simply close the lid then take your computer on the road.

To wake up your computer, all you have to do is press a key on the keyboard. This can be any key; the space bar for example. In literally moments, your computer will wake up and is eager to get back into action. If you have a portable computer, simply opening the lid usually wakes the computer from sleep. In fact, with a portable computer, you can simply close the lid and the computer will very quickly go to sleep. Note: always check to see if you can find the heartbeat of your Macintosh before moving it. You don't want to put your laptop in your briefcase or backpack if your laptop has not fully gone to sleep yet.

Personally, I very rarely turn my computer off completely. Putting your Mac to sleep is so much more convenient. If you are going to be travelling with your laptop Mac for more than a day without using it, you'll want to “shutdown” your Mac thus turning your computer off completely. This is because sleeping will slowly drain your battery. Roughly one day of sleep, without recharging, will use up about one third of your battery's juice.
**Turn off (shutdown) your Mac**

Turning your Mac off is not as simple as throwing a light switch to the off position. No, in fact, it is more like asking your significant other to flip the switch. The reason for this is that your Mac will do some last minute preparations and checks before turning off. For example, if you had been working on a document but had not saved it, your Mac would first ask you if you’d like to save your work before cutting itself off. This is just like when you ask your significant other to turn off the lights. What you *really* are asking them to do is to turn off the fan, check if the front door is locked, and more generally just simply get ready for bed.

Turning off your Mac is called shutting it down or simply “shutdown.” You ask your Mac to turn itself off by pressing the power key in the upper right corner of the keyboard. Your Mac will present you with four options: Restart, Sleep, Cancel and Shutdown. The last one “Shutdown” will be throbbing a pretty blue color. This throbbing indicates that if you push the “return” key that the “Shutdown” button will be chosen, thus saving you a little bit of time in moving the mouse. So you can either click the “Shutdown” button with your mouse, or alternatively, press the “return” key on the keyboard.

If, for some unknown reason, a few minutes have passed but your Mac refuses to turn itself off. You can take the following measures. If you have a desktop Mac, you can simply remove the power plug from the wall outlet. This shouldn’t hurt your computer and is the simplest way to solve the problem. If you have a portable computer, simply unplugging the power won’t work since your computer has a battery. What you’ll need to do is press and hold the power button down in the upper right corner of the keyboard. You’ll need to keep it held down until the computer turns off. This will probably take five to ten seconds. If your portable Mac still doesn’t turn off, you can simply remove both the power from the wall outlet and remove the battery as well. But I doubt things should ever get this far.

**What does it mean to log out? log in?**

Imagine an office, in a bank, filled with bank clerks. Each clerk has their own desk. When a clerk enters the office in the morning, she or he stamps a time card. When the clerk leaves in the afternoon, she or he also stamps a time card. The stamping in and stamping out creates a log of the hours worked, it could also be called *logging in* and *logging out*.

When you turn on your Mac, after a minute or two, you are presented with a Login screen. It is there that you select your name and then type your password to prove your identity. This process is called “log in.” The act of “log out” is simply to quit what you are currently doing and bring you back

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Note: the chapter “Magic Key Combinations” tells better ways to turn off or restart your Mac. These methods are better but harder to remember. If this book is not handy, and you can’t remember these better methods, you can always just pull the power plug.
to the Login screen. You might want to do this if you will leave your computer for fifteen minutes and don’t want other people to play with the computer since they’d need to know your password before they could do anything. You might also want to log out just to let somebody else log in.

If you create user accounts on your Mac, it’s like giving each of your friends and family their own place to work. Just like in the bank, each clerk needs their own desk where they keep track of their own papers, documents and other items. Each person who uses your Mac can have their own independent work environment if they have their own user account. To switch between user accounts, you need to log out of the first account then log into the second account.

To log out of your computer, first, click on the smiling Finder icon in the lower left hand corner of your screen. Second, move your mouse pointer to the top left of the screen then click once on the blue colored Apple logo. Third, in the menu which is shown, move your mouse pointer down to the bottom then click on “Log Out.” You will be asked to confirm this request. If you continue, you’ll be taken back to the Login screen.

### Adjusting your screen’s display size

When we read a book or newspaper, most of us need to use a pair of reading glasses. What prescription we use really depends on our personal tastes. Some of us like to use the minimum strength recommended by our eye doctor while others prefer to use a pair of glasses with stronger magnification.

With our computer, we can adjust size of text and graphics that are shown. No matter the size of our text and graphics, the physical size of our computer display remains the same. If we make our text and graphics large, we have less room to work on our computer. What this boils down to in everyday use is that we may want to use a magnified display when we are typing a letter but when we are making a movie, we may want to switch to a denser display, so we can see more information on our screen.

Let’s learn how to adjust our display by going to the “Displays” preference panel. First, move your mouse cursor to the bottom left corner of your display then click once on the smiling Finder icon in the Dock. Second, move your mouse to the top left part of your screen and click once on the Apple icon. Third, in the menu which appears, move your mouse down and click once on “System Preferences...” Fourth, in the new window which appears, you’ll see many different panels to configure various parts of your computer. Find the panel named “Displays” then click on it once. You will be shown options which are depicted in the graphic shown on the top of the facing page.
Notice the **Resolutions** available for you to choose. The one currently chosen is highlighted. In this example, it is 1152 x 768. For this display, this happens to be the largest resolution but it also means the smallest text. It means that the screen is showing 1152 dots in the horizontal direction and 768 dots in the vertical. This is a great resolution for seeing as much information as possible. If you click on 800 x 600, the size of your screen will immediately change. Everything will immediately get bigger because now only 800 dots are shown in the horizontal direction and 600 in the vertical. The reason everything looks bigger is because fewer dots are spread out over the same distance.

Notice how the smallest options, which are the ones with the most magnification, are gray. That is because they are not able to be selected. Apple is warning you that they feel this is too much magnification. There is no harm in using these settings but there are some software titles, such as “iMovie,” which require at least 800 x 600 resolution to work. To enable a resolution of 640 x 480, you’ll need to first click on the “Show modes recommended by display” box, so that it is not checked. You are now free to select 640 x 480.

Feel free to experiment with these settings. If your eyesight is good, or you have taken my advice and purchased a pair of glasses with a special prescription for computer use, you may want to leave the display resolution at the highest setting all the time.

Some software makes their options and text so small it’s really hard to see. It’s nice to know we can magnify our screen just by going to the “Displays” preference panel.

**Languages other than English**

You better believe it! Your Mac is quite the linguist. Not only can you type in a variety of foreign languages, but you can also change all of your menus to be in a foreign language. No fuss, no hassles, just a few settings and you can be using a multitude of language features.

A single settings panel called “International” is what you’ll use to let your Mac know what languages you prefer to use. To get to the International settings, first, click on the smiling Finder icon in the bottom left corner of your screen. Next, go up to the top left corner of the screen and click on the blue Apple menu then select “System Preferences...” from the menu. You will
Software title - refers to the name of a particular piece of software.

Web browser - a special software title used to help you read articles on the World Wide Web.

World Wide Web - like a never ending newspaper with articles, photographs, movies and sound.

see a new window will open up showing many different settings. Look for the icon of a flag that says “International” then click it once.

The International preferences panel has five tabs as shown here at the left. The tabs are: Language, Date, Time, Numbers and Keyboard Menu. Make sure the “Language” tab is blue which means it is the one selected.

Let’s look at the “Languages:” list. At the top of this list, should be the language which you are most proficient in because this will be the language which all your menus and windows will be displayed in.

For a software title, to show all of its options and menus in multiple languages is not magic. Your Mac does not try to translate any menus on its own. The software developer has to purposely create multiple sets of menus for each language. OmniWeb, the web browser from the OmniGroup, has an international version which can support a very large number of languages. OmniWeb is the exception because most software only supports English, or at most, three or four other languages.

If you choose English to be at the top of the “Languages:” list, then the order of the other options has little meaning. This is because English is currently the most common language for computer software. On the other hand, if you are European and your French and German are better than your English, you should click and drag French and German to the top of the list. This will make sure that software which supports French or German will display their menus in those languages while other software will simply show English.

By default, only the most common languages for Mac users are shown in the “Languages:” list. If you’d like to add something like Chinese, you’ll need to click on the “Edit” button. A new dialog will appear allowing you to put a check next to any languages which you’d like to appear in the list.

Once you change the order of the languages in the “Languages:” list, the changes will take effect immediately; however, you will need to quit and reopen any software titles which are currently open. For example, if you originally had English at the top of the list but you just moved French up there instead, you won’t see anything happen. If you quit some software then reopen it, you’ll see a difference (if that software supports French).
“Finder” supports all the languages. So if you log out then log back in, you will see your Desktop in your favorite language. To log out of your Mac means to go back to the Login screen where they ask for your name and password. To log in just means to give your name and password again. Once back in, you will notice that the menus are in your chosen language.

Obviously, since you have purchased this book, your English is already at a very good level. You may not want to set another language as your preference mainly because most manuals refer to English menus. So even if you prefer a foreign language, you may find it easier to just keep your menus in English.

Viewing your menus in a particular language is one thing but typing in another language is a separate matter altogether. Click on the “Keyboard Menu” tab and you’ll see something similar to the window at the right.

Underneath the “Keyboard Menu” tab is a list of languages. Selecting any of them by giving them a check mark means you’d like to be able to type in those languages. In my case, I need to be able to type in English and Traditional Chinese, so both the U.S. and Traditional Chinese boxes are checked.

As of Mac OS 10.2, the number of language options is bewildering. This release of the Mac OS has support for the Semitic languages which are written from right to left, such as Hebrew and Arabic. Also of particular note, the native Hawaiian language is also available. This marks the first operating system in history to support the Hawaiian language. In recent years, Hawaiian natives have been restoring their heritage and their language. Since the mid 1990’s, they have been trying to get a computer company to create an operating system which used their language. Finally, they have such an operating system!

Once you have selected two or more languages which you’d like to be able to type with, you’ll notice a new menu show up at the top of the screen. This menu is shown here at the right.

To switch to a different language for typing, you should click on this special menu and then choose the language you want to type with. You will see
The command key:

For many people, the word “Finder” and the word “Desktop” are synonymous. The Finder is the name of the software title which allows you to view all your files and folders as icons.

A check mark next to the currently chosen language and its icon will be shown at the top of the menu. To cycle between your typing options, you can press “Command-space” on your keyboard. Do this by holding down the Command key, which looks like a cloverleaf, then while keeping the command key held, tap the space bar. This has the same effect as going up to the top of the screen with your mouse and choosing a different language but is much faster to do since your hands never have to leave the keyboard.

Typing in foreign languages can be quite complicated, especially, if it is an Asian language. That is because many Asian languages use pictures of objects and ideas to create a written language. Because a keyboard has only a limited number of keys, and there are many graphical symbols in Asian languages, there is no way to make a one to one mapping of a key on the keyboard to a graphical symbol. If you’d like to learn to type in an asian language, you will need some special study to learn how a combination of keys can represent a graphical symbol.

Now you know about the hidden linguistic powers of your Macintosh. You never know when this chapter may be useful, especially, if you have a foreign friend come visiting.

**Multiple people sharing your Mac**

After using your Macintosh for a few weeks, you may have noticed something which seemed a bit out of place. Namely, why must you always give your name and password every time you turn on your Mac? Perhaps you just shrugged your shoulders and thought it was merely a safety mechanism, just like using a key to unlock the door to your house. If you thought that, you are not really wrong but you are just scratching the surface. After all, a password would be enough to give protection, so why insist on an identity in addition? The answer is multiple people. Your Mac is designed to provide separate work environments for many people.

There is nothing wrong with typing in your password and then letting other people use your Macintosh, perhaps your significant other or friends and family. Yes, nothing wrong at all until you realize that they’ve cluttered up your Desktop with all kinds of files and get angry with you if you decide to move “their” files around in an effort to clean things up. Unlike your living room, den or study room, you don’t have to share your Mac’s Desktop with anyone. Instead of sharing your Mac’s Desktop, you can give each person who uses your Mac a Desktop of their very own.

Giving people their own work environment on your Mac is called creating a new account. This is not like a bank account; it is just a formal way of describing the idea of creating a new and separate Desktop for someone. There are many advantages to doing this. Of course, there is the idea of
keeping each person's files separate. That way nobody can ever be blamed of accidentally deleting something or moving files where the other person can’t find them. There are some more important benefits as well. For example, if you keep financial information on your computer, this will be kept hidden from other people as long as they don’t know your password. When people check Email, they will be checking their own account and not get it confused with yours. Think of multiple accounts on your computer as being functionally equivalent to multiple desks in an office. Each desk has its own workspace, its own telephone, and things set up just like each employee wants on their desktop.

To create a new account is fairly easy. First, go to the bottom left corner of your screen then click on the smiling Finder icon. Next, go to the top left corner of your screen to select the blue Apple menu and choose “System Preferences...” from the list of options. Soon you’ll see a new window with all the different preference panels. Search for the icon which looks like the silhouette of a person with the word “Users” or “Accounts” underneath and click on it once. In Mac OS 10.1, it says “Users” but in Mac OS 10.2, it says “Accounts.”

The graphic shown at the right is what the “Users” preference panel looks like. The word “Admin” is listed beside the owner of the computer; it is short for “Administrator.” This is great. If you never had the chance to be a manager at the office, now’s your chance! Tell all your friends that the easiest way to become an administrator is to buy a Mac. The “Accounts” panel in Mac OS 10.2 is nearly identical to the graphic shown here on the right except it has the additional option to automatically log in a particular user. What this means is that when you turn on the computer, it will start up and automatically open up the Desktop for a particular person. I recommend only using this option if you are not able to remember your password, and you know nobody evil will be playing with your computer. The rest of us should write down our password in a notebook and log into our account each time we turn on our Mac.

The three buttons on the right hand side of the Users panel are what you use to manage the accounts which you create for people. Clicking on a name in the list then clicking “Delete User...” will ask you if you want to remove that person’s access from your computer. Clicking on a name then clicking “Edit User...” will allow you to change a person’s password and a few other features. Let’s look at what happens when we click on “New User...”
In the graphic at the left, you see what the "New User..." window looks like. It has two tabs: Identity and Password. In the "Name:" field, go ahead and type the person's first and last names. In the "Short Name:" field, you can type anything you like but if the person you are creating the account for has an Email address, you should use the part of that address before the @ symbol. Choosing a login picture has no real meaning other than being cute. You can scroll through the options at the bottom of the window then click on one the person likes. Alternatively, you can click the "Choose..." button to go find a photograph on your Desktop or someplace else on your Mac. If you have a real picture of the person, you might want to click the "Choose..." button to associate the person's real face with this account.

When you've finished giving the new user their identity, go ahead and click on the "Password" tab. You will get a window similar to what is shown here on the left.

You should ask the person you are creating this account for to type in the password themselves. As they type, they will not see the keys they've pressed, only dots as they type on the keyboard. Because they can not visually review what they have typed, there is a "Verify:" section where they must retype their password. If what they type in the "Verify:" section doesn't match the "Password:" section, your Mac will let you know and ask them to retype their password.

Having a "Password Hint:" is simply a short phrase or sentence which will help you jolt your memory should you forget what your password is. Of course, if you pick something too descriptive, then other people will be able to guess what your password is. Perhaps it is best to leave this field blank.

Clicking on the box which says "Allow user to administer this computer" basically gives this person the same abilities you have. This includes the...
ability to create accounts and delete accounts. Most people do not need this capability, and it is safer not to give it to them. All most people need is their own work environment, access to the Internet and the ability to open software titles. They don't need to be an administrator. That's your privilege!

Once you have finished filling out the information in both the “Identity” tab and the “Password” tab, go on to click the “OK” button in the bottom right hand corner of the window. That’s it! You’ve created a brand new Desktop and work environment for a friend or family member. To switch between accounts, a person will need to log out so that the other can log in.

To log out, first, click on the smiling Finder icon in the bottom left corner of your screen. Next, click on the blue Apple icon in the top left corner of your screen then choose “Log Out...” from the bottom of the menu.

A computer network is a group of computers connected to each other. The Internet is the world’s largest computer network and touches every country on the planet.
UNDERSTANDING YOUR MAC'S "DESKTOP"

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UNDERSTANDING YOUR MAC'S "DESKTOP"

Since the year 1984, when the Macintosh was introduced, computers became simpler to use because of one simple analogy called the Macintosh Desktop. What the Mac does is take normal office items, such as folders, trash cans and documents, then give them a visual equivalent on the computer.

How to use the mouse

The Mac gives us a mouse, so we can move office items on our computer screen in a similar way to what we would do with our hands in a true office environment.

Moving the mouse

In order to get familiar with the new Desktop inside your Mac, we need to first learn how to control the mouse. The mouse gets its name because it is about the size of a rodent and has a long cord to connect it to the computer which looks a bit like a tail. You move the mouse on a flat surface. The movements translate into pointer movements on your computer screen. If you're the thinking sort, you might wonder why we can't just touch the screen directly with our finger to move items around on our Desktop because it certainly sounds more intuitive. Actually, with some screens you can do that but they cost quite a bit of money. The mouse is inexpensive, works well and doesn't leave finger prints on your screen.

Handling a mouse is a lot like typing at the keyboard. What you should be most concerned with is the angle of your wrist. Your forearm, wrist and hand should form a straight line. Stand up for a moment and allow your arm to rest limp to the side of your body. Look at how your forearm, wrist and hand form a straight line because it is this exact same posture you should try to achieve when you hold the mouse. When you don't need to move the cursor on the screen, you should give your arm a break by resting it on your lap or letting it hang down beside your body. Don't keep your hand on the mouse all the time.

When you grip the mouse, your shoulders, arm and hand should all be relaxed. The mouse should just scoot around with hardly any effort. You can scoot it around on your table top or you can buy what is called a mouse pad for $10 or less at most office supply stores.
The part of the mouse where the cord comes out is the head. You should point the head away from your body. It may look like a tail but don’t try to carry the analogy of a true mouse too far. Just think of it as a pointing gadget and where the cord is attached is the head (or front) of the gadget. Moving the mouse in the direction the head is pointing will cause the pointer on the screen to move up. Pulling the mouse backwards and closer to your body will cause the pointer on the screen to move down. Pushing the mouse to the left will cause the pointer to go left. Likewise, the opposite is true when you push the mouse to the right.

When moving the mouse in a particular direction, you will often find that you run out of desk space. There is still more room on the screen but there is no place left on your desk to push the mouse, so that the pointer will go to the open area of the screen. This is very common and should not cause alarm. What you need to do is lift the mouse off of the table; literally pick up the mouse. Next, lay the mouse down on the table in an area where you have more room. Finally, continue to push the mouse in the direction you want to go. You may have to do this two, three, perhaps even four times if you have a large display area on your screen.

Notice the direction of the head of the mouse. A common problem people have when learning how to use the mouse is learning how to point the mouse. For example, sometimes people feel that they are moving the mouse to the right on the table but are puzzled why the pointer on the screen is moving in a south-east direction. If this is happening to you, it can be very frustrating. The solution is to be sure you are seated directly facing your desk and that your mouse head is pointing away from you. If your mouse is pointed at some other angle when you move the mouse, the pointer will go in a strange direction on the screen.

You are not limited to scooting your mouse up, down, left, or right. You can move your mouse in any diagonal angle as well, and the pointer will move in the same direction on the screen. For most people, learning how to use the mouse takes a bit of practice. For some, it comes naturally. Don’t feel bad if it takes you a couple of weeks to get the knack of handling a mouse, feel free to reread this chapter a few times.

**Click**

Ok, ok, the analogy of a true rodent to the gadget you use to push your computer pointer around with on the screen is a weak one. Perhaps they should have called it a “puck” instead. But it’s not called a puck, it’s called a mouse. A “mouse click” has nothing to do with any noises that a rodent makes.

When moving your mouse on the screen, you are going to want to interact with items on your Desktop. For example, sometimes you will want to take
a document, move it and then drop it in a trash can. Simply pushing your mouse around on the table just moves the cursor around on the screen. Once your mouse is on top of an item then when you “click” it, the Mac knows you want to do something with that item. Clicking, in effect, is similar to picking up an item with your hands, so that you can do something with it.

The first Macintosh mouse had one button towards the head of the gadget. Pushing down on this button would make a slight noise, a type of pop or “click.” Hence the term “click” means to push down on the mouse button.

Today, nearly all new computers on the market use a mouse. PCs and computers other than Macs tend to have more than one button on top of the mouse. Most of these computers have at least two buttons and sometimes three or more. These extra buttons have special meaning that can speed up your work slightly but at the cost of too much complexity. If you ever need to use one of these types of computers, you should know that the leftmost mouse button is roughly the equivalent of the single Macintosh mouse button. You can use that PC with only the leftmost mouse button, the other buttons are not even needed. If you are left handed, it is a hassle to use the PC mouse because the left button is where your middle finger is, not your index finger.

The Macintosh mouse which comes with computers today is even more simple than the original mouse. It has gone from a one button mouse to a 
no button mouse. This is an interesting statement. It means that you won’t find a button on the top of the mouse to press because the whole mouse is actually one large button. Simply putting a downward force on the Mac’s mouse will cause it to “click.” So no matter where your hand is grabbing the mouse, simply pushing down on it will do the trick, and it works equally well for lefties.

The new “no button” Macintosh mouse is not only slightly easier to use, but it is also actually much healthier for your body. In the past, people would use their index finger or middle finger to press the mouse button. Some people would actually lift their finger up in the air then bring it down like a little hammer to hit the button. This didn’t hurt the mouse any but it caused unneeded stress on the hand muscles. Some people even kept their finger in the air, bringing it down only when it needed to click the button. This extra stress on the hand caused people crippling pain in their hands similar to arthritis and is called a “repetitive stress” injury. If you ever use the older type of mouse with a real button on the top, you should rest your fingers on top of the button then use your index or middle finger to slightly exert some downward force when you want to make a “click.” It is never necessary for your finger to leave the mouse when you are clicking.

The correct way to click the new “no button” Macintosh mouse is as follows. If your hand is large, lightly grip the mouse comfortably with your
When you want to perform a click, you should do it from the elbow. In other words, your fingers and wrist do not need to move at all.

Double click - just means to click your mouse twice in a row. It needs to be fairly fast but not extremely fast.

There are many times that we need to "click" the mouse. Often, we are given options in the form of buttons with words inside of them, such as "Save" or "Cancel." Other times we just want to bring attention to the part of a document where we want to begin typing. We also "click" on different Desktop items, such as documents, folders and the trash can.

Here is a good time to define the word icon. All the different visual items on our Mac Desktop that represent objects we could find in an office setting, such as folders, documents and trash cans are all examples of icons. That is to say that the word "icon" means a small picture on our computer screen which represents a real life object. Every icon for a document or a folder has a name associated with it. If you click on an icon, it will change color, probably a slight gray tint. If you click on the name of an icon, you will be able to type a different name for it.

Double click

On our table, in an office setting, we may have different documents scattered around. If we'd like to read a document, it is not enough to simply reach out and touch it. We actually have to pick it up and hold it or perhaps bring it over to the center part of our desk and turn a desk lamp on. In this example, if we think about our Mac Desktop, we will have documents there too. If we simply "click" on a document, it would be like merely touching a document on your desk as if you were just thinking about what to do with it. If, however, you "double click" on the document, it will open up in the software title you used to create it. This is just like deciding to actually pick up a document on your office desk, so that you could read it.

A "double click" just means that you click your mouse twice in a row. It needs to be fairly fast but not extremely fast. There are two main problems people have when learning how to double click. Firstly, people sometimes click too slowly. If you click twice but the time period between clicks is too long, the Mac may think you were just doing a "single click" on two separate occasions. Secondly, sometimes people unconsciously click then move the mouse ever so slightly then click again. This happens when people are
nervous and trying to click twice in rapid succession in order to make it register as a "double click." When this occurs, the file will not open. Its location on the screen will be moved slightly and remain tinted a slight gray color to show that it has been clicked. In this instance, the Mac thinks that you wanted to move the file and then simply decided to click it once again.

The act of "double clicking" takes some practice. It can be very frustrating until you find the right timing. The trick is to remain relaxed. You don't have to click extremely fast. Just imagine lightly pressing down twice from your elbow. Visualize a British woman in your mind saying "Ta ta" to bid you farewell after tea time. In rhythm with each "ta" of "Ta ta," click the mouse down once. Before you know it, you'll be double clicking like a pro.

**Control click**

The "control click" is done by first pressing and holding down the "control" key on your keyboard. The "control" key is sometimes just labeled as "ctrl." While keeping the "ctrl" key held down, simply click once with your mouse. That is a control click.

First, let me explain that as a Mac owner, you should rarely need to use the control click. In fact, the first Macintosh keyboards did not even have a control key making it totally impossible to do a control click with them. You should think of the "control click" as an optional way to click. Doing a control click, with items on the Desktop, will usually bring up a small menu where you can choose an option. For example, if you control click on a document then a menu will show with many options to choose from, one of them asking you if you'd like to put this document in the trash. The PC mouse has at least two buttons. If you click the right button, on a two button PC mouse, it will behave in roughly the same manner as a "control click" on the Macintosh. So a "right click" on a PC translates to a "control click" on the Mac.

It is good to know that the control click exists in case a software manual asks you to perform one. You may also find that as you use your computer more and more that sometimes you'll use a control click to save a little bit of time pushing your mouse around. In my opinion, it is better to do a "control click" than it is to add a second mouse button. The new "no button" mouse is the healthiest type of mouse for your body since it helps to automatically reduce repetitive stress injuries by removing the temptation to use your index finger as a hammer. In addition, making only one "clicker" simplifies the use of the mouse and makes it equally accessible to both left handed people as well as right handed people.

A trackball is much easier to double click with than a mouse is. The reason is that you can move the pointer over top of the object you'd like to double click. Next, you can remove your fingers from the ball and simply tap the clicker twice. There is no chance that an involuntary arm movement might disrupt the double-click. Many trackballs have extra buttons. With these, you can set a special button to do the "double-click" but you only need to tap it once.

If you click the right button, on a two button PC mouse, it will behave in roughly the same manner as a "control click" on the Macintosh. So a "right click" on a PC translates to a "control click" on the Mac.

**Move to Trash** - there is a picture of a trash can in the bottom right comer of your screen. You can put files into this trash can and later empty them. Emptying the trash erases and removes documents from your Mac.
Drag, click drag, drag and drop

The term *drag* means to move an item across the screen. The item being moved or “dragged” could be the icon of a document, for example. To drag an item, you first need to click on it but then keep the mouse button held down. While keeping the mouse button down, simply move the mouse. This is called *dragging*.

Because you need to click the mouse button to move an item, this is sometimes called “click drag.” So really “drag” and “click drag” are two names for the same thing.

The most common time you need to drag an item is when you want to put a document in the trash. You click on the unwanted document’s icon, keep the mouse button held, then drag the icon of the document and place it on top of the trash can’s icon in the lower right-hand corner of your screen. Once there, you can simply let go of the document and it will be placed in the trash.

The term “drag & drop” usually refers to moving something other than icons. It usually means moving a group of words to another place in a document or perhaps a different document altogether. We will cover this in more detail in the chapter which discusses how to create a letter with a software title named AppleWorks.

Alternatives to the mouse

There are many gadgets which people use in place of a mouse. You never know when you might want to use one of these alternative pointers. It’s possible a friend may have one on their computer or you might just be interested in purchasing one for yourself to use with your Mac. Let’s discuss the way you use these gadgets to move the pointer on the screen.

Trackball

The trackball is like an upside down mouse. There is a large ball on the top of the gadget which you roll with your index and middle fingers. As you roll the ball to the left, the cursor on the screen will also move to the left. You can roll the ball in any direction you like, and the cursor will follow. Some people find the trackball much more intuitive to use than the mouse because it stays in one location. Conversely, a mouse must be picked up, brought back, then moved in repeated fashion to bring the cursor from the left side of the screen to the right side of the screen. The trackball is certainly a better choice than a mouse for a person with a messy desk. You can simply pick up the trackball and place it on top of a pile of papers.
Most trackballs have a number of buttons, often four or more of them. This can accommodate both right handed and left handed people by placing buttons on both sides of the trackball. Usually, trackballs come with some special software for manipulating what happens when you click on a particular button. You will need to read the manual which came with your trackball to see how this works. Sometimes people designate one button to be a “click” just like on a normal mouse button. A second button might be designated as a “double-click.” By doing this, they don’t have to click twice anymore, they can simply click one particular button to have it register as a double-click. A third button might be designated a “control-click.” This saves you the trouble of otherwise having to hold down the “ctrl” key on the keyboard while doing a standard click. A fourth button could be used to signify a “drag” response.

A trackball is easy to double-click with since you don’t have to touch the ball and can simply press twice on the clicker or designate a special button to do the double click. On the other hand, a trackball has an inherently difficult time doing a drag. With a mouse, it is easy to click on an item then drag the mouse to a new location. With most trackballs, you have to click on a button with your thumb then use your other fingers to move the ball. This requires a bit of hand flexibility that not everyone has. It is important to look in your trackball’s manual to see if you can set one of the buttons to do a “drag lock.” With drag lock enabled, the first time that you click on a file it will be a “pick up” message. You are then free to let go of the button and move the file anywhere you want on the screen. When you click on the special “drag lock” button a second time, it will be a “let go” message to your Mac. Once you have set up a trackball to use the drag lock button, dragging becomes just as easy to do with a trackball as it is with a mouse.

It is best to move your arm, not your finger, as you roll the trackball. Of course, your finger is attached to your hand (and your arm). The point I’m trying to make is that you should minimize the movements of your finger joints and wrist joint. Try to move the trackball with sweeping motions of the arm. Sometimes just using your fingers to roll the ball is ok but keep this action to a minimum to avoid repetitive stress injuries.

**Trackpad (touchpad)**

If you have a portable Macintosh, such as the iBook or Titanium PowerBook, you have a trackpad built into your computer. A trackpad fits much the same niche as a trackball, and it is used in a similar fashion. You have a thin rectangular piece of film which is sensitive to the touch of your finger. As you move your finger across the film while sweeping it to the left, the cursor on the screen will also go to the left. Just as with the trackball, you can sweep your finger in any direction on your trackpad and the cursor will follow. If you get to the edge of the trackpad but want to continue
Tracking Speed going in the same direction, just pick up your index or middle finger then bring it back to the center of the trackpad and sweep again.

The trackpad does not feel the force with which you press on it. Your body's electrical current is what the trackpad can sense. If you have quite a bit of energy in your body, it is actually possible to move the cursor by merely bringing your finger close to the trackpad. This means that even the slightest touch or sweep of a finger will register as movement to a trackpad. If you experience some awkward behavior with your trackpad, such as the cursor jumping back to the original spot after lifting your finger or the cursor not even moving at all, the problem is not the lack of force with which you are pressing on the trackpad but rather that your body has too much static electricity. To temporarily remove static electricity from your body, you can touch something grounded, such as the screw on the faceplate of a three pronged grounded electrical wall outlet. If this is a constant problem in the room where you keep your Mac, you should invest in a humidifier because static electricity is not only annoying when you try to use your trackpad but it is also a danger to your Mac. There is a chance that a spark from a static electricity discharge could damage your Mac.

A trackpad usually only has one clicker and it behaves just like the clicker on a mouse. Using the clicker to drag an item can be a little bit difficult if your hand is not flexible because you have to keep your thumb on the clicker then sweep your index or middle finger across the trackpad. It is better to set some options on your Mac where you can use the trackpad itself as a clicker. Click once on the smiling Finder icon in the lower left corner of the screen. Next, bring your mouse to the top left corner of the screen to click on the blue Apple menu where you will choose “System Preferences” from the menu options shown. In a second or two, the System Preferences panels will show up in their own window. Locate the panel titled “mouse” then click it once. You will see the screen shown here at left.

Pay special attention to the part of the mouse preference panel which says “Use trackpad for:” because this is where you can really make a trackpad much more comfortable to use. People who don’t adjust these settings and don’t take time to get accustomed to how to use them will never like a trackpad. That’s a shame because it means they always have to carry an additional mouse along with them every time they want to take their portable computer out somewhere.

Use trackpad for clicking means that every time you tap your finger on the pad, it will register as a click. A tap means your finger must come down for
an instant and then back up again. If you just drop your finger and rest it
there, it will not be considered a click. This is preferable to using the real
clicker button because while you are moving the cursor with your index or
middle finger, you can just do a slight tap on the trackpad for a click. This
saves a small amount of time and is more comfortable for your hand.

Use trackpad for dragging means that with a special tap sequence you can
drag items on the screen. This is very similar to the “drag lock” button on
a trackball. To do the tap sequence correctly requires a bit of practice. But
once you learn it, you’ll find it fairly easy to use. First, you have to tap on
the object you want to drag. This requires you to bring your finger down
and then up off of the trackpad. Second, in the brief instant that your finger
came up from the trackpad you need to bring your finger down and then
sweep it in the direction you want to go. That’s it! the tap sequence is a two
step process; your object is now in a locked position. You can drag the
object around to anywhere you like on your screen. You can even lift up
your finger to bring it back onto the trackpad to sweep again. Once you’ve
got your object in the place that you want it, simply tap once more on the
trackpad to release the object (or pause for a second or two and the object
will automatically be released). There is an additional option listed called
“Drag lock (tap again to release)” which extends the amount of time your
finger can be in the air by forcing you to tap once more to drop an object.

Ignore trackpad while typing is useful for people who accidentally brush their
fingers onto the trackpad’s surface while they are typing. This can be frus-
trating because you could be typing in one location one minute but then the
next minute, you’d be typing in some other strange location because your
thumb accidentally tapped the trackpad while you were typing. If your
typing posture is correct, you should never have this problem. You should-
n’t be resting your palm or your thumb on any surface. If you are, you’ve
got a problem with your typing posture. You should really try to correct
your posture rather than selecting “Ignore trackpad while typing.” The rea-
son is that bad posture could cause you to get a repetitive stress injury
which would be similar to severe arthritis.

Ignore trackpad when mouse is present is probably a totally useless option.
What it means is that if you were to attach a mouse to your Mac then dis-
able the trackpad. I don’t see why someone would want to do this. Seems
better to me to leave the option open for you to use either the trackpad or
the mouse at any time. On portable computers which have a mouse
attached, I find myself sometimes using the mouse and sometimes using
the trackpad. If I’m doing a lot of typing, I’ll use the trackpad but if I’m just
doing a lot of cursor movements, I might use the mouse.

Just like with the trackball, you should try to move your entire hand and
arm together as you sweep your finger across the trackpad rather than try-
ing to wiggle your digits for the sweeping motion.
Tablet

Tablets are the nicest, perhaps the most intuitive, gadgets for moving your cursor on the screen. To move the cursor, you keep the stylus about a half inch above the tablet’s surface. Learn to rest your hand on the tablet and slide your hand as you would if you were writing a letter. The size of your tablet is directly related to the size of your screen. The top left corner of the tablet translates to the top left corner of your screen. Likewise, the bottom right corner of the tablet translates to the bottom right corner of your screen. This makes it fast and effortless to go directly to where you want to on your screen because you can point to exactly where you want to go.

To click with a tablet, all you need to do is bring the stylus down and tap once then bring the stylus back up into the air. To double-click, you just tap twice or click a button on the side of the stylus (if it has one). To drag an item, just bring your stylus down and keep it down while you drag the item then simply lift up and away from the tablet to drop the item.

What is a Window?

A window, in normal everyday life, is something that you can open and shut or look out of. On a Macintosh, a window is something for you to place a document in or for software to display items on. Each document you have open will be in its own window. You can open windows, you can close windows and you can even temporarily hide them. In the graphic below, we see a typical Mac OS X window:

The title bar displays the name of the document. In the example on the left side of the page, “Untitled.txt” is the name of the document. If you use the mouse to drag the title bar, the window will move allowing you to place it somewhere else on your screen. If you double click on the title bar, the whole window will rapidly shrink then fall to the bottom of the screen in a minimized form. If you click once on the minimized window at the bottom of the screen, it will quickly increase in size then return to where it came from.

The resize handle, in the bottom right corner of the window, allows you to make the window a different size. If you click and drag the resize handle, you can change the window’s dimensions to make it short but wide, tall but thin, square or rectangular.
The red close button will close the window and only needs to be clicked once (you shouldn’t double click). If the document has recently been saved, it will probably just immediately close. If you’ve made some changes to your document, you will be asked if you’d first like to save those changes before the document is closed.

The yellow hide button is also called the minimize button. When you click this button, it will make the window quickly shrink then fall to the bottom of the screen and become a miniature of what it once was. If you later click on the miniature window, it will spring back to life then go back to where it was before you minimized it. This is useful if you have too many windows on the screen and you’d like to clean up your display a little but still have the document handy by de-minimizing it at a moment’s notice. Double clicking the title bar has the same effect as clicking on the yellow button.

The green expand / shrink button is used to quickly resize the window. The first time you click it; the window will expand to fill up the maximum amount of space it needs to use. The next time you click the green button; the window will return to its previous size. Each time you click the green button it will toggle between expanding and shrinking. For more precise control of the size of your window, you should use the resize handle in the bottom right corner.

Some documents can go on for many pages making it impossible to show all their contents in a window. When this happens, a little scroll dial will appear on the right hand side of the window. By using this scroll dial, you can thumb through the whole document like you might do with name cards in a rolodex. The scroll dial on the right side of the screen has a special name; it is called a scroll bar. When the blue scroll knob is at the top of the scroll bar, you are looking at the beginning of the document. Conversely, when the blue scroll knob is at the bottom of the scroll bar, you are looking at the last page of the document. The arrows in the scroll bar allow you to move through the document in the direction the arrow is pointing by clicking on the arrow. When you click on the empty space inside the scroll bar, the window will advance one page at a time. See below for an example:

**ScrollBar** - you use the blue knob on the scroll bar to view different parts of a document which is too large to fit in one window. You can simply drag the blue knob to move to the portion you’d like to view. In this example, we see the beginning of the document (top window) and the last page of the document (bottom window).
The Dock

The Dock is a special strip at the bottom of your screen. The three main purposes of the Dock are: 1) make your favorite software easily accessible 2) let you know what software is running 3) allow you to temporarily place a minimized window. Here is what the Dock looks like:

![Dock diagram](image)

Desktop - the Mac’s analogy to the office work environment. You can arrange pictures representing documents on your screen. You can organize documents by putting them inside of folders or discard them by dropping them into a picture of a trash can.

Application - another name for “software title.” It is a term given to any tool you use to create documents.

Adding icons to the Dock is as easy as finding them in a Finder window, dragging them down to the Dock and dropping them there. To remove an icon from the Dock, just drag it away from the Dock and let it go. It will vanish in a poof of smoke. Remember, items in the Dock are just shortcuts. They aren’t the actual items they represent.

Your Dock probably looks very similar. Let’s list the software titles from left to right starting with the smiling face: Finder, Mail, Internet Explorer, iTunes, Sherlock, QuickTime Player, System Preferences and Grab. If you move your mouse pointer over any of your items in the Dock, it will display the name. Go ahead and try it. Any of these software titles can be started by clicking on them once. They will bounce up and down a few times to let you know they are opening. Once a software title is open, there will be a small black triangle underneath its icon. This is a visual reminder to you that you have this software title open. If you want to open software that is not shown in the Dock, you will need to “double click” their icon from a Finder window. After double clicking them, their icon will be shown bouncing in the Dock and have a black triangle underneath them. When you quit a software title, the triangle will disappear. If the software title was not already placed in the Dock, its icon will also disappear from the Dock. To make a software title’s icon stay in the Dock, you need to drag the icon from a Finder window then drop it in the Dock.

There is no limit to the number of items you can stick on the Dock. If you add lots of icons to the Dock, each one will shrink, so that they all fit and are visible. If you stick one hundred icons in the Dock, each one will be teeny tiny. Adding icons is as simple as dragging them from the Desktop or a Finder window then dropping them on the Dock. Removing icons is just a matter of clicking on the icon in the Dock, dragging it off the Dock and letting it go anywhere in the Desktop. When you remove an icon, it will disappear with a poof of smoke.

There is a thin vertical divider line in the Dock which separates applications on the left from documents and miniaturized windows on the right. If you click on the thin divider line then drag it left or right, you can resize the Dock making it bigger or smaller. If you “control click” the thin divider line, you’ll be given several options. Should you choose the “magnification”
option, each icon in the Dock will enlarge as you move your mouse over them making it easier to view. In my opinion, this looks really neat but is not all that useful. There is an option to “hide” or “unhide” your Dock. Hiding your Dock makes it disappear but if you move your mouse all the way to the bottom of the screen, the Dock will creep up from the bottom. You turn on hiding when you want to maximize your workspace and simply move your mouse all the way to the bottom of the screen to make the Dock reappear for just a moment. Control clicking on the thin vertical divider also gives you the option to move your Dock to either the left or right side of your screen. There is no real advantage of doing this except that some people prefer for their Dock to be someplace other than the bottom of the screen. The last option you have when you control click on the thin divider is the ability to change the way a window looks when you minimize it. Some methods are prettier but slower than others. You can pick a style you like best.

On the right side of the thin divider is where you can put documents and folders that are important to you or that you use often. Once you put an item in the Dock, opening it only requires a single click. If it’s a folder you put there, clicking on it will open the folder in the Desktop. If you click and hold the mouse button on a folder icon in the Dock, you’ll be given a menu where you can pick a file to open inside the folder.

When you double click the title bar of a window or when you click the yellow button on a window, it will cause the window to shrink and drop in a minimized form into the Dock. These minimized windows always fall to the right of the thin vertical divider. It’s a lot of fun to watch the windows miniaturize. There is a secret way to slow down the process so you can wow your friends. Hold down the “shift” and “ctrl” keys together then double click on the title bar of a window. Alternatively, to bring a window back to its normal state, you can just click on its miniature icon in the Dock. However, if you hold down the “shift” key then click on the icon, it will come back slowly. This is really pretty!

The Desktop’s trash can is in the Dock and sitting on the far right. To put an item in the trash, just drag it and drop it on the trash can. The trash can looks like it’s made with a wire frame, so when it’s empty, you can tell just by glancing at it. On the other hand, if you’ve dropped at least one item in the trash can, it will show some garbage piled inside of it. Items that you put in your trash can are not removed from your Mac. They are merely waiting for you to remove them. You have to go to the “Finder” menu to empty trash but we’ll talk more about that later. Alternatively, you can “control click” on the trash can to get an option to empty it.

The easiest way to remove a disk from your computer is to drag the icon for a disk to the trash can. This does not erase the disk; it is just a quick and simple way to eject a disk. This part of the Desktop is not immediately intuitive but after you’ve done it once or twice, you get the idea. Dragging files

There is a secret way to slow down the minimizing of a window. To amaze family and friends, hold down the “shift” and “ctrl” keys as you double click on the title bar of a window.

The easiest way to remove a disk from your computer is to drag the icon for a disk to the trash can. This does not erase the disk; it is just a quick and simple way to eject a disk.
and folders to the trash puts them in the can but dragging an entire disk icon to the trash pops out the disk.

**The Finder**

For many people, the word “Finder” and the word “Desktop” are synonymous. The Finder is the name of the software title which allows you to view all your files and folders as icons. In the Dock, you see the icon for the Finder in the far left hand side represented by a smiling face. The name “Finder” is a curious one. Unfortunately, I don’t know the history of how it came to be. Ever since the first Macintosh back in 1984, there has been a Finder. I suppose it has something to do with being the first office desktop analogy on a computer. When the engineers at Apple moved from the Apple II computer to the Macintosh, they went from a keyboard interface with commands which were typed words to a mouse interface with commands which are mouse clicks. The word “Finder” sounds like a tool to help you find things. The people who developed the Macintosh probably reflected on the fact that they were using this piece of software to help them find documents and folders. “Finder” was probably a temporary name which later stuck.

You can never quit the Finder. Your Mac will not let you. It must always be running, so that it can give you a Desktop to work in.

You can’t quit the Finder. It must always be running and the smiling face icon representing the Finder in the Dock will always have a black triangle underneath to show you that it is running.

In the Finder, you can create windows which allow you locate and manage files on your computer. This is called a “Finder Window.” The following page shows what three types of Finder Windows look like:
The three Finder Windows above show the same three image files but they show them in three very different ways. The window at the top is called “column view,” and it is probably the best view to use. The middle window is called “icon view,” and the bottom window is called “list view.”

You can switch between different types of views by clicking the view buttons in the top left corner of the Finder Window. The examples shown above were created by simply choosing a different view.

You should experiment with each type of view but I recommend you put extra effort into learning how to use the column view. With the column view, you can find what you are looking for more quickly. It also gives you a better view of your file and folder organization.
As you click on folders in the column view, a new column will show to the right of the current column. Inside the new column is all the files and subfolders which are contained in the folder. As you continue to click on subfolders, you will dig deeper and deeper as new columns will continue to appear to the right of the current subfolder. A scroll bar will appear at the bottom of the window, allowing you to easily view the entire hierarchy of files and folders by dragging the blue scroll knob left or right.

If you click on a file in the column view, a new column will appear to the right which will show a preview of the file (if possible). If the file is an image, it will show a small scale version of the image. If the file is a movie, you can watch a small scale version of the movie in the column which appears. In addition to a preview, you also see some information, such as when the file was created. If a column has too much information to view in the window, a vertical scroll bar appears allowing you to see everything by dragging the blue scroll knob.

The icon view is what was available with the Macintosh back in 1984. It shows files and folders as large icons that you can move around into any order you wish just like a real office desktop. If the files are all scattered and messy, you can go to the “view” menu at the top of the screen and choose either “clean up” or “arrange by name.” Both options save you the time of rearranging each one yourself. When you open a subfolder in icon view and want to go back to the previous folder, you need to click on the back arrow at the top left corner of the Finder window.

The list view is good for quickly viewing files in a particular folder according to some statistic. The list view has four columns titled: Name, Date Modified, Size and Kind. Clicking on the title of each column will then sort all the files based on that column. For example, if you click on the “Name” title, all the files will be sorted in alphabetical order. If you click on the “Name” title a second time, the files will be sorted in reverse alphabetical order. In the same fashion, you can sort files by the date they were last modified by clicking on the “Date Modified” title.

At the top of all Finder Windows are a few short cut icons, such as “Computer,” “Home” and “Applications.” Clicking on these icons are like hot buttons that will jump you to a place on your desktop. Clicking on “Computer” will take you to the very top level of your Desktop. Clicking on “Home” will bring you to a location where you should keep all of your personal files. There are folders already created for you in the Home folder for “Documents,” “Pictures,” “Movies,” etc. Clicking on “Applications” will take you to the location where most of your software titles will be stored. Double clicking any of the software titles in the Applications folder will cause them to open up. Software titles which you use often should be dragged down to the Dock, so that you can access them with just one click.
To create a new folder, go to the “File” menu at the top of the screen then select “New Folder” from the menu. To put files inside a folder, simply drag them with the mouse and drop them on the folder. You can put as many files as you like in a folder. You can also put folders inside of other folders, thus making them “subfolders.” To create files, you need to save them when using a particular software title. We’ll do this a bit later in the AppleWorks chapters. At any time, you can rename files and folders by just clicking once on their name in the Finder window and then typing a new name. There is one exception to this. If the file is already open for editing with a software title, you should first close the document’s window and then rename the document.

When you don’t want a file, you can drag it to the trash. If you don’t want a whole folder filled with files, you can simply drag the folder to the trash. To empty the trash, go to the “Finder” menu at the top of the screen then select “Empty Trash.” To select more than one file at a time, press down the key which looks like a cloverleaf and keep it held down as you click the files you want with the mouse. Now, let go of the cloverleaf key, click on any one of the selected files and drag it where you want to go, perhaps a folder or the trash.

The key which looks like a cloverleaf has a name. It is called the “Command” key. It is unique to the Macintosh and not available on most other computers. If you look carefully at different menus, such as the “File” menu at the top of the screen, you’ll notice that many menu options have “Command key” combinations listed. If you push the command key combination on the keyboard, it has the same effect as if you went to the menu and selected the option with the mouse. For example, printing can usually be done by going to “File” and then selecting the “Print” option. You could instead hold down the “Command” key, keep it pressed and then use another finger to tap the letter “p” on the keyboard. After tapping the “p,” you can release your fingers from both the “p” and “Command” keys.

Here is a list of common Command keys: Command-p for print, Command-o for open, Command-n for new document, Command-w for close window and Command-f for find. You don’t have to use the Command keys if you don’t want to. You can do everything with the mouse. The reason people use them is because they get results faster by quickly tapping a key combination rather than using the mouse to select a menu option. Don’t try to memorize all the Command key combinations. Just learn a few that you use often. If you ever forget a Command key combination, just use the mouse to pick the option from the menu at the top of the screen then look at the Command key combination listed there to jolt your memory.

Remember that the Macintosh Desktop is an analogy to a real world office desktop. The analogy is not perfect but it is pretty close. When you get comfortable with the Mac Desktop, you’ll probably prefer it over the real thing.
It does take some time to learn and requires quite a bit of experimentation. It’s an interesting idea to get rid of textual commands, replace them with image icons and a mouse and then make an analogy to an office desktop. While you’re learning how to use the Mac, think about what you might do if you were to tackle this problem yourself. What would you do to make a computer both easier to use and more productive? See if you think Apple has done a good job then see if you can think of improvements.

When Steve Jobs left Apple in the mid 1980’s, he started a new computer company called NeXT. In 1997, Apple acquired NeXT and Steve Jobs returned to Apple. The current Mac OS X is based on the operating system used on the NeXT computer. One of the many enhancements NeXT made was the introduction of the “column view.” Previously, only the “icon view” and “list view” were available on the Macintosh. This is a good example of how to extend and improve on the original idea of the Mac Desktop.

Probably very few, if any, of your ideas will be new and original. That’s ok! What you’re doing is becoming computer literate. As you think of “what if they did this” type of ideas, see if your Mac can already do what you are thinking. Soon you’ll start being able to guess what a software developer was trying to achieve when they created the software you use. It’s impossible to memorize all the little steps computer literate people utilize when they are at the computer. What you need to do is develop a new thought process. In other words, don’t be a parrot which can only imitate English sentences. Instead, take the time to learn the grammar, and you’ll be free to create your own sentences.
TEXT INPUT OPTIONS

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You might think the only way to get text into your computer is with a keyboard. For those who are skilled typists, that is certainly the fastest and best way to go but you'll be happy to know there are alternatives. We'll discuss all the possible ways to enter text in this chapter.

Typing

Not everyone enjoys reading but most who do will tell you something interesting. They'll tell you that they can read faster than they can speak. This means that in the time that it takes to watch a movie, a person who enjoys reading could have just experienced a story with two or perhaps three times as much depth by reading a book. This is a big reason why when a book is adapted into a movie, they always have to cut parts of the book out of the film.

The reading example is just to get you thinking about something which you already knew but perhaps never gave much attention, so that we can be in the right mindset when we discuss typing. I've found that a lot of people look down upon typing skills. For some reason, it is considered simply a mundane skill that is better left for a secretary.

I'd like you to know that you really should be a touch typist. That is unless you have severe arthritis or another physical condition which would prevent you from typing. If you currently can only "hunt and peck" with one or two fingers, you should enroll in a typing class at a community college for three months. What is touch typing? It is the ability to use the keyboard without looking at any of the keys.

The reason touch typing is such a big deal is because it opens up a whole new world. Good touch typists can type almost as fast as they can read, which is much faster than they can talk and immensely faster than they can write by hand. This means that if you are the creative sort, you can type down your ideas almost as fast as they pop in your head. If you have to write them down with a pen, you may forget half of them, and it will take you at least twice as long. Knowing how to type is very liberating because you don't have to rely on a secretary. You have total creative control at any time of the day or night.

Some people become pretty good one or two fingered keyboard jockeys. They can type fairly quickly by looking for the key and using one or both index fingers to hit the keys. One problem with this is that while it is faster than writing by hand with a pen, it is slower than touch typing. The most important problem with the "hunt and peck" method is that it is mentally
Tablet - a pointing device which is better than a mouse. It is basically a flat piece of plastic which you use to write on with a special stylus (think "special pen").

You actually use a lot of mental concentration to find all those keys. Those who can touch type simply think of a word, and it just magically comes up on the screen. Eventually, it becomes a kind of gut reflex just like talking is.

You will enjoy computers a lot more when you know how to type well and in addition, you'll increase your creativity. I can promise you that!

**Handwriting**

An important part of many (but not all) human cultures is the art of the written word. For a long time, we have been putting pen to paper to effectively communicate with other people.

For many years, the only way to put ideas into a computer was to type them but this is no longer true. In Mac OS 10.2, you can now use a tablet to write with your computer. Writing on a tablet with your Mac is not exactly the same as writing on paper. For one thing, you never see anything on the tablet. Each stroke of your stylus appears on the computer screen. Secondly, your Mac will look at what you've written and then type it for you just like it was your personal secretary.

Apple gives this special handwriting technology a name, *InkWell*. The nicest thing about writing with your computer is that now you can modify your work and save it too. It is very easy to underline the text which *InkWell* types for you, make it bold, italicize it, etc. Even though what you have written may be in your own cursive hand, your Mac is smart enough to figure out what you've written and then type it on the screen.

This technology is not really useful for touch typists but it is useful for those people who can't currently type well. Writing is much less stressful than hunting and pecking for the keys on the keyboard with your index fingers. If you do not like to type, *InkWell* is a great alternative. Sometimes, just like a real secretary, *InkWell* may make mistakes in reading your handwriting. You may have to write some words over again or perhaps use the keyboard to correct errors.

A company named Wacom makes good writing tablets for the Macintosh. The least expensive of which is the "Graphire2" at $100. You can pay more for a tablet but for most people there is no need to do so. The Graphire2 works well and is a sure bet for all but the most demanding individuals. If you pay more, what you’ll get is a larger surface area to write on and even greater sensitivity to your hand movements. You can phone Wacom at 1-800-922-9348.

After you purchase your writing tablet, just plug it in and install the necessary software to use it. When you are using software that you’d normally
have to type in, just start writing in cursive on the tablet instead. Write at a normal speed; do not write too slow. As your words are written, they will be transcribed for you into typewritten text. Don’t wait for each word to be transcribed; just write as fast as you can. The computer will catch up to you. This takes a little bit of practice to feel how this works but you’ll get the hang of it very quickly.

**Dictation**

Perhaps you’ve sprained one of your hands making it impractical to type, what can you do? Suppose the hand you sprained is the one you write with, so you can’t write on your tablet or a sheet of paper either. Do you just have to wait for your hand to heal? How does a person with no arms and no legs use a computer? The answer to all these questions is to use dictation software, of course!

Dictation software is pretty neat. You can talk to your computer with your normal speaking voice, and it will type what you say as you speak. You need a sensitive microphone and special software to make this work.

This technique works reasonably well for many people. Problems do arise when you get a cold or when you develop a cough. Sometimes it will try to make your coughing and wheezing into a word and type some nonsense on the screen which you’ll have to erase.

Most people can talk faster than they can write and with much less effort. In my opinion, there is a bit of a learning curve to master how to use dictation software, and you’ll need to train your computer to get used to your voice for it to be really effective.

One downside of using dictation software is that your voice will get hoarse if you speak too much. Also, you may annoy other people in the room if they have to listen to you keep talking to yourself.

New York Times columnist, David Pogue, and AppleLinks contributing editor, Charles W. Moore, both suffer from serious problems which prevent them from typing on the keyboard. David has carpal tunnel syndrome. Charles struggles with fibromyalgia which causes pain from his fingertips to his neck (and indeed all over). In spite of this, they are still able to crank out text with the help of dictation software.

Generally considered to be the best software for dictation is “Dragon Naturally Speaking” from a company named Dragon Systems which was acquired by ScanSoft. At one time, there was a clunky version available for the Macintosh; however, they now only support the Microsoft Windows PC. David Pogue uses this software on a PC and then transfers his files to a Macintosh for further editing. The cheapest version sells for $60 and is
IBM has a software product called “ViaVoice” which is considered to be almost as good as Dragon Naturally Speaking. The good news is that it has a Mac OS X version which is both fast and accurate. On the downside, the software has not been significantly upgraded in two years, and people question IBM’s commitment to the Macintosh. It has been known to have installation problems and often will stop working when you update to the latest version of Mac OS X. In addition, IBM is slow to release updates or create workarounds. These nuisances aside, Charles W. Moore successfully uses ViaVoice as a professional writer.

ViaVoice comes in two flavors. The least expensive version is probably all most people will need. It costs $60 and is called “ViaVoice Simply Dictation for MAC OSX V3.” It uses a special software tool to dictate text which you can later transfer to another software application. The software tool allows you to speak commands to correct text or otherwise edit what has been transcribed. This version does not come with a microphone, so you’ll need to additionally purchase one. The more expensive version costs $125 and is called “ViaVoice for MAC OSX V3.” This version includes a microphone and the ability to speak directly into a handful of other software titles. Many people complain about the quality of the microphone and the support for other software titles is limited. This makes the extra expense of the top of the line version of limited value. You can purchase additional dictionaries for specialized professions, such as medical and legal, to make the software more capable of handling complex terminology. These professional dictionaries are available for both versions of ViaVoice. IBM distributes ViaVoice through ScanSoft, the same company which sells Dragon Naturally Speaking. You can order either ViaVoice version by phoning ScanSoft at 1-800-654-1187.

There is one product that is available only for the Macintosh named “iListen” from a company named MacSpeech. It sells for $100 without a microphone or $150 with one. They licensed the dictation technology from Phillips. Unfortunately, the accuracy and speed of this software is not quite as good as ViaVoice and Dragon Naturally Speaking but it’s not bad either. On the upside, they did a much better programming job and iListen integrates more easily with Mac OS X. Installation is straightforward and you can dictate directly into any Mac OS X or Mac OS Classic application. They have been steadily releasing significant upgrades and shown dedicated commitment to the Macintosh. If only they could integrate the ViaVoice technology into iListen, we’d have the perfect solution for dictation. You can order iListen from MacSpeech by phoning 1-816-373-4506.

The bottom line is that both handwriting software and dictation software are useful ways to get your thoughts into your computer. Both methods address different needs but they are not as good as being able to touch type.
WHAT IS THE INTERNET?

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What is the Internet?

For some people, the Internet is the single most important reason to own a computer. In simplest terms, the Internet is many computers across the world all connected to each other. If we break the word Internet apart, we get the prefix inter which means “between” and the suffix net which is short for “network.” So the Internet is a bunch of computers networked together and able to share information between each other.

In the beginning, the Internet started out as a research project to connect computers in a handful of universities in the United States. Later, the US government got interested in the project and extended it to include government agency computers in the network. The thought at the time was that the Internet could be an essential method of communication in the case of nuclear war. Having many computers across the entire United States which could communicate with each other seemed essential.

Eventually, the US government opened up this computer network to the rest of the world and thus the Internet came into being. It is quite amazing to be able to communicate with someone in Korea through the electronic pulses your computer generates on the Internet. It is now possible to read the local news for just about any country in the world over the Internet.

A similarity can be seen when we compare the Internet to short wave radio. In the past, the only way for regular people to easily and inexpensively communicate with people from other countries over long distances was by short wave radio. To do so required not only radio equipment but also a license as an amateur radio operator. Once you obtained your license, you were given a call sign and were free to communicate with your short wave radio.

The first people to start making wide use of the Internet were the amateur radio operators. Short wave radios are still used today but the Internet has replaced a good deal of that form of communication. Not only does the Internet have more functionality, but it is also easier to learn and requires no license.

Internet Service Provider or ISP

You need to pay someone a monthly fee to access the Internet. This is called an Internet Service Provider or ISP. The price of your fee depends on who your provider is and how fast they let your computer send and receive information. You should think of Internet access as a lot like telephone service, in fact, most telephone companies are also Internet Service Providers.
Never use an ISP which would like you to sign up for longer than a year. The better ISPs let you pay month to month.

Picking a good Internet Service Provider is hard but there are a few things you should be aware of. You should always try to pay on a monthly basis. Sometimes you may sign up for a year contract if the deal sounds good but never sign up for more than a year. If an Internet Service Provider offers you an option to pay for two or three years in advance, that should be a warning light. Stay away from this company. Just like with your long distance telephone carrier, you should always have the option to change Internet Service Providers if at some point you become dissatisfied with your current service.

Generally, small outfits are better than big companies when it comes to Internet Service Providers. I've found most telephone companies and most large companies to be poor Internet Service Providers. Few give good support and many don’t even have a stable connection to the Internet. A small Internet Service Provider is likely to give you a phone number to the owner’s home or place of residence where you can call when you have questions. They want your business and since they are usually the owner, they will take good care of you. In the subchapter titled “Researching quality ISP services,” we will discuss in more detail about how to find an Internet Service Provider and get connected to the Internet.

Email or electronic mail

We have all sent letters to friends and loved ones. Some of us send letters all the time; others of us are barely able to send birthday cards once a year (sometimes we don’t even do that!). What we usually don’t remember was how hard it was for us to send our first letter. It is actually fairly complicated to send a letter. You need to correctly address the From: and To: sections and not get confused which goes where. If you’re afraid you might get it wrong, you can always explicitly state the From: and To: sections on the envelope. You also need a stamp and if you are going to mail this letter outside of your country, you’ll need a special amount of postage which you’ll have to figure out. Let us not forget the postal addresses because they are fairly complicated, each with a person’s name, street name, street number, state or province, city and zip code.

So what is Email and how is it different from regular postal mail? Email stands for electronic mail. Basically, it lets you send letters to people over the Internet. What I’d like you to know is that while Email may be new to you, it is a lot easier than postal mail. If you can send letters through postal mail, you’ll have no trouble with Email.

To use Email, you need to have an Email address. With regards to your postal address, everything but your name is chosen for you based on where you live. Your street name, street number, zip code, etc. are items that are given to you. The same is true with an Email address. Usually, you can
choose your name but the rest of your address is given to you by your Internet Service Provider.

Let’s look at the Email address for the CEO of Apple, Steve Jobs. His Email address is “steve@mac.com” and that’s all there is! You would read this address as “Steve at mac dot com.” Most Email addresses are just as simple, only one line and usually just a few words. At this moment, you may not fully appreciate what the Email address implies but you must agree that it certainly looks simpler than a postal address.

The most striking part of an Email address is the “at” symbol which separates a person from the Internet Service Provider. The “at” symbol looks like a lower case “a” with a circle around it like this @. You can type an @ symbol by holding down the shift key then pressing the number “2” located just above the “w” key on the keyboard.

Preceding the @ symbol is a person’s short name. With “steve@mac.com,” we see that “steve” is what Steve Jobs chose to be his short name. It is common for people to choose their last name preceded by their first initial. So had he chosen “sjobs@mac.com,” it would have also been a reasonable choice. There can only be one “steve” for a particular Internet Service Provider, such as “mac.com.” If someone else using “mac.com” for their Email would like to use the short name of “steve,” they might have to choose “stevel” or “steve2” because “steve” is already being used by someone else.

After the @ symbol is the address of the Internet Service Provider. In the case of “steve@mac.com,” the address is “mac.com.” The part of the address before the “dot” (or period) is something a company can choose. In this case, because it is a service from Apple, they chose “mac” which is short for Macintosh. The part following the “dot” (or period) is representative of the type of company and is a little bit like a zip code for postal mail. Zip codes group people by small regions within a city. The last word following the “dot” (or period) in the Email address is typically one of the following: “.com” for commercial businesses, “.org” for non profit organizations, “.gov” for government organizations or “.edu” for educational institutions. Sometimes you may see yet another “dot” or period followed by a two letter word which represents a country code. Examples are: “.tw” for Taiwan, “.cn” for China, “.ca” for Canada, and “.nz” for New Zealand. If you switch Internet Service Providers, you may be able to keep your short name but the part after the @ symbol must change to reflect the address of the new Internet Service Provider.

When an Email is sent, the letter does not go directly to the recipient’s computer. Instead, it goes to a special holding computer at the recipient’s Internet Service Provider. There it waits for the recipient to pick it up, much like a P.O. box. It actually just takes a matter of seconds for your Email to get to its target location. For all practical purposes, you can consider it instantaneous. That special holding computer has a unique name. It’s called

The Email address “steve@mac.com” is pronounced “Steve at mac dot com.”

Because Email gets to the recipient so quickly, computer literate people often give postal mail a new name, snail mail.
**Server** is the name given to a computer which runs around the clock supporting Internet services. An Email server is a computer which acts like a post office.

A **Web page** is an organized grouping of text and pictures. A **Web site** is a collection of Web pages formed around a particular topic.

An **homepage** is the Web site of an individual. You can go there to learn what they look like and what their interests are.

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A server. The server gets its name because it is there to serve you. People do not stand in front of a server to work or write letters. Servers run twenty four hours a day seven days a week just to make Email and other types of Internet services possible. You should think of the Email server at your Internet Service Provider as your local post office. Strictly speaking, Email that gets sent to you, first gets passed through many other Email servers before arriving at your Internet Service Provider. In that sense, it is exactly like postal mail in that it gets passed from post office to post office until finally arriving in your P.O. box.

### WWW or World Wide Web

Imagine a newspaper with color photographs. That’s not so hard. Most Sunday papers come in color these days. Now visualize that the newspaper has video and audio. Instead of just seeing a photograph of an event, you could actually see part of, or perhaps all of, the event just by touching a part of the newspaper which said “show me.” Suppose this newspaper not only showed headlines from today’s New York Times, but also showed headlines from the Washington Post and nearly every other newspaper in the world! Wouldn’t it be nice if this super newspaper could define a word for us that we didn’t understand just by clicking on it? Wouldn’t it be grand if after reading an article about a new product, we could immediately be given a list of places to buy it? Now the toughest part, imagine that such a marvel of a newspaper exists and is available every time your computer is connected to the Internet. It really does exist! It is called the World Wide Web or WWW.

The World Wide Web is a cute name which implies that there is information available across the world and connected together in a zillion different ways just like a spider web.

Each single piece of organized information which is put in the form of a page of text with pictures is called a **Web page**. If there are many pages put together based around a particular topic or set of topics, it is called a **Web site**. You read each Web page much like you’d read a page of a newspaper with the added benefit that if there are movies on the Web page, you can also view the movies too. Most newspapers, including the New York Times and the Washington Post, have Web sites. If you go to the New York Times Web site, you can view much of what their printed paper has to offer right on your computer. You can even print pages if you like.

A special name is given to the Web site of an individual. It is called her or his **homepage**. People may create a homepage and place it on the World Wide Web to keep in touch with friends and family. It also serves as a good way to let people know a little bit about you; people who you might meet on the Internet. For example, if you were chatting with someone in Korea, a likely question might be “What do you look like?” If you had a homepage,
you could put pictures of yourself there for them to see. On your homepage, you can also put more interesting information, such as your resume, your hobbies and interests, photo albums or even a list of Web sites which you have found particularly interesting and would like to share with others.

You view the World Wide Web with a special software title called a Web browser. The most common Web browsers are NetScape and Internet Explorer (sometimes called IE for short).

**Newsgroups or USENET**

An often very useful service which can be found on the Internet is commonly called “Newsgroups” but is sometimes called USENET. This is actually a bad name for this service because it has nothing to do with news in the traditional sense, such as a newspaper. In actuality, it is a large set of bulletin boards with a nearly limitless set of topics.

A common use of Newsgroups is to place “for sale” ads or “wanted” ads. Another common use is to discuss a particular type of interest or hobby, such as how to train German Shepherds.

Just like a bulletin board in the lobby of an apartment building, Newsgroup content changes often and is only as accurate as the person who posts the message. Newsgroups have a bit of a learning curve and are generally not used until you’ve experienced the Internet quite a bit. They are of most use to scientists and technical people who post questions and answers on all kinds of interesting topics. Often times, scientists may feel like they are working alone but if they post a message to a particular Newsgroup, they may find that there are several other people struggling with the same experiments and they can strike up a dialog to help each other out.

You need special software to both read and post messages in Newsgroups. Sometimes you can use a Web browser to view a limited set of available Newsgroups.

**Six types of Internet connections**

I so very much wish that I could give you a simple solution. That I could recommend one company and one service. Unfortunately, it is not so simple. What I will do in this chapter is teach you how to shop for a good deal and find a service which is right for you.

Searching for a good company to get you on the Internet is a bit like searching for a good long distance carrier. It is a very competitive business and while a company may give you good service this year, perhaps next year
will be a different story. It is so competitive that many companies have been going bankrupt over the past few years.

Let’s start by discussing some terminology. What you want to find is a good ISP. What that means is you want to find a good “Internet Service Provider” which will connect your computer to the Internet (the big network of computers which encompasses the whole planet). This becomes like a standard utilities charge, so now in addition to monthly bills for gas, electricity, water and phone, you will also have a monthly bill for Internet access.

When information is coming into your computer this called downloading. When information is leaving your computer to go to the Internet this is called uploading. The faster you want to download or upload, the more money you’ll need to pay for your Internet service.

There are six main types of services you can purchase from an ISP to get your computer connected to the Internet. They are: 1) dial-up 2) DSL 3) Cable 4) ISDN 5) satellite 6) wireless

Dial-up is the most common way to connect to the Internet, and it was also the first. Did you ever notice that your Mac has a phone connector built-into it? If you didn’t, you should take a closer look. This phone connector is actually your modem. You can actually unplug your phone from the wall and then plug the cable right into your Mac’s modem. If you have dial-up service from an ISP, your Mac will actually dial a number to connect to a computer that your ISP maintains. The two computers communicate by doing some really fast beeps, pops, belches and squeaks. Think of it as a really fast morse code for computers. The term modem means “modulator-demodulator.” In plain English, it means that it takes an electronic impulse, turns it into noise for transmission over a telephone line, then converts it back to an electronic impulse that the receiving computer can understand.

Dial-up service is the least expensive Internet connection available but it is also the most frustrating because it is slow and often unstable.

Dial-up has its advantages. You don’t need any special gadgets to use it because your Mac has a built-in modem. As long as you have telephone service where you live, you can use dial-up service to get on the Internet. When you sign up with an ISP, they can give you dial-up service within a day. Another important advantage is cost. The monthly charges for dial-up are between $15 to $25. Dial-up service is the least expensive service.

Dial-up has its disadvantages. It is often unstable. Modems often have a hard time of staying connected longer than an hour at a time. You may think an hour of continuous use is long but actually it’s quite short. It’s very easy to be looking for information and to be sending some Email which go much beyond one hour; especially if you get up and get something to eat or go to the bathroom. Modems take a long time to connect. When you want to get on the Internet, you have to wait about one minute before your modem will get you connected to the Internet. This is because it first has to dial a phone number, the other computer has to pick up the call, and then
the two computers need to talk a little bit to be sure they are speaking the same language. If your ISP has too many customers and too few phone lines, you may have to put up with many busy signals as well. Perhaps the worst part about dial-up, for many people, is that the connection to the Internet is slow. It is fine for some things but if you are going to be spending more than fifteen minutes at a time on the Internet, you will want something faster. If you believe that "time is money," then actually, dial-up is not cost effective. Yet another disadvantage is that if you have only one phone line, then people can't phone you while you are using the Internet. If you have "call waiting," it will cause you to lose your Internet connection every time somebody calls. It is possible to temporarily disable "call waiting" but that defeats the purpose of having call waiting in the first place! You should consider a second phone line for your modem which might cost another $20 per month.

**DSL** can be a very nice service. It stands for "Digital Subscriber Line." With DSL, you need a special type of modem which sends a very different kind of signal on your telephone wires. What it sends is more of an electrical type of signal which allows it to operate much faster than an audible signal. Think about it, when us humans tap morse code, we can only tap as fast as the receiver can decipher it. When computers use a dial-up modem, they are basically doing their own kind of high speed morse code but if you put beeps too close together, eventually, it will just sound like one continuous tone. What all this means is that there are physical limits to the speed with which computers can transmit information and audible methods are slower than electronic methods.

**DSL** has its advantages. For one thing, it is fast. It is fast when transmitting information to or from your computer, and it is fast to connect to the Internet. In fact, with DSL, your special DSL modem is always connected to the Internet twenty four hours a day seven days a week. Whenever your Mac is turned on, it can instantaneously access the Internet. A neat trick with a DSL modem is that even though it uses your normal phone lines, you can still talk on the telephone and be on the Internet at the same time. This trick works because on the same wire, an electrical signal and an audible signal are being transmitted. The two signals are different enough not to bother each other. According to some people who had a bad dial-up ISP, the best part of using DSL is that you never have a busy signal!

**DSL** has its disadvantages. It costs more than dial-up, anywhere from $50-$100 and up per month! But remember you also can share one phone line simultaneously with both a telephone and the Internet. If you're lucky enough to have $50 DSL in your area, then it probably costs the same as having dial-up with a second phone line. Another disadvantage is that it can take up to a month to get your DSL service installed because your ISP has to make special provisions for your dedicated access, and a technician needs to come to your house to install the special DSL modem. Most of the time, the price of the DSL modem is included in the monthly service cost.
ADSL has a fast download speed but its upload speed is comparatively slow. SDSL is fast for both downloading and uploading information making it a better choice for those who like to video conference or use the Internet like a telephone.

but sometimes, it’s an additional charge. Perhaps the biggest disadvantage with DSL is that it is only available in larger metropolitan areas. A large segment of the US is not able to get DSL.

A word of caution - When people talk about DSL service, what they usually mean is ADSL which stands for “Asynchronous DSL.” There are many variants of DSL, and they all do about the same thing with the exception of the following two types: SDSL and iDSL. SDSL is “Synchronous DSL.” Its main difference is that it ties up your phone line, so you’ll need to buy an additional line for you to talk on the phone. iDSL is “ISDN over DSL.” Its main difference is that it is much slower than other types of DSL but available in many more locations. iDSL has the same performance as ISDN. We’ll describe ISDN later in this chapter.

Cable is another good alternative. Many Cable TV service providers now also provide Cable modem service. Its functionality is very similar to DSL but it works in a very different way. Normally, you only have a need to view movies on the Cable which comes into your house from your Cable provider. What this means is that information is coming into your home but no information is leaving your home. In Internet terms, this means that you are downloading data but you aren’t uploading anything. For your Cable TV service provider to offer Internet service, they need to build an extra infrastructure, so that they can receive information from you. In other words, allow you to upload. If you do decide to go with a Cable modem, a service man will need to come out to hook up the additional outgoing Cable and install your special Cable modem.

Cable has its advantages. It is fast, roughly about the same performance as DSL. Just like DSL, it is operational twenty four hours a day, seven days a week. Because you are using your Cable lines for Internet access, you don’t have to worry about tying up the phone line.

Cable has its disadvantages. It is more expensive than dialup. It usually sells for about $50 per month. It may take a month or so before the service people come to hook up your Internet service. If you are prone to having Cable TV outages where you can’t watch any of your shows, expect for your Internet connection to be broken during those times. The Internet connection you have is often shared with many other Cable modem users in your neighborhood. If everybody is trying to use the Internet at the same time, things may start to really slow down. If your Cable company is on their toes, they’ll see to it to reorganize the Internet congestion, so that everyone has a fast connection. Unfortunately, many Cable companies are not so good about doing this.

ISDN stands for “Integrated Services Digital Network.” This technology is not very popular today. It was the first technology to use a special modem which can send electronic signals over standard phone lines instead of using audible signals.
ISDN has its advantages. It shares many of the same advantages of DSL in that it is always on and it is faster than dial-up. ISDN is about four times faster than dial-up. You can use ISDN in places where DSL is not available; however, you still need to live in a fairly metropolitan area.

ISDN has its disadvantages. It is considerably faster than dial-up but it is also considerably slower than DSL and Cable. The price of ISDN is pretty expensive, often more than $150 per month. It might take a month for your ISP to hook up your Internet service.

*Satellite* service works by transmitting radio waves through the air between a dish in your back yard and a satellite hovering above our planet.

Satellite service has its advantages. You can use satellite service in the countryside, away from the hustle and bustle of the big city. It is about four times faster than a dial-up modem. The price is more expensive than dialup at about $70 per month but remember you won’t be tying up the phone line either.

Satellite service has its disadvantages. If there is a storm approaching, you may not be able to use your Internet service until the storm passes. Strange animals may do strange things to your dish. Also, while it may be faster than dial-up for browsing the Web, it is probably slower for other things which require fast back and forth communication, such as Internet games or talking over the Internet. This is because it takes a long time to send a signal to and from the receiving satellite. Once the signal comes; however, it can send data very quickly. Think of a satellite connection as a big truck going down the highway. It can carry a big payload but it takes a long time to startup, and it can’t change directions quickly. Now think of dial-up as a Porsche sports car. It can start and stop fast as well as change directions quickly; however, the payload is quite small.

*Wireless* service works by putting a radio transmitter on your rooftop. You need to be within four miles of the radio station in order to use this service. Wireless service has its advantages. It is fast! often faster than DSL and Cable. It can also be used around the clock twenty four hours a day, seven days a week. The main advantage it has over the other types of fast Internet connections is that it might be available in your area when others aren’t.

Wireless service has its disadvantages. The biggest disadvantage is that there are not so many ISP companies which provide wireless service. This is not really a disadvantage of the service. Just don’t expect that you will have this option available. The cost is usually about $50 to $75 per month.

We have covered basically all the different ways in which you can connect to the Internet. To a large extent what service you choose depends on where you live and what is available.
Time for another definition. As you’ve seen, just about all the different types of Internet connectivity are faster than dial-up. When grouped together, they are collectively called *broadband* access.

I strongly suggest that if you can afford it, you should purchase some form of broadband access. No matter how you use the Internet, the speed and convenience will be well worth it. Generally speaking, the smaller the ISP, the better the customer service will be. This is because every customer counts to a small company, and you may be able to talk to the owner directly. Another important consideration is to see if a broadband ISP provides dial-up access as a backup. This serves a number of important uses. For one, during the time it takes for your ISP to install your broadband connection, you can be using their dial-up service. Also, should something happen to your broadband connection, you could fall back to using dial-up. If you do a lot of travelling, you may prefer to sign up with a larger ISP since they might be able to give you dial-up phone numbers which you can use from around the country.

Another important item to look for in a good ISP is a month to month payment option. The longest you should ever plan to pre-pay for a service is one year but if you can do it month to month, it would be better. The reason is that the quality of ISP companies changes over time. Sometimes they get better but often they get worse. You don’t want to be locked into a company which is giving you bad service or even worse, goes bankrupt. Also, if a better deal becomes available with a competing ISP, you should have the flexibility to switch.

**National ISP companies**

I said there wasn’t one “best” ISP; however, I feel that there are two which are worth mentioning. The first is “Earthlink.” They are a large ISP with coverage throughout most of the USA. They suffer from problems that all large ISP companies suffer from, which is less than perfect customer service. On the other hand, they are better than many of the large companies when it comes to customer service, and they do officially support Macintosh customers. In fact, they are the only ISP which is officially endorsed by Apple. You can get many types of service from Earthlink. If you get dial-up service, it will cost you about $22 per month. If you get DSL service, it will cost you about $50 per month, and you have dial-up service as a backup. Cable service costs $42 per month. Satellite service costs $70 per month but can go up to $90 per month if you use the Internet often. ISDN costs $27 per month for the first one hundred hours then $1 more for each additional hour after that. As you can see, Earthlink has many different service options, perhaps the most of any ISP. They are worth looking into if for nothing else but to use as a baseline to compare other competitors against. You can call Earthlink with any questions you might have about their services and products at 1-800-395-8425.
Another important and very different ISP is “America Online,” often called “AOL” for short. America Online is mostly just a dial-up service. What makes it different from other ISP companies is that they use some special software to connect you to the Internet. This software is easy to use and set up. It also makes some things easier to do on the Internet. It takes care of your Email, your photographs and even has its own Web browser built-in. Basically, if you are using the special AOL software, there is nothing else separate that you need. This is a mixed blessing. It does make the Internet easier to use but then if you don’t like the tools built into AOL, tough because you are stuck with them. One nice thing about AOL is that you can try it for one month free. They do this because they hope you’re too lazy to switch and that you will genuinely like their service. Honestly, it is a pretty good service. Supposedly, you can get DSL or Cable access to AOL, though this is a relatively new development. If you’re stuck without an Internet connection, you might want to use AOL for at least a few months till you find something you like better. AOL costs $24 per month but can get a little cheaper if you pay for one year up front. You can call AOL to enquire about their service and to request a free CD with the special AOL software on it at 1-800-827-6364.

Researching quality ISP services

Up to this point, we’ve defined some important terms related to finding Internet service. We have also looked at the different types of connections you can get to the Internet and named some of the major ISP companies. What we need to discuss now is how to research what ISP offerings are in your area and to tell if they are any good or not.

One place you can look for local ISP companies is your local newspaper. You probably won’t find any customer reviews but at least you’ll find advertisements and can call up and talk to different ISP companies to see how you feel about their customer service.

Talking to a salesman can only tell you so much; therefore, you really need to hear directly from customers what they think about the service. You see, the sales people may be nice and the support staff may even be nice. But if their connection to the Internet is unreliable, you ought to know about that before you sign up with them. A common problem for an ISP is something called bandwidth. The literal meaning for this word is “throughput.” You see, all ISP companies give out Internet connections to many customers but the ISP themselves only has one connection to the backbone of the Internet. Think of the human body and think of yourself as the fingertips. Now imagine the ISP to be the arms, then the backbone is the central nervous system. In the case of the Internet, the backbone is the network cabling which connects all countries of the world to each other. If your ISP has many customers but a relatively narrow connection to the backbone (small
bandwidth), then customers will not be able to use the full speed of their Internet connection. In some cases, speeds become worse than standard dial-up. This is because all the customers must share the bandwidth which their ISP has to the backbone. The more customers an ISP has, the larger their bandwidth to the backbone should be. If you see an ISP giving extremely low prices for Internet service, this is probably because their connection to the rest of the world is quite narrow. You may buy a service from them which really does connect to their internal network at a very high speed. But if you have to share their narrow outlet to the Internet with all their other customers, you will have very slow transfer speeds. In such a situation, the only way to see a fast transfer speed would be for two customers from that ISP to transfer files to each other. But if you try to connect to a computer in another state or another country, the speed could be quite slow.

I know of only one good way to search for a quality Internet connection but unfortunately, it requires: 1) a connection to the Internet 2) knowledge of how to use a Web browser. You will learn how to use a Web browser later in this book, and you could sign up with AOL or Earthlink for a month or two. So perhaps, this is not so hard. Think positive!

You will need to go to this Web site:
http://www.broadbandreports.com/

A Web site is the name given to a computer which you can connect to with a Web browser. Web sites display content on a particular subject. Playboy has a Web site, Toys R Us has a Web site, and so does Barnes & Noble.

The “http” gibberish followed by a colon and two divide signs (called slashes) stands for “Hyper Text Transfer Protocol.” Basically, it is a command to retrieve the contents of one page from a Web site. What comes after the second slash is the Web site address “www.broadbandreports.com” To understand the address, you need to break it apart at the periods (the “dots”); the “www” stands for World Wide Web, the “broadbandreports” stands for the name of the Web site, and the “com” stands for a commercial company.

The Broadband Reports Web site gives a great deal of useful information. It can help you find all the different broadband ISP companies which service your area, including DSL, Cable, satellite and wireless companies. Many customers of the different ISP companies write in to this site and either give praise or complaints about their experience with their Internet provider. You should really read what they say, so you can gage what kind of quality you might get from a particular ISP. The Web site is well organized and will tell you just about anything you’d want to know. Unfortunately, I believe the amount of Web site navigation that a first time Internet user would need to do might be a bit daunting. Also, many of the people who post praise or complaints may not be using the Queen’s English which may
make it hard to follow what they are trying to say. Go ahead and try to use the Broadband Reports Web site yourself. You may find it’s not so bad. If you have difficulties using the Web site, enlist the aid of a friend and work on it together. If all else fails, go ahead and sign up with EarthLink or AOL. You can always switch a year or so later if you feel the need to do so.

Send electronic mail (Email)

In order to send Email, you need a special type of software title called an Email client. The software is called a “client” because it needs to connect to a computer on the Internet called a mail server. This mail server never sleeps and is always ready for you and other customers to connect and send mail. This is called a client/server relationship. Try to think of it with respect to a normal postal mail letter. You need to write a letter and then send it to a post office. Sometimes, the post office is closed and you won’t be able to send any letters. The same is true with Email because if the mail server is not working, you won’t be able to send any letters either.

If you use a service, such as AOL (America Online), then you can pretty much ignore this chapter. That is because AOL gives you special software to access the Internet and your Email client is included in this package. Choosing AOL really does make using the Internet easier because they are able to control your Internet experience. Eventually, you may feel that they control it too much. You may want the greater flexibility of using your Mac directly on the Internet but to do this, you’ll need to switch to another ISP.

If you subscribe to a typical ISP, you will need to obtain the following information from them:
1) Email address
2) Incoming mail server (sometimes called POP server)
3) Outgoing mail server (sometimes called SMTP server)
4) User account ID
5) User password

In Mac OS X, you need to put those five pieces of information in a central place which all Email clients can use to understand how to send and receive Email. First, bring your mouse to the top left corner of the screen then click once on the blue Apple icon. From the menu which appears, choose “System Preferences...” When the Preferences panel appears, locate the “Internet” icon and click it once. There will be four tabs at the top of the screen. Click on the one which says “Email;” you will see the graphic at the right.
This is where you fill out all those five pieces of information which you asked your ISP.

There are some three and four letter acronyms you should be aware of. The term POP stands for "Post Office Protocol." Sounds fairly logical; it has to do with retrieving your mail from where it is temporarily stored. The term SMTP refers to "Simple Mail Transport Protocol." What this means is that it is a standard for sending mail messages. So a POP server is needed to check your mail, and a SMTP server is needed to send it. Sometimes one computer can fill both these needs but usually they are actually two separate servers.

There is a newer method for checking your Email messages which is better than POP. The newer method is called IMAP. It stands for "Internet Message Access Protocol." More and more software is starting to support this method but it is not real common yet. If you check your mail from home on just one computer, you won’t appreciate the difference. However, if you check your mail at two or more computers, then you will want IMAP. The reason is that IMAP can show you which messages you have read and which ones you haven’t read yet regardless of what computer you use to check your mail. You can choose either POP or IMAP just by clicking the appropriate button in the Email preferences tab. When in doubt, use POP. After you have finished filling in your five crucial details, just close the Preferences window.

We are now ready to start your Email client. There are several you could use but I recommend using the one that Apple gives you with Mac OS X. It is appropriately called "Mail." Go down to your Dock at the bottom of your screen and click on the "Mail" icon. It looks like a stamp with an eagle in it. In a few seconds, your Mail software will open up.

The most important features will be conveniently shown as buttons at the top of your Mail software’s window. From left to right, the first four icons work with particular messages. While reading a message, pressing delete will cause that message to go to a trash bin, pressing reply will open a new window with which you can reply to the sender of the message, pressing reply all will open a message addressed to the sender as well as anyone else who might have been sent a carbon copy and pressing forward allows you to send a copy of the current message to someone else.

Clicking the compose button will open a brand new message just waiting for you to address it, type a message and send it out.

The mailbox button will cause a tray to open/close on either the left or right side of your window. The tray shows your mailboxes which are places
where mail messages are kept. The “Inbox” is where new messages are stored. The “Outbox” is where messages are temporarily queued before being sent. The “Sent Messages” box is where copies of messages which you have composed and already sent are kept; quite handy to go to when you forgot what you mailed to someone and you want to double check. The “Deleted Messages” box is where mail is temporarily put which has been marked for deletion. After a few weeks, old messages get emptied automatically. This is nice because sometimes you might accidentally delete a message or change your mind and wish to rescue a message.

Clicking the get mail button will cause your Mail software to check and see if there are any new messages waiting to be read. If there are some, it will bring them to your computer.

The search box allows you to type in words which you’d like to search for in your mail. Sometimes you want to find all your mail dealing with a particular topic or otherwise you remember you have a particular message but need some help locating it. Click on the magnifying glass to change your search field. For example, you might only want to check for text in the “From” field of your message or maybe you want the “entire message” text to be checked. Use this feature to find all mail messages from “Joe Sparks” or to find all mail messages related to “New Zealand.”

When you compose a new message by clicking the compose button, you get the window shown at right. In the “To:” field, you can put in as many Email addresses as you like, just separate them with a comma and a space. After you’ve typed an Email address once, your Mac will remember it. In the future, just typing the first part of the Email address will cause the rest to automatically be filled in. If your Mac knows of two or more addresses which are similar, simply press the “up” and “down” arrows on your keyboard to cycle between different choices. If you click on the Address button, you will open the Address book. This is the same Address book discussed in the Database chapter. You will seldom need to open the Address book because in the “To:” field, you can also type part of a person’s name, such as “Mark” or “Tom,” it will fill in the rest.

The “Cc:” field allows you to send a “Carbon Copy” of this letter to all the Email addresses listed in this field. Just like in the “To:” field, you can enter as many names as you want separated by a comma. Actually, the difference between the “To:” field and the “Cc:” field is subtle. The “To:” field is the people you are specifically writing to and the “Cc:” field is the people you’d like to eavesdrop on the communications.

There is one more field that is not shown automatically. It is the “Bcc:” field known as the “Blind Carbon Copy.” To list it as an additional option, you need to go to the “Message” menu at the top of the screen then choose

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"Add Bcc Header." You can type Email addresses in the "Bcc:" field just as you would the other two. The difference is people in the "To:" and "Cc:" fields won't know you've also sent the same message to the people in the "Bcc:" field. You might want to do this to protect the identity of the person you are sending a copy. Perhaps you are replying to a customer and want your boss to see what you wrote without letting your customer get your boss' Email address. You also might want to use "Bcc:" when you send a message to a large number of people and don't want them to see a long list of names in the mail message.

Technically, you can send a message without putting anything in the "Subject:" field but I hate that. Most people despise it too. It is so much nicer if you can put a short description of what the message is about. If you are just sending a message to check up on a friend, you can say something like "Hey there!" or "Why haven't you phoned me?" Actually, just saying anything is better than leaving this field blank. I swear, the next person to send me any Email message without a subject is going to get a thousand lashings with a wet noodle!

From left to right, let's look at the icons in the new message window (shown here at the left). The send button is used when you are done with your message and you want it to go out to its recipient. When you click it, the message is temporarily moved to your "Outbox" until it is able to be sent. If there is a problem in transmitting the message, your Mac will let you know. Sometimes mail servers have problems or you have an invalid Email address for one of your contacts. When this happens, the mail server may send you back an Email message letting you know why your mail could not be delivered. This may take a few hours.

Clicking on the attach button will bring up a special window which will allow you to locate a file which you'd like to send along with this Email message. You do this to send perhaps a photograph or other small file. Use this feature with caution. If your Internet connection is slow or if your recipient's Internet connection is slow, it may take a long time to send and receive an Email message if the attachment is large. Try to keep Email attachments less than two megabytes in size. If an attachment is too large, it may never go to its intended recipient. A mail server may decide to reject any message it deems to be too large. It may not even tell you when it does.

Clicking the Address button simply opens the Address book. You should put your important friends and contacts in the Address book when you get the chance. When you want to Email them, just type part of their first or last names in the "To:" field, and your Mac will figure out the rest. If you have three friends named "Dan," type "Dan" into the "To:" field then use the "up" and "down" arrows on the keyboard to cycle between the Email addresses of your three friends.
Clicking on **fonts** will allow you to change the font size and shape. Clicking on the **colors** button will allow you to change the color of the text you are typing. Finally, clicking on **save as draft** will save your current document in the "Drafts" mailbox, so that you can come back, finish it and mail it later. You now know enough to effectively send and receive Email messages but there are a few more things I'd like to share with you.

You will probably find yourself wanting to keep certain types of messages handy and would like to group them together. For example, you may want to keep family correspondence separate from other types of messages. You may also like to keep some jokes around in their own spot. To do this, you'll need to make some additional mailboxes. For example, you could make one for "family" and another one for "jokes." To make a new mailbox, bring your mouse up to the top of your screen and click on "Mailbox" then choose "New Mailbox." Pick a descriptive name for your mailbox then click "OK." Now you can simply drag your messages from your Inbox to these other mailboxes. You can open and close the mailbox tray simply by repeatedly clicking on the **mailbox** button. To view the contents of a mailbox, simply click on the name of a particular mailbox icon once. Remember to go back to your "Inbox," so that you can see new mail which comes in.

It's also useful to know that you can sort the messages in a mailbox based on values, such as date, subject and the name of the person who wrote the message. Simply click on the column names at the top of the mailbox window. Clicking multiple times on the same column name will toggle between ascending and descending order. Probably, most of the time you will want to sort by date as is shown in the graphic below.

<table>
<thead>
<tr>
<th>From</th>
<th>Subject</th>
<th>Date &amp; Time</th>
</tr>
</thead>
</table>

**Sending files that anyone can open and read**

Once you start using Email to communicate, you'll notice a peculiar problem. People will want to send you documents that they have created, and they will send them as attachments.Likewise, you'd like to do the same. Unfortunately, we all don't use the same software and some poor unfortunatees don't even use Macs. What this means is that we create documents which other people have no way of opening.

This used to be a big problem but not anymore! We can now easily convert our documents to something called a **PDF file**, meaning "Portable Document Format." The people who receive our document will be able to read and print it but they won't be able to modify it. Most of the time this is all we want people to do, just look at something and give us their feedback. If you'd like for people to make changes to your document, they'll need to be running the same software you've got.
Open a document you’d like to convert to PDF. Do this by double clicking the document, and it will open up in the software title which was used to create it. Now go to the “File” menu at the top of your screen and choose “Print...” I know what you must be saying “Woh! I don’t want to print” but that’s not exactly what we’re going to do. In the print window which appears, click on the “Preview” button at the bottom. In a few seconds, your document will appear in the Preview application. You can now go to “File” and then “Save As PDF...” It is that simple. Just choose a place to save the file.

When you attach your PDF document in your Email, you’ll need to instruct the recipient to use Adobe Acrobat to view the file. The Acrobat Reader is already installed on most computers and new versions can always be obtained from Adobe for free. You see, Adobe recognized that there was a problem with people not able to freely share files, so they created the PDF format which is also called the Acrobat format. For many people, if they want to create their own PDF files, they need to purchase some special software from Adobe. This is how the company gets its money.

Apple did something interesting when they decided to create Mac OS X. They decided to drive all of the graphics shown on your display using the Adobe Acrobat technology. In other words, everything that Mac OS X does is actually a PDF document shown on the screen. So for Macintosh software titles to create a PDF file and save it is rather trivial. Apple licensed the Adobe Acrobat technology, so that we don’t have to. On the Mac, you can use the Acrobat Reader to view PDF files or you can simply double click the file and Mac OS X’s Preview application will open it up.

**Browse Web sites**

We have talked about it and you’ve heard about it. The World Wide Web is like a never ending newspaper just waiting for you to browse it. Curious about what you need to access it? You’ve come to the right place!

On your Dock at the bottom of your screen, you should see an icon that is a large letter “e.” This is the icon for Microsoft Internet Explorer. Often referred to as simply IE for short. This is an example of a Web browser because it allows you to view the World Wide Web. Today, Internet Explorer is one of the better Web browsers and comes free with your Mac. Microsoft may charge for new versions in the future but for now, it is free. Go ahead, click on the “e” icon resting there in the Dock. In moments, Internet Explorer will open up.

If everything is OK and your computer is able to successfully connect to the Internet, you should see a default Web site. If nothing shows up in your Internet Explorer window or you get an error message, you’ll need to
phone your ISP to find out why you can't connect to the Internet. If everything is fine, you should see something which looks like the picture below:

This default page contains a lot of information. It has news headlines, stock prices, shopping, etc. Almost everything on this page is a hyper-link. When you click on a hyper-link, it will take you to another Web page. In the old days, any text which was blue or any picture with a blue outline was clickable and hence a hyper-link. Today you can't go by color to guide you. The only way to know if something is a hyper-link is to move your mouse cursor over top of it. If your cursor becomes a hand with an outstretched index finger, then it is a hyperlink just begging for you to click it.

When clicking on hyper-links, it only takes one click to activate them. There is no need to double click. Learning to tell what parts of a Web page are hyper-links and which parts aren’t takes some experience. If a Web page takes a really long time to load, there may be something temporarily wrong with it. To rule out that it is not a problem with your ISP, you should try viewing some other Web sites.

If you’d like to pick your destination, you can type in the name of your desired Web site. Locate the “Address” box at the top of your IE window, just click in there and type in the address of a different Web site then press the return key. Alternatively, you can bring your mouse up to the top of the screen and click on the “File” menu then select “Open Location...” from the list of options. This will highlight all the text in the “Address:” field, so that you can type in a new address.

Many Web sites are easy to guess if the company or organization is large. Most of the time, a site will start with the prefix “www” which stands for World Wide Web. Next will be the name of the company followed by a “com” which stands for “commercial” or “company.” For example, you can type in the Web sites for any of the companies in this table shown on the right.

<table>
<thead>
<tr>
<th>Company</th>
<th>Web Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playboy</td>
<td><a href="http://www.playboy.com">www.playboy.com</a></td>
</tr>
<tr>
<td>Barns &amp; Noble</td>
<td><a href="http://www.barnesandnoble.com">www.barnesandnoble.com</a></td>
</tr>
<tr>
<td>Walmart</td>
<td><a href="http://www.walmart.com">www.walmart.com</a></td>
</tr>
<tr>
<td>Toys R Us</td>
<td><a href="http://www.toysrus.com">www.toysrus.com</a></td>
</tr>
<tr>
<td>Coca Cola</td>
<td><a href="http://www.coke.com">www.coke.com</a></td>
</tr>
<tr>
<td>Disney</td>
<td><a href="http://www.disney.com">www.disney.com</a></td>
</tr>
<tr>
<td>Apple</td>
<td><a href="http://www.apple.com">www.apple.com</a></td>
</tr>
</tbody>
</table>

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Search engine - a Web site which catalogs a great deal of information about the Internet and allows you to search that information.

Of course, you can't always guess the name of a Web site, and sometimes you just want to find information on a particular topic such as a “1968 Ford Thunderbird.” What you need is a good search engine. There are a number of them available. What they do is catalog lots of information about the Internet and allow you to search that information. You can think of a search engine as a big database filled with World Wide Web sites. My favorite search engine is Google, just type in “www.google.com” in Internet Explorer and hit return. What you’ll get is a very simple looking Web site with a box in the middle of the page where you can type your search criteria. You can type anything you want. For example, if you were interested in finding Walmart’s Web site or just wanted to read news related to Walmart, just type “Walmart” in Google’s search box and hit return. You can type in just about anything really, even my mother’s “1968 Ford Thunderbird” will bring up lots of relevant results. Wait up to ten seconds for the results to show, though usually it takes less than two seconds. What you’ll get is a listing of ten Web sites with information that is probably of interest. Just click on any of the results which look promising and you’ll be taken there.

If you’re really stuck and are having a hard time finding what you want, it could be that what you are seeking simply just isn’t available. This should not be your immediate conclusion because it is just plain unthinkable how much information is out there today. Separating knowledge from information is a bit tricky and takes some time snoop around on the Internet to find your answers. Google has started offering a service to help you if you get really stuck. For $2.50 per question, you can ask one of their trained staff to help you hunt down an answer, and they claim they can do it usually in a day or two. If you’re interested in this, then just type “answers.google.com” in your Web browser. Notice how there is no “www” in front? While “www” is often there it is not required, it just depends on the Web site.

Look carefully at what happens after you type in a Web site address in your Web browser then hit return. You should see that “http://” is appended to the front and usually a single “/” is appended to the back. This is the proper way to type the command. “http” stands for “Hyper Text Transfer Protocol.” In the old days, it was important to type these in and type them correctly; however, today it is not necessary. That’s because most modern Web browsers will automatically add those pieces of the request for you but it’s still important for you to know why they are there.

I always get tickled when I open up my favorite Web browser and interact with the World Wide Web. It is just incredible to see how much information is out there. It is one of the few times that I can immediately feel just how large our world is - the immense number of wonderful people and ideas floating around out there. Without the Web, we can only imagine what other people might be doing and thinking but with it, we can learn firsthand from their experiences. A relatively famous early twentieth century philosopher named Franz Rosenzweig wrote a book which talked about “speech thinking.” He reflected on the magical moment when two people
meet and exchange words - that in a matter of minutes, you can share your lives and gain a greater truth about the world around us. To him, this moment represents a spark, and the more people communicate the more profound the magic becomes. Perhaps this “speech thinking” is what g-d really is? If everyone communicates, what horrible secrets can be covered up and what tyrant will be able retain power? On the Internet today, news that happens in one small place in the world can immediately become global news. Do a search for “Sun Bear” and you’ll see what I mean. You’ll find lots of information about how if Asian people don’t take a more pro-active role in protecting this bear, they may have to travel to an Australian zoo to see an animal which once was indigenous to their own country. Today less than one percent of the world’s population is computer literate. This is still a large number of people but it means that 99% of us are still in the dark about what is happening globally. As more people begin to use computers to communicate, it will be interesting to see how this affects our culture and our life. Will war become a thing of the past? Will greedy dictators be something seen only in a history book?

You know enough about your Web browser to get around but there are still several more things I’d like to share with you. Because there are so many places to travel to on the Web, almost every Web browser has a feature which allows you to keep track of your favorite sites. In IE (Internet Explorer), this is called your favorites list but in almost any other Web browser, this is called your bookmarks list. When you visit an interesting Web site in Internet Explorer, all you need to do to add it to your favorites list is go to the “Favorites” menu at the top of your screen and choose “Add Page to Favorites.” In the future, when you want to go visit that site again, you just need to find it in the list. You can go to the “Favorites” menu at the top of the screen and scroll down till you find your site. Perhaps an easier way would be to click the vertical “Favorites” button on the left side of your IE window. This will open up a small list that is a bit easier to navigate. Just click once on the site you are interested in and click once on the “Favorites” button to collapse the list.

Let’s discuss the buttons at the top of the Internet Explorer window. You don’t have to use any of them but sometimes they come in handy. Here we go, from left to right:

The back button is used to retrace your steps. When you visit a Web site then click on a link, then another, and yet another, you may sometimes wish you could simply go back to the previous page. By clicking the back button, it enables you to do exactly that, in fact, you can backtrack all the way to the first page you visited.
Email client - a special software title used to read, compose and send electronic letters. It's called a “client” because it must connect to a mail server.

The forward button allows you to reverse the steps you took when pressing the back button. In other words, most of the time you'll have no use for this button but if, at some point, you hit the back button once or twice, you can then use the forward button to return to where you were.

The stop button is used to tell Internet Explorer to cancel your request to view a Web site. Honestly, I feel that this button has little purpose. If you try to visit a Web site and it takes a long time for it to display, you can just give up and press the stop button. Sometimes this will let you see more of the Web page but usually all it does is just stop the request. Personally, I feel that you can either wait for the Web site to show up or you can simply go to another Web site. There is no reason to push the stop button.

The refresh button will attempt to access the current Web site again. If you feel that the information might have changed or if you feel Internet Explorer only got part of the Web page the first time you viewed it, then you might try pressing the refresh button to get a fresh, clean new page.

The home button takes you back to the default Web site. You can change what the default Web site is (perhaps make it “www.google.com”) by going to “Explorer” in the menu at the top of the screen and selecting “Preferences.” Next, a window will show up, and you'll need to go to “Browser Display” then change the address value in the Home page section. This is useful if there is a particular site you visit often.

The autofill button is something which can try to fill out Web site forms for you. If you want to purchase something on the Internet or take a survey, you need to fill out a form with items like your name, address and credit card number. Internet Explorer has a feature where they can try to remember information and type it in for you...that's because they expect most people don't know how to type and don't like to. My advice to you is “not” to use this feature. I don't trust Internet Explorer to be able to always make the right decisions. If Internet Explorer stores your credit card information, that means it is susceptible to the eyes of evil people as well. So if Internet Explorer ever asks you if it can memorize a form you are filling out, just say “no” and don't use autofill. After all, how often do you fill out one particular form, does this feature really save any time? This is just a bad bad feature. Avoid it like the plague.

The print button tries to print the page you are viewing. You can also use it to create a preview of the printed page which you can save as an Adobe Acrobat PDF file. This makes it easy to keep a copy of a Web page and to Email it to someone else.

The mail button simply opens up your Email client. You can do this just by clicking once on your Mail icon in the Dock, so this button seems rather superfluous.
The “Address:” box is the place where you type in your desired Web site address then press return.

There will be times when you’ll want to download software to your computer. This means that you will want to take software that is residing on a server and bring it over to your Mac. This may be a bit tricky if you’ve never done it before, so let’s go ahead and download some software right now. Let’s download “OmniWeb” which is another Web browser. It is similar to Internet Explorer but, generally speaking, I believe it’s better. You can download it, install it and then judge for yourself which you like best.

OmniWeb is created by a company called the Omni Group, so to download it we need to visit their Web site. Use Internet Explorer to go to the Web site “www.omnigroup.com” (remember to press return after typing the address). What you’ll get is a nice attractive site. These people are a small group of talented engineers who make several nice software titles. Click on the “Applications” button. Next click on the “OmniWeb” link which will then take you to a page which describes what OmniWeb is. Now click on the “download” button which is probably shown toward the top of this page. You are near the end of your journey because on this final page is an “International” download and a purely “English” download. If your connection to the Internet is fast, I’d go with the International version because you never know who might want to use your Mac, and they might prefer to see menus and options in another language. If you’re using a dial-up connection, I suggest going with the pure English version since it will transfer much faster. You are reading this book; obviously, your English skills are not too shabby eh? The English version is functionally identical to the International one, the only difference being you can’t change the language of the menus. Changing the language of your Macintosh is discussed in the chapter “Turning your Macintosh On and Off” in the subchapter titled “Languages other than English.”

In a few minutes, OmniWeb will download to your Mac. It will become a file on your Desktop with a “.dmg” name appended to the end of the file. Once the file finishes transferring, go ahead and double-click it. The “.dmg” stands for “disk image.” What will happen is a small window will open up and in a few seconds, you’ll get a new disk on your Desktop. If the disk doesn’t open up a new Finder window, simply double click on the disk icon to open one. Here is where you find OmniWeb; simply drag its icon to your “Applications” folder in a Finder window and you’re done! You can drag the disk icon to the trash, so that it ejects. There is nothing to eject really because there is no physical disk. What you are really doing is just removing the disk icon from the Desktop. Finally, you can drag the “.dmg” file to the trash and then empty the trash by going to the “Finder” menu and choosing “Empty trash.”

Using OmniWeb is very similar to using Internet Explorer but I believe you’ll find that Web sites just seem to look better and this software is a bit
Try control-clicking different parts of a Web page. What you’ll get is a menu with many interesting options.

Open Source software allows people and companies to share programming efforts.

necer to use. You can double-click its icon from the “Applications” folder when you want to open it or you can simply drag it from that folder and place it in the Dock right next to Internet Explorer. This way you’ve got both browsers at your disposal, and you can gauge which one you prefer to use. The engineers at the Omni Group work hard, and they’d appreciate it if you’d pay for their software if you enjoy it and use it. Every once in a while, when you open OmniWeb, they will nag you ever so subtly. Also, if you leave an OmniWeb window open for too long, you’ll see the words “Unlicensed” spread across the page. A simple movement of the mouse will make the words disappear. Once you pay the licensing fee of $30, you’ll remove your guilt and the subtle reminders will be removed.

One last tip before we move on. When browsing a Web page, try control-clicking different parts of the page. This means holding the control key down (sometimes labeled “ctrl”) then clicking with the mouse. Go ahead and control-click images, hyper-links and just blank areas of the page. What you’ll see is a special menu appear allowing you to do things such as save an image to a file on your computer or open a new window from the hyperlink, just to name a few.

Safari

Apple realizes that browsing the World Wide Web is important. They decided to create their own Web browser. It is named Safari and has an icon in the shape of a compass. It is faster, easier to use and in many ways more feature rich than Internet Explorer. Safari went into development in 2002 but it is based on a free Web browser that has been around a bit longer named Konquerer. Konquerer is one of a variety of free Web browsers available for Linux. By using this strategy, Apple immediately had a workable Web browser from which they could begin to polish and expand. Many of the enhancements which Apple has done, and continues to do, to Safari are folded back into Konquerer. This is a win-win situation and is the philosophy of Open Source.

Open Source means that the programming code used to create a software product is open for public inspection and enhancement. New products can be created from the original source. Often the commercial entities which utilize an Open Source product will give back by allowing many of the updated features to go into the free software which they benefited from.

Another benefit to Apple for choosing Open Source is that they pool the efforts of many people and other companies. Sure, Apple has made some significant improvements to Konquerer but so have many others. As time progresses, Apple stands to gain from the improvements of others in this product which can then be folded into new versions of Safari with minimal effort.
The Safari Web browser will be used in many places on Mac OS X. Sherlock uses it and so will Mac OS X Mail. In fact, just about any software which needs to display a Web page will use the Safari technology behind the scenes. Apple now packages the Safari application as a development kit called Webcore. With Webcore, any software developer, even those outside of Apple, can create their own software based on Safari. Currently, the most notable example of this is OmniWeb version 4.5 from the Omni Group. This version uses the Safari Webcore to display web pages but they added some additional programming to make what they feel is a better browser. Personally, I have mixed feelings about this. Versions 4.2 and earlier of OmniWeb were based on efforts which the Omni Group themselves had created. I really liked these earlier versions which allowed me to copy text from Web pages better than any other Web browser. Now that version 4.5 is based on Safari; it looses some of its traditional feel. The benefit to the Omni Group is that now they can simply use the work of the Konquerer and Safari programming teams to continually update and enhance Webcore. The Omni Group now only needs to focus on extending this functionality.

Enough with background information, let's do some experimenting! If you don't have Safari already, you can download it from Apple by using either Internet Explorer or OmniWeb. Go to “www.apple.com/safari/” (remember to hit the return key after typing this address). You will be presented with a Web page describing the features and benefits of Safari. Towards the top will be a button that you can click which says “Download Safari.” Click this button and you'll be taken to another page where Apple requests some information from you, such as your Email address. You can choose to give truthful information here or not; it is up to you. After filling out the form, click the download button.

In a few minutes, Safari will download to your Mac. It will become a file on your Desktop with a “.dmg” name appended to the end of the file. Once the file finishes transferring, go ahead and double-click it. The “.dmg” stands for “disk image.” What will happen is a small window will open up and in a few seconds, you'll get a new disk on your Desktop. If the disk doesn't open up a new Finder window, simply double-click on the disk icon to open one. Here is where you find Safari; simply drag its icon to your “Applications” folder in a Finder window and you're done! You can drag the disk icon to the trash, so that it ejects. There is nothing to eject really because there is no physical disk. What you are doing is just removing the disk icon from the Desktop. Finally, you can drag the “.dmg” file to the trash and then empty the trash by going to the “Finder” menu and choosing “Empty trash.”

**Sherlock** is a tool to help you get more information from the Internet. It is described in its own chapter in this book.

**OmniWeb** is a nice Web browser from a small, but talented, software company named the Omni Group. It was introduced in the earlier part of this chapter.

What is the Internet? 139
To bring up Safari, simply double-click on its icon (in the shape of a compass). A good site to visit is AppleLinks. There you can find lots of interesting Macintosh related news and information as well as in-depth reviews. Click with your mouse at the top of the page and replace the http text with “www.applelinks.com” (then hit the return key on your keyboard). You will get a result which looks like the following:

As you can see, there is a tremendous amount of information available to you at this Web site. It is quite easy to get lost by clicking on a number of links when looking for what interests you. Most people navigate the Web with just one window and use the forward/back arrow at the top left hand corner of the window to retrace their steps. This is fine but using tabbed windows to get around makes life much easier, and Safari is really good at this.

To be sure that you have tabbed windows enabled, bring your mouse to the top menu named “Safari” and select “Preferences” as is shown in the graphic at left.
A preference panel will appear on your screen. This is a window with many different options for customizing Safari. Click on the button which says “Tabs.” Be sure the option for “Enable Tabbed Browsing” is checked as is depicted in the window shown below:

Once the Preference window looks like what is shown above, you may now close it by clicking on the red button in the top left corner. If you’re not sure what all this is about, hold on, we are about to find out. In the AppleLinks web page, let’s Command-click on the green “Reviews” tab. To accomplish this, hold down the Command key which looks like a cloverleaf, then while keeping the Command key held, click the mouse button once it is over the green “Reviews” tab. Where is the “Reviews” tab? Glad you asked, it is right here:

Did you see what happened? It was very quick and very subtle. Two new tabs should have emerged from underneath the top part of the window. Look very closely because if you blinked, you would have missed it. Look at the following window where we have zeroed in on the two new tabs:

The first tab represents a window which shows the main AppleLinks Web site, whereas the second tab represents a window which shows the Review
Tabbed windows free you from clutter and enhance your ability to navigate the World Wide Web.

You can click on each tab to alternate between both windows. Go ahead and try this to get a feel for what it is like. This is much better than opening two separate windows to navigate the Internet. Having tabbed windows makes navigation fast and uncluttered. This is a deceptively simple, perhaps easily underestimated, technique. Experiment with it to see how you can have many different tabbed windows. This frees you to keep a few main Web pages one click away but still have the ability to follow any number of links without losing your way!

Easy searches with Google are right at your fingertips in Safari. Any Web browser can search for information at Google by just pointing their Web browser to “www.google.com” (then pressing the return key on the keyboard to go to the site). Safari makes this a tad more immediate and easier to do by giving you a place to type in your request in the top right corner of the window as shown below:

A quick search for my mother’s car:

Returns the following results:

Google Search: "1968 Ford Thunderbird"

1968 Ford Thunderbird Every Inch an Icon. Sponsored Link
http://www.fordvehicles.com/thunderbird

1968 Ford Thunderbird Repairs Information. Sponsored Link
Click Here. Please select a 1968 Ford Thunderbird Engine. ...
www.alldata.com/TSB/681907_en.html - 3k - Cached - Similar pages

AUTOMOTIVE MILEPOSTS | 1968 Ford Thunderbird Selections

1968 Ford Thunderbird Recall and 1968 Ford Thunderbird Repairs ...
Click Here. Please select a 1968 Ford Thunderbird Engine. ...
www.alldata.com/TSB/681907_en.html - 3k - Cached - Similar pages

Classic Car Auctions at AUTOMOTIVE MILEPOSTS | 1968 Ford...
www.automotivemileposts.com/bird1968selections.shtml - 15k - Cached - Similar pages
Safari is a great Web browser. It is fast and has a number of useful little features that may not knock you out the first time you see them but; nevertheless, they will grow on you.

**Old Fart's Guide™ Forums**

I sincerely hope you find this book helpful and that you'll let me know about your Macintosh related adventures. Maybe you have some questions that this book does not address? You can certainly shoot off an Email to me at "aaron@cocoanutstech.com," but perhaps a better method would be to use our Forums.

A Forum is a place where people can meet and discuss, all on the Internet. When you mail Email me directly, you are starting a conversation between just you and me. When you start a thread on a Forum, you are starting a dialog between the Forum owners and all the various people who use the Forum. You get more opinions and more information from using a Forum, plus onlookers can benefit from the conversations. You can think of a thread as a single Email message which many people can reply to, and their replies get appended to the end of the message.

You can access our Forums by first opening your Web browser, either Safari, OmniWeb or Internet Explorer. Next type in the following address: "http://www.cocoanutstech.com/yabbse/index.php"

This takes you directly to the following page:

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**Forums** are places on the World Wide Web where people meet to exchange ideas and discuss various topics.

Note: please realize that there may be other Forums located on the Cocoa Nuts Web site in addition to the one specific to the Old Fart's Guide. Currently, there is a separate Forum dedicated to Book Publishing.
One of the first steps you’ll need to take is to create an account. This amounts to your name, Email address and a handle by which you would like to be known on the Forums. This is necessary to differentiate you from the other people who will be posting and answering messages. If individual accounts were not created, it would be hard to see who said what, and it would be difficult deal with offensive people. If someone acts inappropriately, they can be removed from the Forum and their posting privileges revoked.

To register, click on the button shown below:

You will be presented with a place to enter your personal information and will be shown a statement which basically says “please act responsibly on our Forum.” After you fill out this information, you will be allowed to post messages. In the future, you’ll need to login by clicking on the “login” button which is located to the left of the “register” button.

Our Forums currently have four main areas of discussion:

1) General Discussion
2) Apple Software
3) Problem Zone
4) Photography

Within these four broad areas, it should be relatively easy to decide where to post a topic. The difficult part here, for some people, is in learning how to navigate and utilize a Forum. Sure we can see where we might like to start up a conversation but how to do it can be tricky for someone who has not done it before. This is because Internet Forums present information in a way most of us are not accustomed to and are not familiar with. It takes some time to learn the layout of the Forum and what items to click as well as their effects.

Please don’t stop reading here at this point. I don’t mean to scare you. Forums are incredibly easy to use and wonderful tools once you learn to use them. Can you imagine the first time you picked up a newspaper? I can. At the time I didn’t understand why short little articles sprinkled the cover and asked me to continue on page A1? After a little inspection, I learned what it took to find the information I wanted and also discovered which sections of the paper were usually of most interest to me. The same feelings of bewilderment followed by euphoria are likely what you’ll experience
when learning to use the Forums at our Web site as well as other sites. Remember your new Mac, the Internet and everything that goes along with them will provide you with a limitless source of entertainment, knowledge and challenges. Few items in life can promise so much for such an affordable price. If you could learn everything about your new Mac in one month, wouldn’t that be just awfully boring? Take the attitude that learning new technology is fun and experimenting is a thrill; you’ll do fine.

A new topic

Let’s assume that we’ve got a problem. Suppose your PowerBook’s touchpad behaves erratically when you use it in one room of your house but ok in another room, and you have no idea why. You might want to create a new topic about this in our “Problem Zone.” When you go to our Forum’s Web site, click on the following words “Problem Zone.”

In the page that appears, you’ll see topics already created by many people. You can see the Subject of the topic, the handle of the person who created it, the number of replies it has received, the number of times people have looked at the topic and the name of the last person to post a comment there. To create a new topic of your own, you need to click on the “new topic” button shown below:
What you'll see next is very similar to the way a person would compose an Email message. Follow these steps as is shown in the screen below:

1) Give a subject - "Erratic trackpad on PowerBook"
2) Message icon - click the bar and choose "Question mark."
3) Type your question - "I have a weird problem..."
4) Double check your message - click on the "Preview" button.
5) Send the message - click on the "Post" button.

Note: It is possible to use the "YABBBC tags" to add style to your message, such as bolding or underlining parts of it. You can also use the "Smilies" to add faces to your text. Clicking on these options doesn't give you immediate visual feedback. What it does instead is put codes into your message which later will be formatted into styles. For example, above you see the "???" at the end of the message. This is the code for the frowning face with three question marks over the top of his head. I just clicked on the picture of this face, and it added the question marks at the end of the document. If you were to click on the "B" for "Bold," you'd see the codes "[b][/b]" in your message. You need to type the text you want to be bold inbetween like so: [b]example of bolded text[/b]
A new poll

A fun feature of our Forums is the ability to take a poll. You can ask people to vote on a topic and collect the results. It is nearly the same as posting a new topic. For starters, just click on the “new poll” button shown below:

The rest is identical to what you would do when you create a new topic except that now you can choose options for people to vote on. Let’s suppose you are curious about when the new iMacs might arrive with the G5 processor and want to know what other people think. You might type what is shown in the screen at the right.

Notice how there are three options typed in. One for “November,” “December” and “much later.” These three will be visible to people who read your poll and will be given the opportunity to choose one of them.

As each person votes, the Forum will automatically tally the results and let you know what percentage of people voted on each option.

There are many creative ways to use polls. You might have created something artistic, such as a special photograph, and you’d like for people to give you feedback. Giving people distinct options to vote with, as well as space to leave comments, can give you valuable insight.
Replying to a topic

When you connect to the Forums, you are presented with four different areas of discussion:
  1) General Discussion
  2) Apple Software
  3) Problem Zone
  4) Photography

Suppose you want to browse the “Problem Zone” category. All you need to do is click on the words (where the arrow points)

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Click on the subject which looks interesting. For example, you might click on the words “Old emails” shown below:

What you will see is the ongoing discussion in that given topic. You’ll see the message from the first person who started the topic plus all replies. Sometimes the replies can go on for pages. See the top of the next page for an example.
You may scroll up and down to read the messages posted. The most important part of this page to pay attention to is located toward the top right corner. There are four buttons “reply,” “notify,” “send topic” and “print.”

By clicking on “reply,” you bring up a screen which allows you to type a message. When you “post” your message, it will be appended to the end of the discussion.

By clicking on “notify,” you are requesting for the Forums to send you an Email message every time another person replies to the topic. This can save you time and frustration. Suppose you are really interested in a particular topic and would like to know when someone posts a new reply. You can use “notify” to send you an Email message letting you know that there has been some new activity.

By clicking on “send topic,” you can ask the Forums to Email a friend of yours who you think might be interested in this discussion. Your friend will be given an address which they can follow to find the discussion.

The “print” button formats the dialog in a way that might be easier to print by removing color and other highlights.
General guidelines

We’d like our Forums to be a fun place for us all to congregate. Please come when you have problems but also come when you have good news or exciting experiences to share. An ideal Forum is one where there is a lively give and take relationship. We’d like to hear about creative ways you’ve been using your Macintosh. If everyone only comes to ask about problems they are having but never talks about anything else, what we’ll have is just an information site. Forums based solely on questions and answers can get boring fast.

Please be patient and understanding towards all who post messages. The Internet can bring people together from very diverse backgrounds. If someone uses poor English, it might be that they are writing from France or otherwise speaks more than one language.

We all have different experiences with computers, and some people know more than others. You will most likely see people on the list that don’t have the benefit of this book you are reading and may need a helping hand. Remember, technology is only easy after you understand it.

Don’t think for a second that if you are new to computers, you have little to contribute. Realize that less than 1% of the world’s population has their own computer. This means that new people are learning about computers, and the Macintosh, all the time. Problems you are facing are likely to be those many others are facing. If you think you can answer somebody’s question, please do! We can all learn about our Macs with the least amount of effort if we help each other out.

Feel free to send me an Email directly at “aaron@cocoanutstech.com” but also realize that it might benefit more people if I respond to your question on the Forums. That way not only will you get to see how I respond, but also other people will benefit from my response. Who knows, an onlooker may provide you with even better advice than I can.

Invite your friends and family to take part in the Forums. It is open to everyone, not just owners of this book. This goes for PC users too. You don’t need to have a Mac to be a part of the action. The more people who join, the more beneficial it will be to us all. No one person can know everything; I certainly can’t. But if we can combine our collective knowledge, we will learn a great deal.

Hope to see you in the Forums!

http://www.cocoanutstech.com/yabbse/index.php
Finding information with Sherlock

Do you like the famous Sherlock Holmes? Unfortunately, I’ve never read any of Sir Arthur Conan Doyle’s works but even I know who his star character is. Whenever we think of a detective, the name Sherlock Holmes and his sidekick Watson will invariably cross our minds. The great Mr. Holmes had a knack for ferreting out information.

There is a lot of information which can be found on the Internet. Most of which can be found with a search engine, such as Google. If you want to find movie listings, driving directions, etc., these can all be found at specialty Web sites which provide these services. After using the Internet for a while, you will be able to use search engines, such as Google, to find these specialty Web sites and will come to use their services again and again, free of charge.

Apple realized that there are many of us who never really found out about many of the special Web sites which are available on the Internet, so they created a software title named Sherlock which does two things. First of all, it puts the services of many useful Web sites right at your fingertips in an easy to use fashion. To me, this is the biggest benefit. Secondly, it makes using services a bit easier than if you had to use your Web browser.

Sherlock is located in your “Applications” folder and might also be in your Dock. Its icon looks like a plaid colored detective’s cap with a magnifying glass, an obvious reference to Mr. Holmes. If you don’t see Sherlock in your Dock, this is how you get to it. Click on the smiling Finder icon in the lower lefthand corner of your screen. If a Finder window is not already open, go to the “File” menu at the top of your screen to select “New Finder Window.” In the Finder window, you should click on the “Applications” icon which is where you’ll find the Sherlock application. To start Sherlock, click on its icon once in the Dock or double click on its icon in the Finder window.

On the following page, you’ll see what Sherlock version 3 looks like when it is opened. This is the version of Sherlock which comes with Mac OS 10.2. It is significantly different from the previous versions of Sherlock. Later in this chapter, we’ll discuss in more detail the differences between the current version of Sherlock with that of earlier versions. What you will see when you open up Sherlock is a number of channels. A channel is the term Apple gives to each of the organized search functions of Sherlock. For example, the ability to search for movies is its own channel and the ability to translate languages is also its own channel.
In the graphic above, you see all of Sherlock's channels in the greater part of the window along with a description of what each of them does. Notice that many of the items in the main window are also shown on the top portion of the window but not all of them are. Clicking on a channel icon will bring you into its specialized search facilities. To return to a listing of all channels, click the "Channels" icon in the top left corner of the Sherlock window. The Stocks, Movies and Yellow Pages channels are not listed in the top row, so you will need to click on the "Channels" icon to gain access to them.

If you happen to pick up this book after leaving it on the shelf for a long time and are now starting to experiment with Sherlock, you may find more channel options than what are shown in this chapter. This is because Apple is constantly improving and adjusting Sherlock. We are bound to see more channels added over time.

**Internet channel**

Click on the "Internet" channel then look at the facing page of this book. Towards the top of the window is a place where you can type in some search criteria. I typed in "1968 Ford Thunderbird" then hit return. What I got was a listing of Web sites with what is hopefully information related to my query. Sherlock goes out to a number of different search engines to ask my question. It then waits a few seconds for them all to respond. The answers which Sherlock receives are organized in the window. This is very nice because when you really want to find information, you often have to search many Web search engines since each one often gives back slightly different results. With Sherlock, you can search many Web sites all at once in one fell swoop.
Notice the bottom of the window says "Content provided by About, Ask Jeeves, Best Site 1st, Looksmart, Lycos, Overture, Sprinks." Each one of those listings is a search engine in their own right. For example, you could go to "www.lycos.com" and do a search for the Ford Thunderbird. What you'll get is results from the Lycos search engine. If you instead use Sherlock, you can see what Lycos and all the other search engines say all at once just by asking the question one time. Sherlock is a big time saver!

Click on any result in the list, and you will see a more detailed summary in the bottom portion of the window. When you find something which looks promising, you can visit that Web site just by clicking on its link.

I use this Internet search feature of Sherlock from time to time. It is nice but unfortunately, my two favorite search engines are not included in the search list. They are Google and Alta Vista. I almost always simply go to Google to find the information I really want without much fuss, thus negating the need to to use Sherlock. I'll use Sherlock if I don't find what I want from Google and Alta Vista.

You can find my two favorite search engines at the following Web sites:
www.google.com
www.altavista.com
The graphic above is an example of the “Pictures” channel. I typed in the word “cowboy” then hit return. What I got was a listing of cowboy related pictures. I’ve found that this works fairly well at finding relevant pictures. I even found some interesting examples for “pink elephant.”

Notice the sponsors listed in the very bottom part of the window. They are Getty Images and Lycos. The first one, Getty Images, is an agency which sells stock photographs. So what we see when we do a search with Sherlock is some of Getty’s samples. We aren’t really allowed to use these images in our own works without paying Getty a royalty. When you double click on one of the image samples, you will be taken to Getty’s Web site where you may purchase the image for use in your own creative works. The image which you can purchase may be of any quality you desire. It could be a small print or a large print. What Getty will give you when you purchase the image is a disk with the image file on it and a license to use it.

Finding good images to use in your works is not easy. It’s nice that Sherlock has this feature but you can also go directly to Getty’s Web site to get a similar service. Both Google and Alta Vista let you search Getty’s image database and others from their Web sites as well. Compare these Web sites:

www.gettyimages.com
www.google.com (once there click on the “Images” tab then search)
www.altavista.com (once there click on the “Images” tab then search)
The "Stock" channel is really nice. Click on the "Stock" channel icon to get a graphic similar to what is shown directly above here. In the search field at the top of the screen, you can type in a ticker symbol if you know it but if you don't, you can simply type in the company name instead. What you'll get is very accurate quotes for the current stock prices and lots of information right at your finger tips.

If you want to read about many of the different news headlines related to a particular stock, you can just browse the "Recent Headlines" list. If any headline looks interesting to you, click on it once. The detailed news of that headline will then be displayed in the bottom portion of the window.

If you want to view a graph of how a stock has been performing over time, just view the chart in the lower right hand corner of the window. It defaults to showing one year at a time but you can change that to show a graph of just this current week or even just the past two days.

Notice that this content is supplied by Lycos. To get more stock information and perhaps a few other options you can go to the following sites:

www.lycos.com (once there click on the "finance" button)

www.yahoo.com (once there click on the "finance" button)
When you click on the "Movies" channel, what you'll get is a screen like what is shown above. Be sure to type in your correct zip code in the top portion of the window, so that Sherlock can find films and theaters which are available in a close proximity to your home.

You have a choice to make. Do you want to see a listing of all films showing in your area or would you rather see a listing of all theaters? This just depends on what is important to you.

If you know what movie you want to see, then you should click the "Movies" button in the top left corner of the screen. You'll then be able to pick out your movie from the list. In the next column, you'll see all the local theaters which are showing your movie; then in the third column, you'll also see the show times. This can give you a good and quick idea of which theater you may want to go to in order to see this particular film. If you wait a few seconds, a movie preview will begin to play in the lower righthand corner of the screen. If you decide to go see this film, just click on the "Buy Tickets" button in the lower left hand corner of the screen. You'll need to use your credit card to do this.

Alternatively, if you know what theater you'll be going to, then click the "Theaters" button in the top left corner of the window. Next, you can pick out your theater from the list, so you can see what films they are currently playing. This is much better than finding movie listings in the newspaper!
The graphic above shows what the “Yellow Pages” channel looks like. To use it, you need to type in the name of a place or business, and then type in the “City & State” or the “Zip code.” It is not enough to type in the city alone or the simply the state. You must type something like “Upper Darby, PA” or “Baltimore, MD.” Alternatively, if you happen to know the zip code, you can just type the zip code directly in place of the City & State.

I searched for Pizza Hut in the above example. There are many Pizza Huts in Baltimore. After clicking on a particular location from the list, I should be shown a map and also step by step driving directions from my home. The example doesn’t show any driving directions because I want to keep some privacy. I did not make up an address for the example because I didn’t want you to think I lived in some other chap’s back yard.

This is a nice tool but I prefer to use “MapQuest” when I want driving directions. With MapQuest, you can print the step by step directions for both going to your location as well as returning from it. You can also print out small maps which correspond with each step, so you have a real clear idea of what roads you are to take. You can find MapQuest at the following Web site:

www.mapquest.com
The above graphic shows what the "eBay" channel looks like. eBay is a Web site which runs auctions during any hour of the day or night. It is a large auction Web site which has so many different types of items up for bid. It is just unthinkable. The eBay business is a computer site on the Internet which hooks up buyers with sellers. It is a glorified form of classifieds. When you find an item you'd like to bid on, you have to notice what time the auction ends. An item might be on bid for a week or so during which time people may place many different bids. Once the time for bidding is over, the highest bidder is the winner. It is then up to the seller and the winning bidder to contact each other to make shipping and payment arrangements.

Sherlock gives you an easy to use interface which will let you find items for sale on eBay and allow you to track them by clicking the "Track Auction" button in the bottom right hand corner of the window. In the above example, I searched for one of the NeXT computers whose operating system is what Mac OS X is based on.

To find out more about the selling, bidding and terms of use, you'll need to visit eBay's Web site. Once there you may also retry your searches to compare the Web interface to Sherlock's. If you make handicrafts, you may consider selling them through auction on eBay. The auction site is listed below: www.ebay.com
The "Flights" channel is shown in the graphic above. This channel only shows arriving and departing flights for today only. You can not use this channel to buy a flight ticket or to look at available flights for any day other than the current day. I believe the main purpose of this channel is to quickly double check if the flight you are interested in is on schedule or if it has been delayed.

If you want to research the cost of air travel, or sea travel for that matter, when planning your vacation, you'll need to go to some specialized Web sites. Yahoo provides some good travel services but so does Orbitz. From either one of these sites, you can find interesting travel deals and can purchase your tickets over the Internet. You can find their Web sites here:

www.orbitz.com
www.yahoo.com (once there click on the "travel" button)
Dictionary channel

The graphic above shows what the “Dictionary” channel looks like. What you do is type in a word in the top left hand corner then hit return. After a few seconds, you’ll see a definition from the American Heritage Dictionary in the top portion of the window and then a thesaurus entry in the bottom portion of the window from Roget’s thesaurus.

This tool works very well. It is much more handy than searching through a handheld dictionary or thesaurus. I only wish it had more dictionary choices to pick from, such as Merriam-Webster.

I tend to prefer to use the Merriam-Webster dictionary. It too is available on the Internet and with a thesaurus as well. For those unfamiliar with a thesaurus, it is a book which gives you synonyms for a given word. Writers often use a thesaurus to help stimulate their brain or find just the right word to express a feeling or thought. The Merriam-Webster dictionary can be found at the following address:

www.m-w.com
The graphic above shows the "Translation" channel. In the top part of the window, you can type or cut and paste some text. This text does not have to be in English. It could be from a fairly large selection of languages. To find out what translation choices you have, look at the popup menu beside the "Translate" button in the middle of the screen then click and hold down that button. You will see all the choices which are available for going from one language to another.

The translation is not fantastic but it gives you something which is surprisingly good. You would not want to use these translations for official business but they are useful for getting the general idea of something.

Personally, I prefer to use the translation services accessible through Alta Vista. This is because not only can they let you translate a string of text, such as Sherlock can, but it additionally lets you take an entire Web site and translate it.

Sometimes I want to learn about some new technology which is available only in Japan. Unfortunately, I can not read Japanese. With Alta Vista, I can point the language translator to a Web site. What I'll get is a version of that Web site which has been translated into English. The translation is far from being a nice and easy to read conversion but it is not all that bad. I can figure out most of what is said with the English translation; something I could not have done otherwise. Alta Vista's Web site is listed below:
www.altavista.com (once there click on the "translate" button)
The graphic above shows the “AppleCare” channel. You can use this channel to hopefully answer questions about your Macintosh or possibly solve problems which you are experiencing. I typed the phrase “My disk won’t eject” in the top portion of the window and hit return. What I got was a large listing of issues related to problems ejecting a disk. If any of the headlines look interesting to you, simply click on it once to display an article in the lower portion of the window.

The information displayed in the AppleCare channel of Sherlock can also be found on Apple’s Web site by going to:
http://www.info.apple.com/

In summary, all the channels which Sherlock gives us are nice but they don’t give us anything we couldn’t get by going to a particular Web site. In fact, if we go directly to a specialty Web site, we can often get more information than what Sherlock shows. The big benefit with Sherlock is that it organizes some of the most important information resources available on the Internet then displays it in a way which we can all readily use. We are not born knowing how to find these speciality Web sites and how to navigate them. Sherlock solves this learning hurdle by giving us a very easy and fast tool for finding what we want. Spend some time using Sherlock, then later go to some of the specialty Web sites which are listed on the bottom of each channel window by simply clicking on their names! This is the real magic behind Apple, their engineers are constantly thinking of ways to educate Macintosh users and enrich their lives. I look at Sherlock as a learn-
ing tool which can take an Internet novice then turn them into an Internet pro faster than almost anything else.

**Difference between Sherlock 3 and previous versions**

Sherlock version 3 is designed for finding information only on the Internet. This is different from prior versions which would also find information on your computer. Many people relied on Sherlock versions 1 and 2 to find files which were hiding in some mysterious place. In the past, if you knew you had file “such-and-such” but couldn’t find it through mousing around in the Finder, then you could simply open up Sherlock to ask it to find that file for you.

To ask your Mac to find a file for you, the easiest thing to do is to remember to hit “Command-f” on the keyboard while using the Finder. First, click once on the smiling Finder icon in the lower lefthand corner of your screen, then hold down the cloverleaf (Command) key and keep it held until you tap the “f” key on the keyboard (i.e., “F”ind). This key combination will work for every version of the Macintosh operating system. It will invariably bring up a special window for you to search your hard drive. In Mac OS version 10.2, when you do “Command-f,” you’ll get the following screen:

![Find window](image)

This screen may look intimidating the first time you use it but it’s really not bad at all after you’ve used it a few times. Notice the “Search in:” field at the top of the window. For most searches, you should make sure that it says “Local disks” as it is shown here in the graphic. If it says something else, just click on the words with your mouse and keep the mouse button held. You will see a list of options and will be able to choose “Local disks” from the list.

In the field which says “file name contains,” you should type in part of the name of the file “such-and-such” which you know is in your computer but just can’t seem to find. After you finish typing in all or part of the file name that you are interested in, go ahead and hit return or click the blue “Search” button. In a few seconds, you’ll be given a list of search results.
When I typed in “Omni” into the “FileName contains” field, I got these search results which are shown on the left here. Let us suppose that I knew I installed OmniWeb but just forgot where I put it. Because of this search, I now have a list of files that I can wade through until I find my OmniWeb. Notice how I clicked on the OmniWeb item in the list, as a result, the bottom portion of the window shows the folder hierarchy to let me know exactly where on the computer OmniWeb is actually located. To open up OmniWeb, I can just double click its icon either in the top portion of the window or the bottom portion, both are fine. Searching for file names or parts of file names is very fast on a Macintosh. You can search your whole computer for a particular file name in a matter of seconds. Searching the contents of a file for a word or phrase is another matter altogether.

If you know you wrote something, but don’t remember what file it is in, you can use the “Command-f” key to search for the contents of that file. What you’ll do this time is look in the contents of all your files for just a particular phrase. In the past, we could create an index for a folder to help us search the contents quickly but this feature seems to have been removed. An index is a special database which catalogs all the words in each document and records where they are located. Today, since there is no longer an option to create an index, every time you want to search for the contents of a file it takes a very long time because your computer has to sift through lots of information.

To keep the search time reasonable (not too long), try to think of roughly where the file may be located. For example, suppose you were looking for a file which you forgot the name of but knew had the phrase “you can pick your friends.” Suppose you also know that it must be in your “Documents” folder. What you’ll need to do is depicted in the graphic shown at left. First, change the “Search in:” field to be “Specific places.” Second, click the “Add” button then locate your “Documents” folder. Third, be sure only your “Documents” folder has a check mark. Fourth, write your query phrase in the “content includes” field. Fifth, click the blue “Search” button then wait a while for your Mac to find the results for you.
Communicate with audio and video (video conferencing)

Do you remember the first time you used a telephone? Unfortunately, I can’t either but I’m willing to bet we were both shocked and impressed. I do remember as a little boy I’d have fun taking two paper cups and attach a string to both of them creating my own crude form of a telephone. If we could remember our first experiences using the telephone, we might recall that it wasn’t such an easy process. First, we need to pick up the phone, wait till we hear a tone and then dial a special number. However, if the number is outside of our area code, we might need to dial long distance. We also had to learn to tell the difference between a busy signal and a ring.

Video conferencing promises to be quite a bit better than a telephone but it requires a bit of experimentation and some learning. For one thing, since we don’t leave our computers on all the time, you can’t just “ring” someone when you want to video conference with them. This means you need to plan on when you’re going to video conference, so both parties can prepare to have their computers on. If there is a minor emergency, in which you think you may want to talk for an extended amount of time, you may wish to telephone the person you’d like to video conference with first to let them know you’d like them to turn their computer on.

Personally, my life spans both sides of the globe. I have family living in Maryland and family living in Taipei. What this means is that I spend time in both countries and use video conferencing a lot. As long as you pay a flat fee for your Internet service, you can use video conferencing as much as you want without incurring any additional costs. Not only does this save on your phone bill but it also makes the physical distance between you and your loved ones seem not so far. It really does mean a lot to see a person’s face and get their physical reactions. For me, the once a week, three-four hour video conference is something that I look forward to and rarely miss.

Video conferencing is important but, until recently, it hasn’t received the amount of attention it deserves. It has a long history and was pioneered on the Macintosh many years ago with a software title named “CUseeMe” and a golf ball sized camera called the “QuickCam” which was made by Connectix at that time. I’d venture to say this all started around the year 1992 but I may be off slightly. When the first edition of this book was written, video technology had not improved much over those early days since 1992. Today I’m happy to say that Apple has taken an active role and pushed ahead with some real advances in video conferencing. Apple’s iChat AV along with iVisit, from an independent company named iVisit LLC, form two of the best solutions available.

iVisit remains one of the best software titles for video conferencing. This product is not made by Apple although the name might make you think so.
iVisit has been around since before Apple started creating the free iMovie, iTunes, etc. In fact, some of the people who created CUseeMe are the ones who have been developing iVisit. For a long time, iVisit has been free software and even continues to be today. Not only is it free but it also happens to be technically superior to most alternatives. I would not say iVisit is perfect because it does have some problems; however, I have consistently used it for a number of years with some pretty good results.

iVisit has had a tumultuous past. It started out as the main software title from BoxTop Communications. Later iVisit became a product of Eyematic Enterprises. Now iVisit is back under its own umbrella as iVisit LLC. To me, this means that the iVisit developers put their soul into their product and refuse to let it die or stagnate. The current company offers iVisit in two versions. One version is free but the other costs $30 per year. The differences are minor, and most people's needs will be met by the free version. However, if you like the software you should consider paying for it. Those who pay to use the software will have the added benefit of a permanent "room" where people can congregate to chat. Those of us who use the free version can create rooms too but they are only available for as long as we are presently using them. Rooms solve three fundamental problems: 1) how to tell if your friend is connected to the Internet, 2) how to find new people to chat with from around the world and 3) how to block offensive people from attempting to chat with you. Once you start iVisit, you can navigate to different rooms, each with their own titles that hint at what the main topic of discussion is supposed to be.

I have found that iVisit works quite well with a normal dial-up Internet connection. The video is updated slowly; however, audio is about as clear as a cell phone with only a minor amount of delay. If you have a faster connection, iVisit will really shine as you'll be able to see movement of the other person which is almost as fast as watching a movie or TV show. Don't misunderstand me. The picture is small and not the greatest quality but it's still quite good.

Microphones are not needed because most Macs have reasonably good ones built into the computer. The microphone is often hidden quite nicely but it is there. You'll need to verify this fact to be sure because a few of the top of the line Power Mac tower computers actually don't have built-in microphones. Also, for most video conferencing applications, you will need a pair of headphones. This is not intuitively obvious but it is very important. Actually, you won't be able to talk effectively with the person on the other end of the line if you both aren't using headphones. The reason is that the microphone is very sensitive. It will pick up sound from the speakers just as easy as it will pick up sound from your lips. At the minimum, not using headphones will cause the person on the other end to hear an echo of themselves. At worst, you'll both get some glaring (and painful) noises caused by feedback.
In iVisit, there is a “push to talk mode” and a “squelch” mode. If you have used a CB radio before, you may be familiar with these terms. The CB (or Citizen’s Band) radio is what people use to communicate with throughout most of America. City slickers may not have used one before but it’s the same type of tool police and truck drivers use all the time. Normally, to talk on a CB, you have to push a button when you want to talk. This is similar to “push to talk mode” in iVisit. With some of the better CB radios, you could also use a squelch to automatically transmit your voice whenever you talk. Squelch worked by adjusting a knob to signify what level of sound was just background noise and which level could be considered your voice. With iVisit’s “squelch” mode, there is a slider which you can use to adjust these same parameters. What is different about iVisit versus a CB radio is that it is two-way communication. In other words, you and the other person can both talk at the same time. On a CB radio, if you are talking, you won’t hear what the other person is saying because it won’t transmit and receive at the same time like iVisit can. You can interrupt the speaker in iVisit but you can’t with a CB radio. Personally, I use the squelch mode in iVisit which allows me to comfortably talk for three or four hours. My headphones are comfortable (just two little ear buds), and my Mac’s microphone picks up my voice very easily, so I can talk while sitting or while standing. If I used a phone to talk that long, my hand would get tired and my ear would turn red.

iVisit has some nice advantages. People running Mac OS 9, Mac OS X and Microsoft Windows can all connect and communicate with one another. Very few software offerings work on so many different types of computers. Since many of the people you will want to chat with will be using any of these types of computers, some people can’t even consider using other solutions. Not only can you have video conversations between two people, but you can also do it between any number of people. I have personally had conversations with as many as eight people at once. The faster your connection to the Internet is, the more people you can effectively chat with simultaneously. However, at some point, audio becomes too garbled and everyone in a crowded room must resort to only seeing video and typing messages in a shared textual window. If you get bored sometime and want to make a new friend, you can almost be assured of doing so just by opening iVisit. At any given time, there will be between 600 and 1,200 people connected and using the software. Another nice benefit of iVisit is that it will use almost any video camera and practically any computer, even those considered quite old (over six years).

iVisit has a few disadvantages. At the time of revision, 8/23/03, audio does not work well in Mac OS X. People using Mac OS X can hear people they are chatting with just fine but their outgoing voice sounds extremely robotic. This is a problem with the current software iVisit uses for audio in Mac OS X. From what I’ve heard, a new version of the software should be out in a few months, so this shouldn’t be a problem for very long. Originally, iVisit licensed audio software from Lucent called “Elemedia.” Lucent’s Elemedia
iVisit chat session
From left to right:
Aaron Rosenzweig
Libby
Scott Bruneau
Geo

iVisit allows you to chat with many people simultaneously and works with the largest variety of computers and cameras. You can find it at:
www.ivisit.com

For the curious: the picture in the background is of fresh baked breakfast bread from Taipei. It has scallions and pepper inside; tastes great with a scrambled egg in the middle.

Noise cancelling technology is what allows iChat AV to eliminate the need for headphones.

Apple has come on the video conferencing scene in a big way. With its new "iChat AV" software, Apple has succeeded in creating a complete solution that is both easy to use and offers fantastic quality in communicating with friends and relatives. At the time of revision, 8/23/03, iChat AV can be obtained from Apple's Web site for free. It is part of OS 10.3 (Panther) but will soon also be available for purchase for use with OS 10.2 (Jaguar) for $30 which is a typical price for most video conferencing software titles.

The single greatest benefit of using iChat AV is its "noise cancelling" capability. The odd fact about this is that I have not seen it praised in the many popular media channels. I can only guess this is because most of the journalists who have been asked to write about iChat AV have never really used video conferencing software in the past. All most journalists can say is "it works!" and, after all, isn't that all anyone really cares about in the end? The upshot of the noise cancelling technology is that headphones are not necessary. The audio capabilities of iChat AV are so good that you can chat up a
storms and not have to worry about echoes nor glaring feedback. Steve Jobs, Apple's CEO, claims that using iChat AV is just like using a very high quality speakerphone. His claims are not overstated. The product works just as it is advertised. When having important conversations with family who live far away, you'll quickly realize the benefit of not needing headphones. Other family members who live with you will be able to hear the entire conversation and equally participate in it. With other video conferencing solutions, it is possible to purchase inexpensive headphone splitters but it's so much nicer to simply not need to use headphones.

iChat AV has other advantages. It is hands down the simplest and most straightforward software available. With a few clicks, you can initiate a conversation with your buddy. There is very little fiddling needed to get everything set up and have conversations work properly. There is no need for a "push to talk" mode because the noise cancelling works so well. The quality of the video is very nice and can be stretched to cover your full screen. iChat AV even does this in a way that limits the distortion in the center of the image by stretching the exterior rim more than the center of the image. This results in a more natural looking human face when chatting at full screen size (if the person is in the center of the screen).

iChat AV has some disadvantages. It only works in Mac OS 10.2 (Jaguar) and above. Also, it requires a fairly modern Macintosh. Apple recommends a G4 processor or a G3 that is above 600 Mhz in speed. I am not sure what performance you would get on an older Macintosh that doesn't meet those requirements. This is a significant issue because many of your friends and family may have a Microsoft Windows PC or an older Macintosh. Another disadvantage is that you can only video chat between yourself and one other person. For the most part, this is all anyone really needs to do; however, it is nice to chat with three or more people from time to time but iChat AV does not allow this. When using video cameras with iChat AV, they must be of the "FireWire" variety. This is not bad but there are more cameras available that use "USB," and they are significantly cheaper in price. FireWire and USB are two competing standards for connecting gadgets to computers. FireWire is faster and cameras that connect via FireWire can show video at DVD quality at a fast rate of speed but they cost roughly twice as much as the USB cameras. In contrast, USB cameras can only show video at roughly VHS quality and at a mediocre speed (more jerkiness of motion).

In addition to the disadvantages mentioned in the previous paragraph, many people complain that they can't find people to chat with if they are using iChat AV. This is because of the way iChat AV is built; it is meant for you to be able to connect with people in a buddy list. This is a group of people for which you already know their Email addresses and contact information. So, if you don't have a large group of already established friends who are currently using iChat AV, you really don't have anyone with whom to chat. Or do you? Thanks to a Web site called iChatters, people can easily

A buddy list is like an address book for keeping track of different people you'd like to chat with.
iChat AV session

This is a conversation between the author (Aaron Rosenzweig) and Scott “ScottoMacUser.”

iChat AV is a great tool that only allows two people to talk but it does this flawlessly. You will need a modern Mac and OS 10.3 (Panther).

Note: you can drag the small video of yourself to any location inside the video chat window.

Good quality cameras to use for video conferencing are hard to come by. You can use an expensive Mini-DV camera. That works great! But how many of us want to use a $500+ camera just to do a conference? In my opinion, Apple’s new iSight camera is a smart buy. It costs a steep $150 but it is more effective than any other video conferencing camera currently on the market. It comes with an assortment of special stands which allow it to be mounted to the top of all the current Macintosh models. This one fact is very important; this means you can position the camera in a way that makes it easy for your buddy to see you. Placing a camera on your desk is never a good idea because it takes up desk space. Desk mounted cameras are often at an angle that is looking up your nose rather than at your face! The iSight camera is perhaps the only camera with an autofocus capability. Most video conferencing cameras require you to spin the lens with your fingers to focus it manually; in contrast, the iSight has a motorized auto-focusing system that does all this for you. A nice built-in microphone is included with iSight. Even though all Macs have microphones already, they are sometimes placed close to the computer’s fan. This doesn’t stop your Mac’s built-in microphone from working well but it won’t have as sharp a sound as an external microphone, such as the one that is in iSight. The harsh reality of video conferencing is that sometimes the experience reveals too much information. Imagine chatting with someone on the telephone and getting the urge to yawn. You can
simply cover the phone set with your hand and turn your head, and the
person on the other end would never be the wiser. With video conferenc-
ing, people can easily see you yawn, see you changing clothes, etc. The
iSight has a nice feature which allows you to simply spin a section of the
camera, and a bright white shutter will obstruct the view. You can use this
when you want to be sure nothing is being shown on the Internet.

Besides iSight, other cameras to consider should really be of the
FireWire variety if you'd like to be able to use them with iChat
AV. A good second choice camera is the Fire-i camera from a
company called Unibrain. This camera sells for about $100.
That is about $50 cheaper than the iSight. Besides the lower
price, this camera is very small and portable which makes it
perhaps a bit easier to carry than the iSight. I own this camera and
the picture quality is very good. It can clip to the newer iBook and
PowerBook displays without much trouble but to use it with a desktop
Macintosh would require you to rig up your own way to mount it. Realize
that this camera does not have a built-in microphone nor does it have auto
focusing capability. You can find out more about the Fire-i camera by visit-
ing “www.unibrain.com”

In the past, the Kritter Cam from Irez Research was one of
my favorite cameras. I still consider it a decent camera
but I would put it third when compared to the other
cameras discussed here. The Kritter gets its name
because of the intelligent way the lens shield can fold
down and become legs for the camera. This makes it
handy for people on the go because you don't have to worry about
the lens getting scratched and the camera takes a very small amount
of space. Past PowerBooks had thicker displays which the Kritter’s
legs could readily grab onto - as if the Kritter was designed specifically for
Macintoshes. That was during the years between 1998 and 2000. The Kritter
has not changed its design but portable Macintoshes now have very thin
displays which the legs of the Kritter Cam won't hold onto. In fact, the legs
now press into the LCD display of my Titanium PowerBook which is what
prompted me to purchase the Unibrain Fire-i camera. Image quality was
not extremely good on my previous Kritter cameras. Quality was better
than most cameras I've tested but not as good as the Fire-i or the iSight. I
used to develop software which could recognize a person's face; I've tested
many cameras. The good aspect about this camera is that it is very small
and has an optional stand which allows it to set nicely on your desk at a
fairly high level (so that it points at your face, not up your nose). The price
is no bargain. To get the stand and the FireWire Kritter will run you $160.
You can find it by going to “www.irez.com”

Other cameras on the market are probably not worth considering. Either
they have poor image quality or they are not easy to mount. The iBot from
OrangeMicro has decent image quality but its stand is light which makes
the camera top heavy and easy to fall over. When put on a table, the camera looks up your nose because the stand is not very tall. The iBot is cute, like the Kritter Cam, but not as practical.

The one last camera I’d like to mention is a bit of an oddball. It is both a top class recommendation and a last place one as well. How can this be? Some explanation is in order. There is a camera which is now available for sale under the name Watchport by a company named Inside Out Networks. Before them, this very same camera was called the HomeConnect and was sold by 3Com. Originally, this camera was called the Vicam and was made by Vista Imaging. Quite a long chain of events, right? It so happens that Vista Imaging is the creator of both the camera boards and the camera casing, and they are an American company. This is quite interesting; nearly all video conferencing cameras are developed and made in Taiwan. For a company to be based in the US causes the camera to cost more and is unusual. I happen to own this camera because it is one of the few cameras which truly impressed me, back when I was a pioneer in the field of human facial recognition. You can actually use this camera in a pitch black room with only the light from your computer’s monitor to provide adequate illumination. Even under these circumstances, the image quality has decent color tone. This is an uncanny capability that really must be stressed. Nearly all cameras, with the exception of this one, demand a well lit room to perform adequately. Most homes, certainly nearly all hotel rooms, do not have enough lighting during the evening. Even Apple’s iSight, which is touted as having incredible image quality, does not perform well at low light. I have chatted with people who use iSight in a dark room (to not wake up their family); the face color looks blue and is hard to discern from the background. This low light capability makes the Watchport camera the clear winner in image quality, even today. Another curious feature about this camera is that you could purchase three additional lenses: one for wideangle (good for capturing a whole room), one for telephoto (good for capturing a face from a distance or a monument when pointed out a window) and yet a third one for macro closeups (the water droplets on a flower petal). When 3Com sold this camera, they developed software to make it work on the Macintosh. This software is still available and will work on the Watchport, the HomeConnect and the Vicam. Unfortunately, this software only works on Mac OS 9 and earlier. It will not work with OS X. This is a USB camera, and there are no real plans for anyone to make this camera work in OS X. The camera is also expensive. Currently, it has a promotional price of $100 but will probably cost about $160 by the time you read this. You should be aware of this camera and keep an eye out for it; perhaps you can purchase it second hand. If you will be chatting with someone who has an older Macintosh or any flavor of Microsoft Windows PC, you should seriously consider recommending this camera to them. It costs quite a bit but has excellent image quality. You can find out more at: "www.ionetworks.com"
I'd like to point out that it is possible to have interesting communications using iVisit or iChat AV even if you don't have a camera. You may want to get a copy of iVisit for yourself since it's free. Just go to www.ivisit.com Alternatively, you may want to try out iChat AV if you have Mac OS 10.3 (Panther). Who knows, you might be able to strike up a conversation with someone in Korea or some other far away place - I've done it before. The neatest thing about all this is that it doesn't cost you a cent other than your Internet connection, and most of us pay a flat month to month fee for that. If you find that your Internet connection seems quite slow, and you are having trouble hearing or communicating with the other person, you can type messages into either iVisit's or iChat AV's "chat window" as a backup solution. This text chatting capability moves us into the "Internet chatting" subchapter below.

**Internet chatting**

There have been some recent studies which suggest that the most popular software applications in use today are Internet chat applications. These types of products allow you to write short text messages either directly to one person or to a group of people. Whether this seems surprising to you or not depends on if you have the gift of gab. Personally, I'm not too fond of this type of software and only use it with very few people but I know many people use this software throughout a greater part of their day. I will concede it is a great way to just say what is on your mind and perhaps meet a few people from around the world in the process.

A typical session of Internet chat goes something like the following. You open your chat software and create a "buddy list" where you put the names of all your friends. Different people you know need to give you their chat name, then you can put their name in your buddy list. As your buddies open and close their chat software, you'll see this by looking beside their name in your buddy list. To send a message to a buddy, just double click their name in the list and compose your message. When you're done, click the send button. Some chat software has "rooms" where you can enter and meet people who are in that room. This is useful for meeting new people or discussing a particular topic. Each room is given a descriptive title, such as "my dog has fleas" or "politics." When you are in a room, you can choose to send messages to everyone in attendance or to "whisper" a message directly to just one person in the room. Which chat software you use is largely dependent on which software most of your friends use. Chat software from different companies usually do not communicate with each other. This means you may need to use more than one chat application.

The most common chat software is America Online's "Instant Messenger" which is often just simply called AIM. This software is free and you can download it from their "www.aol.com" Web site. Part of the reason for its
The two most common Internet chat software titles are:

1) America Online's Instant Messenger (AIM)
2) ICQ

If you find yourself using both ICQ and AIM because you have friends using both software titles, you may want to check out "Fire.app" Fire.app let's you talk with people using a wide range of services. You can get Fire.app here: www.epicware.com

popularity is that it was one of the first chat software titles but also it was made to work for both the Macintosh and the Microsoft Windows PC. Today, with the current version of Mac OS X, Apple has included their own chat software called "iChat." Underneath iChat is really the same software as AIM because both applications communicate with each other. This is the first time that America Online has openly had an agreement with another company to share users. The difference with iChat is largely cosmetic. It looks and works better than other chat software. You can find iChat in your “Applications” folder.

A close second in popularity is "ICQ" which can be found at “www.icq.com” Personally, this is the software which I use. It’s not that I like it so much but it is what my wife uses and she is the only person I chat with. In Taiwan, most people use ICQ and because most of my wife’s friends are Taiwanese, she chooses to use ICQ. I have no complaints with this product. It works well and does what it is supposed to do.

There is a fine line between video conferencing and chat applications. That is because often times people use video conferencing software to just see a simple picture of what someone looks like. If you are in a large “room” filled with people, you will not be able to talk because the Internet is not fast enough to transfer your voice to so many people. If you try, it will end up sounding like you are underwater. In this situation, a video conference becomes a chat room where people can view each other (albeit with a low frame rate) and type messages to each other.

How and if you use chat software and video conferencing software depends on your personality and what you may be using the software for. If you are a very articulate person, you may prefer plain chat software where actually seeing the other person may ruin the fun.

You’ll find that there has been a special shorthand developed for chatting on the Internet. This is partly because many people don’t know how to type well but it is also because people want to get their ideas out as fast as possible. Here is a list of the most common acronyms:

- lol - laugh out loud
- rotfl - rolls on the floor laughing
- fyi - for your information
- btw - by the way
- brb - be right back (the person needs to pee)
- afk - away from keyboard (the person is busy)
- fwiw - for what it’s worth (the person is giving advice)
- imho - in my honest opinion
- ymmv - your miles may very (it worked for them)
- l8r - later (as in “see you later”)
- ttfn - ta ta for now (a cute way to say good-bye)
- ic - I see (as in “I understand”)
thx - thanks
wtgp? - want to go private? (let's talk privately)

There is yet even more shorthand for expressing sentiments and gestures. The easiest is to describe an action inside of greater than and less than signs, such as: << grins evilly >>, << raises an eyebrow >>, << looks left, right, then grabs the last piece of pizza >>. Below is a list of smiley faces which need to be viewed while tilting your head to the left ninety degrees:

:-) Normal smile
:-) A smile with a wink
:-b sticking your tongue out
:+:-) A pious smile
:-o A surprised look!
:-( A sad face

QuickTime

Most simply put, QuickTime is a set of software tools for displaying video on your computer. The first version of QuickTime shipped on December 2, 1991. At that time, most computer experts felt that to show a movie on your computer was a bit foolish and probably not even possible. To a certain extent, those pundits were right. In 1991, computers were not all that fast, and all you could display was a movie with sound in a small window. The fact that sound could play and keep in time with a movie on the screen was both amazing and shocking back in 1991. The Apple engineers did not care that there was no immediate practical application for QuickTime because they had the foresight to know computers would soon get faster, and this new technology would open worlds of opportunities.

The most interesting fact about QuickTime is that the creators really had a clear idea of what kind of structure and tools they should create to properly deal with audio and video related issues. From the very beginning, QuickTime was not designed to be one software tool. It was designed to be a library of tools which software designers could both rely on and extend to solve difficult tasks. The current version of QuickTime is version 6. Unbelievably, the fundamental parts of this version are largely equivalent to that which was there in version 1. From the first day it was released, QuickTime was made to be extendible by Apple or sources outside of Apple. New versions of QuickTime are basically the same library of tools with the addition of more components. Almost any software title on the Macintosh which either has to display still images or movies simply uses the QuickTime library to make things work. A lot of music software also relies on QuickTime to mimic the sound of musical instruments.

The average Macintosh user stumbles upon QuickTime almost by accident. This usually happens when you view a movie that you found on the
The QuickTime Player application is used to both view and edit video; however, editing is only allowed when you pay $30 to register the QuickTime Player.

Shareware - software which you are allowed to try before you buy. Often the software is crippled in some way until you buy it.

Internet because the QuickTime Player will start up. The QuickTime Player application is used to both view and edit video. It is not QuickTime per se but it uses QuickTime to do its magic. Every time the QuickTime Player opens up, it will give you a strange message asking if you want to upgrade to QuickTime Pro or not. If you say “Yes, I want to upgrade,” then you are taken to a Web site where you use a credit card to pay $30 to upgrade. If you say “No, I'll upgrade later,” the QuickTime Player will continue to open up in order to play your movie. This behavior puts the QuickTime Player into the category of shareware.

If you decide to register QuickTime, perhaps the largest benefit you'll get is that the annoying upgrade message will never be displayed again. If you like to view movies, once you register, you will be able to stretch out the movie to fill the entire screen. In Asia, stretching out the movie to fill the entire screen is a big deal since the VCD format is very popular and the QuickTime Player is the easiest way to view this type of movie on your Mac. In Asia, it is normal for people to use their computers to watch feature films when at home or on the road. This trend is just starting to catch on in America as the DVD format becomes more and more common. One final reason to pay the registration fee is if you plan on editing digital movies. With a registered version of the QuickTime Player, you can cut out parts of movies, make slide shows from static images, make static images from movies and save movies in a number of different formats. iMovie only edits movies in the DV format but the QuickTime Player can edit almost any kind of movie file format. By using the QuickTime Player, you can make any movie file into the DV format, so that you can edit it in iMovie.

Personally, I've registered my version of QuickTime because I like to quickly modify movies before I put them on the Internet to share with family and friends. As I spend quite a bit of time in Asia, it is also nice to be able to present my movie rentals full screen on the computer. Apple charges $30 to register, which is a reasonable price to pay if you are going to use all the features but I believe most people do not need to register. I have always thought Apple is a bit wrong to always show that annoying “want to upgrade?” message every time the QuickTime player opens. I'm sure that many people register because they are either confused by this message or just sick of it. I still remember the days when QuickTime was completely free. Some savvy people even kept their old QuickTime Player around to play and edit movies rather than pay to upgrade to a new one. I believe it was QuickTime 3 when Apple introduced the idea to register for more features in the QuickTime Player.

One of the neatest uses of QuickTime is to view movie previews. Have you ever wanted to go to the theater but aren't sure which movie to go see? You can hop on the Internet and take a short look at all the movies currently shown throughout the country, just go to: “http://www.quicktime.com/” Even though you are using your Web browser to view those movies, it is QuickTime working behind the scenes to display them for you.
Typing Letters with AppleWorks (Any Version)

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If you are stranded on a desert island and given the option to choose only one software title; be sure you pick “AppleWorks.” This has got to be the single greatest piece of software ever created because it is easy to use and can do so many things. It is the Swiss Army knife of software titles.

If you have an iMac or an iBook, AppleWorks comes bundled with your computer. If you have one of the more expensive Macintoshes, such as the Power Mac tower or the Titanium PowerBook, you will need to purchase AppleWorks separately. I don’t know why but the more money you spend for a Macintosh, the less software you’re given. If you purchase AppleWorks separately, it costs $80.

Most of what is discussed in this chapter could be applied to other software as well, such as Microsoft Word or Nisus Writer. We specifically use AppleWorks in this chapter because it comes with many Macs and if purchased separately, it costs less than any of its competition.

For many people, the single most important reason to own a computer is to type letters and documents. All the typewriter companies have either gone out of business or switched their business strategy. The computer has replaced the typewriter. Some people don’t like this but these are people who have never used a Mac and never used a tool like AppleWorks.

I learned to be a touch typist by using a typewriter. Every mistake is costly. If you want to have a perfect page, you have to retype a whole page of text just to correct one mistake. If quality is not so important, you can put some special white tape over the mistake in your document and retype the wrong character, so that it will “white out” the error and allow you to type in the correct character. Typewritten text is sharp but it is not so pretty. That is because every character takes the same amount of space. The letter “l” takes the same width as the letter “w” which gives your words a sort of blocky look. If you want to change the shape of your letters to make your document have more style, you have to swap in different mechanical components of your typewriter. As you can see, using a typewriter is a lot of work.

When using a Macintosh to prepare a document, we see a version of the document on our computer screen. Changing mistakes is effortless, even changing the shape of our letters, such as a bold or italics, is as simple as clicking a button. When we are pleased with our document, we can save it then print it as many times as we like.

AppleWorks is the Swiss Army knife of software titles because it is like four or five software titles all rolled into one.

What is touch typing? It is the ability to use the keyboard without looking at any of the keys.
Opening AppleWorks

Let’s open AppleWorks and get busy! First, click on the smiling Finder icon in the lower left corner of the screen. If there is no Finder window open, click on the menu at the top of the screen labeled “File” and then choose, “New Finder Window.” I recommend navigating with “column view.” In your Finder Window move your mouse to the top left corner and find the part labeled “view.” There are three buttons in the “view” section, click on the right most button to change to “column view.” Lastly, in the top part of the Finder window click on the “Applications” icon. This will jump you to the Applications folder which is where all your software titles are kept.

You should now be able to locate AppleWorks inside of the Applications folder. If it’s not there, you probably don’t have it. If you have an iBook or an iMac, check to see if the AppleWorks disk is included with the box your computer shipped in. If you have one of the more expensive Macintoshes, you’ll need to buy AppleWorks separately.

If you need to install AppleWorks, simply stick the AppleWorks disk in your computer. Double click on the disk icon which shows on your Desktop. Next double click on the installer icon and follow the steps that it shows. It should go pretty quickly and when you’re done, just drag the icon of the AppleWorks disk to the trash to eject it and put it away. AppleWorks will now be in the “Applications” folder.

Click once on the AppleWorks folder, then locate the AppleWorks icon and double click it. You’ll see the AppleWorks icon start bouncing in the dock at the bottom of the screen. In a second or two, AppleWorks will be open and asking you what kind of document you’d like to create. Alternatively, instead of double clicking the AppleWorks icon, you might want to drag it to the dock and drop it there. This way every time you want to use AppleWorks all you have to do is click once on its icon in the dock.

Creating a letter

When you open AppleWorks, it asks you what kind of document you want to make. We want to write a letter, so we should double click on the Word Processing option. Alternatively, you could click on the option to use “stationary or assistants.” Doing this will give you a document which is already partially made like a business memo with a To: and From: section already created. For now, let’s just create a new blank letter so double click on the Word Processing option if you haven’t done so already.

Almost instantaneously, you’ll see a mostly blank window appear with a small vertical cursor blinking inside. The title bar will say “Untitled (WP)” and is ready for you to start typing. First, let’s look closely at this window.
When you click and hold on the lists button, you will see many different options. These all relate to how to order a list of items; each separated by a carriage return (the “return” key). The list could be alphabetic, such as A. B. C. or Roman numerals, such as I. II. III. IV. Note: in AppleWorks version 6, the lists button is no longer located in the top left corner of the window. Instead, use the “Outline” menu at the top of the screen.

When you choose the text alignment buttons, you specify how text lines up on the page. Each of the four buttons gives a visual hint as to what it does. The button on the far left makes text “left justified” which means that text lines up against the left margin. The next button is “center justified” which means that each line of text is centered between the left and right margins. You’d often use this at the top of a letter. The second to last button is “right justified.” This means that text lines up against the right margin. The button on the far right is “left-right justified.” This is what you’ll often see in newspapers where each line of text is stretched out, so that it lines up against both the left and right margins.

The line spacing button lets you specify the amount of space between each line (or row) of text. A line space of “one” is what you see in this book where there is very little space between each line. A line space of “two” is what college students are often required to use for their term papers. It puts
a blank line of text between every line, so the teacher can easily make corrections. You can click in the middle and type the line spacing number you want. Alternatively, you can click on the button at the left to decrease the line spacing by half a line every time you click it or you can click on the button at the right to increase the line spacing by half a line every time you click it. Many people like to have a line spacing of 1.5 for typical letters they write to family and friends.

There are four kinds of tabs you can use in your document. Look on your keyboard to the left of the letter “Q” which is where you’ll find the “tab” key. Normally, this key will cause your typing cursor to jump to the nearest half inch point on the horizontal ruler. However, if you drag one of the tabs down onto the ruler, it then becomes the place where text will be placed when you hit the “tab” key on the keyboard. You use tabs to quickly and exactly align text. For example, tabs can be used to create a quick table. Don’t use the space bar to align text because it won’t get things lined up correctly, and it’s actually harder to try to do it that way.

The leftmost tab icon will align text starting at the left of the tab marker. The next tab icon will align text in the center of the tab marker. The tab icon located second from the right will align the right side of text with the tab marker. The tab icon furthest to the right will align the decimal point of text right where the tab marker is on the ruler.

The columns button will allow you to put multiple columns of text on one page. You’ve seen how newspapers use multiple columns; this is very similar. Click on the button on the left to decrease the number of columns. Click on the button on the right to increase the number of columns.

In the magnification part of the screen, you can click on the larger mountains to zoom in on your text. This does not make what you print any larger or change the way it prints in any way. What it does do is make it easier for you to read. Conversely, clicking on the smaller mountains will zoom you out from your text just as if you held your letter further away from your eyes. To the left of the mountains is a percentage. One hundred percent is the normal size. You can click on the value shown there and pick anything you like. Choosing a zoom factor by clicking on the percent number and typing a value is the same as clicking on the mountain buttons.

When you click on the painting tools button, a new palette will appear on the left side of your screen. There are many tools located there which you can use to paint simple graphics on your letter. When you’re done using these tools, you can simply click on the painting tools button one more time.
Saving your letter

We haven’t done anything yet to our letter. We’ve just opened a document window and talked a very little bit about what the window shows us. It’s always a good idea to “Save your letter early, save it often.” If you’re into the game of Chess, you’re familiar with Bobby Fisher’s statement of “Castle early, castle often.” The idea is that you usually need to castle in order to win the game and if you don’t do it as early as possible, your opponent may prevent you from doing so. The same is true on the computer. You should develop the habit of saving your documents frequently. This comes in handy should you make a horrible mistake or even worse, the computer could get confused and trash all your work if it’s not saved.

The best way to save your letter is to press “Command-s” on the keyboard. You do this by first pressing down and holding the Command key which looks like a cloverleaf and located close to the space bar. Next, locate the letter “s” and tap that key. You can now let go of the “s” and “Command” keys. The letter “s” is chosen because it’s the first letter of the word “save.”

A more straightforward way of saving a document is to move your mouse to the top of the screen and click on the “File” menu. Next, choose the “save” option. The only problem with doing it this way is that it takes slightly longer to move the mouse and choose the option. It’s faster to hit “Command-s” on the keyboard. Both ways are fine though and I use both depending on my mood.

The first time you save a new document, AppleWorks will ask you to give the document a name and ask where you’d like to put it. You should put most of the documents you create inside of your “Documents” folder. You may want to put subfolders inside your “Documents” folder, perhaps “Business” and “Family” subfolders for example. Let’s save this blank document in our “Documents” folder and give it the name “test letter.”

After you’ve already saved a document, you can open it in the future for later reference or to make additional changes. Now when you do “Command-s” on the keyboard, the computer will very quickly save the changes. It will happen so fast that you won’t even know anything occurred. Take my advice! Learn the keyboard combination and it will become second nature. After you’ve written a few paragraphs, just quickly save the document. It is just a short tap with your thumb on the “Command” key and then your middle finger on the “s” key. Remember, keep your thumb on the Command key then simply tap the letter “s” with your middle finger. Afterwards, let go of the Command key.

In the “File” menu in addition to “Save,” you’ll also find “Save as...” With “Save as...”, you are able to copy the current file and give the copy a new name. When you choose “Save as...,” it will ask you where you want to
save the new file and ask you to type the new name. Look at the title bar of your document window. It should show you that you are working on your new copy of the file. In the Finder, you can make a copy of any file or folder by pressing “Command-d” for “duplicate.” You can also go to the “File” menu of the Finder and choose “Duplicate” from the menu.

Notice the blinking vertical bar towards the top left of the Document window? That’s called the text insertion cursor. Where you see the cursor blinking is where text will be placed when you start to type. Right now there is no place for the cursor to be positioned other than the top left corner of the document’s margins. Please type the following text as shown. To make the text wrap to the next line use the “return” key:

You can pick your nose.
You can pick your friends.
You can’t pick your friend’s nose.

Go ahead and save the document now (press “Command-s” on the keyboard or go to the “File” menu and choose “Save”). In the remaining part of this chapter, we’ll have some fun experimenting with different features of AppleWorks.

Text alignment (justification)

Please select all the text you’ve typed, you know, the three phrases about nose picking. Do this by first clicking and holding down the mouse button after the last line then drag your mouse diagonally up and left till you highlight all the words.

Locate the four text alignment buttons at the top of your document. From Left to right they are: Left justified, Center justified, Right Justified and Left-Right justified.

Notice how your text is currently lined up against the left margin. Also notice how at the top of the screen, the text alignment button is set for left justified.

To make your text centered, be sure all three lines are still selected (highlighted) then click the center justified button.

To make your text aligned with the right margin, be sure all three lines are still selected then click the right justified button.
If you were to choose left-right justified at this moment, you wouldn't see anything different from simply left justified text. That's because it only works on the body of a paragraph. You'd first need to type enough text that it would automatically wrap to the next line before you could see the effects of fully left-right justified text.

**Line spacing**

Please select all the text you've typed, you know, the three phrases about nose picking. Do this by first clicking and holding down the mouse button after the last line then drag your mouse diagonally up and left till you highlight all the words. If the text is not aligned with the left margin, click on the left justified button.

Sometimes people want to have extra space between each line of text. This might make it easier to read but it also gives someone reviewing a draft more space to make changes. So let's make our document double spaced.

Locate the line spacing buttons then click once on the button on the right to increase the line spacing to one and a half. This means that the space between each consecutive line will be half the height of one line. Click this button one more time thus increasing the line spacing value to two. This makes one full line of blank space between each line of text.

After you've had a chance to experiment with this, go ahead and click on the left line spacing button twice to bring it back to a line space value of one. This means there is no extra space between each line of text.

**Lists**

Please select all the text you've typed, you know, the three phrases about nose picking. Do this by first clicking and holding down the mouse button after the last line then drag your mouse diagonally up and left till you highlight all the words.

We could think of our three simple lines of text as "the three cardinal rules of friendship." As such, we probably should list them as rules I, II, and III or perhaps we'd like to list them as rules A, B, and C. Click on the lists button but keep your mouse button held down. Select "Roman Caps" from the list. If you
think Roman numerals have gone out of style (or you just don’t like Romans), you can choose another item, such as “Letter Caps.” When you’re done experimenting, click on the list button and then select “None” from the top of the list. Note, in AppleWorks 6, use the “Outline” menu at the top of the screen then select “Label Style.”

**Margins and indents**

A margin is the amount of space between your text and the edge of the paper. An indent is the amount of space a new line goes in from the left when you begin a new paragraph. To adjust margins and indents you need to move special handles on the ruler.

When you adjust either the margin or the indent, it will take effect only for the line where the vertical text cursor is located. As you type, it will continue to be in effect. If you want to modify many lines of text, you need to select them by clicking and dragging the mouse.

Currently, the right margin is set at 7.5 inches. Look at the ruler at the top of the document and notice there is a small handle pointing to the 7.5 inch mark. You can click and drag on this handle to change it to any value, 6.5 inches for example.

Adjusting the left margin is similar to adjusting the right margin. Currently, the left margin is at one inch. Locate the handles at the one inch location of the ruler. If you click and drag on the box right below the bottom triangle, you can change the value of the left margin. For example, you could move it to two inches if you like.

To adjust the left indent, you need to move the top handle on the ruler. If you move the top handle to 1.5 inches but leave the bottom handle at one inch, each new paragraph will be indented by half an inch but the body of the paragraph will be flush against the one inch mark.

**Fonts and text styles**

The style of your text is defined by a *font*. For example, if you pick up an old book, you might notice that the text is a different shape than the text in most books today. Each font has a name but usually only authors and editors know what they are. For example, an old book might use a font named
"Caslon." Most books written today use a font named "Garamond." This particular book uses a font named "Palatino" for the vast majority of text.

Your computer comes with many different fonts and you can purchase more. You can change the fonts used in the documents you create whenever you wish. For example, let's change the first "You" on the first line of our text to the font "Apple Chancery." Just double click the word "You," so that it is selected then go to the "Font" menu at the top of the screen and choose "Apple Chancery." Isn't that interesting! Presto, a new look which is nothing like what you’d find on a typewriter. Notice how at the current size, it's a little hard to read. Let's change the size of the font. Be sure "You" is still selected then go to the "Size" menu and choose 24. This will make it twice the size.

You can make any font bold, italic, underlined, etc. For example, select the word "nose" by double clicking it. Now go to the style menu and choose "Underline." We’re just experimenting at the moment but when you really write a letter, you’ll want to use some of these features from time to time.

**Cut and paste**

One of the greatest things we can do on the Mac is something called "cut and paste" but it really should be called "cut or copy and paste." You use "cut and paste" when you have some text or an image which you’d like to move some place else. The item you’re interested in gets copied to a small invisible clipboard then can be pasted as many times as you like, wherever you like.

When you cut an item, it is erased from its current location then moved to the invisible clipboard. You are free to paste this item from the clipboard as many times as you like. For example, double click on the word "pick" to select it. Next go to the "Edit" menu and choose "Cut." Immediately, the word disappears. Now go back up to the "Edit" menu and choose the word "Paste." Immediately, the word reappears. Go ahead and "Paste" three more times. You’ll get the text "pickpickpickpickpickpickpickpick." When you copy an item, the original is unaffected. A copy of the original is put in the invisible clipboard. You are now free to Paste copies anyplace that you like.

Anytime that you use cut or copy, the invisible clipboard replaces any item it might have previously been holding. In other words, the clipboard can only hold one item at a time.
Drag and drop

“Drag and drop” is a variation of “cut and paste.” It doesn’t give you any more capability but rather just gives you one more way to do the same thing. To use “drag and drop,” you don’t need to touch anything other than the mouse. First, select some text in your document by clicking and dragging over a word or a group of words. Notice how the text will be highlighted. Next, click and drag any portion of the highlighted area. Notice how it creates an outline of the text as you drag. Move the outline to another place in your document and look at the position of the cursor. When you’re ready, just let go of the mouse button. The highlighted text will move from the original spot to the current location of the cursor. This could have also been accomplished by first cutting the highlighted text then pasting it in the new location.

Spell check

When you’ve finished writing a document, you can let your Mac check your spelling. To do this, hold down Command-= on the keyboard. In other words, find the key which looks like a cloverleaf and located next to the space bar (the Command key) then press it down and keep it held down. Next, tap the equals sign on the keyboard.

The spell checker will run through your document and show each word it thinks is misspelled and will ask you what you’d like to do. If you “skip” a word, it means that you want to keep it just as it is. Alternatively, you can use “change” or “replace” to update the word with the correct spelling.

Spelling checkers are not perfect. They can tell you if a word is spelled correctly but not based on the context of the sentence. For example, the words “two,” “too” and “to” are all spelled correctly; however, they may be used inappropriately in your document. A spelling checker will not be able to pick this up. After you run a spell check, you should still go through and read what you’ve written.

Wrapping up

When you’re done typing your letter or if you just want to turn your computer off to do something else, you should quit AppleWorks. Go to the “File” menu and choose “Quit.” Alternatively, a slightly faster way would be to press “Command-Q” on the keyboard. This is the same way that you would quit most software titles.
This chapter is meant to get your feet wet and give you enough information that you can start writing your own letters. There are many neat features in AppleWorks to discover but the most important ones are covered in this chapter.

To gain a fuller understanding of why it’s so nice to use a computer to compose your thoughts and write letters rather than use a typewriter, I suggest you find a book called “The Mac is not a Typewriter” by Robin Williams. This is not the comedian who played “Mork from Ork” but rather a woman with a lot of experience writing books and other types of documents. Her book is a combination of style guide and how-to guide.

AppleWorks is very robust and can handle many types of complex documents. It takes some time to learn these features and how to use them. AppleWorks is what is called a Word Processor. When you want to lay out a magazine cover, a newspaper spread or work on a complicated book, you’ll need a different type of software title called a Desktop Publisher or DTP for short. Some people say that using this type of software should be left to a professional but I disagree. If you want to write a book or you want to write a newsletter, then you need some DTP software. Consider enrolling in a class at a community college and prepare to spend some serious money for the software. Most DTP software costs close to $1,000. The common ones are QuarkXpress, PageMaker, InDesign and FrameMaker. You can get your ideas down in AppleWorks but if you really want to design a book yourself, you’ll need to invest in DTP software.
ORGANIZING INFORMATION WITH APPLEWORKS (ANY VERSION)

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ORGANIZING INFORMATION WITH APPLEWORKS (ANY VERSION)

Have you ever used a card catalog at a library? Most of us have, at some point in our lives, used one to search for a book. We can use the card catalog to search for books based on the author’s name. We can also search for books based on the name of the book and also the subject. Can you remember the first time you used a card catalog? It may have been slightly awkward at first but you probably quickly came to realize it was fairly straightforward and easy to use.

In this chapter, we look at two types of documents, the database and the spreadsheet. These two types of documents let you create your own card catalogs and organize information.

Databases

The word data is synonymous with information. The term base has a meaning similar to foundation or platform. People create a database when they want to organize and search for information. You have to decide ahead of time what you want to search for. For example, with a card catalog, you might want to search in three different ways for a book: by title, by author and by type of book, such as either fiction or non-fiction.

An address book is an important kind of database. Let’s look at the Address Book which is built into Mac OS X. First, click on the smiling Finder icon in the lower left corner of your screen (resting on the Dock). If a Finder window doesn’t open, you’ll need to open one by going to the “File” menu at the top of the screen and choosing “New Finder Window.” Next, click on the “Applications” icon in the Finder window and then double click on the “Address Book” icon.

Now that the Address Book is open, you should go ahead and add a few people to the book. Three or four people are enough for now. Do this by going to the “File” menu at the top of the screen and selecting “New Card.” You will be asked for items like first name, last name and phone number. Each of the records you create will be listed in the Address Book. You may click on any one of them to be shown more detail or to change some information. Notice the “Search” field at the top of the Address Book. You can type anything you like there. Try typing a name or part of a name from someone on your list. The Address Book will then try to find a match and show you records which match or partially match what you just typed.

Philosophically speaking, we use databases to help gain insight about the world around us. By organizing data, it becomes information. By studying information, we can gain knowledge. Through discussion and experiments based on our knowledge, we can gain insight.

data \rightarrow information \rightarrow knowledge \rightarrow insight
The Address Book is a database. It’s already created for you. All you can do is add records to it. If you have other information which you’d like to organize in a similar fashion, you can use AppleWorks to create your own database. So let’s do just that! Let’s suppose that you have a fairly large VHS movie collection, perhaps twenty different movies or more. By using AppleWorks, we’ll create a movie database.

Check your Dock at the bottom of your screen to see if you have an icon already set up for AppleWorks. If so, just click it once to start up AppleWorks. If you don’t see AppleWorks in your Dock, then follow the following steps to open it up. First, click on the smiling Finder icon in the bottom left corner of the screen (resting on the Dock). Next, check to see if a Finder window is open. If it’s not, you’ll need to go to the “File” menu at the top of the screen and select “New Finder Window.” In the Finder window, click once on the “Applications” icon then you can double click on the “AppleWorks” icon. Alternatively, you can drag the AppleWorks icon down and drop it in the Dock then click on it there. This way it will be more readily available in the future.

When AppleWorks starts up, it will ask you what type of document you’d like to create. There’s quite a few options. Find the “Database” selection and then double click it. Almost instantaneously, you’ll see a screen like the one shown on the left. This is where you need to do most of the planning and design of your database. You must decide what information to store in each of your records. For example, if this was another address book, you’d make a field called “First Name” by typing it in the “Field Name:" box then click the “Create” button. But we’re not creating an address book, instead we’re creating a movie database.

Let’s create a simple database with four fields: Title, Leading Actors/Actresses, Type of flick and Description. 1) Type “Title” in the “Field Name:" box then click the “Create” button. 2) Type “Leading Actors/Actresses” in the “Field Name:" box then click the “Create” button. 3) This time we’re going to do something a little different. Type “Type of flick” in the “Field Name:" section but then we’re going to change the “Field Type:" value. It is normally set to “Text” which is just simple typed text and numbers. Click on “Text” with your mouse but keep the mouse button held. Notice all the options which show up; they are shown here in the graphic to the left. Go down and choose “Popup Menu” from the list.
Choosing the Popup Menu option means that when you create a new record, you'll be given a choice of options to choose from rather than having to type in a value. The “Type of flick” category is something with values that are predetermined, such as “Horror,” “Comedy” and “Romance.” The graphic at the right is asking what items to put in the list which will “pop up” when the user wants to enter the type of flick. Initially, it just has one item named “Item 1.” Change this to something, such as “Horror” and then click “Modify.”

Go ahead and put in other types of movies, such as “Suspense” and “Comedy” then click the “Create” button for each one. Create as many as you like but add one more named “undecided” at the end. This is because when you are entering new movies, you don’t want to accidentally set the type of movie to some random value, such as “Horror.” If the default is “undecided,” you will know if you remembered to enter the “Type of flick” or not. To make “undecided” the default, go to the “Automatically Choose:” section of the screen then choose “undecided” from the list. It will put a checkmark by “undecided” in the items list. Click “OK” to close this window.

You are nearly done setting up your database. Now all you need is one more field. Create another text field named “Description” which is where you’ll put a summary of the movie. When you’re done, you should get something similar to the graphic shown at the right. There should be a total of four fields, three of them are Text fields and one of them is a Popup Menu. Click the “Done” button when you are finished.
As soon as the Database Creation window disappears, you are shown your database. This looks a bit like a blank card catalog at this point. Notice how it shows the number of records, just one. It also has an icon in the top left of the screen which looks like a rolodex that only has one record in it. All of your fields, such as “Title” and “Leading Actors/Actresses,” are displayed.

Go ahead and start to fill out some information, such as what I have here. I’ve entered information for a movie named “Kate & Leopold.” Notice how we don’t have much room to type a description of our movies. We can change this by changing the visual layout of our database. Bring your mouse to the top of the screen then click on the “Layout” menu. Next, choose “Layout” from the choice of options in that menu. You will see that the screen subtly changes to look like what you see at the left here. Everything shown here only effects the visual representation of the data but not the data itself. You can change the shape and size of boxes. You can even move them around. You can change the color of text, etc.

Click on the gray horizontal line below the “Body” box and drag the line straight down. Next, click once on the “Description” box. Notice how each corner of the box suddenly shows a square handle in each of the four corners. Click on one of the bottom corners then drag it down, so that you have a much larger area to type your movie summary.

Move your mouse back up to the “Layout” menu and now choose “Browse.” Go ahead and fill in the rest of your movie description plus add a few more movie entries, such as what is shown here on the left. To add another movie record, go to the “Edit” menu at the top of the screen then select “New Record.”

Once you’ve added a few movies, you are now free to search for particular types of movies. Go to the “Layout” menu at the top of the screen then choose “Find.” Once there, you are presented with some
options for searching your database. You can search based on “Type of flick” for instance or for combinations of fields. For example, you might search for “Action” from the “Type of flick” field and “Sylvester Stallone” from the “Leading Actors/Actresses” field. After you’ve entered a few values, click the “Find” button on the left side of the screen. What you’ll then see is a view with all the records which match this criteria. In this case, it’s probably going to be a lot of Rambo and Rocky movies. If you want to browse your entire collection, go to the “Organize” menu to select “Show All Records.”

You can create nicer looking databases by formatting the layout more. You can change the size of text and the arrangement of different fields. You can also add other fields which are important to you, such as the date the movie was released. For that, you probably don’t want to use “Text” or “Popup Menu” for the field type. You’ll want to use “Date” instead.

Just like the first time you used a card catalog in a library, you’ll probably feel that creating and using databases is a bit tricky. That’s ok. After you experiment with it a little bit, it becomes fairly logical. This is an incredibly useful tool if you’re a collector who desperately wants to get organized.

**Spreadsheets**

The spreadsheet is an interesting software application. It takes a large sheet of paper then divides it up into a grid. The grid lines form distinct rows and columns. A particular box on the grid can be identified by its row number and column number; it is called a cell. We use spreadsheets to quickly create lists and to manipulate numbers. Accountants, Scientists and kids in school use spreadsheets to organize and display information. Most spreadsheets have graphing functions which can display your numbers as a bar chart or pie chart.

It is interesting to know that the first major software title in history was a spreadsheet. In early 1979, a man named Daniel Fylstra tried to sell a spreadsheet named “CalcuLedger” to Apple for one million dollars. They turned him down, so in October of that year, he released the spreadsheet himself with the name VisiCalc. The price he offered Apple turns out to be a steal of a deal because as far as I know, this was the first software title to sell over one million copies. Daniel Fylstra was responsible for marketing VisiCalc but the people who wrote it were Dan Bricklin and Bob Frankston.

Let’s create a simple but useful spreadsheet, a grocery list. In this list, we’ll put the names of foods and their prices. To keep this example simple, we’ll just put a few types of food with prices from just one store. You might want to later expand this spreadsheet to show real prices from different supermarkets in your area, so you can quickly compare the cost of shopping at the different places.
Check your Dock at the bottom of your screen to see if you have an icon already set up for AppleWorks. If so, just click it once to start up AppleWorks. If you don’t see AppleWorks in your Dock, use the following steps to open it up. First, click on the smiling Finder icon in the bottom left corner of the screen (resting on the Dock). Next, check to see if a Finder window is open. If it’s not, you’ll need to go to the “File” menu at the top of the screen and select “New Finder Window.” In the Finder window, click once on the “Applications” icon then you can double click on the “AppleWorks” icon. Alternatively, you can drag the AppleWorks icon down and drop it in the Dock then click on it there. This way it will be more readily available in the future.

When AppleWorks starts up, it will ask you what type of document you’d like to create. If AppleWorks is already running, you may need to go to the top of the screen, click on “File” and then select “New...” from the menu. There’s quite a few options. Find the “Spreadsheet” selection and then double click it. In moments, you’ll see a rather blank looking screen divided into a grid. You’ll see columns delineated by alphabetic letters, and you’ll see rows delineated by numerals. This is a blank spreadsheet just begging for you to enter data.

Click on the cell located at column A, row one. The term “cell” is the name given to the boxes formed by the grid lines. An easier way to say column A, row 1 is just to say go to “cell A1.” Once there, type the word “Hamburger” then hit the return key on your keyboard. While you are typing, you won’t see anything show in the cell. But look at top of the screen, there is a long white space where you can see what you are typing. Once you hit the return key on the keyboard, what you typed will show up in cell A1.

Go ahead and type some more values, such as what is shown at far left. Go on to add prices as well. After you’ve filled in all this information, skip down a few lines and type “Total.” Click once in the cell just to the right of the word “Total” then click the “fx” button at the top of the window. You’ll be given a screen where
you can choose some preset functions. What we'd like to do here is view the total cost of all the food. We could use a calculator or a pen and paper to add up the costs then type it in the “Total” cell but it would be nice if our Mac could do this for us. Since we want to sum up the values of the food prices, search for the “SUM” function from the list. When you find it, click it once then click “OK.” AppleWorks will type in the following for you:

=SUM(number1, number2,...)

You will want to change this somewhat to reflect what you'd like to sum. Select everything inside the parentheses with your mouse and delete it. Do this by clicking to the left of the first word then while keeping your mouse button held drag to the right. Let go before you get to the last parenthesis. With everything inside the parentheses selected, just hit the backspace key on your keyboard (it might be called delete). Now type in “B1..B6” like so:

=SUM(B1..B6)

When you press the return key on your keyboard, you'll immediately see the total shown in the cell.

In a nutshell, you've just experienced some of the most powerful and innovative ideas of a spreadsheet. Namely, you can quickly enter columns and rows of information as well as let the computer do calculations for you based on your data. Notice how we didn't type the total price. It was calculated for us. If you go now to change the price of any of the foods, you'll notice that the “Total” will immediately reflect this update. This makes a spreadsheet fun to use for visualizing relationships between numbers.

Let's do a little more. How about sorting the grocery list by price of the item? That's useful because if we also sort the price list of a competing grocery store, we can immediately see which items we can save money on depending on the store we choose.

Use your mouse to select the items and values you'd like to sort. Start by clicking in cell A1 then drag your mouse all the way down to cell B6 as shown in the graphic at right. Next, go to the “Calculate” menu at the top of the screen and select “Sort...” You will get the window shown above. Change the “Order Keys” section. Initially, it is sorting alphabetically by “A1,” instead change the value in the “1st:” field to “B1” then click the “OK” button. Immediately, your list will be reorganized with the most expensive item on the bottom and the cheapest item on the top. We “Order Keys” on B1 because the B column contains the prices.
The last modification we'll do is to make our currency values look like dollars, not just decimal numbers. To do this, simply click on the "B" which represents the whole B column. This will highlight the entire column. Next, go to the "Format" menu and choose "Number..." You'll see the graphic shown at left.

As you can see, there are many different types of cell formats you can choose from including some for time and date. We want the currency item, so click the "Currency" button and then click the "OK" button. Instantly, you'll see that all the money values have a dollar sign attached to them.

Our discussion of spreadsheets and databases should give you a good feel of what they are and how they work. There is much more that you can learn about them but if you understand what is in this chapter, then you're doing great. Take some time to experiment with spreadsheets and databases, so you know what they are about. Sometime you may realize a use for them, and at that point, you can learn more.
CREATING PRESENTATIONS WITH APPLEWORKS (VERSION 6)

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CREATING PRESENTATIONS WITH APPLETWORKS (VERSION 6)

There will come a time when you will be asked to stand up before a group of people and give a presentation. Sometimes all you will need is a microphone, but other more often than not, you will need some visual aids to help convey your message. Your trusty Macintosh will be a big help in producing a compelling demonstration for your audience.

In the not too distant past, lectures utilized such beasts as overhead projectors and slide projectors. These have largely fallen out of favor today. In the case of an overhead projector, it is a bit awkward for the speaker to look into the bright light of the projector while standing in a dark room. The images displayed are usually not very crisp because the speaker has used a felt tip pen to create the transparencies. Those who used slide shows benefited from a brighter display without the associated eyestrain. Some slide-show projectors have wireless remote controls that allow speakers to get more personal with their audience. The problem here is in the creation of the slides and their management. Invariably, they will get dropped or somehow end up out of order come presentation time.

Your Macintosh can help you do more with traditional overhead and slide projectors plus open up a few more alternatives for you. Most office supply stores, such as Staples and Office Depot, sell clear plastic transparencies that you can use with your printer. These produce text and pictures that can look very clear and attractive when used with an overhead projector. Be careful to check and see what type of printer the transparencies are meant to work with. You’ll need one type of transparency for use with an inkjet printer, and yet a whole different type for use with laser printers. Creating slides with your Macintosh is not something you can do inside your home. You’ll need to contact a printing bureau to take information from your Mac and produce 35mm slides. One of the oldest and most well known of these printing bureaus is a company called Genigraphics. You can reach them at 1-800-790-4001. Unfortunately, creating slides is expensive and can run as much as $4.50 per slide! Today, many people choose to use digital projectors which connect directly to a portable computer, such as a PowerBook. These projectors take the image that is on your computer’s screen and display it on a wall. This removes the need to create anything physical to present visuals other than your PowerBook and the projector. Not only that but also your visuals can now have animation and sound. Most projectors include an amplified speaker system. Of course, if you drop your PowerBook, it might break. But at least you’d never have to worry about your slides being out of order ever again — you can even make changes to your slides up till the very last minute.

Laser printers produce a great deal of heat when they apply images to paper. It is important to purchase plastic transparencies that can withstand this heat. Likewise, inkjet printers need transparencies that won’t let the ink easily wipe off.
Digital projectors are expensive. They start at about $1,000 for a new projector. A much better solution for
many people is to hook their PowerBook directly into a
TV set. Most Apple PowerBooks and many of the newer
iBooks allow you to hook into a TV set in almost the same
fashion as a VCR can. Televisions produce a nice sharp
picture and don’t have to be in a dark room. If you have
a large enough TV for your expected audience, it is prob-
ably the most effective method for communication.

Some presentation software is better than others but they all have some
basic similarities. Each of them works on the concept of slides. Instead of
pages of text, like you’d have in a letter, you have a series of slides that
must be designed. Real 35 mm slides must be arranged by hand and put in
a tray. When using presentation software, slides are arranged on your com-
puter screen.

By far the most popular software title for giving presentations is Microsoft’s
PowerPoint. Because it is ubiquitous, Microsoft charges a premium of $210
for this software. Apple makes a snazzy application named Keynote which
is more moderately priced at $100. If you find yourself giving many presenta-
tions, you may want to consider purchasing one of these Applications.
For most of us though, we are happy to use the presentation capabilities
inherent in AppleWorks version 6.

AppleWorks, yet again, will prove itself very capable of meeting your
needs. This software is well worth the $80 purchase price but most Mac
users will find that it came with their iMac or iBook at no extra cost.

**Opening AppleWorks**

Let’s open AppleWorks and get busy! First, click on the smiling Finder icon
in the lower left corner of the screen. If there is no Finder window open,
click on the menu at the top of the screen labeled “File” and then choose
“New Finder Window.” I recommend navigating with “column view.” In
your Finder Window, move your mouse to the top left corner and find the
part labeled “view.” There are three buttons in the “view” section, click on
the right most button to change to “column view.” Lastly, in the top part of
the Finder window, click on the “Applications” icon. This will jump you to
the Applications folder which is where all your software titles are kept.

You should now be able to locate AppleWorks inside of the Applications
folder. If it’s not there, you probably don’t have it. If you have an iBook or
an iMac, check to see if the AppleWorks disk is included with the box your
computer shipped in. If you have one of the more expensive Macintoshes,
you’ll need to buy AppleWorks separately.
If you need to install AppleWorks, simply stick the AppleWorks disk in your computer. Double click on the disk icon which shows on your Desktop. Next, double click on the installer icon and follow the steps that it shows. It should go pretty quickly and when you’re done, just drag the icon of the AppleWorks disk to the trash to eject it and put it away. AppleWorks will now be in the “Applications” folder.

Click once on the AppleWorks folder, then locate the AppleWorks icon and double click it. You’ll see the AppleWorks icon start bouncing in the Dock at the bottom of the screen. In a second or two, AppleWorks will be open and asking you what kind of document you’d like to create. Alternatively, instead of double clicking the AppleWorks icon, you might want to drag it to the Dock and drop it there. This way every time you want to use AppleWorks all you have to do is click once on its icon in the dock.

**Making a slide show**

When you open AppleWorks, it asks you what kind of document you want to make. We want to design a presentation, so we should double click on the Presentation option. Go ahead and do this now.

Almost instantaneously, you’ll see a mostly blank window appear. The title bar will say “Untitled (PR)” and is ready for you to create your first slide. What you’ll find is that in order to get the most out of the slides you create, you need to understand most other aspects of AppleWorks. For example, spend some time learning the word processing and spreadsheet capability in previous chapters of this book. The reason? You will need to type and display data in spreadsheets that are to be shown on your slides. Let’s look at the new document layout:

- Four main design elements: word processor box, spreadsheet box, paint box, table box
- Start slide show button
- Slide management and arrangement window
Designing a visually attractive slide takes a bit of skill. It's not just learning how to use the various tools in AppleWorks; you also need to have an eye for color. Fortunately, AppleWorks has a few templates with many of the necessary design elements for an attractive slide already in place. We would be smart to use one of them. When I say few, I really mean it. AppleWorks gives us some slim pickings. Either Keynote or PowerPoint will provide you with a much larger selection of templates. That doesn't mean you should rush out and buy one of the other software titles. It means that you should learn more about what you have, AppleWorks, and see if it meets your needs. The skills you learn will be very similar to what you'll need to use the other software. Your time invested in AppleWorks will serve you well.

Let's close the new document window we just created in order to begin working with one of AppleWorks' templates. The "Starting Points" window will open asking for your input. Click on the "Templates" tab at the bottom of the window, so that it looks like the following:

Many types of templates are mixed together. Not only will you find templates for presentations, but you'll also find them for word processing and database documents. My favorite template for presentations is called "Hip Presentation." You can see it in the graphic above. You can find it on your computer by dragging the blue knob on the right of the window. When you find the picture of the template called "Hip Presentation," click on it once.

Notice the "Control" window. This is the place where you create slides and arrange their order. There are three slides at the moment; click on each one to see what they bring up. The results are shown on the facing page.
Saving your presentation

We haven't done anything with our presentation yet. We've just opened the "Hip Presentation" template and talked a little bit about what the window shows us. It's always a good idea to "Save your presentation early, save it often." I'll save you from the same Chess metaphor that we had in the word processing chapter. The point is that we never know when we might make a mistake or if AppleWorks might decide to quit on us without warning. We should get in the habit of saving our documents every once in a while to be sure we don't lose hours of work.

The best way to save your presentation is to press "Command-s" on the keyboard. You do this by first pressing down and holding the Command key which looks like a cloverleaf and is located close to the space bar. Next, locate the letter "s" and tap that key. You can now let go of the "s" and "Command" keys. The letter "s" is chosen because it's the first letter of the word "save."

A more straightforward way of saving a document is to move your mouse to the top of the screen and click on the "File" menu. Next, choose the "Save" option. The only problem with doing it this way is that it takes slightly longer to move the mouse and choose the option. It's faster to hit "Command-s" on the keyboard. Both ways are fine and I use both depending on my mood.

The first time when you save a new document, AppleWorks will ask you to give the document a name and ask where you'd like to put it. You should
put most of the documents you create inside of your “Documents” folder. You may want to put subfolders inside your “Documents” folder, perhaps “Business” and “Family” subfolders for example. Let’s save this blank document in our “Documents” folder and give it the name “test presentation.”

After you’ve already saved a document, you can open it in the future for later reference or to make additional changes. Now when you do “Command-s” on the keyboard, the computer will very quickly save the changes. It will happen so fast that you won’t even know anything occurred. Take my advice! Learn the keyboard combination and it will become second nature. After you’ve written a few paragraphs, just quickly save the document. It is just a short tap with your thumb on the “Command” key and then your middle finger on the “s” key. Remember, keep your thumb on the Command key then simply tap the letter “s” with your middle finger. Afterwards, let go of the Command key.

In the “File” menu in addition to “Save,” you’ll also find “Save as...” With “Save as...,” you are able to copy the current file and give the copy a new name. When you choose “Save as...,” it will ask you where you want to save the new file and ask you to type the new name. Look at the title bar of your document window. It should show you that you are working on your new copy of the file. In the Finder, you can make a copy of any file or folder by pressing “Command-d” for “duplicate.” You can also go to the “File” menu of the Finder and choose “Duplicate” from the menu.

Making a slide show (continued)

Now that you’ve opened the “Hip Presentation” template and saved your document as “test presentation,” let us now finish up our first slide show. Suppose your religious group is in need of additional funding. It is your job to put together a presentation for the congregation explaining the options available.

Click on the 1st slide shown in the “Controls” window. Where you see the words “Using Color in Art & Design,” click once. You will see a box surround the words. Click again in the same location. Now you will have a blinking cursor and can use the backspace key to delete all the words. If you need to, you can click with the mouse at the end of the last word to place the cursor there. Alternatively, you can press “Command-A” on the keyboard to select all of the text and then hit the backspace key.

Type the name of your religious group followed by a return. Now type the words “Additional Funding Committee.” You’ll get a slide that looks exactly like what we show to our immediate left:
The slide we just created will be the first slide of our presentation. It will be what we show at the start of our talk and will unmistakably let the audience know what the topic of discussion is all about.

There are three options to consider in creating additional funding: raise membership dues, start a bingo night and rent space to aerobics classes. Let's show this to our audience in the second slide. Click on the second slide in the "Controls" window. Click once on the word "Blue" and you’ll see the text box it was created in. Click one more time and you’ll have a cursor with which you can delete the word "Blue." Replace it with the phrase "Additional Funding." Now you may click on the word "Sapphire" then click it again. You should now have seen the cursor move to the lower text box. Double click on "Sapphire" to select it and type "Raise membership dues." Double click on the word "Cobalt" to select it and replace it with "Start a bingo night." Double click on the word "Royal" and replace it with "Rent space to aerobics classes." Double click on the word "Navy" and just hit the backspace key to remove it. We are almost done with this slide. See the example to our immediate right:

Notice how the word “classes” wraps to the next line? This is because there is not enough room for it to fit on the previous line because the text box is not wide enough. It looks quite ok now but what if we had a fourth item, and we simply just wanted each bullet point to fit on their own line? It is not a good idea to shrink the font size because the text might become too small for easy viewing on the TV. Instead, we should extend the width of the text box to the right. We need to select the text box before we can edit it. If your cursor is still in the box, click on the arrow pointer which is towards the top left hand corner of the screen. See the note in the margin. Alternatively, if the text box is not currently selected, just click on one of the words in the box once. Either way the box should now be selected and look like the following:
With the text box for the bulleted list of items now selected, bring your mouse pointer up to the top of the screen and click on the “Arrange” menu. Select “Unlock” from the list. Originally, the text box was “Locked” which means that we were prohibited from adjusting its shape and location. The template set up the text box this way to prevent us from accidentally moving the text box. Now that we have unlocked the box, we are free to adjust the width. Notice that the top right corner of the text box now has a small blue box. Click on this box with your mouse and keep the button held down. Drag this box to the right. Drag far enough to let each bullet point rest on its own line as shown on the example at left:

The command key:

Did you notice how each of the items in the list are bullet points? This is because it was designated as an “outline list” in AppleWorks. Just as when you write letters in AppleWorks that have lists in them, presentations can have lists as well. As long as your cursor is somewhere in the text box of the list, you’ll see a menu at the top of the screen named “Outline.” You can use this menu to indent items in the list. You can even hide subitems in the list by “collapsing” them from the “Outline” menu. You can change the style of the bullet points too. For example, to change from round bullet points to diamonds, first select all the text in the box by clicking and dragging with your mouse or pressing “Command-A” on the keyboard. Next, go to the “Outline” menu and select “Label Style.” Choose “Diamond” from the list. What you’ll see is the very same list, now with diamonds to designate the start of each topic as shown here at the left:

Adding Pictures

There are two main ways of adding pictures to your presentations: clipart or your own photographs.

For the most part, I find clipart of limited use. There are many places that will sell you clipart on a CD but AppleWorks already comes with its own collection. Clipart are just small pieces of artwork that are meant to be put into your documents to give them something besides straight text. I don’t usually like to use them because I find it hard to locate art that meets my required mood or style. Still, it doesn’t hurt to browse your collection of clipart in the hopes of finding something useful. Go to the top of your screen and select the “File” menu. From there, choose “Show Clippings.” You will see the window shown here on the left:
To utilize the clipart in the “Clippings” window, all you need to do is click on an image you like and drag it over to the slide you are working on and let go of the mouse button. You can click on the different tabs at the bottom of the “Clippings” window to select images organized by topic. “Animals” is an example. Be sure to click on all the tabs to get a feel for the available categories. Notice the little arrows at the far left and far right of the tabs. Clicking on these allow you to see other categories that are currently hidden. Also, pay attention to the special “Search” tab. This allows you to search for clipart based on their name. Be sure the “Search Web Content” box is not checked. If you were to search for “cat,” you’d get two matches as shown here on the right:

As you can tell from just looking at the few examples of clipart shown in this book, the artwork is almost always of the cute variety. This is ok for some uses, not ok for others.

Your presentations will almost always benefit from photographs. In the “Digital Hub” chapter of this book, you’ll learn how to create digital photographs. Take our “Additional Funding” example. Suppose we wanted to include a photograph of our place of worship. Perhaps place the photo on the last slide with a title of “Living History.” You would use this final slide to urge the congregation to make a decision, so that the future financial well being of the place of worship can be preserved.

Open your “test presentation” document if it is not already open. Click on the third slide in the “Controls” window. Click on the word “Yellow” once then click it one more time. Delete the word and replace it with “Living History.” Go to the top of the screen and choose “File” and then “Insert...” from the list of selections. You get the window below:
Select “All Available” from the “File Format” section of the window shown at the bottom of the previous page. You will need to navigate to the folder where you have the photograph you want to use. If your photograph was taken with a digital camera and stored in iPhoto, You can find it based on the year/month/day the picture was taken. Look closely at the example on the previous page; it goes from the home folder to Pictures → iPhoto Library → year → month → day → individual photo. Once you’ve selected the photo, click the “Insert” button in the bottom right corner.

The photo will then, unfortunately, take over the entire slide and only show a small portion of what you want. You should now go to the “Arrange” menu at the top of the screen and choose “Scale By Percent...” In the window that appears, choose 25% for the horizontal and vertical scales. For some strange reason, this is the smallest reduction AppleWorks will allow you to do at this point. If you try to reduce to 10% of the original size, for example, AppleWorks gives an error message. The resulting image will invariably still be far too large. Click in the middle of the image and drag it up till you can see the bottom of the image. Click on the bottom right corner and drag up-left in a diagonal direction while holding the shift key. Eventually, after a bit of fuss, you will get the image to be the size you want, and you can then click in the middle of the photo and drag it to the location you desire. In the end, you could have a slide that looks like what is shown on the left:

Creating new slides from masters

Perhaps you’ve noticed that the “Hip Presentation” template we used only gave us three slides. This section is where we learn how to create additional slides. The process takes some getting used to, so let’s go through it step by step.

A master is a basic layout for a slide. For example, you might have a master for creating a bulleted list of items. If you create a new slide based on this particular master, all you will have to do is type in the required items of the list. The master will take care of where the list is positioned, what the size and style of font is and what bullet style is used (perhaps diamond). It just so happens that you can’t merely create a new blank slide and add it to your presentation. AppleWorks forces you to use master slides to create new slides. This is good and can add to the consistency of the look and feel of your presentation as well as help to speed along your development time.

Don’t read this part of the book too fast. Master pages can be very confusing if you’ve never seen anything like it before. It is a good software idea that is utilized in many software titles, not just AppleWorks. Spending a little bit of extra time now to understand master pages will be extremely useful. You will be surprised how easy master pages are.
In the graphic below, we take a closer look at the "Controls" window:

![Graphic of Controls window]

Locate the "Masters tab" at the bottom left corner of the "Controls" window; it has the appearance of a star. Click on the star to see the master slides. Again, three slides appear in the "Controls" window, so it may seem as nothing changed but take a closer look. Click on the first slide, notice how the slide says "Presentation Title?" This means this slide is supposed to be used as the model for all one line slides that introduce a new presentation or perhaps a new concept. The slides which you create based on this master will need to replace the words "Presentation Title" with your intended opening statement. Look at the other two master slides. One of them is for creating a bulleted list of items and the other is for showing a photo or graphic. While the Masters tab (the star) is selected, clicking on the + sign will add a blank master slide to list. Do this if you'd like to add another type of master; however, most people will not find a need to do so.

To create a new slide you must do the following:

- Click on the Masters tab (the one with the star)
- Click on the particular master model you want
- Click on the Slides tab (to the right of the star)
- Click on the + sign to make a new slide (based on the master)
- Click on the new slide then drag to the desired location
- Edit your new slide by clicking on its text and image boxes

Easy right? Not really, not the first time you do it. Practice a few times and you will be quite comfortable. Think of the master slides as cookie cutters that are used to create new slides whose basic layout and design are already set — all you need to do is fill in the blanks.
It’s important to note that you can rearrange the order of slides at any time. The slide at the very top will be presented first whereas the one on the bottom will be presented last. To change the location of a particular slide, click with your mouse on the slide and keep the mouse button held down. Move the mouse and the slide will drag with you. Place the slide in the location you desire. If you want it between a particular set of slides, place the mouse pointer in between the slides and then let it go. If you want to move your slide to the very top of the line, drag it above the current top of the list and then let the mouse button go.

Examine the “Controls” window on the previous page again. You will notice a “Choose transition” section. Transitions are the special effects you might want to see when one slide transitions into another. Personally, I feel a presentation looks more professional when it doesn’t use transitions. For the most part, they are cute wipes from one slide to the next. You should experiment with them and make up your own mind. Unfortunately, you must set the transition for each individual slide; you can’t pick one transition for all slides with a single click. Click on each slide in the “Controls” window then click on the word “None” to be given a list of transitions.

Below the “Choose transition” section of the “Controls” window are a set of four buttons that affect how slides are seen. The two on the left can set whether a particular slide will print out when you go to “File” and choose “Print...” The two on the right will designate whether or not a particular slide will be shown during a presentation. You may wonder why you would want to hinder the display of a particular slide. After all, if you did not want the slide any longer, wouldn’t it be better to delete it? Not necessarily. You may have a generic presentation that could be tailored for a particular event at the last minute. You might also want to keep a few slides around that have some important design elements which you could cut and paste into other slides — that “grab bag” slide would be something you’d want to suppress during the presentation.

Adding Movies

You can add movies to your presentations if you have the right equipment. A Mini-DV camera is needed to capture the video. Visit the “Digital Hub” chapter of this book to learn more about how to actually create video.

Movies that you add to your slide can either take up a portion of the slide or the entire slide. It all depends on the dimensions of the movie file. You can also scale the movie’s box in the same way that you did the photograph’s box, though doing this may produce jerky playback on slower Macintoshes.

The steps you need to take to add a movie to your presentation are identical to the steps you would use to add a photograph. Additionally, if you
like, you can add both movies and photographs to your presentation by
dragging them from your Finder window and dropping them on the slide
you are currently designing.

The big difference you'll find with movies comes during the presentation.
When you get to the slide which has a movie inside of it, you'll need to
effectively start the movie. This can be done with either an “Option-click” or
by clicking the play button underneath the movie box. You can do an
“Option-click” by holding down the key on the keyboard called “option”
and then tapping the clicker on the mouse. The special bar underneath the
movie shown during the presentation can start/stop the movie, adjust the
volume and skip to any part of the movie. See the picture below:

Adding graphs

To add charts and graphs to your presentation, you will make use of
AppleWorks' spreadsheet functionality. You can choose all the standard
graphs, such as bar chart, line chart, pie chart, etc.

Suppose we did a survey from our religious congregation to see how many
people favored the three ideas for obtaining additional funding. First, we
need to put this information into a spreadsheet before we can chart it.
Create a new slide then click on the “Spreadsheet box” which is towards the
top left hand corner of the screen. Note: see the margin to understand exactly
where to find the Spreadsheet box. Click and hold your mouse button
down inside of the new slide area and drag the mouse diagonally down to
your right then let it go. You will see a screen similar to what is shown on
the following page of this book. If it's much smaller, click on the bottom
righthand corner of the new spreadsheet box and drag it further. Note: you
may have to click on the pointer arrow to select the spreadsheet box and
extend its size.
Click in the box location in the intersection of the 1st row and column A. If this box location does not turn a slightly different color on the edges, you may need to click it one more time. This box location is called a cell and it is located at A1. This means you clicked on “cell A1” which is located at the intersection of column A and the 1st row. Type the words “Raise Dues” and hit return. Now type the word “Bingo” followed by a return key then the word “Aerobics.” You should see that the first three rows of column A have been filled up.

Move your mouse to cell B1 and click once. Type “34” followed by a return then “20” followed by a return and finally “45.” You should now have a spreadsheet which looks similar to the following:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>34</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
</tr>
</tbody>
</table>

The A column, in the picture above, represents the three possible ways of generating additional funding for the religious group. Column B represents the number of people in the congregation that voted in favor of a particular option. In order to create a chart we need to select everything from cell A1 to cell B3. Do this by clicking in cell A1 and keeping your mouse button held. Now drag your mouse down to cell B1 and let it go. You should get a screen that looks like what we have below:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>34</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
</tr>
</tbody>
</table>

4
To create a pie chart, bring your mouse up to the “Options” menu at the top of the screen and choose “Make Chart...” from the top of the list. A window will open and present you with many different types of charts. Let’s choose the “Pie” chart by double clicking it. See below:

Within a second or less, the pie chart will appear. You may need to move it or increase its size. It will look like the following:

Conducting your presentation

Here we discuss how to show your presentation. First, let’s talk about the traditional slide projector and compare. A 35 mm slide projector has a tray to hold each of the individual 35 mm slides plus a remote to advance the slides through the projector. The remote can go forward and reverse and is sometimes wireless. The speaker looks at the audience and double checks what is shown on the wall every so often. In contrast, using AppleWorks and your PowerBook, you will now give presentations via a television set. A cable will run from your PowerBook to the TV and whatever is shown on your PowerBook will likewise be shown on the TV. This means you can
spend most of your time looking at the audience, only glancing at your PowerBook’s display every now and then. You no longer need to turn your back to the audience to see what is being shown. The arrows on your keyboard can show each slide one at a time. The right arrow goes forward and the left arrow goes in reverse.

You don’t need to hook into a TV to test out your presentation. It is fast and simple. We can do it right now. Open your “test presentation” document if it is not open already. Then click on the “Play” button shown below:

In moments, the presentation will take over your entire screen. To advance through it, use your right and left arrow keys on the keyboard. To play a movie that might be on a particular slide, you can either “Option-Click” or click the play button underneath the movie. To stop the presentation mode, click on the escape key located in the top left corner of your keyboard that is usually labeled “esc.”

Physically connecting to a TV or digital projector

Most PowerBooks and many of the newer iBooks can be connected to a TV. This usually requires a special dongle that should have come with your Mac. A dongle is just a fancy name for “adapter.” In addition to this dongle, you will also need an RCA video cable to hook into the TV. You’ll need to purchase the RCA cable from a place like Radio Shack.

Connecting to a digital projector is slightly different. RCA cables are not used and it will use a different connector on your PowerBook. Most digital projectors have a VGA plug. Almost all PowerBooks and some of the newer iBooks can handle this but your particular Macintosh may need an adapter. This adapter does not always come with your computer. The newest PowerBooks need a DVI to VGA adapter, and this usually does come in the box with the Macintosh.

For the rest of this discussion, I’ll simply say “PowerBook” but really mean PowerBooks plus many of the newer iBooks. I’ll also just say “TV” but also be referring to digital projectors.

Before connecting your PowerBook to the TV, you should either put your Mac to sleep or shut it down completely. After you have connected the cables, be sure that the TV is turned on and set for the appropriate “line input.” This makes sure your TV can receive a signal from your Mac. Now wake up your Macintosh. One of two possibilities will occur: either your

RCA stands for “Radio Corporation of America”

VGA stands for “Video Graphics adapter”

DVI stands for “Digital Video Interface”
mouse will jump between your PowerBook display and the TV or you will see a mirror image of what is on your Mac's display reflected on the TV's screen. For the purposes of giving a presentation, you probably want the latter which is called “video mirroring.” This allows you to confidently glance at your display and continue to face your audience throughout the entire presentation. The other mode of operation can be very useful if you have an additional LCD monitor on your desk and want to have many documents open and displayed side by side.

If your computer is not currently set up for video mirroring, you will need to turn it on. Go to the Apple menu at the extreme top left corner of your screen. Select “System Preferences...” from the list. Click on the “Displays” control panel. Here you can enable the video mirroring capability.

**Display your presentation anywhere**

You may not be the proud owner of a PowerBook or iBook. You may be asked to give a presentation at a place does not have AppleWorks installed on the computer which is hooked up to the TV or digital projector. This section tells how to save your presentation so you can display it anywhere.

If you save your presentation as an Adobe Acrobat PDF file, you can use the free Adobe Acrobat Reader to present the document. The Acrobat Reader is available for most types of computers out there. If you put the PDF file you create on a CD, you can use it on virtually any computer. It won't have audio and any movies you have won't be animated; it also will not have any transition effects. Other than that, using a PDF file can work very well and can show your presentation in almost the same way that AppleWorks can. To save your file as a PDF, just go to the “File” menu and choose “Print...” In the window that appears, click on “Save as PDF” and pick a folder and file name to save the document.

This trick, unfortunately, only works for Mac OS X people. If you are working in Mac OS 9 or earlier, you can still create a PDF file but some more steps will be involved. You will first need to click on the Apple menu in the top left corner of your screen. In the list that appears, you should pick “Chooser.” A new window will appear where you’ll need to click on the “LaserWriter” icon. This will change your printer to a Postscript printer. If you want to print to your installed printer, you will need to click back on its icon after we have created the PDF file. Postscript is a language that Adobe created and it is very similar to PDF, another format that Adobe created. Close the “Chooser” window and now go back to your AppleWorks document. Choose “File” and then “Print...” from the menu. In the new window that displays, you will see “Destination: Printer” in the top right hand corner. Click on the word “Printer” and change it to “File.” Now click on the word “General” and choose “Save as File.” We are getting close to
the end now. The window will change and present some more options. Where it says “Font Inclusion: None” click on the word “None” and instead choose “All.” Now you are free to click on “Save” and your Mac will ask you where to save the file and what name to give it. Now you have a Postscript file. You can go to a special web site to convert your Postscript file to a PDF file. Needless to say, your presentation’s confidentiality could be compromised, so you may not want to use this service if you have a sensitive presentation. When you visit the web site, you can give them your Postscript file and they will give you back a PDF file. The web site is located at: http://www.ps2pdf.com/

When you open your PDF file in the Acrobat reader, you can go to the “Window” menu and choose “Full Screen View.” This will then take over your entire screen. You can navigate between slides by using the right and left arrow keys on your keyboard. You can exit by pressing the escape key located in the top left corner of your keyboard, usually labeled as “esc.”

In Mac OS X, double clicking on a PDF file will usually open the “Preview” application. Most versions of OS X’s Preview do not allow you to view a PDF in a way that will take over your entire screen. To open the PDF file with the Acrobat Reader, instead of double clicking the document, “Control-click” it instead. This will bring up a small menu and you will be able to choose the Acrobat Reader to open the PDF file. Alternatively, you can always start the Acrobat Reader first then go to “File” and “Open...” to find the PDF document.

For additional information on printing and PDF documents, please see the following chapter titled “How Do I Print?” Also, please see the subchapter titled “Sending files that anyone can open and read” located in the “What is the Internet?” chapter. If you are using Mac OS 10.3 (Panther), also take a look at the “Improved PDF functionality” section of the chapter “New in OS 10.3 (Panther).”
How Do I Print?
How Do I Print?

Printing is just as important as creating documents. The Macintosh gives you lots of choices in printing high quality documents. If you haven’t purchased a printer yet, you might want to look at the chapter entitled “The Macintosh for You” for some recommendations.

Most printers that people purchase today to use in their home connect to the computer through a cabling technology called USB. If you bought or are considering buying one of these printers, be sure to check if the printer comes with the USB cable. You might think that the printer should come with the cable to connect to your computer. Most of us consumers all think this way. The sad truth is the cable costs the printer manufacturer roughly $5 and because the competition in the printer market is so fierce, most printers sold today do not include this cable. The cost of this cable when we purchase it separately is usually about $15. Additionally, you’ll probably want to purchase a spare tank of ink when you buy your printer. Another way printer manufacturers cut corners is to give you an ink cartridge which is only half full when you buy your printer. Sometimes they are really stingy and only give you a cartridge which is one quarter full. With most printers, there is a hidden cost of the USB cable plus one full ink cartridge.

The next step you’ll need to take is to install a printer driver. Be sure to install a driver for Mac OS X. Hopefully, the box your printer came in includes a CD for this purpose. If it doesn’t, you’ll need to phone the printer manufacturer and discuss with them how to obtain the driver. A driver is a piece of software which lets your computer know how to communicate with the printer. Without a driver, your printer is nothing more than an expensive paperweight because your Mac won’t be able to talk to it.

After following the instructions your printer manufacturer gives you on how to install the printer driver, you are now ready to set up your printer. If your printer has not yet been connected to the computer with the USB cable, go ahead and connect it now and turn on the printer. Setting up the printer is something you’ll only need to do once. Open a Finder window by first clicking once on the smiling Finder icon in the lower left corner of the screen which is resting in the Dock. If no Finder window appears, go to the “File” menu then choose the “New Finder Window” option. Click on the “Applications” icon in the top of the Finder window. Find the “Utilities” folder which is inside the “Applications” folder and open it. Locate the “Print Center” software title then double click it to open it.

Once Print Center starts up, it will let you know that you have no printers configured for this computer and asks you if you’d like to add one. Go ahead and click on the flashing button to add a printer. At the top of the “Printer List” window, it should say “USB” but if it doesn’t, select the word ...

Two questions to ask when you are purchasing your printer:

1) Does it come with a USB cable?
2) Does it come with a full cartridge of ink?

Driver - special software used to control or "drive" a gadget which is connected to your computer. Some gadgets simply plug in without any driver because the Macintosh has drivers for them already. Other gadgets need additional driver software from the manufacturer.
in the menu and keep your mouse button held, in the menu which appears choose "USB." Your printer should be listed now. Click on it once and then click the "Add" button. When that's complete, go to "File" and then "Quit" to leave the Print Center software. If you have problems with any of these steps, you might want to try restarting the computer and trying again. If that doesn't work, you'll need to call your printer manufacturer's support number.

Printing is really easy. In almost any software application, when you want to print a document, just press "Command-p" because the letter "p" implies "print." Alternatively, you can also go to the top of the screen to "File" and then choose "Print" from the menu which appears.

When you ask the computer to print, it will bring up a window asking you some straightforward questions, such as how many copies would you like to print. After choosing the options you want, just click the "Print" button. In a few seconds, your document will start to print.

For suggestions on what type of printer to purchase, please go to the "Printers" subchapter of "The Macintosh for You" chapter.

To find out how to create Adobe Acrobat PDF files, as an alternative to printing, see the subchapter titled "Sending files that anyone can open and read" located under the chapter "What is the Internet?" Also, see the subchapter "Display your presentation anywhere" located under the chapter "Creating Presentations with AppleWorks."
WHERE DOES INFORMATION GO?

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WHERE DOES INFORMATION GO?

After writing a few letters in AppleWorks, you may have asked yourself questions like “Where is my letter saved?” or “How many letters can I save?” These are important questions which deserve more than a simple answer.

What is a disk?

Inside of your computer is a special circular platter in the shape of a disc. You can’t see it because it’s deep inside your computer and inside of a dust free housing. The disc itself is not flexible. The disc is magnetic. As the disc spins, an arm with a magnetic head will read and write information to the disc using magnetism. It is almost the same as a phonograph or record player. As a vinyl record spins, an arm moves across the record reading music then playing it. The difference is that with the disc inside your computer, not only can you read what is on it but you can also write information to it.

Notice how in the previous paragraph I kept referring to a disc spelled with a “c” on the end. For some reason, any discus shaped object when used on the computer is spelled disk with a “k” on the end. The history of these spellings is a bit convoluted. Obviously, “disc” is short for “discus” which is the circular object thrown at the olympic games. The spelling of “disk,” on the other hand, has me stumped. I haven’t heard a satisfactory explanation. Truth be told, it is common to see both disc and disk when people write about this object.

The mysterious disk inside your computer is called a hard disk or hard drive. It is “hard” because it is inflexible, just like a viny record. You never have to take it out and it doesn’t require any maintenance. After five to ten years of use, it might decide to die on you. This is called a hard disk crash. If that happens, you can purchase a new one and let a computer repairman install it. Sometimes people refer to the hard disk as HD for short.

The term crash is a general term reflecting a problem with your computer. A hard disk crash means there is a physical problem with your hard disk, and it needs to be replaced (it can not be repaired). A computer crash means that your mouse becomes inactive or your computer appears to be frozen and won’t allow you to do anything. When your computer crashes, you just need to unplug it from the wall then plug it back in. Sometimes your software, such as AppleWorks, could possibly crash. When this happens, it stops responding to your input or decides to quit all by itself. If this occurs, just restart the software title and try again. Crashes are very disruptive and

Hard disk - the mysterious device inside your computer which stores all your files and software. It is also called a hard drive or just simply HD.

Computer crash - means that your operating system has gotten confused and your mouse no longer responds. The only way to rectify this situation is to restart your computer.

Where Does Information Go?
annoying. Luckily for us, the Macintosh rarely crashes and software titles usually are very stable, meaning that they are not likely to crash. A true hard disk crash is very rare. If your computer is not working and you can’t figure out why, you’ll need a computer repairman to inspect your computer. Let the repairman decide if it’s a hard disk crash or something else.

It is common for the hard disks in new computers to have fifteen gigabytes of free space (15 gigs). The “g” in gigabyte is a hard “g” as in a house with a two car “garage.” A gigabyte is simply a measurement, just like yards or inches. Sometimes people refer to a gigabyte as simply GB or gig. Free space is the blank area on your hard disk where you could store new information. So just how many letters can you put on fifteen gigs? The table at left gives a good explanation.

<table>
<thead>
<tr>
<th>15 gigs can hold</th>
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</thead>
<tbody>
<tr>
<td>490,000 typed five-page letters</td>
</tr>
<tr>
<td>10,000 photographs</td>
</tr>
<tr>
<td>3,000 songs</td>
</tr>
<tr>
<td>1 hour of high quality video</td>
</tr>
</tbody>
</table>

Many hard disks have 30 gigs; some have 60, 80, or even 120 gigs. To know what you have, you can read the specifications which came with your computer. You will need at least five to ten gigs to store your operating system and other software. The rest of the space is free space which you’ll use to store documents.

For many people, it is practically impossible to fill up their hard drive. But if you find yourself making movies on your Mac, it is quite easy to do since only one hour of high quality video will take up roughly fifteen gigs (actually about 13 gigs).

To check the amount of free space on your hard drive, you should do the following. First, click on the smiling Finder icon in the bottom left corner of your screen which is sitting on the Dock. Second, check to see if a Finder window is open but if it’s not, go to the “File” menu at the top of the screen and choose “New Finder Window.” Third, you should click on the “Computer” icon at the top of the Finder window. Fourth, click on the icon of your hard disk. Fifth, go to the “File” menu at the top of the screen and choose “Show Info.” You will get a new window which displays the size of your hard disk and how much free space it has in the “Available” section shown here in the graphic at left. You should try to keep your free space above one gigabyte. If your free space should get down to five hundred MB (half of one gigabyte), you should get scared and do what you can to remove some large documents from your hard drive to get back to about one gigabyte of free space. There are ways to move documents from your hard disk.
and put them on a removable disk. The simplest way to do this is with a CD (compact disc). We’ll talk about how to do this later in this chapter.

In the world of today’s Macintosh enthusiast, there are only two types of disks to be concerned with: the hard disk (which is magnetic) and the CD (which is optical). In the history of computers, there is another type of disk called a floppy disk. The floppy disk is sometimes just called “floppy” as in “Hey Joe, do you have a spare floppy?” It is important to know about this disk because it is still used on non-Macintosh computers.

The first floppy disk was five and one quarter inches in diameter. It was circular but it fit inside a square paper envelope. The disc itself was flexible and so was the paper envelope which encased it, hence the name “floppy.” This disk was easily damaged by fingerprint smudges. You needed to take care in holding it. The floppy is actually a similar technology to the hard disk because it is magnetic and when you stuck it into a special floppy drive, there was a special arm which could read and write information. A “drive” is the term given to a device which can read a disk. Because the hard disk and drive are one unit, some people call it a “hard disk” while others call it a “hard drive.”

In 1984, the Macintosh came out with a new type of floppy which was smaller and more durable. It was three and one half inches wide but was enclosed in a hard plastic enclosure with a sliding door to protect the floppy. When you inserted this floppy into a floppy drive, the sliding door would open, so the drive arm could read and write information. The floppy inside was still flexible but the hard plastic enclosure was stiff and inflexible. The disk was still called a floppy and was differentiated only by the size. So if you asked your friend if he or she had a spare floppy, they might reply “Do you want a five and a quarter inch or three and a half inch floppy?” By the year 1987, the “new” 3.5 inch floppy was fairly common on non-Macintosh computers. This caused these people confusion. For many years, people often mistakenly called the newer floppy a “hard disk” simply because the casing was hard.

The current floppy drives have not been used on Macintoshes for over five years but they are still common on PC computers. The reason is that Macs can easily save information to optical disks but on a PC, this requires a lot of work and some special software. The floppy disk can not hold much information and will only last a few years, whereas an optical disk can last a lifetime. A floppy can only hold one or two photographs and about forty typed five-page letters. So it was useful for holding typed documents but for anything else, it was practically useless.

The names given to computer gadgets are actually quite funny. For someone not familiar with computers to overhear a conversation consisting of hard drives, floppies and joy sticks (a game device), they might think they’ve stumbled onto a group of perverts.

floppy disk - this was the first type of disk people could use with their computer. They are slow, unreliable and can not hold much information. It has been years since Macs have used built-in floppy disk drives. If you’d like to use one today to be compatible with a PC, then you’ll need to spend about $150 on an external floppy drive.
Difference between applications and documents

Software titles are synonymous with applications. AppleWorks is an example of an application. You use applications to express yourself because they give you tools to shape your ideas. When you want to save your letter, your painting, your movie, etc., they become a document. If you double click an application icon in a Finder window, it will usually open up with a fresh blank document window. When you double click on a document icon in a Finder window, it will open the application which created it then show itself in its own window.

When you are using the column view inside the Finder window, it's easy to see which files are documents and which files are applications because it will tell you. It lists the Name, Kind, Size, etc. Look at the “Kind” field in the three examples on this page. Notice that one is an example of a “Classic Application.” It is called that because it was written for Mac OS 9 and earlier. It will run fine in Mac OS X but it will have to first run “Classic” which will take about thirty seconds to open.
**Files versus folders**

In a real office environment, it is common for people to keep a filing cabinet. Inside this cabinet are a number of folders each with specific information. Some people are more organized than others. Some people also have more folders than others. In a real office, each folder may have different subfolders inside or else may use colored tabs to separate documents.

On a Macintosh, you can make folders; as many as you like. They basically take up no space on your disk and are used solely as an organizational tool. You can drag files in and out of folders (applications as well as documents). You can also drag folders into other folders. This would make them a subfolder. The example at the right shows the folder “Brown Bag” and its contents. There are two subfolders inside and one document. The subfolders are “Intro to Java” and “Networking and Java.”

**Optical disks**

An optical disk uses a laser to burn information into plastic. A laser can be very precise and store a great deal of information in a very small amount of space. Because the information is burned into the plastic, it can be stored for a lifetime without worry of it aging and becoming unusable. Optical disks have a few weaknesses. Don’t leave them in front of bright sunlight too long because they can melt and be careful not to scratch them.

There are many different types of optical disks: CD-ROM, CD-R, CD-RW, DVD-ROM, DVD-RAM, DVD-R and DVD-RW. On the outside, they all look the same. We’ll discuss each one and then describe how to save information to them.

**CD-ROM**

The CD-ROM is the most common type of optical disk which sometimes is just simply called a CD. It stands for “compact disc - read only memory.” If you go to a music store and purchase a CD of Barbra Streisand, what you’ve really purchased is a CD-ROM. Today whenever you buy a software title,
what you'll find in the box is one or more CD-ROMs with software and manuals on the disks.

The term ROM means read only memory. This is because all you can do with this disk is read from it. There is no way to write to it. This makes it the perfect tool for distributing software. It has a long shelf life and the customer can’t modify the contents of the disk by accident.

<table>
<thead>
<tr>
<th>650 megas can hold</th>
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<td>20,000 typed five page letters</td>
<td></td>
</tr>
<tr>
<td>400 photographs</td>
<td></td>
</tr>
<tr>
<td>130 songs</td>
<td></td>
</tr>
<tr>
<td>1 hour of VHS quality video</td>
<td></td>
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</table>

The CD-ROM can hold either 650 megabytes or 700 megabytes because there is a smaller and a larger version. The term megabyte is another measure word similar to yards or inches. It is often called megs or MB for short. One thousand megabytes equals just one gigabyte. In Asia, the VHS video cassette is very rare. More common is something which is not widely available in the USA called the Video-CD or VCD for short. One movie comes on two CD-ROM disks which you play in a VCD player for your television.

**CD-R**

The CD-R is the most common type of disk people purchase to back up or store their documents on. The name is a little strange. The “R” stands for “read.” The best way to think of this disk is as a tool to write data to once and then read from it for a lifetime. You can think of it as a disk that once written to becomes a CD-ROM because you can never write to it again.

These disks are very inexpensive. Usually, you can buy three or more for less than one dollar. The capacity is the same as CD-ROM. You can purchase either 650 meg disks or 700 meg disks. When using them you shouldn’t try to cram them full of data. If you only have twenty five photographs from a weekend trip to the beach, I suggest you just put those twenty five photos on one disk. If at some point you realize you’ve gone to the beach several times, you can then move the old photos to your hard disk then burn them all onto one new CD-R disk.

There is no danger in filling up the data on a CD to near maximum capacity. If you have a lot of files and together they add up to 647 megabytes, it is perfectly safe to put them on a 650 meg CD-R disk.

**CD-RW**

A slightly less common type of compact disc is called CD-RW. The “RW” stands for “read write.” With this, you can write information to it, erase the entire disk and then write some more. This behaves quite differently from your computer’s internal hard disk. On a hard disk, at anytime you can
write a file, read a file or delete a file. In contrast, with CD-RW you can’t just erase one file. You have to erase the whole disk. It is possible to erase a CD-RW disk many times. I’ve read that it can be done one thousand times; however, I don’t know anyone who has sat down at their computer to try and prove this number wrong! If you decide to try, please let me know.

The capacity of CD-RW disks is the same as other types of CDs, either 650 megs or 700 megs. CD-RW disks cost about two times as much as CD-R disks; however, you can use them over and over again. There are a few caveats with CD-RW. Some older types of CD drives can not read them. It is probably a good idea to keep a few CD-RW disks around in case you want to put something on one then loan it to a friend expecting he’ll bring it back to you with something else on it. This type of use is very common if you use the computer to make a living and you need to hire someone to proof your work or modify your designs then return the improved version.

**DVD-ROM**

The DVD-ROM stands for “digital video disc - read only memory.” It is sometimes just called DVD. As the name suggests, it is only possible to read from this type of disk. It is impossible to save anything to it. The disk can hold a large amount of information which makes it a perfect choice for video. Some software is available on DVD but it is not too common because usually one or two CD disks will suffice.

The most common type of DVD disk is a single sided disk. This disk holds 4.7 gigabytes of data. Therefore one DVD disk can hold the same amount of information as seven CD disks. An astute reader will recall that earlier in this book we said that one hour of high quality video takes 13 gigabytes of data. The video on a DVD can last a little over two hours. This is done by compressing the video. DVD video is great looking but it is, in fact, somewhat flawed when compared to what is taken by a digital video camera.

Less common DVD disks exist which use both sides of the disk. Even less common is a type of DVD disk which uses both sides plus a middle layer. Not all DVD drives can read these type of disks but their capacity can go up to as much as 17 gigabytes!

**DVD-RAM**

This disk is truly unique but unfortunately, it is the only type of optical disk which Apple’s SuperDrive does not support. The name DVD-RAM stands for “digital video disk - random access memory.” In plain english, what this

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<th>4.7 gigs can hold</th>
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<tr>
<td>140,000 typed five page letters</td>
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<tr>
<td>3,000 photographs</td>
</tr>
<tr>
<td>940 songs</td>
</tr>
<tr>
<td>2.5 hours of DVD quality video</td>
</tr>
</tbody>
</table>
**DVD-RAM** - a unique and fairly rare disk which can be both read from and written to in a random manner. It's like an optical hard disk.

**DVD-R** - a high capacity disk which can only be written to once. This is the type of disk you need if you want to make your own DVD movies which can be used in a DVD movie player.

**DVD+R** - a competitor of DVD-R. Notice the “+” and the “-” in the names. The two formats are very similar; however, you cannot use DVD+R in a Mac.

means is that it behaves just like your hard drive. You can delete just one file if you wish. You can copy any number of files to the drive anytime you want. They can hold about 4.7 gigabytes of data making them basically an “optical hard disk.” Don’t misunderstand. They work by use of a laser; however, they are as convenient as a hard disk. Each disk has a long lifetime. I’ve read that they can be erased and re-written one thousand times.

There are some disadvantageous with the DVD-RAM. Firstly, they are slow. They are slow to write information and somewhat slow to read information. They are not so slow as to be unusable; however, they are much slower than a true hard drive. Secondly, there are very few drives which can read DVD-RAM disks. If you have a DVD-RAM drive, you are one of a select few who has the capability to use this type of disk. It is not that the drive is new or expensive because it was actually one of the earlier types of DVD drives invented. The reason for it’s lack of popularity stems mostly from the fact that most people are interested in making movies which play in a traditional TV set’s DVD player, and this type of device can not read a DVD-RAM disk.

If you are considering a drive which makes it easy to back up large amounts of information, you should consider a DVD-RAM drive.

**DVD-R**

The DVD-R disk is one which you can write once but then read as many times as you want during your lifetime. It has the same capacity as a DVD disk, namely 4.7 gigabytes. This is because currently DVD-R disks are only one sided.

The major importance of DVD-R is that it allows you to create your own movies and play them in a consumer DVD player hooked up to a standard TV. Some people create illegal copies of major motion pictures. To do this you’ll need to be quite a computer wizard because there are some safety measures to make doing this a bit difficult. The better use of DVD-R, when you have a Macintosh with a SuperDrive, is that you can make your own home movies of professional quality which will then play in any consumer DVD player.

It is not a good idea to use DVD-R to back up your documents. Technically, there is nothing wrong with doing so; however, you will probably just be wasting money. In most cases, a CD-R disk will have more than enough space to put your files. Today, each DVD-R disks costs three dollars in contrast to about thirty cents for a CD-R.

DVD+R is slightly newer than DVD-R but incompatible with Macs. Also, DVD+R will only play in 87% of consumer DVD players versus DVD-R’s broad 97% acceptance.
DVD-RW

I bet you are starting to see a pattern. If you guessed that DVD-RW is basically just a 4.7 gigabyte version of a CD-RW, you’re right. The “RW” stands for “read write.” This means that you can write to this disk, erase the entire disk and then write to it again. This type of disk can be erased many times without worry. I’ve read that this can be done one thousand times; however, I’m not going to test this theory.

The use of DVD-RW is somewhat limited. These disks often are incapable of being read in a typical consumer DVD player. There is a slightly newer standard called DVD+RW which is supposed to work with more consumer DVD players. Read into this the key word most because it’s definitely not all. If you want the highest chance of your home DVD movie to be read by the widest number of DVD players, your only choice is to use DVD-R.

How to save information to disks?

You will want to save files to a disk when you want to take them with you to use on another computer or to give someone. You should also take the time to put a copy of important files on a disk. Any file which you couldn’t bare to lose should have a back up on disk. You never know when your significant other might accidentally delete a file you think is important or else you might experience a hard disk crash on a really bad day.

You can find blank optical disks at most office supply stores, such as Staples and Office Depot. Purchasing blank disks through mail order is ok but beware of prices which sound too good to be true. If the disk manufacturer does not check the quality of their production, it’s likely many of your disks will be unusable due to flaws in the plastic of the disk. You should consider buying a binder with special inserts to hold your new disks.

If your Mac has a SuperDrive, you can use almost any kind of optical disk except for the DVD-RAM disk. Most other Macs can write CD-R and CD-RW disks but none of the DVD variants.

The first time you stick a blank optical disk in your Mac, a few seconds later you’ll see a message on the screen asking you what type of disk you’d like to create. There are a few options for you to choose. I suggest you use the “Standard” option. The other options are related to creating disks of recorded music which can be played in a stereo system.

After choosing to prepare the disk and closing the window, you’ll then see an icon for your new disk on the Mac’s Desktop. You are now free to drag files to that disk. What will happen is that a copy is placed on your disk but the original still stays on the hard drive. You may double click on the icon of your optical disk just to see what files you have been putting inside.
**Burn** - the process of saving information to an optical disk. An optical disk is made from plastic; information is stored on the disk by a laser which heats up the plastic hence the term “burn.”

Once you’ve got all the files that you want included on the optical disk placed just the way you like it, what you’ll need to do is burn the disk. This is because while it looks like you’ve already put all your files and folders into your optical disk, in reality, this is just an illusion because they are merely marked for being copied. It takes several minutes to actually burn the plastic of your optical disk with a laser. What Apple does is let you tell the computer what files you want to burn into the disk in the most simple way possible - just drag and drop their icons onto the disk icon or into the disk’s open Finder window. This allows you to compose what files you want on your disk very quickly. When you’re ready, you can burn. Go up and click on the “File” menu at the top of the computer screen then choose “Burn disc...” from that menu. That’s it! If you have a few files, it will only take a few seconds. If you have a lot of information to burn, it may take several minutes.

To get your disk out of your Mac, you simply need to drag the disk icon and drop it on top of the trash can in the lower right hand corner of your screen (the right hand side of the Dock). This is called ejecting your disk. Don’t worry about dragging items to the trash. If it’s a disk, your Mac is smart enough to realize that and will simply eject the disk. If it’s a file or folder that is dropped in the trash, it is not deleted immediately. You have to go to the “Finder” menu at the top of the screen then choose “Empty Trash...” in order to truly remove the file or folder. If it was an accident that you put a file in the trash, just click on the trash can once, and a Finder window will open up allowing you to rescue the file. When the trash can has some files in it, the trash can icon will be full of crumpled papers. Likewise, when the trash can is empty, the trash can icon shows an empty bucket.

If you have a CD-RW or DVD-RW disk which you’d like to erase, the first step you’ll need to take is to simply put the disk in your Mac. In a few seconds, the disk’s icon will show on your Desktop. You will need to use a special software title to erase this disk. Click on the little smiling Finder icon in the lower left corner of your screen. If a Finder window is not open, go to the “File” menu at the top of the screen then choose “New Finder Window.” In the Finder window, click on the “Applications” icon once to open the Applications folder. Next, find the “Utilities” folder and open it. Inside of the Utilities folder, locate the icon for the “Disk Utility” software and double click on it. Once the Disk Utility opens, locate the icon for your optical disk and click it once. The last step will be to select the “Erase” tab by clicking on it then click the “Erase” button. After several seconds, your disk will be erased. You may then treat it the same as you would a “brand new” disk.

### Disks which come with my Macintosh

Inside the shipping materials included with your Mac, there is an assortment of optical disks containing a variety of software titles. Surprisingly,
the less expensive your Mac is, the more software you'll get. I don't fully understand the logic but that's the way it is.

Every Mac ships with the following three disks: Mac OS 9, Mac OS X and Mac OS X Developer CD. These are the most important disks, you should store them in a safe place but not so safe and secure that you'll forget where they are should you need them.

**Mac OS 9**

The Mac OS 9 disk contains version nine of the Macintosh operating system. Version nine is already installed on your computer and is used every time you use software titles written for early Macintoshes. Any software which was intended to be used on Mac OS version six through version nine will probably work fine. If you purchase used software or older software, you will use Mac OS 9 to work with those software titles. An interesting fact about Mac OS 9 is that it can run by itself or it can run inside of Mac OS X. When running inside of Mac OS X, it is given the name “Classic.” You will probably never need to use Mac OS 9 alone because Classic works extremely well. I myself use Mac OS X and most of my software is written for Mac OS X; however, this entire book was written using Classic. Very seldom will you need to use your Mac OS 9 disk. There are, however, three situations in which you will need to use it. The first situation is when tragedy strikes. Perhaps something physically goes wrong with your Mac’s internal hard disk. When you purchase a new hard disk, you will need to install Mac OS 9 onto it with this disk. The second situation is related to your growth and enlightenment down the path of computer literacy. You should not feel scared about experimenting with your computer because you need to experiment and try things in order to understand how to make the most out of your Mac. Should you do something which you realize was an accident and destroy Mac OS 9, you can always re-install it from the CD. The third situation is related to linguistic ability. Mac OS 9 normally only installs enough software to let you type Western languages, such as English. You can use the Mac OS 9 CD to install additional software which lets you type in a large number of languages, including Hebrew and Traditional Chinese.

**Mac OS X**

The Mac OS X disk contains version ten of the Macintosh operating system. Version ten is already installed on your computer and is the operating system which starts up the first time you turn on your Mac. You probably did not realize that Mac OS 9 is also installed because you’ve been using Mac OS X all the time. Mac OS X is fundamentally different from any previous Macintosh operating system. It is so different that old software titles can not operate without the special “Classic” mode which essentially runs Mac OS 9 from within Mac OS X. Most new software which you can purchase today.
Mac OS X Developer CD

The Mac OS X Developer disk is something really special. This has nothing to do with taking your camera's film to the store to get prints made. Ok, that is a bad joke, so let's just move on. What is on the Developer tools disk is software, examples and documentation which allow a person to create their own software titles for the Macintosh. It helps you develop software; hence the name "Developer CD." This is arguably the world's best set of tools for creating software, and it comes with every Macintosh. If you are the curious type and would like to experiment with writing your own software, install what is on this disk. If you are willing to read a little, you will be rewarded with some fairly good documentation and lots of interesting examples. This software does take up space on your computer's hard drive, so it is not pre-installed on your Mac since many people may never use it. Some people would recommend you not install this disk because it eats up useful space, and you'll never use it. Other people say without a doubt go install it because it doesn't use that much space, and it is incredible software which can teach you a lot. The two viewpoints reflect how two different types of people use their computers. I recommend that you judge for yourself. If you feel that the contents of this disk sound useful, you should install it. If you don't feel that it's useful, don't install it.

iApps

In the past few years, Apple has been making many creative software titles which they include free with Macintoshes. These are often called the "iApps" because each of their names starts with the lowercase letter "i" and "Apps" is short for "Applications." Some people like to think that the "i" represents "Internet," the network of computers around the globe.
actually, it doesn’t really have any meaning. New Macintoshes come with most of the following software titles: iTunes, iChat, iPhoto, iMovie and iDVD. Sometimes these software titles come on their own disk and sometimes they are included on the Mac OS X disk. To check if you have these software titles installed, just open up your “Applications” folder and look inside. To do this, first click on the smiling Finder icon in the bottom left-hand corner of your screen. If a Finder window is not open, move your mouse to the top of the screen to select “File” then “New Finder Window.” In the Finder window, click on the “Applications” icon.

iTunes software allows you to organize and listen to music as well as recorded books. This software is usually on the Mac OS X disk but sometimes also comes on its own disk. If you love to listen to music, you’ll find countless uses for iTunes. It can take your music collection and put it all on your Mac’s hard disk. iTunes can put 1,000 songs into five gigabytes of disk space. Since most hard disks are now larger than thirty gigs, you’ve got an idea of how many songs you can store in your computer, probably your whole collection. Copying your music collection to your hard disk is simple. Just stick each music CD into your Mac and let iTunes copy it. Once there, you can organize all your music and play any song almost instantly. You may want to wait until you learn how to connect your Mac to the Internet before moving your music collection to your Mac. If you are connected to the Internet when copying a disk, there is a high possibility that your Mac will be able to figure out the names of all the songs, the album, the year of the recording, the artist, etc. Using the Internet this way, your music library will practically build itself. Having this library in iTunes means not only is all of your songs instantly available to you, but now you can also create your own music disks with just the songs you want. Go nuts! Make a CD of your favorite relaxation tunes, another of your favorite reading tunes and another with your favorite love songs. When iTunes is connected to the Internet, you can listen to radio stations which are broadcasted live on the Internet instead of over the airwaves. You may also listen to recorded books.

iTunes stores music files in a format called MP3. MP3 literally means “MPEG 1 layer 3 audio” and MPEG means “Motion Picture Experts Group.” Basically, many smart people have spent many years studying how to compress the size of music files stored on the computer but still retain something which remains pleasing to the ears.

If you are curious about MP1, MP2 and MP4, you shouldn’t be because they don’t exist. MP3 is the audio component of a movie format called MPEG. The first version of this movie format was called MPEG 1 which was used in VCD disks throughout Asia. MPEG 2 is what is used in DVD disks. Just recently MPEG 4 has been released, but at the moment, it is only used with movies you watch on the Internet. The audio component of MPEG 4 is called Dolby AAC audio.

iChat software allows you to quickly send short, two or three sentence messages to people who are on the Internet which they will receive instantly. Here if you think of the name iChat as meaning “Internet Chatting,” you’d be correct. If you have friends who 1) use their Mac often 2) are connected to the Internet often and 3) can type well, you’ll have a use for this software. Usually, people whose profession requires them to spend many hours a day at the computer find this form of communication fast and useful, other people will find it useless. There is a big demand for this type of chatting software and there are many other software titles that people use. The two most popular software titles are AOL Instant Messenger and ICQ. Both of these can be used on your Mac for free but they are incompatible with each other. Apple’s iChat is only compatible with AOL Instant Messenger, not with ICQ. What software you use is really dictated by what software your
Strictly speaking, there is a third way to bring photographs into your computer but it's not practical. If you purchase a flatbed scanner, you can take developed prints and scan them one by one into your computer. Imagine sitting down to a Xerox machine and copying your photographs one by one. If you can do that, you've got a pretty good idea of what using a flatbed scanner is like. Scanners cost a minimum of $50 and they are very slow as well as time-consuming to work with.

*iPhoto* software allows you to organize, edit and fully utilize your collection of photographs. To use iPhoto, you need to get your photos into a computerized form. There are two practical ways to do this 1) use a digital camera and 2) use a standard film camera but find a film developer which can give you a CD disk with all of your processed photographs on it. We'll talk more about digital cameras in our chapter devoted to iPhoto but for now, just think of them as computerized cameras. Once you store your photograph collection with iPhoto, you can do many neat things. You can order copies of prints which will be sent to you in the mail. You can order a hardback book to put on your coffee table filled with photographs. iPhoto even allows you to create slideshows and Web sites containing your photographs. You also have the ability to touch up your photos, such as cropping and removing the dreaded "red-eye" you see when taking photos with a flash indoors.

*iMovie* software allows you to compose and edit home movies that border on being professional quality. You will need a "Mini-DV" camera to take the video. These cost between $500 to $1,000 and we'll discuss them more in the chapter devoted to iMovie. For now, think of a Mini-DV camera as a computerized movie camera. In the past, home movies were often quite boring because there would be large blocks of time where nothing interesting was happening. Also, home movies never had music, sound effects or special effects. With iMovie, you can create a video that has just the important scenes, thus cutting out the boring stuff. You can add music to the presentation or even sound effects, such as applause or laughter. You can add subtitles and documentary. iMovie is really impressive and easy to use. What you need to keep in mind with iMovie is that it only lets you create a movie which is ready for production but it doesn't help you put it onto a readily viewable medium. If you want to create a VCR tape of your iMovie creation, you'll need to first ask iMovie to save your creation back on your Mini-DV camera. Lastly, you'll need to hook your Mini-DV camera up to your TV and playback your creation while you record from your VCR.

*iDVD* software comes with those Macs which sport a SuperDrive. This software allows you to take your iMovie creations and put them neatly onto a DVD disk which can be viewed on a DVD player. In America and around the world, the DVD player is gaining popularity but I wouldn't yet call it a common device. In the USA, the VCR player is still the dominant form of TV playback but DVD is catching up. You can make truly astounding and professional DVD movies with iDVD software.

Fax software comes on a separate disk with most Macs. The software is called *FAXstf*. For what it does, sending and receiving faxes, it works quite
well but there are some logistics which make using it a bit tricky. Your computer has something called a \textit{modem} which stands for “modulator/demodulator.” What it does is something akin to super-duper morse code because it makes many belches, beeps and squeals over a traditional telephone line which a computer on the other side can decode and comprehend. You may use a modem to get on the Internet or to send and receive faxes. The FAXstf software is nice to have because it can save you a trip and the expense of going out to a store just to use fax services. Note: OS 10.3 (Panther) has an integrated fax solution and doesn’t need FAXstf. You should have at least two phone lines, one for your modem and one for talking. Otherwise, if you share one line for both tasks, when someone calls you they might get an earful of awful screeching noises from your modem as it tries to answer their call or they may never be able to reach you if you are on the Internet for many hours. Furthermore, your Mac must always be sleeping, so that it can wake up to answer an incoming fax. If your Macintosh is turned completely off, you could miss an incoming fax. For these reasons, it’s probably better to have a dedicated fax machine if you plan on receiving many faxes. Otherwise, let your associates know that they should first phone you before they send you a fax, so that you can be sure to turn your computer on.

\textbf{Shareware}

The professional line of Macintoshes which includes the PowerMac Towers and the Titanium PowerBooks have a limited set of additional software. They come with the following software titles: Art Directors Toolkit, OmniGraffle, OmniOutliner, PixelNhance, GraphicConverter and SnapZ Pro. These are all nice software programs. Each is small and specialized; they do their job very well. These software titles are written by small companies with probably less than five employees each. They fall into a type of software category called \textit{shareware} which means you can try out the software and if you like it, you are morally obligated to purchase it. The software is high quality but Apple has not done you any big favors by including it because you could get it directly from these companies once you connect your computer to the Internet. Since each of these titles is good, I’ll briefly describe each one.

\textit{Art Directors Toolkit} is software to help you figure out measurements and colors. It can quickly give you an idea of how big something should be or what color would best coordinate with the rest of your design.

\textit{OmniGraffle} is software which can help you quickly chart out ideas. Its most straightforward use is in making flow charts with circles, diamonds and lines of flow based on “yes” or “no” decisions.

\textit{OmniOutliner} is software which lets you make a simple outline of ideas or tasks with checkboxes. It sounds simple, and it is, but it’s very useful. You can create a list of tasks. As they are completed, you can check the boxes next to them. You can also easily reorder items just by dragging them.
*OmniWeb* does not come with any Macintosh but it is a great piece of software for viewing the World Wide Web, in fact, it’s probably the best. The following three software titles are all made by a company called the Omni Group: OmniGraffle, OmniOutliner and OmniWeb.

*PixelNhance* is a software tool to modify your photographs. You can use it to modify the colors, the hue, the saturation, etc.

*GraphicConverter* is a nice piece of software for converting images into more than one hundred different types of computer formats. It has some other nice features too and shares some features in common with PixelNhance.

*SnapZ Pro* is a software tool which lets you capture your Macintosh’s screen, so that you could put parts of your screen in a book, such as this one. It also allows you to create a movie out of what you are doing on your computer for tutorial purposes. Your Mac already has a tool called “Grab” which is located inside of your “Applications/Utilities” folder. However, “Grab” only lets you take screen captures, it won’t record a movie.

As you can see, the shareware is useful but it is not anything to die for. I suggest you look at this software and see if it’s useful to you. If you find yourself regularly using the software, you should pay the shareware fee if the company requests one. I don’t think Apple paid these companies any money to include their software on the professional Macs and if they did, I’m pretty sure it wasn’t a large sum. Probably, Apple just obtained a written agreement from these companies thus giving them some free exposure by including their software with professional Macs. Many of these software titles share some of the same functionality as other Apple software, such as iPhoto and Grab.

**Commercial software**

Now let’s talk about the goodies which come with the iMac, eMac and iBook. For the rest of this chapter, we’ll discuss software which is unique to these computers that Apple conceives as being sold to the home user.

*AppleWorks* is one of the greatest software creations ever. You can type letters, do slideshow presentations, sketch, draw, paint, do mathematical calculations and organize information. If you have a professional Mac, such as the PowerMac Tower or PowerBook, you can purchase AppleWorks for $80 which is still a great price for what you get.

*The World Book Encyclopedia* comes on a disk for your Mac. As far as encyclopedias go, most people generally think Britannica is the best. However, Britannica has almost gone out of business because of the abundance of information on the Internet and the fact that their competitors, such as World Book, started making encyclopedias for computers before Britannica.
did. The World Book Encyclopedia for Mac OS X is simply splendid. It contains lots of information and is very attractively organized.

*Quicken 2002 Deluxe* is software to help you organize and graph your financial expenditures. You have to use it regularly and keep its records updated with all your purchases. If you do that, you can create nice charts to see exactly where your money is going and how much you are spending.

*Otto Matic* is an action game for your Mac that puts you into a three-dimensional computer generated world. You play a robot named Otto, and it is your job to save humanity from an alien race.

*Deimos Rising* is an arcade style game just like the coin operated ones you find in shopping malls. You control a small spaceship and use an assortment of guns and bombs to attack the enemy in the air and on the ground.
COMMON SOFTWARE CATEGORIES

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When computers first became widely available in the late 1970's, only a select few could make ready use of them. This is because there was not much software available. At that time, if you bought a computer, you needed to write your own software. This required hours of special study and training.

Today we have lots of software available. Some of it is free and some is commercial. You can group all of this software into some primary categories and make some generalizations about what it allows you to do.

### Word processors

When you want to type a document on a computer, a word processor is likely what you'll need. A word processor is good for typing letters, forms, invitations and memos. It is given the name "word processor" to let you know that it is much different from a typewriter.

The most common word processor for the Macintosh is "AppleWorks." It is not the most powerful word processor available but it's very good and very easy to use. It comes free with some Macs such as the iMac, eMac and iBook. To buy the latest version of AppleWorks costs around $80.

The second most common word processor for the Macintosh is "Microsoft Word." This is a famous application which is currently probably the most widely used software title in the world. Microsoft Word was first developed for the Macintosh, then later a similar version was released for Microsoft Windows PC computers. If you purchase Microsoft Word by itself, it will cost $230. If you purchase the entire "Microsoft Office Suite," the bundle will cost $380.

A not so common, though still widely used, word processor is "Nisus Writer." This is a special software title written by a unique company. It has some peculiarities which make it better suited for writing larger documents as well as multi-lingual documents. In fact, it is a favorite amongst semitic countries and is installed on all Macs sold in Israel. Nisus Writer is a good word processor. "Nisus Writer 6.5" is written for Mac OS 9 and costs $80. This is the best word processor from Nisus but it must run in the Classic environment of OS X. Nisus decided that to make the best use of Mac OS X, they should create a brand new word processor. The new "Nisus Writer Express" is lacking important features of previous versions but is rewritten for Mac OS X and sells for $60. Find out more by visiting www.nisus.com

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Recommended word processors:
1) AppleWorks
2) Microsoft Word
3) Nisus Writer
4) Mellel
A new company based in Tel Aviv (Israel) named “RedleX” has released a word processor designed for OS X named “Mellel.” It is often compared to Nisus Writer Express but at the moment, appears to be the better product. For $25 you get the current version of Mellel plus free updates for three years. Mellel is presently more feature rich than Nisus Writer Express. At the time of revising this guide, Mellel is the only OS X word processor which allows you to type with semitic languages. You can find out more by visiting http://www.redleXers.com/mellel.html.

If you plan to write a book, you should plan on using a desktop publishing software title sometimes called DTP for short. They are better suited for long documents, magazine covers and newspapers. Examples are QuarkXPress, PageMaker, InDesign and FrameMaker.

**Spreadsheets**

People use spreadsheets when they want to work with a lot of numbers and use the computer to help run calculations then prepare graphs as well as charts. Spreadsheets are really just one big workspace with a grid which makes distinct rows and columns. You can enter numbers, words, dates and times.

The most common spreadsheet software for the Mac is “AppleWorks.” It is not the most powerful spreadsheet but it does fine for most people. AppleWorks comes with the iMac, eMac and iBook. To purchase the most recent version costs about $80.

Another very common spreadsheet for the Mac is “Microsoft Excel.” This also happens to be the most common spreadsheet in the world. It was first developed for the Macintosh and then later was released for the Microsoft Windows PC. Excel has a few more features and can make some prettier graphs than AppleWorks. To purchase Microsoft Excel by itself costs $230. To purchase it as part of the “Microsoft Office Suite” costs over $380.

**Presentation software**

When people present ideas to a large audience, they often use slides or transparencies. These work ok but they take time to prepare, can get disorganized if dropped and just show static images on the screen. With presentation software, you can design a colorful slideshow. If you want, you may have slides printed from your software and then just do a slide presentation. Most people take a portable computer and connect it to either a large screen TV or special projector. If they do this, they are free to add simple animations and sounds to their presentation which will hopefully make it a bit less boring and a little more catchy. Don’t go overboard though. Too
many bells and whistles runs the risk of distracting people from the point you are trying to achieve. People may be more interested in how you created your presentation rather than what your presentation was about.

The most common presentation software for the Mac is “AppleWorks.” Are you starting to see a pattern here? AppleWorks is a great tool. It is the swiss army knife of software tools. Many Macs come bundled with AppleWorks such as the iMac, eMac and iBook. To purchase the latest version of AppleWorks costs about $80. Apple also makes “Keynote” which sells for $100 and produces presentations that look incredible.

Another popular presentation software title is “Microsoft PowerPoint.” It does a similar job but costs more than $230 when purchased individually or $380 when purchased as part of the “Microsoft Office Suite.”

**Image editors**

An *image editor* is not the title given to a person who checks to see if the colors in photos are correct and that they contain no pornographic material. No, instead an image editor is a software tool used to edit and make changes to images. Generally, you will use this type of software to adjust the way your pictures look. Sometimes this means you want to adjust the color, other times you might want to crop out part of a picture. People also use image editors for more artistic purposes and to create special effects.

“AppleWorks” is able to work as an image editor but not a very robust one. It can make “Painting” documents and “Drawing” documents. Painting documents allow you to work with a variety of brushes and colors to produce images, somewhat like what a box of crayola crayons will do. Drawing documents allow you to work more easily with objects and move them around. For example, if you draw a circle in a Painting document, it just becomes a series of dots on the screen but if you draw a circle in a Drawing document, it remembers that you’ve drawn a circle, so you can at any time move the circle or change the size of the circle. AppleWorks comes with the iMac, eMac and iBook. The most recent version costs about $80.

The most famous image editor for the Macintosh is “Adobe PhotoShop.” This is the tool most people use to create many kinds of artistic effects and interesting artwork. It costs about $600. Adobe also makes a more affordable version of this software which is a bit easier to use though a bit less powerful. This version is “Adobe PhotoShop Elements” and costs $100.

A famous editor recently became available for the Mac. It is Caffeine Software’s “TIFFany.” This software was written for NeXTSTEP which is the operating system that Mac OS X is based on. The name “TIFFany” is very cute because the most common file for saving high quality images is called a TIFF file. The term TIFF stands for “tagged image file format.”

Recommended image editors:
1) Photoshop
2) TIFFany
3) Canvas
4) Painter
5) GraphicConverter
6) PixelNhance
7) GIMP

Note: An image editor named “Color It!” deserves consideration if you have an older Mac or a tight budget. It is written for OS 9 but works well in OS X. It costs $50 and is available from: www.microfrontier.com

Common Software Categories
TIFF - the most common file for saving high quality images is called a TIFF file. The term TIFF stands for “tagged image file format.”

To find out more about illustration software, go to the “Illustrations” subchapter of the “Advanced Topics for the Curious” chapter.

Unfortunately, Caffeine software has closed its doors since March 2003. TIFFany is comparable to Photoshop and was competitively priced at $444 for the full version and $222 for the basic version. Though the product is no longer supported, it is still available for purchase through a company named “Stone Design.” Their website is: www.stone.com

Another famous image editor on the Macintosh is “Deneba Canvas.” This software is unique in that it mixes capabilities of an image editor, such as Adobe Photoshop, with the capabilities of an illustrator. Canvas also boasts the ability to read many different types of files and save them as well, useful if you have images in many different formats and you need to convert them. The price of the professional version is $400.

If you are interested in creating images on your computer in a way similar to using oil paints, charcoal, etc., you should look at “Painter” which is made by Corel. You will need to purchase a writing tablet to make use of this software because it needs to feel the brush strokes you make with the stylus. Painter allows you to create images that are very similar in appearance to real world artwork and are created using strokes and techniques which are similar to what a trained artist would use if he was really painting on a canvas. The cost of Painter is $300.

There are a number of shareware and freeware image editors available. Good examples are “GraphicConverter” and “PixelNhanse.” The “GIMP” is a really powerful, and free, image editor but is difficult to install. Find out more about “the GIMP” in the “Advanced Topics for the Curious” chapter.

**Databases**

A database allows you to collect information and then retrieve it quickly and easily. Think of a database as being similar to a library card catalog where you can search for information based on book title or author’s name. When you create a database, it could be for anything that you collect such as baseball cards, VHS movies, etc.

The most common database software on the Mac is “AppleWorks.” This software works well and is fairly powerful. AppleWorks comes with the iMac, the eMac and the iBook. The cost of the current version of AppleWorks is $80.

The most popular database for the Mac is “FileMaker Pro.” This software has a lot of different features and can create a database which can be shared with other people on the Internet. Because of this, many small businesses rely on FileMaker to support an Internet store. FileMaker Pro costs $300.

One of the most robust databases for use on the Internet or other business level purposes just happens to be a free database called “PostgreSQL.” This
software is free but it is not real easy to set up and use. It is not intended for small databases, such as the VHS movie database we made in AppleWorks. When people choose PostgreSQL, they intend to have thousands of records and very complex searches. Sometimes people use PostgreSQL for statistical or other scientific research by trying to find correlations in data.

**Web browsers**

A big part of the Internet experience is something called the World Wide Web, sometimes called WWW or just Web for short. Imagine a newspaper with pages that go on forever and you've got a pretty good idea of what the Web is all about. Just like while reading a newspaper, you often see “continued on page B9” headings which link to another part of the paper; the Web often has links to an endless number of different pages. To browse a newspaper, you need to pay fifty cents then pick it up with your two hands. To browse the web, you'll need to pay for Internet service and then use a Web browser to view pages on the World Wide Web. In fact, you can browse headlines and stories for most of the popular newspapers by using a Web browser; newspapers from all over the world.

The most common Web browser today is “Microsoft Internet Explorer,” though it is often just called IE for short. The current version is a very good but Microsoft does not plan to release new versions. It comes pre-installed on all Macs.

Apple has their own browser named “Safari.” It is free and available as a free download from Apple's Web site. If you have OS 10.3 (Panther), then Safari is already installed. Safari works smoothly, quickly and has many smart features to make life easier. Most notable are “tabbed windows” and the ability to search Google from the title bar.

Another good Web browser for the Mac is “OmniWeb” from the OmniGroup. This browser does the best job of handling multiple languages, and web pages just look sharper and easier on the eyes. You can obtain OmniWeb for free and use it as long as you like; however, if you enjoy it, you are morally obligated to purchase OmniWeb for $30.

A popular web browser is “Netscape Navigator.” This was a very early browser which had a big jump on the competition. It was the software tool which made browsing the web popular because it could show images extremely quickly. About the time Netscape became its own company, Microsoft started shipping Internet Explorer which worked almost as well but was free and pre-installed on many computer systems. This caused Netscape some hardship because they grew very quickly but then suddenly realized they weren't making much money. Netscape decided to release its software to the public hoping volunteer engineers would make their software better and do it quickly. This strategy has worked. Web browsers
created by these volunteer engineers bare the name “Mozilla.” Each time Netscape looks at what the volunteers have done and give it their formal blessing, they will then release a new version of “Navigator.” Versions six and seven of Navigator were created this way...as far as I know, there never was a version five. It got skipped.

With so many Web browsers out there, it’s hard to know which one to use. People all have their preferences. That’s part of the reason for the existence of so many browsers. Another reason is that each browser has slightly different features and some places that you view on the Web will work on one browser but not on the other. Using any of the three web browsers discussed here will work most of the time and they’ll all do a good job, but you might want to install all three just in case.

**Email clients**

To send an electronic mail, you need some special software which will allow you to compose your message then send it on its way. With a real piece of postal mail, we need to take our item then give it to a post office. The electronic equivalent of a post office is a computer called a *mail server*. It is the mail server’s job to receive your electronic mail and forward it along to where it needs to go, so that your intended recipient may receive it. In computer jargon, this relationship where you have one computer running twenty four hours a day, seven days a week which receives many requests from other computers is called a *client / server relationship*. So an Email client is a piece of software which knows how to connect to a mail server to send your message.

There are many many *many* different types of Email clients out there but built into Mac OS X is a pretty robust and elegant one simply named “Mail.” There isn’t much reason to explore other clients because this one does nicely.

**Money management software**

Software to manage how you spend your money and what you need to spend in taxes basically mixes capabilities of *databases* and *spreadsheets* to give you an integrated solution.

Intuit makes the most popular money management software named “Quicken.” You use this to track investments and expenditures. You can use it to give you graphs showing how you spend your money and to print out detailed reports to help your CPA during tax time. The cost of Quicken is $70 but it often comes free with the iMac, eMac and iBook.
Another competitor for managing your personal finances is a company named Reilly Technologies with a product called “Moneydance.” An interesting point about Moneydance is that it can be used on many different types of computers. It is nice to know that practically no matter what kind of computer you may use in the future, you’ll know that you’ll be able to carry all your financial data with you. You love your Mac but who knows, something better may come along later. Originally this product was sold by Appgen but the principal software engineer, Sean Reilly, purchased the rights to the software and has released it under his own company. Moneydance is struggling to find its niche and its future is uncertain; however, it is a well designed software title. The cost of Moneydance is $40.

The best tool for managing financial information for a small business is “MYOB AccountEdge.” This software has been around for sometime and is well respected. The company’s name, MYOB, is a cute one standing for “Mind Your Own Business.” The cost of AccountEdge is $250.

Reference software

Think of the “Reference” section of your local library. There you will find encyclopedias, dictionaries, atlases and other useful reference material. There was a time when reference software was extremely popular but the demand has dropped considerably since the development of the World Wide Web. Using the Web, you can find information on almost any subject. You can check spellings in dictionaries, and you can find maps - even satellite images. The main advantage to using reference software is that someone has taken the time to organize information in a more coherent and readily accessible way. Even though the same information (and often better information) can be found on the Web, it takes time to look for it, and takes a bit of skill to get used to browsing the Web.

Currently, the best encyclopedia for the Macintosh is the “World Book Encyclopedia.” This encyclopedia comes on optical disks. It’s very well organized and contains many movie clips with sound. The cost of the World Book Encyclopedia for the Macintosh is $60 but it comes bundled with the iMac, eMac, and iBook.

Encyclopedia Britannica now has versions for the Macintosh. Their “Deluxe” version comes on a CD and costs $60. Their “Ultimate Reference Suite” comes on a DVD and sells for $80.

For those of us interested in astronomy, a company named “Starry Night” produces a wide selection of software titles for learning about stars. Prices range from $20 up to $200 depending on the product.
Games

I’ll be the first to admit that I love games, especially computer games. In fact, I often kid my wife stating that “growing old is mandatory but growing up is optional.” You’ve spent a lot of money on your computer, why not have fun with it? The main fascination with computer games is that they are so creative. You can have hours of fun and entertainment which has got to be better than just vegetating in front of a TV set.

Games which came with your Mac

A nice package of Chess software comes with Mac OS X. It is not the smartest computer opponent, such as IBM’s “Deep Blue,” but it will keep most people challenged. The software works well and looks nice, though I believe using the 2D board is better than the 3D board. You will find the Chess software inside the “Applications” folder.

If you have an iMac, eMac or iBook, you’ll have two additional games. The first is “Otto Matic” which is a cute game that puts you into a three dimensional world. You control a robot who’s job is to save humanity from an alien race. The graphics are very pretty. You can move your robot in any direction to look at objects from just about any angle. The second game is “Deimos Rising” which is a two dimensional arcade game. You control a fighter plane that can fire many different types of futuristic weapons to destroy enemies on the ground and in the air. When purchased separately, Otto Matic sells for $20 and Deimos Rising sells for $20.

Simulation games

Some people enjoy simulation games which try to put you into a real world situation. A very good aircraft flight simulator is “Fly! II” which can put you in the cockpit of many different types of planes and helicopters. It costs $40. A good car driving simulator is “4x4 Evolution” where you can race sport utility vehicles. It costs $26. If you’d like to try your hand at playing g-d, there are several software titles which would interest you. In “Tropico,” you get to play the dictator of a fictitious island. You can be a good dictator or an evil one. That’s up to you. Tropico costs $40. In the game “Black & White,” you can play either a good g-d or an evil g-d and watch your people either love you or fear you. Black & White costs $50. A hilarious game is “The Sims” which let’s you control a few normal people in a normal neighborhood. It sounds boring but it’s actually quite funny to see all the mischief your “sims” get into. The Sims costs $50.
Action games

If you like more action in your game, consider some of the three dimensional games. A famous game series is “Tomb Raider.” This one is so popular that there is even a big screen movie with the same name. Basically, you take on the role of a smart, rich and overly endowed woman who likes to recover unusual artifacts. There are many versions of Tomb Raider and they cost anywhere from $15 to $30. An interesting game is “American McGee’s Alice” which continues the story which the famous Lewis Carrol book “Through the Looking Glass” started. In this game, Alice is a bit older and her parents have died in an accidental house fire. She is living in an orphanage and has gone a bit crazy. This time Wonderland is totally in her mind, and you have to help her gain her sanity. Alice costs $25. Have you ever had the urge to be a Viking? You know the six foot five inch kind that weighs over two hundred pounds because of solid muscle? Well in “Rune,” you can play a Viking named Ragnar as you try to save your homeland from an evil demon. Rune costs $30.

Fantasy games

If you like to read fantasy books, you’ll probably like a RPG. The term RPG stands for “Role Playing Game” where you take on the role of a mythical person in a fantasy world. If this sounds interesting, you should look at a game called “Summoner” which places you as a man named Joseph who has a strange gift. He can summon demons and because of this has become an outcast. Once he summoned a demon which destroyed his whole village. Now an evil man is calling him “the chosen one” and wants to capture him because of this gift. Summoner sells for $30. Another game, perhaps the most popular, is “Baldur’s Gate.” This game is quite large and comes on six CD disks. This is a medieval fantasy game where you need to put together a group of adventurers to travel through the realm in order to fight treachery and evil. Baldur’s Gate sells for $30.

Pinball and card games

Perhaps you like the classic pinball machine. Though not the same as the real thing, your Mac can get fairly close. “Pro Pinball Fantastic Journey” is a pretty realistic pinball simulator. It costs $25. Another realistic simulator is “Jinni Zeala” which costs $25.

If card games are something you enjoy, it’s hard to beat the real thing with real opponents. But if you’re alone and have some time to kill, “Colin’s Classic Cards” is just what you need. Colin’s Classic Cards sells for $10.
Note: don't confuse *Myth* with *Myst.* *Myth* is a strategy game where you control a small army in a battle. *Myst* is a 3D puzzle adventure with riddles to solve and worlds to explore.

**Strategy games**

In my opinion, the best type of game is a strategy game. This is because you can play either against the computer or against a human opponent. Computer strategy games are somewhat like Chess but with much more flexibility. My favorite game is “*Myth*” which allows you to control a small army of troops. Battle formations are very important as are understanding how the skills of your troops compliment each other. “*Myth III*” is what is currently available and sells for $50. Another interesting game is “*Stronghold*” where you design your own medieval castle and try to keep others from destroying it. Your castle architecture can be put on the Internet for challengers to try to destroy. *Stronghold* sells for $35. A game which is somewhat a cross between a battle game and a fortress building game is “*Warcraft.*” *Warcraft* sells for $60.

**Online games**

Many games can be played against an opponent who is connected to your Mac over the Internet. In the past, this was a little problematic because you could only play with your circle of friends, and more often than not, they would be busy when you wanted to play. Today there is a free service named “GameRanger” that will connect you with other Macintosh gaming enthusiasts from around the world. You can practically play anytime you want, day or night. Not to confuse you but I’ll put a Web site address here so that you can connect to the GameRanger service. When you read the chapter titled “How do I look at Web sites?” you’ll learn how to use the following Web site address:

www.gameranger.com

There are some games that were designed specifically for the Internet. They build a virtual world where you can create a character who advances in abilities and experience over time. These types of online games require a monthly subscription fee so can be quite expensive if you play over the course of one year. Most of these types of games allow you to try out their service for a about a month or so, hoping you’ll be hooked and want to continue playing for a subscription fee. What makes them fun is the social interactions you can have with other people in this computer generated world. You can go on quests together, fight battles and defend the honor of your people. When you play this type of game, you feel as if you are shaping a story from a fantasy novel and the actions your character takes might affect the history and happenings of this virtual world. Examples of games in this category are: “*Lineage,*” “*Shadowbane,*” “*EverQuest*” and “*Clan Lord*” Their Web site addresses are as follows:

**Lineage** → www.lineageus.com

**Shadowbane** → www.shadowbane.com

**EverQuest** → www.everquest.com

**Clan Lord** → www.deltatao.com
Commercial software, Freeware and Shareware

As the title suggests there are three types of software, the main differences between them is how they are marketed and licensed to the customer. It's easy to get them confused, so let's discuss what they are and how they came to be.

Commercial Software are tools which you must purchase up front before using them. Often times you will go to a retail store to buy a box with software in it. In the past, this was a good deal because inside the box would be a large color manual which gave good instructions on how to use your new software. Nowadays for some reason, most software boxes contain little more than just a disk with the software. The manual is in a file on the disk. Sounds crazy but most of the time we have to print a manual for new software we purchased at the store. Today most companies allow us to purchase their software over the Internet and ask us to make our own CD once the software comes. The price is usually about the same as what we'd pay if we went to a retail store and picked up a box, so the only advantage here is that you can get your software instantly without having to make a trip to the store.

Freeware is software which you don't have to pay any money for and can use for as long as you like. The company or person who created this software still owns the rights to it. This means that you can not turn around and sell this software to other people or if you do, the creator can legally sue to enforce that this software must remain free. Freeware exists for many reasons. Sometimes a government or university puts resources into developing a tool then allows everyone to benefit from their work. Large companies will sometimes release certain software applications for free as a marketing gimmick to attract attention or simply because they couldn't think of a good way to market the product but have had some requests for the software. Lastly, individual computer hobbyists will create free software just for the joy of tackling a technical problem. Many of these people request that you send them a postcard and some words of praise if you like their software. That's why Freeware is sometimes called "Postcardware."

Shareware is software created either by an individual or by a small group of people which will sometimes form a company. Because their funding is limited, they usually can't afford to put their software creations in boxes and stock them on retail store shelves. Instead, they allow people to freely copy and pass around their software to let new customers try it before they decide to buy it. Most shareware authors allow you to use their software for a month to test it out. At the end of the month, you must decide if the software has value and if so, pay a licensing fee. Otherwise, you must remove the software from your computer. This is a moral issue and nobody is going to force you to pay. Even though the creators of the software may have a

When software is purchased on the Internet, you usually do this by giving them your credit card number. If this bothers you, I suggest you open up a credit card account with a $500 limit to be used for Internet purchases. This way should something go awry, you are not hurt too badly. Some people say that most credit cards are insured against theft; however, to play it safe just create an account with a low limit.

Postcardware - free software in which the author asks for a note of thanks if you enjoy her or his product.
Public Domain - software which is free to be used for any purpose by absolutely anyone.

According to US law, all software falls into the category of public domain after seventy-five years since its introduction.

**Public Domain** software could be considered a fourth type. It is not common enough to be considered a major category; however, it is important to understand it in relation to the others. Software which is in the public domain means that it is available for anyone to do anything with. This means that you can take it and sell it or you can create new software based on it. Sometimes people mistakenly think that shareware or freeware are in the public domain but this is wrong. All software, after seventy-five years from the date of its creation, will eventually become public domain according to the courts of the USA. Normally after ten years though, a company will have completely stopped supporting a certain software title and most people will not be interested in using it. So in some cases, a company or software creator will explicitly put their software into the public domain well before the seventy five year time limit.
What is software piracy? software pirates?

Many famous and romantic swashbuckling stories have been written about pirates. We have fanciful ideas of talking parrots, peg legs, eye patches and men who run around yelling “Arrrrgh!” The truth is the real pirates and swashbucklers of yesteryear had a rough life. Most of them died quite young (perhaps by walking the plank). Today, pirates are not just people down on their luck but people like you and me trying to save a buck.

Software piracy is the act of taking commercial software, copying it, then selling it to people. Anyone who buys or sells this type of software is deemed a software pirate. It is never ok nor legal to take and use software this way but many people do. When students and home users practice software piracy, it is often tolerated but not liked; however, if any company or corporation is found to be using software which has been pirated, they will need to pay a stiff penalty.

If you are a student who would like to use a commercial software title, you should check and see what the educational pricing is. Sometimes your school will be able to sell you the software at a special price and also the company who created the software may be able to sell you the software for fifty percent of the retail price or even better. I’m not talking about young college kids either. None of us are ever too old to take a course or two at a community college or night school. That is enough to count towards an educational discount.

The rest of us might be able to do well with a year old version of a particular piece of software. You can purchase used software at swap meets. Check the later part of this book for the section which talks about Macintosh User Groups. Alternatively, look around for shareware that might be roughly as good or perhaps even better than the commercial software you were going to purchase.

Try as hard as you can not to succumb to software piracy. It is all so easy to copy your software on your Mac and give it to other people. Keep this kind of behavior to a minimum and actively support the people who create the tools you use everyday by purchasing their software.
DIGITAL HUB

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Music, photography and motion pictures play an important role in our lives. Human beings have been singing, dancing and drawing pictures for ages. As technology advances, we find new ways to express ideas as well as capture our memories. This is why cameras and television sets were invented because they provided us with fresh opportunities to tell a story, share a moment or a feeling.

In the past six or seven years, there has been a large number of digital gadgets introduced: there's the digital audio disc (or CD, compact disc), the digital camera for taking snapshot photographs, the digital video camera (Mini-DV) for recording movies and the portable MP3 digital music player. We will discuss all these digital gadgets in this chapter but for now, let's just take the audio CD as an example. The audio CD replaced both the vinyl record and the cassette tape. A vinyl record has great sound quality but it diminishes over time. This is because the grooves get worn where the needle rubs against them. The audio quality of a cassette tape is ok but over time, the tape goes bad or gets twisted. For all practical purposes, we can all agree that the sound quality of music played from a CD is superior, and it doesn't decline over time. Why is this? It is because a digital format puts information in a series of on/off pairs that form a code which a computer can read. Just like it is blatantly obvious for us to tell if a light is turned on or off, it is equally obvious for a computer to read information which is ordered in a series of on/off pairs. So obvious, in fact, that the chances of the computer reading the code wrong are next to none. A standard household stereo system actually has a small computer inside whose only purpose is to read the digital information on a CD. The computer inside your stereo allows you to play a CD but what if you want to copy a song? or make your own CD of your favorite tunes? For this, you'll need a full blown computer, such as a Macintosh.

Though digital gadgets have been around for a number of years, it wasn't until Apple took an active role that normal people could actually manipulate their digital content. Apple has designed the Macintosh to be the digital hub meaning the place where you connect all your digital devices. With a keyboard, mouse, large screen, Internet connectivity and special software, the Mac allows you to compose and modify your digital information in ways I can't even begin to brag about until you turn the page and read this chapter.

The computer may have started out as a large glorified adding machine but due mostly to Apple's efforts, it has evolved into a multifaceted tool good for a wide range of uses. The first Macs gave us the ability to write papers and create art. The NeXT gave us the WWW. Now with the current Macs, we can develop a digital lifestyle.

Digital hub - another word for the Mac when you think of it as a way to connect and fully utilize all of your digital gadgets.

NeXT - the successor of the early Macintosh but its OS has evolved into Mac OS X. Steve Jobs has been the driving force behind the first popular personal computer (Apple I), the first graphical computer (Macintosh 128k), the first easy to use Unix (NeXT Cube) and now the first digital hub.

WWW - World Wide Web. It is like a never ending newspaper with text, pictures, audio and video. The concept for the WWW was first implemented on the NeXT computer.
Digital cameras and iPhoto

Photography is important. Using your Mac, you can do some neat and wonderful things with your pictures. In this chapter, we look into what it means to work with photos on your Mac.

In just the past three or four years, a new type of camera has come on the market called a digital camera or sometimes just digicam for short. In essence, anything with the word “digital” attached to it means that it has become computerized or made to work well with a computer. The real meaning is that information is stored in on/off pairs which form a fixed pattern that a computer can read. A digital camera works by capturing light with a sensor then writing down image information to a file. Later you can transfer this file to your computer.

One of the biggest advantages to using a good digital camera is that you can immediately review the images you take. On the back of the camera is an LCD display, just like what most Macintoshes use for a display. Not only can you review the last image you took, but you can also review all the images stored inside the camera. You are able to selectively delete images which you don’t like.

Surprisingly, digital cameras take very nice pictures at low light. You might want to try using them even without a flash indoors. This is very nice because many film cameras have a tough time with this.

With a digital camera, you need to purchase computer RAM to hold the images. This can get expensive but you only need to do it once. You can use this RAM again and again which means you never feel bad about snapping a picture. With traditional film cameras, you always have to buy more film and pay a premium for developing the film, so you must ask yourself “Is this shot worth it?” With a digital camera, you will just fire away without worry, and you can review your shots immediately.

An important aspect in searching for a digital camera is the number of megapixels. This number represents how large an image can be blown up when it is printed. My suggestion is to buy a four-megapixel camera or at a minimum go with a three-megapixel camera. This is because with three megapixels, you can just barely print an 8 x 10 photo and if you try to blow it up more, it won’t look nice. Good four-megapixel cameras cost between $500 and $700 dollars.

If optimum image quality is of greatest importance to you, I can suggest three cameras: 1) Casio QV-4000, 2) Olympus C-4040, 3) Canon PowerShot G2. These are all very good cameras and they are fairly small as well. They are not so small that you can put them in your purse all the time or carry...
them in your pocket but they are still convenient to carry with you on trips. They all offer an impressive array of features and excellent image quality.

If the size of the camera is more important to you, I can suggest the following three cameras: 1) Casio QV-R4, 2) Olympus D-40, 3) Canon PowerShot S40. Each of these cameras perform very well and take excellent pictures. All of these cameras are small enough that you might want to carry them with you all the time. The small size means that you have to sacrifice certain features but if all you care about is pointing and shooting, you’ll never miss those features.

My wife owns a Casio QV-R4 and loves it. Even though this camera is small, it still offers an impressive number of features, making it quite unique. A very nice aspect of the new Casio line of cameras is that in addition to having both a fully automatic point-and-shoot mode and fully manual mode, they also have something Casio calls a “best shot” mode. This makes a good compromise between fully automatic and fully manual. What it does is smartly use the built-in LCD on the back of the camera to let you view many different shooting environments. If you are taking a tricky nighttime picture, they have several “best shot” modes to choose from which show an example on the LCD of what kind of picture you would like to achieve. Picking one of these built-in modes will make manual adjustments to the camera to give you a great shot. I guess you can think of “best shot” mode as a cheat sheet for how to manually configure your camera for the optimum exposure, shutter speed, flash, etc. The QV-R4 has thirty-three best shot selections but the QV-4000 has one hundred.

There are many issues to consider when choosing a camera. Features are one thing but how does the camera feel in your hand? Do you like how the camera looks? Do the controls seem intuitive and logical? All six cameras I mentioned take good pictures. I suggest you check them out at a camera dealer to decide if you’d like to have one.

Good digital cameras are a bit pricey, so here’s an alternative you may not know about. Some film developers can give you a CD disk for a minimal additional charge when you get your pictures developed. This means that using your standard 35mm camera, you can easily archive your images for a lifetime and transfer them to your computer. Ask around, see which film developers in your area will provide this service and do it well.

If you’d like to join in the fun and excitement of digital photography but don’t want to spend the money for a good digital camera, there is one other compromise you can make. Kodak produces a film camera called the “Kodak Advantix Preview.” This camera uses film but not the 35mm kind. It uses a relatively new kind called APS or Advantix film. The term APS stands for “Advanced Photo System.” This film is comparable in price to 35mm but you need to look around in your area to see if you have film developing stores which can process APS film. The neat thing about the
Kodak Advantix Preview camera is that it has an LCD on the back. It has two lenses on the front of the camera, one to let light expose the film and another to let light create a digital image. This allows you to get a pretty good idea of what your final picture will look like because as soon as you snap a picture, it shows a copy of it in the LCD. The color and balance will not be exactly the same as the print but it will be fairly close, and you will be able to see if somebody closed their eyes or not. You can only view the image you just took; you can’t go back and review the other photos. When you take your APS film to be developed, you can request to get the optical disk only. This can save you quite a bit of money if you don’t necessarily want to print out the film. The Kodak Advantix Preview sells for about $200.

Now that we have an idea of how to create digital photographs, let's discuss what we can do with them using iPhoto. Apple includes iPhoto with every Mac. It is a really nice and elegant tool.

The graphic shown above gives you an idea of what iPhoto looks like. To start iPhoto, you need to open it from within your “Applications” folder. Do this by first clicking on the smiling Finder icon in the bottom left corner of your screen which is resting on the Dock. Next, if a Finder window is not open, go to “File” then select “New Finder Window.” In the Finder window, click once on the “Applications” icon and then locate the “iPhoto” icon. Double click on the “iPhoto” icon.
In the bottom right corner of the screen, you’ll see a slider. Notice how on the right it shows a large portrait and on the left it shows a small portrait. This lets you know that if you drag it to the right, it will zoom in but if you drag it to the left, it will zoom out. To the left of this control, there are five very important buttons: Import, Organize, Edit, Book and Share.

When **Import** is chosen, the bottom of the window changes to allow you to transfer photographs from your digital camera to your Mac. When your camera is connected, it will tell you, and when it is not connected, it will say “no camera connected” as it does in the graphic above. Simply clicking the **import** button in this section of the window will cause the images to begin transferring into your Mac. As they move, you will see a preview of each picture and a status bar slowly fill up letting you know how much longer it will take to complete. If you check the box “Erase camera contents after transfer,” it will do just that. I tend to prefer to use a function on the camera to erase the images but this method works well too.

Almost any good camera will automatically connect to your Macintosh without any problems and be compatible with iPhoto. There is no software to install. Just plug it in and away you go. Some cameras, such as the Casio, will also show a disk icon on your Desktop. If your camera does this, you can view and move images directly in the camera using the Finder. I recommend not doing this and just using iPhoto; however, you do have this option. You can even put other files there and use your camera as a simple way to transfer files. Before disconnecting your camera cable from the computer, you should drag the disk icon to the trash. This has the effect of ejecting the disk. Even though there is no disk to really eject, it lets Mac OS X know you are done transferring files with your camera.

Once your images have been moved into iPhoto, you should consider making a new folder to put them in. Go to “File” at the top of your screen and choose “New Album.” Now you can drag and drop your photos into this new folder. If you hold down the “shift” key of the keyboard while clicking photographs, you can select more than one. When many photos are selected, simply clicking and dragging any one of them will move them all.

If your photographs are on optical disk, it is fairly easy to bring them into iPhoto. First, stick the disk into your Mac then double click on the disk icon to open a new Finder window. Select all the files in your optical disk then drag them to the album window of iPhoto. What iPhoto will do is create a new Album with all your pictures. An easy way to select all the photos is to go to the “Edit” menu at the top of the screen then choose “Select All.”

Most cameras work with iPhoto without you having to install anything additional. Just plug your camera into your Mac with the USB cable.
When Organize is chosen, the bottom of the window takes on a different shape as shown here. Clicking on different folders will show you the contents of the album. You can use the zoom slider to show more images at a time or less depending on if you zoom in or zoom out. Notice how the section at the bottom of the window shows some words like “Family,” “Kids” and “Vacation,” however, many of them are blank. When clicking on any images or shift-clicking a group of images, you can then designate if this is a “Family” photo by clicking on the word “Family.” To be honest, I don’t think this level of designation is useful. I can see creating photo albums to organize your collection but selectively going through and labeling which photo is “Family” and which one is “Vacation” (or both) seems like overkill to me. To assign these attributes to your photos, be sure that the vertical slider in the bottom left corner of the window is in the “Assign” position then click on the photo and finally click on the designations you’d like for that photo. Later, you can move the vertical slider to the down position which means it’s in “Search” mode. If you click “Show all,” all photos in the album will be displayed. If you click on “Family,” only those photos with the “Family” attribute will be displayed. To add more of these designations or to change them, go to the “Edit” menu at the top of the screen and choose “Edit Keywords.”

When you click on a particular photo, there are a few things you can do. One is you can change the name of the photo. Do this by typing a new name in the “Title:” box on the left side of the window. You can also type in some comments. Click on the “i” info button below the “Title:” box; click it several times. The first time you click you’ll be able to view and add comments. The second time you click all the info will be hidden. The third time you click it will return to normal. To get extra information about a photo, go to the “File” menu at the top of the screen and choose “Show Info.” When you do this, a new window will appear to tell you information like what type of camera created this photo, what the shutter speed was, what the F-stop was, etc. at the time the picture was taken.

First, click on a photo then click on Edit and the photo will then enlarge to fill the space on screen. The above options will appear in the bottom portion of the window. Starting from right to left, let’s look at the “Next” and “Previous” buttons. These simply move you to another image in your album. It saves you from having to click Organize then Edit again.

The “Black & White” button makes your image...well, black & white.
The "Red-Eye" button can help you eliminate red color in the pupil that sometimes happens with indoor pictures taken with a flash. You should zoom in and then draw a box around the pupil to take out the red color. I've found that many of the smaller cameras seem to produce a white fire ball looking spot in the pupil rather than a red spot. Perhaps we can call this phenomena "demon eye." Generally speaking, try not using your flash indoors if you can help it. You might be surprised at the quality of your pictures.

The "Brightness / Contrast" sliders can help you adjust the quality of your picture. Generally speaking, I find the upper slider (the brightness one) more useful. It does a good job of lightening up a dark image.

When you "Crop" a picture, what you are doing is cutting out a chunk of it and throwing out the rest. You should take some care in doing this because you should pick a common size, such as 4 x 6 or 8 x 10. That's because you'll probably want to make prints sometime later, and it ideally should be at a typical size. Choose different ratios by selecting options from the "Constrain" popup menu. Then take your mouse and create a box over the section you want to crop. You can move the crop box by clicking in the center of it or create a new one by clicking outside of the crop box. When you're ready to cut out part of the picture, click on the "Crop" button at the bottom of the window.

When choosing the Book option, you will be presented with a picture book which you can edit. Later you can request for your book to be printed as a hardbound coffee table type of book. It costs $30 for the first ten pages then three dollars for each extra page. You can edit the parts of the book but to make a big change to the layout of the book, you should choose a new "Theme:" in the bottom left corner of the window. Current choices are: Picture Book, Catalog, Classic, Portfolio, Story Book and Year Book.

In the "Page Design:" section, you can change the number of pictures to put on a particular page. You can put an introductory page which has no pictures, just text, or you can put anything from just one picture or up to four pictures in one page. The changes you make are immediately visible.

Clicking the "Preview" button will show a larger window that will give you a pretty good idea of what your finished book will look like.

When you are done creating your book, you can go to "File" and then "Print" if you'd like to print it on your printer. If you'd like to create a professional hardbound coffee table book, you'll need to choose Share and order it online with your credit card.
When choosing the Share option, you'll get the colorful display at the bottom of your window as shown in the graphic here. Let's start from left to right discussing what's here.

The "Print" button will print the window above it. If this happens to be a single picture, it will print that picture. If it is showing a book, it will print the book. If a picture ever shows an exclamation mark in front of a yellow triangle, iPhoto is warning you that printing this photo may not look so good because the image is being blown up too much. If you are using pictures taken with a four-megapixel camera, you will never have this problem.

The "Slide Show" button will present a slideshow on screen using the photos from the currently selected album. You can change the music it plays by going to the "iPhoto" menu at the top of the screen. From there, you can select "Preferences."

If you shift-click a few photos in the Organize view then switch to the Share view, you can then click on the "Mail" button to Email the photographs to your friends. iPhoto will ask you what size to make the photo. I suggest 640 x 480. This will produce an image that is plenty large to view on the computer without taking too long to transmit over Email.

Clicking the "Order Prints" button will allow you to use your credit card to order professional photographic quality prints to be made and shipped by postal mail to your door. You have to be connected to the Internet to do this, and it is probably better if you had something faster than a dial-up connection. If it doesn't work the first time you click the "Order Prints" button, just try again. It could've been an intermittent glitch.

If you'd like to order a hardbound coffee table type of book, you should first use the Book option to compose your book. After composing your book, click the Share option then click the "Order Book" button shown in the bottom part of the window. You have to be connected to the Internet to do this and it is probably better if you had something faster than a dial-up connection.

Clicking the "HomePage" button will create a Web site based on your current album and place it at an account at Apple. You have to pay $100 per year for this service. Apple is currently calling it ".Mac" but it used to be free and at that time it was called "iTools." We talk more about .Mac later in this book but basically, it is the simplest way for you to create your own Web site.

Clicking the "Desktop" button will make the current photograph show up as a background image on your Mac's Desktop.
Clicking the “Export” button is very useful as it will help you move your photos out of iPhoto for some other purpose. It gives you three options: File Export, Web Page and QuickTime. Choosing “File Export” will allow you to take groups of photographs and save copies of them somewhere else. Perhaps you’d like to burn them to optical disk for safe keeping. You can choose the size of your pictures. Picking smaller sizes is good for Web sites but for safe keeping, you should keep the pictures their original size. Choosing “Web Page” will make a simple Web site with all the photos you’ve currently selected. This could be useful when you have your own Web site or if you just wanted to burn the Web site to an optical disk to make it easier to view the images if you were to give the disk to a friend. Choosing “QuickTime” will use Apple’s movie making technology called QuickTime to produce a slide show that anyone can play. You could save the slide show to a CD then share it with a friend.

Now you know just about everything you need to know to start making the most out of your digital pictures and iPhoto; however, there is still one more thing we should discuss. Do you know where your digital photographs are being saved when you use iPhoto? I bet you’ve been wondering. It’s important to know because it’s not just magic that iPhoto is able to display and manipulate these photographs.

Open up a new Finder window. Do this by first click on the smiling Finder icon in the bottom left corner of the screen (resting on the Dock). If a Finder window is not open, go to “File” at the top of the screen and select “New Finder Window.” In the Finder window, click once on the “Home” icon. Next, click once on the “Pictures” folder. Inside of the Pictures folder, you will find a folder named “iPhoto Library.” This is the place where all the pictures are stored!
A note about the relative speeds of USB and FireWire. FireWire was developed by Apple and has a speed of 400 Mbps (Megabits per second). A new version of FireWire has been released that can utilize 800 Mbps. USB version 1.1 is only about 12 Mbps; whereas USB 2.0 is functionally about 400 Mbps (though on paper it is 480 Mbps). For an idea of how fast 400 Mbps is, it is approximately 50 Megabytes per second.

Film cameras and scanners

Not everyone has a digital camera. Even those of us who do have them, still have many photographs which were produced from film. What’s the answer to converting them into digital photographs? Scan them in!

If you purchase a flatbed scanner for your computer, what you’re really getting is something similar to a copier minus the ability to print. What you have is a glass bed which you can put your photographs on. When you lower the lid, a beam of light will run across the photos (just like a copier) and copy the information to your computer. The image will show up on your screen at which point you can then save the image.

Using a scanner to read your images into a computer can produce very good pictures and is fairly easy to do. The only problem with it is that it takes a very long time. Not only is there the changing of each photo and redoing the scanning process but there is also the amount of time it takes for the light to run over the image and for the information to be sent to the computer. After scanning five pictures, you may feel slightly bored and tired. After scanning ten, you’ll feel worn out.

For new photographs that you take with a film camera, it is very important that you find a developing studio which can make optical disk images of your film on a CD for a reasonable price. This will save you lots of time and physical frustration.

If you’re in the market for a scanner, I suggest purchasing one from Canon. The Canon line of scanners has a good history of supporting Macintoshes and providing good software. The Canon LiDE 30 costs $80, is very light, and produces good scans. The Canon LiDE 50 has USB 2.0 but only costs $20 more. This could be money well spent because the newer version of USB is roughly the same speed as FireWire. Scanning takes a lot of time and anything which shortens that time is worth the price. Unfortunately, very few Macs sold today can utilize USB 2.0; they will instead use the LiDE 50 as if it was connected at USB 1.1 speed. Of course, two to four years down the road, you might purchase a newer Macintosh and then you would be able to utilize the extra speed.

Once you have scanned your photographs into your computer and saved them in a folder, you can then transfer them to iPhoto. Just open up iPhoto from the “Applications” folder and then drag your folder onto the part of iPhoto which shows the albums. You’ll need to wait a few seconds for the photographs to get imported but then you will be done.
Music, recorded books, iTunes and iPod

Your Macintosh comes with some great software for managing and listening to music. The software is called “iTunes.” With it, you can do these basic things: organize your music collection, create custom music disks, listen to Internet radio broadcasts and listen to recorded books.

The iTunes software title is located in your “Applications” folder. Click on the smiling Finder icon in the lower left corner of your screen. If a Finder window is not already showing, go to the “File” menu at the top of the screen then choose the “New Finder Window” option. In the Finder window, click on the “Applications” folder, inside it you’ll find “iTunes.” Double click on the iTunes icon. When it opens, you’ll see something like what is shown here at right.

Internet radio stations are actually very similar to FM/AM radio broadcasts. The main difference is that instead of using radio waves to broadcast, they use the Internet. This means someone could create their own radio programming from anywhere on the planet, and people from across the globe can tune in. Most Internet radio stations are run by hobbyists. This is because the costs of the endeavor are not too far out of reach. The quality of these broadcasts is as good or better than what you can find on your local FM/AM radio.

To listen to an Internet radio broadcast, locate the “Source” portion of the iTunes window. This is located on the left hand side. You’ll use it to select what type of music choices you’d like to view. Click on “Radio” in the “Source” window. Soon you’ll see many choices show up, such as “60s Pop,” “Classical” and “Country.” Be sure to drag the blue scroll bar to see all choices that are available. Let’s just say you wanted to listen to “Blues” music. Notice there is a black triangle to the left of “Blues.” Go ahead and click on that triangle once then wait a second for it to rotate and list some choices of radio stations for you to tune in. If for some reason you get an error message from iTunes at this point, just quit iTunes and retry these steps again. I’m not sure what causes this problem but I’ve had it happen to me before. Under “Blues,” you’ll see several stations to choose from. Try out “BluesOnAir” for example, just by double clicking on it. In a few seconds, you’ll be hearing a live broadcast.

Organizing your music collection is nearly painless and quite fun. Take a CD from your music collection and stick it in your Mac’s optical drive. In a few moments, your music disk will show up in iTunes. Chances are iTunes
iTunes can find the names of most tracks and albums automatically. This magic is made possible by a special computer on the Internet which your Mac queries and asks “What CD is this?” Therefore, you need to be connected to the Internet for iTunes to be able to detect what CD has been inserted.

When iTunes copies music to the hard disk, it saves the music files in MP3 format. That is “MPEG 1 Layer 3” audio. This format makes each file much smaller but still retains a great deal of clarity. Most people can’t tell that the music file is compressed.

You may listen to your music disks just by double clicking on any track name. Instead of playing music directly from the CD, you may want to copy your music to your Mac’s hard disk. This is quite easy. Just click the “Import” button in the top right corner of the iTunes window. My suggestion is to slowly move your entire CD music collection onto your hard disk. Importing the music to your hard disk takes several minutes per disk, so just do a few disks every day; otherwise you’ll feel exhausted. You can store one thousand songs on every five gigabytes of disk space. Since all new Macs have well over thirty gigabytes of space, this means that unless your collection of music is otherworldly, you’ll be able to put all your music into your Mac!

will be able to figure out what disk you inserted all by itself. This is no small feat. Normally, with any typical stereo system, the only choices you have are Track 1, Track 2, Track 3, and so on. With iTunes, it probably knows the names of each track and even the name of the album. The graphic at left shows what happened when I inserted Celine Dion’s music CD entitled “A New Day Has Come.”

Finding the names of all the tracks is not magic. You need to be connected to the Internet for it to work and it won’t always work. What happens is you’ll see a window show up after you insert your CD which says “Checking CDDB.” This means it is checking the “CD Database” for the name of your album and the names of all the tracks contained on it. The CDDB is a public database located on the Internet. It works because people before you have purchased the exact same music CD and took the time to write down the names of all the tracks as well as the name of the album then update the CDDB themselves. If you have a rare CD, such as one in a language other than English or one created by a local band, what you’ll see in iTunes is just a bunch of un-named tracks. If you like, you can give each track its correct name, so that later when you want to listen to a song, you don’t have to consult some slip of paper to find out which track you want. After going through all the work of typing the names of all the songs, you could then update the CDDB in the case that you think somebody else out there on the Internet might want to listen to this disk too. Just go to the “Advanced” menu at the top of the screen and select “Submit CD track names;” then all your work will be saved for the next person who would like to simply stick in their CD and have the track names automatically shown.
After you have imported two or three of your music disks to your Mac, click on "Library" at the top of the "Source" listing. Your iTunes screen will then look similar to what you see here to the right.

iTunes has already organized all your music. If you want to find all songs by Cher, just scroll down in the "Artist" list and click on "Cher." Immediately, only songs by Cher are shown. The same is true of albums. To find all the songs which are part of a particular album, just click on a name in the "Album" list. To show your entire library, be sure you have "All" artists selected and "All" albums selected as shown in the picture here to the right. If you know the name of the song you'd like to listen to, you can type part of the song's title in the "Search" field at the top right corner of the iTunes window. To listen to a track just double click on the track's name.

Playlists are groups of music tracks which go along with a particular theme. I made three playlists for myself "Happy/Feel Good," "High Energy" and "Moody." To create a playlist, move your mouse cursor to the top of the screen and choose "File" then "New Playlist." It will show up in the "Source" list. To put tracks in your playlist, just drag individual tracks from your library onto your playlist. In the picture at right, I'm dragging the "Purple Rain" track to the "Moody" playlist.

Making playlists not only makes it easy for you to listen to favorite songs on your Mac, but it also helps you take those songs with you wherever you go. For example, you could make a playlist named "High Energy" then put in all the songs which you'd like to listen to while you are walking or working out at the gym. You could easily create a CD with just those tracks then take the CD and play it with any standard stereo equipment. This is the kind of tool aerobic instructors could kill for! To make your own CD, just click on the playlist then click the "Burn CD" icon in the top right corner of the iTunes window.
Smart playlist - a list of songs which is created by a set of rules or criteria. You don’t pick specific songs to put into this type of list, rather you choose qualities such as how often a song is played or the year in which the song was recorded. This makes it easy to make a playlist contain only songs from the 60’s for example.

Smart Playlists are similar to a normal playlist but are slightly more complicated to use. Most people will be served fine by normal playlists but these smart ones can do some interesting things. For example, iTunes comes with several smart playlists already, such as “Top 25 Most Played.” A smart playlist doesn’t need you to drag tracks to it because it will automatically add songs to itself based on some criteria. Your iTunes database keeps track of many things you may not be aware of, such as how often you listen to a particular track. This is what makes smart playlists possible. To see how a smart playlist is constructed, click on it once then go to “File” and select “Get Info” from the menu at the top of the screen. A new window will open up showing you what attributes the playlist is using to automatically update itself. To create your own smart playlist, go to “File” and then “New Smart Playlist.”

Recorded Books are simply popular books which have had someone read them out load and recorded. Blind people and those with certain disabilities can get these kinds of books from a special library practically for free. Many other people like this type of book because they can listen to them while they commute to work or school. Some people simply like to listen to a book rather than read one even when they are relaxing at home. To purchase books on audio cassette is often fairly expensive.

A new company named “Audible.com” now provides recorded books which you can grab through the Internet and use with iTunes. Unfortunately, you do need to pay for this service; however, it is probably substantially cheaper than having to purchase audio cassettes. Using iTunes, you can listen to the books directly or burn them to optical disk, so that you can take them with you. The cost of using Audible.com is $15 per month. You can phone them at 1-888-429-5575.

The iPod

Apple markets a portable music player called the iPod. It is the size of a pack of cigarettes which means it will easily fit in your pocket. The bulk of the gadget’s size comes from its hard drive. The hard drive inside the iPod is nearly identical to the one inside your Mac, only smaller. On the side of the iPod are a couple of sockets, one to plug in some headphones and the other is used to connect to your Mac. The top of the iPod has a large LCD screen and an ingenious selection wheel for selecting what songs you want to play. The wheel has a nice tactile feel which lets you quickly scroll through the list of songs you have stored on the iPod.
The usefulness of the iPod is not readily apparent, and it may not be something all of us need. What it does, very simply, is allow us to carry our entire music collection with us all the time. When you connect the iPod to your Mac, it automatically copies all of your music and playlists from iTunes as well as charges the internal battery of the iPod at the same time with just one cable. The iPod connects to your Mac at an extremely fast speed. It will normally take just a few seconds to transfer any new music titles it happens to find on your Mac.

With iTunes, it is very simple to create your own music CD disks to take with you. While this is nice and very convenient, it does however take time to burn a CD. Each CD does take up space, not to mention you need to find a CD player in order to listen to the music on a CD. Portable CD and cassette players work well but their batteries drain quickly and when compared to an iPod, they seem bulky. You certainly can’t stick one of those in your pocket. In contrast, the iPod has a battery which lasts ten hours and automatically charges itself when it is connected to your Mac. It’s possible to put your whole music collection in your pocket plus perhaps a few files and documents if you ever need to do so. There is no doubt about it. The iPod is a great solution for those people who are crazy about music.

Apple currently sells the iPod in three configurations. The main difference is the capacity of the hard drives. For $300, you get the ten gigabyte iPod which will put two-thousand five hundred songs in your pocket. For $400, you get the twenty gigabyte iPod which will put five-thousand songs in your pocket. For $500, you get the forty gigabyte iPod which will put ten-thousand songs in your pocket. So as you can see, the iPod is fairly expensive. Many people would be better off saving their money and making do with burning CD disks in iTunes and purchasing a portable CD player. On the other hand, if you really like your music, go ahead and treat yourself to the greatest portable player on the planet. You can even send the iPod as a classy gift to someone special. If you purchase the iPod directly from Apple, you can request for them to etch a message onto the back side of the case. For example: “For Jules, congrats on your graduation. Love, Mom & Dad.”
Film making with iMovie, iDVD and Toast

Making movies on your Mac is easy, straightforward and rewarding but you'll need the appropriate tools. In this chapter, we discuss what you'll need to make professional quality home movies, the kind that will astound your family and friends.

Mini-DV is both a cassette format and a type of camera. You are probably familiar with the VHS cassette and may have also seen some people carrying around VHS camcorders which are huge movie cameras that can record directly to a VHS cassette. A Mini-DV cassette is very small, not even the size of a pack of cigarettes, but it can hold about one hour of video. These cassettes fit into a special type of movie camera called a Mini-DV camera. The term "DV" stands for "Digital Video." This means that information stored onto the Mini-DV cassette is saved in a computerized format. This is good because you can copy the video from it and make many changes to it without ever worrying about the new version lacking the quality of the original. It also means that the Mini-DV camera can be connected directly to your Mac and is the only gadget you need to get your movies into your computer.

Purchasing a nice Mini-DV camera is a good investment. There are many good companies currently manufacturing these types of cameras but my favorite is Canon and their ZR series of cameras. In fact, any of the cameras in the ZR series do a great job and their differences are relatively minor. There is the ZR, ZR-10, ZR-20, ZR-25, ZR-30, ZR-40, ZR-45, ZR-50, ZR-60, ZR-65 and ZR-70. Personally, I own the original Canon ZR camera which was produced in 1998. All models up to the ZR-50 are no longer manufactured but you may find them for sale from time to time. Prices for cameras in the ZR line range from about $350 to about $700, so it pays to shop around for a good deal. This is a lot of money to spend for a camera but the pictures are so sharp, the cameras are really portable and the ability to move video into your Macintosh to edit it is priceless.

iMovie is the software which Apple includes with every Mac to allow you to edit movies. With it, you can cut out boring parts of your footage, and you can add music as well as sound effects. You can add subtitles with iMovie and create professional transitions.

iMovie is located inside of your “Applications” folder. To open iMovie, first go click on the smiling Finder icon in the bottom left corner of your screen. If a Finder window is not open, go to the “File” menu at the top of the screen and select “New Finder Window.” In the Finder window, click once on the “Applications” folder and locate “iMovie.” Double click on the iMovie icon. In moments, iMovie will present you with a dialog asking you where to create a new iMovie project. Go ahead and create one someplace on your hard disk, perhaps your Desktop. Once you’ve created your project, iMovie will look something like the picture on the facing page:

Note: You can use a Mini-DV camera for video conferencing with iChat AV and iVisit. This works really well but you may find it better to have a dedicated video conferencing camera. Mini-DV cameras are incredibly useful. Do whatever you can to get your hands on one!
The example above is from one of my projects where I'm editing footage taken in New Zealand. Notice how iMovie takes over your whole screen. It needs to so that it can give you enough room to see what you are editing. The number of controls and buttons may be bewildering at first but as you slowly start to explore them, you'll realize they are fairly logical and pretty easy to work with.

Basically, your work area is divided into three parts: You have the video window taking up most of the space, then you have a place to store clips on the right and lastly on the bottom, you have a type of timeline where you can arrange your entire video.

Look at the bottom left corner of the video window. You'll see a blue slider which you can slide toward an icon of a DV camera or toward an icon of a film strip. Use this to select if you want to connect to your camera in order to grab new footage or if you want to edit your movie. Your Mini-DV camera connects to your Macintosh with a FireWire cable. Connect the cable to your camera and then your Mac. You can then click on the slider to tell iMovie that you want to work with your DV camera. In the video preview window, you'll see buttons to go forward, backward or play. Those controls actually manipulate the tape in your camera. After you connect your camera to your Mac and turn it on, you don't have to touch it again! You can
One hour of video footage will require fifteen gigabytes of disk space. Technically, it only needs thirteen gigabytes but it's better to have a few gigabytes to spare. If you plan to edit movies on a regular basis, you should invest in an eighty gigabyte or even a one hundred twenty gigabyte hard disk. Having a large disk means you can have a few movie projects on your disk at the same time.

Control the camera completely from within iMovie. What I recommend for you to do is to rewind the tape to the beginning. Once that is completed, simply click the big “Import” button then just wait for all the video to transfer to your Mac. For one hour of video footage, you will need at least 15 gigabytes of disk space. Look below the clip window, it will show you how many GB (gigabytes) you have available. Something remarkable happens as the video is imported. You will notice that small “video clips” are put into the clips window. That is because iMovie can understand when you started shooting a scene and when you stopped shooting a scene. In other words, it can realize when you hit the record button on the camera.

One word of caution when you hook up your video camera to your Mac with iMovie. When you turn the camera on, be sure to put it in “play” mode. If the camera is in “record” mode when you ask iMovie to connect to the camera, you will see live video of the room you are in, and you’ll probably also hear a loud screeching noise come out of your speakers. That noise is called “feedback” and happens whenever a microphone is too close to the speakers. It is ok to record from the camera while it is in “record” mode but you should first turn off your Mac’s speakers. Normally, what you want to do is copy the footage from the camera’s tape, so be sure to put it in “play” mode and then let your Mac control all the rewinding, fast forwarding, etc.

Once you’re finished importing your movie, click on the blue slider button in the lower left corner of the video preview window, so that it points towards the strip of film. This signifies that you are ready to start editing your footage.

Notice how you have many different clips in the right hand side of the window. Clicking on any clip will display it in the video preview window. You can use the controls in the video preview window to preview the clip. You may also drag the white triangle to jump to parts of the clip. Perhaps there is a portion of the clip which you’d like to remove. Just drag the white triangle to divide the part you want to keep from the part you want to get rid of, then go to the “Edit” menu at the top of the screen and choose “Split Video Clip at Playhead.” When you split the video clip, you are breaking one clip into two. You may then throw away the part which you don’t like by dragging it to the trash can shown in the iMovie window.

To assemble your movie just drag the clips down into the timeline at the bottom of the page. You can drag clips in and out of the timeline as you see fit. When you are ready to view your creation, first click somewhere in the blank space between the timeline and the video preview window. To see the movie played in the video preview window, click on the large round play button which has a triangle in the middle. Instead, if you’d like to view the movie stretched out across your entire screen, click the slightly smaller play button.
Adding transitions, sound effects and subtitles is fairly straightforward. Notice how below the clip window there are five buttons: Clips, Transitions, Titles, Effects and Audio. Usually, the “Clips” button is the one that is first in effect which is why it is blue; however, clicking on any of the other buttons will give you new options. For example, clicking on the “Transitions” button will replace the view of all your clips with a listing of different types of transitions which are at your disposal. For example, when moving from an outdoor scene to an indoor one, you might want to use a cross dissolve for a dramatic effect... without a transition, the change of scenery might occur too quickly and be disconcerting for those watching your film. Just drag the cross dissolve down to your timeline and drop it between two clips. After several seconds of work, iMovie will finish the cross dissolve. All the other buttons in this section work in a similar way — choose an option from the list and drag it down to the timeline. Go ahead and experiment here. This is quite a bit of fun. I have seen a few companies starting to sell iMovie add-on software which will let you do even more types of effects but what comes with iMovie is plenty to get you started and enough to leave you speechless.

You now know the fundamentals of what it takes to edit a movie on your Mac but here comes something just as important, getting your movie into a form that others can easily view. Of course, you can show people your iMovie project and play it stretched across your full screen; however, this project takes up lots of space on your hard disk, and it would be nice put the movie into a more common form.

The simplest way to prepare your new movie is to save it back to a Mini-DV cassette. Doing it this way will preserve the highest quality version of your movie; it will also allow you to play back your movie on a TV using your Mini-DV camera. For one hour worth of footage, it will take about an hour to go back to your Mini-DV tape. It is a one to one ratio. Put a fresh tape in your Mini-DV camera then plug your camera into your Mac. Next, turn your camera on and into “play” mode. In iMovie, rewind your tape all the way to the beginning. Now go to the “File” menu at the top of your screen and choose “Export Movie...” A new dialog will show up asking you how to export the video. Choose “to camera” from the list and then click the blue “Export” button. Once your movie has finished transferring to the Mini-DV camera then plug your camera into your Macintosh then connect it up to your TV. To record a VHS tape of your movie, simply play from the Mini-DV camera while the VHS machine records the footage. This will take another hour to record one hour’s worth of footage.

Another good way to save your movie is as a file on your hard disk. You can later use this file to put a movie on a CD or DVD. To make a high quality file, go to the “File” menu and choose “Export Movie.” In the dialog
VCD - stands for Video CD. It is a movie format which we have skipped over in America. The quality is a bit better than VHS but not as good as DVD.

VCD is a movie standard virtually unheard of in the United States. We all have used VHS tapes and many of us have VCR players in our homes. We know what it is like to make a trip to a movie rental store like Blockbuster to take home a movie for a few nights. Nowadays, the DVD is starting to gain popularity and fill almost the same niche as the VHS tape did. The picture quality and sound quality are better with DVD. So what is a VCD? It stands for “Video CD” and it is a technology which came after VHS but before DVD. In other words, it is a technology which we Americans have skipped over. Each VCD is actually just a standard CD and can hold about one hour of video. This means that movies need to fit on two VCD disks. The picture quality is comparable with VHS but takes up much less space and is more durable in humid climates. Throughout Asia, if you step into a Blockbuster (yes, Blockbuster is as famous as McDonald’s these days), you will be hard pressed to rent a VHS tape as most movies are available only in VCD and DVD formats. The reason I’ve brought up the topic of VCD is because it is a very good possibility you may want to create your own movies in this format. Blank CD disks are much cheaper than blank DVD disks. Also, a little known fact is that most VCD disks will play flawlessly in a standard DVD player. Not all DVD players are capable of playing VCD disks but the majority of them will. As more and more people get DVD players, you could opt to show movies with VCD technology.

Unfortunately, Apple has not officially blessed the concept of creating VCD movies on the Mac. If they did, there would be a way to easily do it without costing you any money. There is, however, a company named Roxio
which has created a software product called “Toast.” This is a cute name for a useful product. Toast is the best software available for all your CD burning needs. Using Toast, you can take high quality movie files which you’ve exported from iMovie then effortlessly create a VCD movie. The only downside to this story is that Toast is fairly pricey at $80. Roxio also sells another product called “Toast with Jam” for twice as much. I feel that this product is unnecessary since iTunes serves about the same function as Jam.

*iDVD* is Apple’s software for making the slickest movie compilations on DVD disks. The iDVD software comes with any Mac which has a SuperDrive. This makes sense since only those computers with a SuperDrive can write to blank DVD disks.

If you’ve rented a DVD movie before, you’ve probably noticed that the interface is quite interesting and in stark contrast to VHS tape. You know with VHS, all you do is stick the tape in and hit play, perhaps fast forward and rewind as well. With DVD, it can be totally different. Almost any DVD has a chapter selection where you can easily jump to different parts of a movie. When you compose your iDVD video, you can simply choose a background theme then drag and drop movie files from a Finder window into the iDVD window, such as what is shown here at the right.

Click the “Preview” button to see how your DVD will operate on a DVD player. Click the “Burn” button to burn your movie to DVD. For one hour of video footage, it will probably take two hours to burn a DVD disk. It is a one to two ratio. There’s not a whole lot more to say about iDVD because it is easy to use. As long as you have a Macintosh with a SuperDrive, iDVD will be located in the “Applications” folder close to iMovie and iTunes.
MACINTOSH USER GROUPS - PEOPLE HELPING PEOPLE
By far, the best place to turn when you want to learn more about your Mac is a Macintosh User Group, sometimes called MUG for short. These are places all over America and even the world where Mac enthusiasts get together to provide monthly meetings and many activities.

For people who are just starting to learn about computers or who just purchased a Macintosh, User Groups will help you get in touch with the most knowledgeable people. Sure you can go to an Apple Store or call Apple for support questions but what you’ll find there are people with limited experience. A User Group has members who have been using Macintoshes since their first inception. You’ll find people who not only like Macs but also are zealous about them. It is through your interaction with these people that your knowledge will grow by quantum leaps and bounds. It’s a give and take type of relationship. After a few years, you’ll be in a position to share insight with others who are just getting into the Macintosh frame of mind. You’ll find that you are certainly not alone - every day people buy Macs who have never before owned a computer. At a User Group, you’ll meet several people who are just like yourself who you can strike up a friendship with. It is always more fun to learn something “as a group” than it is to go it alone.

User Groups are not merely there to support first time Macintosh users. They are a meeting place for experienced people to share thoughts and ideas with other like-minded people. So what we’re really talking about here is a place that will grow with you over time. You will gain a lifetime of enjoyment from involvement in a User Group. There are many special interest groups, commonly called SIG, which deal with a particular aspect of computing. Not all User Groups are the same but usually there are SIGs for learning how to make movies, learning how to write software, playing games, etc. Some User Groups even have a “Retired SIG” which allows people of roughly the same age to work together. In my opinion, age is a bit of an illusion. Certainly, we grow older over time but there is no reason why we ever need to grow up. Our minds are as young and fresh as we want them to be, so long as we give them continual stimulation. This is one of the reasons I love computers so much because I find it to be an endless outlet for the creative mind. It is certainly ok to check out a Retired SIG but I’d also check out many of the other ones too. It might be fun to attend a “Games SIG” and play a few computer games with the young farts.

My fondest memories are with WAP, the Washington Apple PI. This is a User Group in the Maryland, Virginia and DC metropolitan area. They have a well organized structure and even a published monthly journal.
which comes directly to your mailbox. Twice a year, they have a swap meet which they call a "garage sale." It is where many members of the PI set up small booths in a school's gymnasium to sell or barter both hardware and software. You can find some good deals on used merchandise as well as find some truly strange, rare and wonderful items. Often some semi-professional stores come in to set up booths too. They usually sell items which were purchased at liquidation, items which have probably never been opened. This type of a swap meet is a good place to buy your next computer or to buy parts and gadgets to use with your existing one. You can talk directly to someone who actually used a particular item and can give you a good idea of how it will work for you and your Mac. Being the pac-rat that I am I never set up my own booth but I like to look and collect interesting items which people no longer have an immediate use for. Not only is the garage sale a good place to find deals, but you can also meet many nice and interesting people there.

The easiest way to find out what User Groups are in your area is to go to a special Web site at Apple. Using a Web browser, such as Internet Explorer, go to the following address:
http://www.apple.com/usergroups/

At the site shown above, you will be able to type in your street address and click a search button. In a few seconds, there will be a page showing Macintosh User Groups which are within a seventy-five mile radius from your home.
COMPUTER PROBLEMS

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COMPUTER PROBLEMS

You can take pride and solace in knowing that your Mac is one of the best thought out computers ever designed. In fact, today’s Macintosh is the only computer you can buy where the hardware and software are designed all by one company. This means your Mac is the most integrated and foolproof computer available. Still, this is a complex machine and you may experience some problems.

My computer is frozen, what should I do?

If your computer is not responding to your mouse or your keyboard, it might be frozen. You should wait at least ten seconds to be sure because the situation might be temporary. Try to open other software titles and do other things with your computer. This will help you figure out if it is just one software title experiencing a problem or the entire computer.

If you think that it is just one software title giving you grief, hold down the Command-Option-Escape combination of keys on your keyboard. You can do this slowly, just hold down the cloverleaf key (the Command key) then while keeping the cloverleaf held down, go ahead and hold down the Option key. Finally, while keeping both the Command and Option keys held down, tap the Escape key in the top left corner of the keyboard (it might be denoted by the letters “esc”). This magical three key combination will then bring up a screen which will ask you if you’d like to force quit a software title. Some people might say kill an application. Select the software title you feel is giving you trouble from the list and destroy it. In some situations, I’ve had to repeat these steps twice or even three times... “Three in the head and you know it’s dead.”

If your whole computer is frozen and doesn’t respond to anything, there are two things you can do. The easiest to remember is that you may simply remove the power cable from the wall socket. If you have a portable computer, you’ll also need to remove the battery as a secondary step. You should remove the plug from the wall and not your Mac to reduce the chance of a spark hurting your computer. Wait five seconds then plug the cable back in and then turn on your Mac. The better way to do this is with another special three key combination, Command-Control-Power. Do this by first holding down the key which looks like a cloverleaf then while keeping it down, also press down the Control key (might say “ctrl”). Finally, while both of the first two keys are pressed down, go ahead and tap the Power button in the top right corner of your keyboard. This three key combination will force your computer to restart. Using the Command-Control-Power combination is preferred but if you can’t remember it, just pull the plug.
My Mac is acting strange, is it sick?

If your Macintosh begins to behave oddly for whatever reason, and you just aren’t sure how to explain it, you might try simply restarting your Mac to see if that solves the problem. This can solve anything from a computer which seems slow to even a computer which just acts confused. Many Mac users never really turn off their computer; they prefer to just put it to sleep, myself included. I very rarely turn off my computer completely then turn it back on because sleep is so much faster and convenient. However, if a Mac has been left on for a long time or brought in and out of sleep many times, it’s possible that something just got confused at some point. Restart your computer to see if everything goes back to normal.

Should restarting your Mac not do the trick, you may have to put your detective cap on and start doing some hard thinking. Can you remember installing any new software recently? Is there anything you might have done to cause the problem? If you can answer any of these questions, even partially, that’s great! You can call 1-800-SOS-APPL for further help or go to your local Macintosh User Group for advice.

My computer will not turn on

This is a silly question but, is your computer plugged into the wall? Go ahead and check the connection to the wall socket and to the socket in the back of your Mac. It may have become loose or someone may have disconnected it and forgot to plug it back. Also, check to see if your wall outlet blew a fuse. Try plugging a lamp into it just to see.

Does your computer just turn on part way but then stop? This can be quite tricky. I suggest going to your Macintosh User Group for advice first but if they can’t help you, try 1-800-SOS-APPL.

There is a disk stuck in my computer

Normally, when you put a disk in your computer, an icon of it will show up on your Desktop. When you want to eject the disk, you just drag the disk icon to the trash can in the bottom right corner of the screen.

If you have a file from the CD open in some software title, the Finder will not let you eject the disk. It will give you a message to the effect of “Some application is currently using this disk.” Sometimes closing the file is not enough, you actually have to quit the software title before ejecting the disk. In rare circumstances, you may have to restart your Mac because you can’t figure out what software title was reading a file from the CD. When you
restart the computer, you can be sure that nothing is still reading a file from the CD.

I've had a few experiences where I'd insert a disk but then it never shows an icon. This means there is no way for me to gracefully eject the disk. If this ever happens to you or you just can't seem to get the disk to eject for any other reason, try the following. Restart your Mac. As soon as the screen goes black, click and hold down on the mouse button. Keep the mouse button held down for a long time. After roughly fifteen seconds, the disk should eject and then the computer will finish starting up. After the disk ejects is when you should let go of the mouse button. If this doesn't work, there is some mechanical problem with your drive. You will need to take your Mac in to be serviced.
MAGIC KEY COMBINATIONS

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There are a few sets of keyboard button combinations as well as mouse button combinations which are often very helpful but not commonly known. I like to call these special keystrokes, *magic key combos*. You don’t have to learn them to use your Mac but sometimes they come in handy.

### Useful combos

**Shift-click**
When you want to select several items in a row, do a Shift-click. For example, in a Finder window, you may want to select four or five documents. If you could find a way to select all the documents, you could drag any one of the documents to the trash (or another folder) and the rest would follow. Click once on the first document then hold down the shift key as you click on the fifth document. All the documents will now be selected. You can use this approach in many software applications, not just the Finder. A prime example is in a word processor where shift clicking can make it easy to select a large group of text. However, in this last case, you could also click and drag with the mouse to select the text you want.

**Command-click**
Suppose that you want to select several disconnected items at once. What you will need to use is a Command-click. For example, let’s say you have three documents in a Finder window which you’d like to throw in the trash. You could select them one by one dragging each one into the trash. On the other hand, if you hold down your command button as you click each one, you’ll see that they all stay selected. Afterwards, dragging any one of them to the trash will bring them all to the trash. When using other software titles where you might want to select a few disconnected items all at once, go ahead and give the Command-click a try. Most of the time it will work.

**Drag with option key held down**
You know that you can move files from one place to another just by dragging them. If you drag a file from one disk to another, the file will be copied to the second disk. But what if you want copy a file from one folder to another folder on the same disk? The answer is to drag the document with your mouse but hold the option key down as you do it. You will notice that as you do this, the mouse cursor will have a plus sign. This is a visual confirmation that the file you are dragging will be copied (not moved) to the new location.
Touch-type the name of a file
If there are a number of files inside a folder, you might have to scroll around quite a bit looking for a file which you know is in there. Instead of doing that, you could touch-type the name of the file. This means you should type the name of the file quickly, just like a professional typist would. Alternatively, if you’re not such a quick typist, you can just type the first letter of the filename or the first couple of letters. The Finder window will jump you directly to the filename you type.

Command-shift-3
Have you ever wanted to take a copy of your screen then save it to a file? Perhaps you have some strange error message or just something cool that you see which you’d like to hold on to for posterity. The simplest thing to do is to hold down Command-shift-3 on the keyboard. That is, you first hold down the Command key then while keeping it held, go ahead and hold down the shift key then finally the number 3. You will hear a shutter release sound, like the type you’d hear from a 35mm camera. This sound signifies that your computer has captured your entire screen then saved it to a file. You will find this file in your Desktop titled “picture 1.” If you save many pictures, they will be named consecutively “picture 2,” “picture 3” and so on. Another way to capture your screen is to use the “Grab” application which is located inside of the “Utilities” subfolder of the “Applications” folder. With “Grab,” you can capture just parts of a screen rather than the entire screen.

Startup combos

Hold down the mouse button during startup
If you have disks in your Macintosh which you can’t seem to eject, what you should do is restart your computer then keep your mouse button held down. That is, as soon as you hear the startup chime of your Mac, hold down the mouse button and keep it down. This is a signal to the computer that you want all disks to be ejected. Keep the mouse button held down for as long as it takes to eject the disk. If you have it held down so long that you see the login screen appear but the disk still does not eject, you have a problem. Repeat the steps again just to be sure you didn’t accidentally let go of the mouse button too soon. If you still can’t get the disk out, you will need to take your computer to be serviced and let someone help you physically remove the disk.

Hold down the “c” key during startup
The “c” stands for CD and means “please use the operating system on the CD.” Sometimes you may want your computer to start up from a CD rather than from your internal hard disk. Normally, when you install a new operating system, you don’t need to go through this trouble. For that, insert the disk and double click the installer icon to install the new operating system.
However, there may come a time when you find that something has gone wrong and you can't get your Macintosh to fully startup. This could be the result of a problem with the organization of files on your hard disk. If you insert the Mac OS 9 or Mac OS X installer CD, you may be able to start up from that instead. Once you are in the Finder, you might be able to solve the problem you are having if you have some idea of what is causing the problem. To let your computer know that you want to start from the CD instead of from the hard disk, you need to hold down the "c" key as soon as you hear your Mac's startup chime.

*Hold down Command-s during startup (single user)*

This is a rather advanced key combination which should only be used on the rarest of circumstances. What it does is bring your Macintosh into a text only terminal where a person can have full control of the computer. It is there to help a Unix expert fix a problem that they may have inflicted upon themselves when rewriting parts of the operating system. It can also be used to reset a forgotten Administrator password but this is not the best way to solve that problem. You should always store your password in a safe place but if you’ve forgotten it, and don’t know what it might be, the best thing to do is to insert the Mac OS X CD and then restart the computer. As the computer starts up, hold down the “c” key. Once you startup from the Mac OS X CD, there is a utility you can use to reset the Administrator password (sometimes called “root” password).

**Emergency combos**

*Command-option-escape*

If you have some software which refuses to quit or otherwise refuses to respond, you might want to forcibly kill it. You should wait up to about ten seconds before killing it to see if it is just temporarily ignoring you. Killing it will not cause any terrible harm to your software, nor will it teach it a lesson. It just stops it from running. After killing your software title, you can simply start it back up again by double clicking on its icon. Software engineers try hard to make their software foolproof but sometimes we just accidentally uncover a bug which may be hard to reproduce. When this happens, hold down Command-option-escape which creates a list of all the software that is currently open and will allow you to selectively kill any software title in the list.

*Command-control-power*

If your computer just doesn’t respond to you in any way, shape or form, you will have to force it to restart by pressing Command-control-power. Just to be sure, you should wait at least ten seconds to see if your Macintosh will come to your control all on its own. If that does not work, go ahead and force the computer to restart. Your Mac should immediately turn itself off and then begin to startup again.
Command-option-r-p
A very awkward key combination indeed! the “r” and “p” stand for “Reset PRAM." There is a small place inside your Mac where it stores information, such as what disk to start from, what time zone you are in, the speed with which your mouse tracks your movements and a few other things. This small place is called PRAM or Parameter RAM. Sometimes, when the moon is full and there are three dogs, one cat and two hoot owls outside your door, a static discharge will disrupt the contents of your PRAM. This might cause your Mac to only startup halfway or perhaps act weird in some other manner. When you are having problems with your Mac and you’ve tried everything you can think of, you might do this as one final try. As soon as you hear your Mac’s startup chime, press these four different keys then keep them held. Keep them held for as long as it takes for you to see that the Mac actually restarts itself and creates a chime again. Keep these keys pressed for a duration of at least three startup chimes. This will ensure that any information which might be lingering in the PRAM will be wiped clean.
ADVANCED TOPICS FOR THE CURIOUS

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Here we discuss some interesting aspects of computing which are not necessary for everyday enjoyment of your Mac. When you feel the urge to learn a bit more about the capabilities of your computer, take a look at this chapter.

\section*{.Mac service from Apple}

Apple has a subscription service which costs $100 per year. It is called .Mac and pronounced as "dot Mac." For the most part, it is a set of services which you can use after connecting to the Internet but it, in itself, does not provide a way for you to access the Internet. The .Mac subscription service is not an ISP, such as Earthlink or AOL.

Let's look at the history of .Mac which will help explain the purpose of this service. Back when Mac OS 9 was introduced, Apple also introduced a set of free Internet services collectively known as "iTools." The iTools service was free but you needed to purchase Mac OS 9 to use them and was a major reason for people to upgrade to Mac OS 9. The four major components of iTools were: Email, iDisk, Homepage and iCards. This set of services will eventually form the basis for .Mac but we'll discuss this issue more shortly.

\textit{Email} is perhaps the most important service. Once you have used the Internet for more than three years, you'll start to notice a few things. If you ever decided to change Internet providers, you know the hassles involved in letting all your contacts know what your new Email address is. Sure you can mail them and let them know but many people are slow to take note of this, and there are others which you may not think to contact with the new address. If you have business cards, you'll have to print out a new set every time you change Internet providers because your Email address will change. So changing your primary address is a primary concern. The Email component of iTools solved this problem by offering a free Email address for life that you could use while connected to any Internet service. The second problem you'll experience, after using the Internet for a few years, is that you may have found yourself wanting to use your Email while on vacation or just simply at a friend's house. Most people would sign up with a free Web browser based account at Hotmail for this purpose. The problem with this is that now you have two Email addresses and while gone on vacation, you'd have to let your contacts know to mail you at Hotmail. The Email service from iTools solved this problem by allowing you to check your mail with a Web browser using the same mailbox that you use at
home. In short, the Email component of iTools provided the perfect solution for checking, sending and receiving Email messages no matter how or where you were connected to the Internet.

*iDisk* is simply a disk you can connect to which is on the Internet. It works much like your hard disk in that you see an icon for your iDisk on your Desktop, and you can organize files on it the same way you normally would on your hard disk. This provided a simple way for people to transfer a few files that they’d like to use when they go to another computer. For example, you could copy a few documents to your iDisk then go to a friend’s house and work on them some more from a friend’s computer all without having to burn them to a CD. Using the iDisk was a little bit slow because you had to send files to it over the Internet but it worked very well. The fact that you didn’t have to learn anything new to put files on the Internet was a major benefit of the iDisk.

*Homepage* provided a simple way for people to create their own Web sites. The way it works is you’d first need to move your photographs, short movies and other documents to your iDisk then later use Homepage to build a Web site. Using a Web browser, like Internet Explorer, you would connect to Apple’s Web site then go to the section for Homepage. It would present you with forms and screens to build your Web site. Very quickly you could stylishly present some photographs for the world to see, and you could also put up your resume or other documents. I used Homepage to keep in touch with family and friends and write up some short pages just to let people know what we were up to.

*iCards* are greeting card messages that you can send to people during holidays or for any occasion. To create one, you need to use a Web browser to connect to Apple’s Web site then you can choose from a selection of cards. Each card is a picture with a blank section for you to type a message. Apple makes each one look like a postcard and allows you to choose from a few different text styles when composing the message. When you ask Apple to send the message, they’ll add a little date stamp in the top right corner which makes it look very much like a real postcard. The iCard is then sent via Email to your recipient. When they receive it, they can view it immediately in their mailbox. There are a few other free greeting card services on the Internet, some of which have music and animations; however, I feel that Apple’s iCards are the nicest looking and easiest to use. Other greeting card services usually send you a message in your Email with a short note asking you to go view your card on a Web site during the next sixty days. I prefer the polished look of an Apple iCard which I can immediately view in my Email box.

Apple originally marketed the iTools service as a special perk for Mac owners. Just one more reason why life is better with a Mac. They publically advertised the Email service as being “your prestigious lifetime Email address.” Unfortunately, Apple decided to change their mind later. The
iTools service is now called .Mac and costs $100 per year. People who have been using iTools for a while already can get .Mac for $50 but only for the first year. I believe that Apple now realizes how expensive it is to operate all these services and is struggling to remain profitable. Many technology companies are not profitable anymore. At the time that iTools changed to .Mac, only Dell and Apple remained barely profitable. It is my opinion that Apple is testing the waters with the subscription service and may start making all software updates part of this service. This may become a simple way to update operating systems in the future. As it stands now, each new Macintosh operating system costs around $100. Currently, as things are today, to use iTools for one year and to upgrade to each new operating system once a year will run you a total of $200 every year. I hope in the future that Apple will combine operating system updates with the .Mac service for a totally yearly expenditure of $100.

iCards are still a free service. In fact, you can use them without signing up for a .Mac account. Just connect to Apple’s Web site to use them.

The .Mac membership still operates and performs all the same features as iTools did but now adds a few more. Currently, there are two more services: Virex, and Backup. Apple claims they’ll add more but we don’t know what these may be or when they will come.

Virex is virus protection software. It is supposed to help search for hidden malicious computer software programs which can cause harm to your computer. This service was added to .Mac to make people feel like they are getting more for their money. Unfortunately, virus protection software often causes more confusion and harm than they do good. They will often say they’ve found a virus where there is none and often cause problems when you are installing new software. Most commercial software manuals always tell you to turn your virus protection software off before installing their software. Most importantly, the Mac has very few viruses. As of the date this book was printed, there are only about sixty known viruses versus the over sixty thousand viruses out there for the Microsoft Windows PC. Many people buy a Mac because they don’t want to be bothered with viruses. If ever the Mac becomes inundated with viruses, maybe Virex would have a purpose but as of now, most people don’t install Virex and would rather not use it.

Backup is some nice software that will help you archive files to either your iDisk or to an optical disk. It works pretty well and can take one very large file and break it up to span multiple optical disks. To me, it seems like this software is so fundamental that it should be a standard part of Mac OS X and not part of a subscription service. Obviously, this software has little relationship to the Internet, so why is it part of a suite of Internet services? My only rationalization is that Apple is trying to lure people into this .Mac subscription service and may eventually start to put almost everything, including the operating system, into a subscription package. Both Virex and Backup are just a test in this direction to see how customers respond.

As an alternative to .Mac’s “Backup,” a hard disk company named “LaCie” provides their “Silverkeeper” backup software for free. You can find it here:
www.silverkeeper.com
As you may have noticed, my overall tone is a bit negative toward .Mac. This is because I don’t like the fact that just a few years ago, Apple advertised the iTools service as free for life. After all, we do buy our computers from Apple; why should they nickel and dime us? On the other hand, I do think $100 a year is a good deal for the amount of services they provide. You will just need to think about if what is offered is what you want. Do you want to build a Web site? Do you want to have better Email access? If the answer to any of these questions is yes, probably you should subscribe. Just remember you will need .Mac in addition to a subscription with an Internet service provider.

**UNIX, what is it?**

You may have heard this phrase “Mac OS X, the power of UNIX with the legendary elegance of the Macintosh” but what is UNIX anyway? It is an operating system developed in the early 1970’s.

In 1965, there was a joint research and development project to create an operating system for large computers, the kind that can fill a whole room. The project was a collective effort between Bell Telephone Laboratories, MIT and General Electric. The name of this operating system was Multics which stood for “Multiplexed Information and Computing Service.” That’s a mouthful! The name basically means that information can be stored in files and allows multiple people to use the computer at the same time. The computer itself would take up a lot of space, so many people needed to share its processing power. People would connect to the computer over a network with a dumb terminal which was nothing more than a small display with a keyboard. Multics became fairly successful. It was marketed by Honeywell to a number of universities and industries. Multics has been in use up until the year 2000. In that year, Multics was put to rest.

Some of the smartest people involved in the development of Multics came from Bell Laboratories. Bell Labs decided to drop out of developing Multics in 1969 and let the other companies and groups involved continue on with it. Some of the programmers from Bell Labs decided to continue working on their own operating system based on their experiences with developing Multics. One of them, Brian Kernighan, is credited with giving their new project the name Unix. The name is a bit of a joke. The plural of the word “eunuch” sounds the same as “unix” and is the name given to men who have had part of their manhood removed. So the meaning of Unix is really “Multics without balls.”

Unix became basically a free operating system that got lots of support from the University of California at Berkeley. The programmers had learned quite a bit from their experience developing Multics, so it was easier for them to start working on a new operating system. I would not go so far as
to say that Unix is really better than Multics but it certainly is more popular. The reason for being so much more popular stems mostly from its free nature whereas Multics was a commercial operating system. I won't say Unix is better because there were some interesting ideas in Multics which Unix decided to skip altogether. In a letter I read from Tom Van Vleck, a "Multician," I learned that Multics had an elegant way of dealing with major errors on the computer. In contrast, the Unix system didn’t even worry about anything like that. If a computer running Unix gets confused, it will just panic and would have to be restarted with human intervention.

We can arguably say that Unix and Multics are very similar. What they give us is an operating system which has a strong definition of a computer user. They allow multiple people to simultaneously connect and do work with a dumb terminal. There are also safety mechanisms which will stop one user from affecting the work of another. To a large extent, these operating systems have a very limited graphical interface that requires most commands to be typed. There is a steep learning curve in getting used to these operating systems and making them provide useful work. In general, Unix is very stable and is the operating system of choice for those computers which hold the Internet together. Learning Unix goes a long way toward helping you realize how the Internet really works and can give you access to a large number of free software titles.

What the Macintosh does with Mac OS X is put a user friendly layer on top of the textual underpinnings of Unix. Yes, Mac OS X is indeed true blue Unix but the average person never needs to know any of that. A more advanced computer user can harness this hidden layer of the Mac OS to do some strange, unusual, yet wonderful things.

**What is Darwin?**

Charles Darwin had a theory about evolution called "the survival of the fittest." Apple decided to call their new Unix operating system Darwin because it represented an evolutionary step forward for computing. Darwin is the part of Mac OS X which most people never really see. It is the non-graphical text based Unix underpinnings of Mac OS X.

The most interesting thing about Darwin is that it is free and open to public inspection. Apple actually lets people view and re-write the core part of Mac OS X. This marks the first time that a commercial company has opened up their operating system to public hobbyists to inspect, modify and adapt. This strategy has already paid off because many people not affiliated with Apple have donated their developing time and effort to fix problems and extend functionality.

Darwin isn’t really synonymous with Mac OS X because Darwin has no graphical interface. The strictly Apple technologies, such as the Macintosh
Because Darwin is available to the public to modify and improve, it ensures that Mac OS X will always have a modern Unix base with which Apple can add additional features.

Finder and QuickTime, still remain closed to developers outside of Apple. This makes Mac OS X basically half-open to outside inspection and improvement. If you read the earlier part of this book which talked about the history of computers, you'll recall that Mac OS X is really an outgrowth of the NeXT operating system. When Steve Jobs was forced out of Apple, he started NeXT then later Apple purchased NeXT and Steve Jobs returned to Apple in 1997. A major problem with the NeXTSTEP operating system was that the Unix core was closed to outside inspection. When NeXTSTEP was new, this was not a problem because their version of Unix was up to date with other types of Unix. Unfortunately, as time went on, NeXT found themselves continually developing the unique features of their special operating system with little time to update the Unix core. This caused difficulty when users wanted to run traditional Unix software as it would not run well without major modifications or perhaps not at all. Apple has learned from this mistake and has separated Darwin (the Unix core) from the unique Apple technologies. By making the Unix core public, Apple ensures itself of always having an up-to-date Unix operating system.

The terminal

Do you remember the discussion just earlier about the dumb terminal? Well, not much has changed from 1965 — people still use a terminal to work on Unix. The difference is that the terminal is no longer dumb. It is usually a full blown computer, perhaps even the same one which Unix is running on. Today the terminal is just a text window which you use to work with Unix; you can open many terminal windows at once.

To open a Terminal window in Mac OS X, first open the “Applications” folder from a Finder window. Inside the Applications folder, locate the “Utilities” folder. Inside the Utilities folder, you will find the creatively named “Terminal” application. Double click on the Terminal icon to open up a terminal window.

Now that your terminal window is open, there is actually not much you can do unfortunately. You will have to spend some time studying what text commands you can type and how to make things work. A friend of mine said it perfectly “Unix is user friendly, it is just picky about its friends.” Once you learn and experiment with Unix, you can get it to do many wonderful things but it is not nearly as straightforward as simply using the Macintosh Finder.

To get your feet wet, let's try just a few things since you have got this interesting Terminal window open. Type the two letters “ls” (without the quotes) followed by a return. This is short for “list the contents of this folder.” What you'll get is a list of filenames for the current folder. Now type the three letters “pwd” followed by a return. This is short for “print working directory” which is a request to see what folder you are currently in. Type
in the short word "whoami" followed by a return which really means "who am I?" What you'll get is the short name you created for yourself. Just for kicks, type in "make love" and hit return. See what it will tell you!

For a nice and relatively straightforward introduction to how to use the Terminal, I recommend the following Web site:
http://www.ee.surrey.ac.uk/Teaching/Unix/

The console

If a person running Unix on their computer wants to allow many people to connect and do work, they need an easy way to detect problems as they arise. This is where the console comes in. This is a special terminal window which acts as an active log of different happenings on your computer. Not everything the console displays is bad. It just merely states what is going on which may or may not be important depending on what the administrator may be looking for. For example, if the computer loses network connectivity, the console will display this information. Normally, what will happen is that people may have been trying to use the computer through a terminal window and suddenly get disconnected. They will give you a call at which time if you glance at the console window, you may be able to quickly diagnose and rectify the problem.

We rarely need to use the console but it is nice to know it exists. To open a console window in Mac OS X, first open the "Applications" folder from a Finder window. Inside the Applications folder, locate the "Utilities" folder. Inside the Utilities folder, you will find the creatively named "Console" application. Double click on the Console icon to open up a console window.

X Windowing System

When the Macintosh was released in 1984, the entire world took note. It did not take long before all computers had some sort of a graphical interface. For Unix, the graphical interface is called the X Windowing System but is often referred to simply as X or X Windows. With all the different variations of Unix which have existed over the years, many free and some commercial, nearly all of them relied on X Windows to provide an interface for advanced software titles.

A text interface can only do so much. Using a mouse and having a computer environment which can display each software title in its own window gives developers the chance to make more useful software. Generally speaking, X Windows has nothing like the Macintosh Finder for managing your files. To manage your files, you have to open a terminal window and type commands. It does, however, afford people working in Unix the chance to use software, such as a Web Browser, by giving them a method to display graphics on the screen.
use a mouse and tools to develop software with visual elements, such as scroll bars. The engineers at NeXT and Apple realized that just having some elements of being graphical is not enough. Only an experience as rich as what is presented with the traditional Macintosh OS will be acceptable to most people. That’s why the NeXT operating system and Mac OS X feel exactly like a Mac. They don’t require you to type a single command in a text window unless you want to.

Over the years, many companies which deal with government, university and scientific agencies have chosen Unix with X Windows as their preferred operating environment. This has led to the development of a richly varied and useful selection of software choices. Most of the software is freely available. You can use nearly all of these software titles in Mac OS X if you install X Windows. That’s right, you already have a graphical interface to your Mac but you can add X Windows also. This will enable you to use graphical software which comes from the Unix realm.

A free version of X Windows is called XFree86. This software is becoming more and more inappropriately named! It started out as a free version of X Windows which would only run on the Intel 80X86 processor. Perhaps you remember the Intel 286 (80286), 386 and 486. After they went to the 586 processor (80586), they started calling it the Pentium. So back when XFree86 was created, it was a good name; however, they have made it run not only on Intel hardware but also almost every other computer under the sun. Now with a Mac OS named OS X, it sounds a bit weird to be using XFree86 but rest assured this is perfectly fine and only has such a name for historical reasons. Some people have decided to call XFree86 by a new name when using it on a Mac. They call it “X on X” or “DarwinX.” To download the X Windowing system for Mac OS X, go to the following website: http://sourceforge.net/projects/xonx/

In addition to having X Windows installed on your computer, you will also need to install a Window Manager. This is because X Windows was designed to be flexible and allow other people to create an assortment of ways to display Unix software in a window. Each one of these methods is called a Window Manager. There are many choices for Window Managers out there. Some of them are very useful but some of them are just merely cute. By far the best Window Manager to use on your Mac is OroborOSX. This is a very strangely named Window Manager but it gives you an X Window environment which meshes seamlessly with your Macintosh environment. When you run X Windows software with OroborOSX, the casual observer will just assume you are using Macintosh software! Just like Mac OS 9 works well within Mac OS X by using Classic, the same is true for X Windows when using OroborOSX which can be obtained here: http://oroborosx.sourceforge.net/

Unix software is distributed in a very different nature than most other software. Because most Unix software is free and there are many different types
of computers which run Unix, it is not possible to distribute one piece of software for all computers to use. When you install Unix software, you often need to compile it yourself or else obtain a compiled version from a trusted source. The term “compile” means to take the original engineer’s work and translate it into software for your computer. So in addition to installing XFree86 and OroborOSX, you will also need to install the Mac OS X Developer Tools CD which will give your Mac the tools it needs to compile software. After installing the Mac OS X Developer Tools, you should also install some nice software designed to help you easily install Unix applications. This software is called Fink. What Fink does is allow you to choose different free Unix applications to install and it will do all the hard work for you. You can ask Fink to give you binary versions of software which are already precompiled or you can ask it to give you source versions which it will then compile for you. Some people prefer to get the source because they can learn how the engineer created the software, and they can modify the software themselves. For most of us though, the easiest thing to do is just grab the binary version. You can find Fink at the following Web site: http://fink.sourceforge.net/

For your first X Windows application, I suggest you get GIMP by using Fink. With GIMP, you have a powerful image manipulation tool which is very similar to Adobe Photoshop. The major difference is that GIMP is free! The GIMP stands for “GNU Image Manipulation Package.”

**GNU and the Free Software Foundation**

Once you start to delve into Unix, you will see many references to GNU. You pronounce this acronym as “guh-new” but what it stands for is “GNU’s Not Unix.” This cute name employs recursion which is a simple construct for writing software which people learn during their first year of studying computers at a university. In other words, the “G” in GNU is constantly replaced with “GNU is not Unix.” So what is GNU? “GNU is not Unix is not Unix is not Unix is not Unix is not Unix...” Another name for GNU is the “Free Software Foundation.”

Back when Unix was being developed, it was initially basically a free operating system but one which didn’t run on many types of computers. The first companies to sell computers running Unix sold very expensive computers and charged lots of money for their versions of Unix. When the GNU organization was formed, they equated the word “Unix” with the word “Money.” This organization liked Unix but they wished it was free and could run on computers which normal people could afford to purchase. This is why GNU is not Unix because the Free Software Foundation wanted to make their own Unix-like operating system which would be free for the masses. They never succeeded in making their own operating system but they did lay the groundwork for all the free Unix variants currently in existence. GNU continues to make some of the most important Unix soft-
Compile - a verb which means to take a document written with a programming language then translate it into software for the computer.

GCC - The GNU C Compiler. This is a tool which takes documents written in either the C, C++ or Objective-C languages and compiles them to create software. The GNU compiler is the single greatest contribution of the Free Software Foundation.

The Mac OS X Developer Tools which come with every copy of Mac OS X happen to be one of the world’s best tools for developing software. You can write your software in the Java, Objective-C and C++ languages.

Computer programming

Computer programming is the art of creating software. You need to organize your thoughts into a set of logical steps. You need to be very specific with the instructions you give because the computer does not do any thinking of its own. It merely blindly follows the rules you give it.

To program your own software, you need to learn a programming language. There are many languages out there. Each one gives you some semantical building blocks with which you can construct your software. Each language was devised with a particular purpose in mind for a particular type of project. If an engineer knows a handful of languages, they will be better equipped to write software because they can pick the language which has semantics better suited for the given task.

With Mac OS X, you get a Developer Tools CD. This disk contains one of the world’s greatest ways to develop software. With it, you can program in three languages: Java, Objective-C and C++. If you are interested in experimenting with computer programming, by all means install this CD. You will find a number of interesting examples and adequate documentation.

I like to think of programming as a lot like stitching a quilt. It is often very tedious and time consuming and requires a great deal of concentration as well. Most people do not generally enjoy the process of stitching a quilt but they are impressed with the final results. The same is true of computer programming. The fun that can be had with programming is in recognizing a problem then surmounting it through your ingenuity and creativity with writing software. What you create can then be used by people around the world and can cost them as much or as little as you deem necessary. It is a very warm feeling to know that as one person you can make such a big difference in this world. Computers can be very liberating for those bitten by the creative bug.
Learning to write software is not second nature for most people, though I believe anyone can do it if they have the right attitude. Expect to spend at least one year learning about how to write software before you can make anything yourself and realize most people need two years of study to even write the simplest of software tools. What you are learning during these years is a new thinking process. Afterwards, you’ll start having a lot of fun because you’ll be able to invent new software.

I recommend that if you want to learn how to write software, you should attend one class at a community college or university where you can study programming. The school you go to may not use Macs and may not have much choice in programming languages. Though not ideal, this is actually ok because the main thought processes involved in programming span all languages and types of computers. Many of your initial hurdles can be addressed through interaction with your professor and classmates.

Once you have a little bit of experience from taking a course in programming, you can now focus more on learning how to program for your Mac. Learning to use Objective-C and Apple’s Developer Tools could be a good start for you. There are a number of good books which can help you learn how to program using Apple’s tools. Alternatively, many new programmers and experienced programmers alike really enjoy using a package called “REALbasic.” It uses a language called BASIC which has been around for a long time. It was the first language many engineers learned in school. The advantage of using REALbasic is that they give you a great environment to work in with some strong semantics for creating general software tools and even games. The software you write in REALbasic will not only work on the Macintosh but with a little tweaking, can also work on Microsoft Windows PCs. You can find more information about REALbasic at the following Web site:
http://www.realbasic.com/

Apple’s Developer site with more information on Apple’s tools:
http://developer.apple.com/

**Computer artwork and graphics**

Computers will never replace traditional forms of art, such as sculptures and paintings, but they have created new forms of expression. Much of what we see at the movies comes from images generated by a computer. Almost all corporate logos and many advertisements use fancy software to create interesting new styles and effects. Let’s take a look at these advanced forms of computer art.
Illustrations

Do you know the difference between a photograph and an illustration? A photograph looks real – the people and the objects in a photograph look true to life. A photograph may have some special effects added to it, and it may have its color adjusted in an artistic way but it is still a photographic image. In contrast, an illustration is a highly stylized graphic which looks nothing like a photo. Usually, illustrations use very few colors, rarely more than four. A good example of something full of illustrations is a comic book. All the pictures in a comic book are easy to understand and very artistic, all the pictures have sharp lines and bright colors.

An illustrator is a software tool which allows you to create artwork similar to what you’d find in a comic book. The tools which you use are very mathematical in nature because they allow you to describe the shape of curves and lines. This means that unlike an image editor, illustration software is not something you can just pick up and start using immediately because you need to learn how to use the mathematical tools.

The most popular illustration software on the Mac is “Adobe Illustrator.” This software has been around a long time and is one of the main reasons artists love to use the Macintosh. It is not easy to use Illustrator but the software is incredibly powerful and very logical if you take some time to train yourself in how to use it. Illustrator costs about $400. Their Web site is: http://www.adobe.com/

A close second in popularity is “Macromedia Freehand.” This is another software application which has been around for a long time though it has been sold to different companies over the years. The argument about Illustrator versus Freehand is a bit like the argument of Chevy versus Ford. Both applications are very good and each have some minor strengths and weaknesses. Freehand costs about $400. Their Web site is: http://www.macromedia.com/software/freehand/

There is a well known application which has just recently made its way to the Macintosh. It is “Stone Design’s Create.” This software title was originally written for the NeXTSTEP operating system which is what Mac OS X is built upon. Create shares many of the same features as the other two illustration packages but is considerably more affordable. Create costs $150 if purchased individually or if purchased as part of the Stone Studio, it costs $300. Their Web site is: http://www.stone.com/

Another famous image editor on the Macintosh is “Deneba Canvas.” This software is unique in that it mixes capabilities of an image editor, such as Adobe PhotoShop, with the capabilities of an illustrator. Canvas also boasts the ability to read many different types of files and save many types of files, useful if you have images in many different formats and you need to con-
vert them. The price of the professional version is $400. Their Web site is: http://www.deneba.com/

Not strictly an illustrator but still useful is “Adobe Streamline.” This software allows you to sketch an image by hand with pencil and paper, scan it into your computer and then let Streamline automatically turn it into an illustration. Once your sketch is an illustration, you can use your favorite illustration software to add color and make further modifications. Streamline costs $130. You can find more information on the Web here: http://www.adobe.com/

**Cartoons**

To create a cartoon, you really could use something more than an illustration package. Professional animators do something called “storyboarding” where they plan out their scenes like you would for a script or a play. Traditional cartoons require you to create cells and probably hire a camera person and a sound person. With your Macintosh, it is possible to do all these types of things within your computer, much faster and easier.

Currently, the most popular software for creating cartoons is “Toon Boom Studio.” This software allows you to create cartoons all by yourself. Of course, you still might want someone to give you some special sounds or voices but for the most part, what you can do is only limited by your imagination. The cost of Toon Boom Studio is $375. The “Express” version is $145. You can find them on the Web here: http://www.toonboomstudio.com/

**Three dimensional software (3D)**

Three dimensional software is fascinating and not terribly hard to learn. With it, you can model a skeleton of an object and then manipulate it in a number of different ways. For example, if you construct a building you would make the walls, the windows, the doors, then put it all together piece by piece. The finished building can then be painted any color you like or have any surface you like at the drop of a hat. You can make the wall be a bumpy stone pattern or simply a solid color. You can position your building anywhere you like on a three dimensional plane then shrink or enlarge the building as you see fit. You can add lighting and even fog to your scene then take pictures from different camera angles. If it is a person you are modeling, some software will even let you create a skeletal structure which allows you to pull your model’s hand and the whole arm will move accordingly. This means that the objects you create with 3D (three dimensional) software take a very long time to build but once they are built, you can quickly utilize them in an infinite number of ways. You can even purchase some 3D artwork then reuse all or parts of them for your own creations.

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Recommended 3D software titles:
1) Carrara Studio
2) Amorphium Pro
3) 3D Toolkit
4) Universe
5) Lightwave
6) Maya
7) Poser
8) Bryce
9) GollyGee Blocks
In my opinion, the best value for your money is a product called “Carrara Studio.” Personally, I use an earlier version of this software called “Ray Dream Studio.” This product has been transferred twice since that time and is now owned and developed by Eovia. This is why the name has changed to Carrara Studio. This software has always had a great number of features with an attractive price tag. For many people, they will not need anything else, and they’ll find Carrara Studio reasonably straightforward to use. The current version costs $400 but you can buy prior versions at a reduced price. Eovia also sells another software title called “Amapi” which is good but does not have the breadth of Carrara Studio. Recently Eovia introduced another package named “Carrara 3D Basics” for $100. You can find Eovia on the Web at:

http://www.eovia.com/

If you are interested in 3D software, but really don’t want to spend a lot of money, you may be happy with a product called “Amorphium Pro.” This software costs $150 and is considered one of the easiest to use. This is not simplistic software. It is, in fact, quite powerful but sold at an attractive price. Though not as complete as some other software packages, it does have quite a bit of power. Amorphium Pro is developed by Electric Image. They are a big name in 3D software. Their flagship product is “Universe” which sells for about $1,300. Electric Image recently started a new promotion which they call the “3D Toolkit.” This product is designed to introduce people to 3D design and hopefully get them hooked on Electric Image’s products. The Toolkit merely costs $100 and with it you receive: 1) A slightly crippled version of their flagship Universe product, 2) twenty-eight tutorials with seventy-five minutes of video instruction. The Electric Image 3D Toolkit is worth some serious consideration. You can find them on the Web at the following address:

http://www.electricimage.com/

The two most well known and professional 3D software applications both cost thousands of dollars; however, people who have a job using these applications can make enough money in one day to pay for the purchase price of either of these packages. The two applications which do most of the magic we see at the movies are “Lightwave” and “Maya.” Lightwave is developed by NewTek and costs $1,600. You can find them on the Web at:

http://www.lightwave3d.com/

Maya is developed by Alias Wavefront and costs $2,000. You can find them on the Web at: http://www.aliaswavefront.com/

If you are interested in software which purely focuses on the human body, “Poser” may be just what you need. Poser is better than almost any other software for this task but it can’t create 3D objects. There is a rich selection of figures and clothing for use with Poser. A nice selection comes with the software but many other companies create props and figures which can be purchased separately. Poser is currently developed by Curious Labs and
has dropped in price recently. Poser v5 costs $200. “Poser Artist” is basically version 4 and sells for $100. Find out more at the following Web site: http://www.curiouslabs.com/

For making lifelike and interesting landscapes, a product named “Bryce” may be what you want. Bryce is currently developed by Corel and costs only $80. You can find more information at the following Web site: http://www.corel.com/

To introduce children to the wonders of 3D design on the computer, you might consider “GollyGee Blocks” from a company named GollyGee. The software costs $25 and allows children to build interesting 3D pictures using a method that is not too different from using legos. I enjoyed using legos as a child, but I always lamented having two tear down my creation in order to build something else. Here, you can save all your creations because you have a limitless supply of virtual blocks to build with. When you are done, you can print your creations. Find out more at: http://www.gollygee.com/

**Video effects**

For the ultimate in professional level video editing, the kind where you can create a “blue screen” effect to put a person into an artificial surrounding, you need Apple’s “Final Cut Pro.” This software costs $1,000 and there are a number of companies which support additional software and hardware to work with it. Recently Apple released “Final Cut Express” for only $300. It looks and feels nearly identical to Final Cut Pro, so much so that some people wonder what the difference is between the two products. The Express version only works with the Mini-DV format of video capture, whereas Final Cut Pro allows you to work with other video standards. There are other differences too but nothing major. The biggest benefit of Final Cut Express (and Pro) over iMovie is “non-destructive editing.” This term signifies that you can select parts of video footage to make a new movie without affecting the original video file on your hard disk. The upshot of this is many levels of “undo.” Should you make a mistake, you can undo your previous thirty-two edits in Final Cut Express. For making DVD video creations, Apple offers “DVD Studio Pro,” a $500 product. If you really need to make the best quality video, you need the DVD Studio Pro package and either Final Cut Pro or Final Cut Express. But don’t spend your money so quickly without first considering what iMovie and iDVD have to offer.

“iMovie” is free software which Apple includes with every Mac. Just because it is free does not make it anything less than professional. You can compose and create stunning footage with nothing other than iMovie. There are also quite a few special effects that come with iMovie which may suit your needs just fine. If you want some more special effects, you should

To see just what amateur videographers can do with the Macintosh, look no further than the following Web site: www.crewoftwo.com

At the “Crew of Two” Web site, you can view a short ten minute movie named “Duality.” Two men, one a martial artist the other a font designer, decided to make a movie to show off their talents. It is truly awe inspiring.
check out what some independent software vendors have created for iMovie by looking at the following three Web sites:
http://www.geethree.com/
http://www.ezedia.ca/
http://www.virtix.com/

“iDVD” is free software which Apple includes with those Macs which have a SuperDrive. It works really well and can make some very slick and polished DVD disks. It lacks the ability to create movies with multiple language subtitles and other important features but for making professional looking results, it does a great job.

For really ambitious videos which plan to use many special types of video effects, you should look into Pinnacle Systems’ “Commotion Pro.” This software has a slew of image touch up and editing tools which can be applied directly to video. When people are doing blue screen or green screen work, they are filming some action in front of a set which is either totally blue or totally green. The reason for this is later with software, such as Final Cut Pro, you can replace the colored area with a different background. This gives the effect of Superman flying through the air. A problem with blue screen techniques is that it is very hard to get the set evenly lit which in turn makes it hard to keep a consistent blue or green color throughout. Commotion Pro can help you even out the inconsistent areas. Additionally, this software has some great features for detecting movement. It can track objects moving in the video, such as a person’s nose, this can allow you to quickly place a mask on a person which will follow the body throughout the clip. Of course, later you will need to make frame by frame adjustments to hair, eye and lip movements, but a great deal of work will have already been done for you. Commotion Pro costs $500. You can find out more at their site:
http://www.commotionpro.com/

Book writing

If you have something you’d like to write about, why not go ahead and make a book? It is actually not so difficult to do and though expensive, it is not out of reach.

There is a difference between Desktop Publishing and Word Processing. You can write down some of your initial thoughts and even many of your chapters in a word processing program, such as AppleWorks or Microsoft Word. However, when it comes time to really put your book together and publish it, you should be using something other than a word processor. Word processors are good for writing letters and short documents but for putting a book together, they lack some important features. Desktop publishing software has features designed to make writing long documents easier. They also have the notion of “facing pages,” such as when you open a book
flat on the table and see both the left and right pages. With a Desktop Publishing application, you have more control over how your text looks on a page. This can allow you to space your words out more appropriately and attractively. Often times work done on a word processor produces “rivers” which run through the text. These are gaping white spaces that cause your printed text to look unpolished and slightly harder to read. With a desktop publishing software package, there are a number of things you can do to minimize the river effect so that when you look at the printed page, you see nice even blocks of black for each paragraph.

Many community colleges offer courses in how to use popular desktop publishing software. This is a good deal because there is a slight (not a large) learning curve and this type of software is expensive. If you sign up for a class, not only are you getting instruction, but you can also use the school’s computer lab to work on your book or even purchase the software with an educational discount for use at home.

By far the most popular desktop publishing package is “QuarkXPress” but; unfortunately, it is also one of the most expensive. Quark costs $900. It commands such a high price mainly because it is so common among newspaper agencies and publishing houses. You can find more information about QuarkXPress at:
http://www.quark.com/

Adobe makes a number of useful desktop publishing packages, three of them in fact! This makes things a little confusing at first because many of their features overlap and a large part of their differences come with how they feel when you use them. The closest competitor to Quark is a product named “InDesign.” It costs $700 and has many exciting features; unfortunately, it is not so popular yet, so there are not as many book publishers which are familiar with InDesign. Adobe’s top of the line product is “FrameMaker.” With FrameMaker, you have the largest number of tools for creating long documents. Most educational textbooks are written with this software. FrameMaker costs $800. The third product from Adobe is named “PageMaker.” This product is considered the easiest to learn of all the different types of desktop publishing software that is out there, and it is also quite popular. Almost any book publisher will be able to work with files in PageMaker format. PageMaker is still expensive but it is the least expensive of the bunch at $500. You can find all of these Adobe products at:
http://www.adobe.com/

A Korean company makes a publishing package that started on the NeXT computer. The company is Softmagic and their product is called MLayout. The interface is nearly identical to QuarkXPress but only costs $300. This is the only Desktop Publishing tool that I know of which was designed using the NeXT developer tools. It has great Asian language support but it lacks the ability to handle lists and create a table of contents or index. Their web site is http://www.softmagic.com/

Recommended Desktop Publishing packages:
1) QuarkXPress
2) InDesign
3) FrameMaker
4) PageMaker
5) MLayout
Once you have written a book, you need to find a publisher. If you have written your book using a desktop publishing application, that's a good first step because it is something publishing houses will be expecting. If you want a large publishing house to take your book and mass market it, you better expect to go through a long search and be prepared to be turned down a lot. Of course, if in the end you find a company which is willing to underwrite the expenses of printing thousands of books then that's great. But realize this kind of luck is not easy to come by for the first time writer.

I suggest you work with a print on demand publishing house. This type of publisher uses high speed laser printers and special machinery to print books as they are needed. This means that printing costs for each book are higher but you do not need much of an investment. Print on demand allows anyone with a desire to write a book make those dreams a reality. This book was published with this exact method. To find out more, please visit http://www.cocoanutstech.com/

Music

The Macintosh has long been a favorite computer for musicians because there is a number of software tools available to them. You can both learn music theory on your Mac as well as create your own musical works.

Writing musical scores

The most popular software for transcribing music is “Finale” by a company named Coda Music Technology. With it, you can write any type of score but what really makes it stand out are some of its automated features. For example, you can use a flute, sax or other instrument to play a melody, and your Mac will then fill in the notes correctly right on the screen! That’s right! With Finale, you can play your favorite horn or wind instrument instead of having to type in the notes by hand. You can also take printed music and scan it into Finale then it will copy the notes from the image into your score, so that you can quickly edit it. Finale costs $600 but if you are a minister or involved with education, it costs $300. Coda Music has a total of four different software titles for transcribing music to meet the price points and needs of different types of people. Though Finale is the most powerful and most versatile, it may be more than what most people need. “Allegro” has almost all of the same features but only costs $200. “PrintMusic!” cuts down on the features slightly but still retains the ability to scan in music and copy it to your score. It costs $70. The fourth item in the Coda Music software family is “Finale NotePad” which happens to be free software. NotePad shares very little functionality with its siblings but it does allow you to enter in notes into your own sheet of music. You can find out more about what Coda Music has to offer at their Web site: http://www.codamusic.com/
"SoundWorks" is a product developed by Ars Nova. Not only does it allow you to write down music, but it can also give you ideas by suggesting possible melodies. This capability makes SoundWorks both an exploration tool and a music composition tool. Once your work is written, SoundWorks will use your Mac’s built-in library of musical instruments to give you a rough idea of what your creation will sound like. SoundWorks costs $125. You can find more information about it here on the Web:
http://www.ars-nova.com/

A product named “Harmony Assistant” by D & O Guillion does what its name suggests. You create a melody and it can automatically create accompaniments or drum sequences. It comes with many digital versions of musical instruments built into the software, so when you are done creating your score, you can play it back to get a good idea of what it would sound like. The cost of Harmony Assistant is only $65. More information can be found at:
http://www.myriad-online.com/harmony.htm

There is a software title which has been in development at the University of Illinois since 1975. It is called “Lime Music Notation Software” and is written by Lippold Haken and Dorothea Blostein. You can try it out for free but are obliged to license the software for $65 if you find it useful and decide to continue using it. You can find out more information about this software at:
http://www.cerlsoundgroup.org/cgi-bin/Lime/Mac.html

Creating your own recorded music

Macintoshes are used for recording music, sequencing music and for generating music at live performances. For a couple thousand dollars, you can create an extremely powerful recording studio with the right Mac, software and special music hardware. This may sound like a lot of money but it is significantly cheaper than what people would have to pay without inserting a Macintosh into the picture. This is because the Mac has enough power to process musical information that you don’t even need other kinds of audio manipulation hardware. Serious hobbyists can now make music which rivals that of big bands. In fact, both professionals and hobbyists alike are all using these Macintosh based solutions because they are not only cheaper but they also use less space and are more flexible than rack mounted hardware solutions.

Let’s discuss a little bit more about how this works. Your Mac runs special software which allows you to visualize music and modify it in an infinite number of ways. Your Macintosh has no built-in ports for you to hook up recording equipment, so you’ll need to purchase special hardware which will allow you to record music from multiple sources. This special equipment will then transfer the musical information to your Mac through USB or FireWire. Once the music is in your Mac, you can then modify it, add

Recommended music sequencing and recording packages:
1) Digital Performer
2) Pro Tools
3) Logic Audio
3) Cubase
4) Nuendo
5) Reason
6) Soundtrack
other musical accompaniment and then burn it to a CD. You can also hook up speakers and amplifiers to your Mac to produce digital instruments which sound close to the real thing. In other words, if your band needs a trombone, your Mac could play the role.

There are four really big and well known music studio packages for the Mac: Digital Performer, Pro Tools, Logic Audio and Cubase / Nuendo. I'm an amateur musician. I played tuba in college; however, I'm no expert when it comes to compiling my own music. I haven't used any of these packages but I'll pass on what I know about them. If you're interested in making your own recording studio, you'll need to do quite a bit of research to see which of these packages is right for you.

_Digital Performer_ is made by a company named MOTU which stands for "Mark Of The Unicorn." This company has always produced music software only for the Macintosh, allowing them to concentrate solely on being innovative and putting all their resources together to give musicians who work with the Mac a great platform to be creative. Have you ever found a singer that sounds great on their CD albums but not so hot in person? They probably used Digital Performer to fix up their tracks before burning to CD. With Digital Performer, you can work such magic as record your voice in one key then move it up a couple of keys to fake a more dynamic vocal range. You can also subdue one instrument which was out of key or adjust its pitch to put it back in key. Digital Performer costs $800 but it's just part of the package. You will also need to purchase something such as the MOTU 828 hardware unit, so that you can record music over FireWire. That will cost another $800. You can find more about these products at: http://www.motu.com/

_Pro Tools_ is made by a company called Digidesign. Their high end product is called "Pro Tools TDM" and includes a mix of additional computer processors to support your Mac's processor. Their high end product costs $10,000 which puts it out of reach for the hobbyist and only for use in a large, non-mobile, recording studio. Digidesign, however, makes a range of products for various budgets and uses. They make a product called the "Digi 001" which is a rack mountable audio interface box similar to the MOTU 828. The difference here is that it must connect to an included PCI card which means this solution can only be used with a G4 Tower, not a PowerBook or iMac. The Digi 001 comes with Pro Tools LE which is a very capable software package. The main difference between Pro Tools LE and Pro Tools TDM is that all of the effects use your Mac's CPU whereas the high end solution also includes additional computer processors to increase the power of your Macintosh. The Digi 001 / PCI card / Pro Tools LE bundle costs only $800. The most portable product from Digidesign is also the least expensive, it is called the "MBOX." With the MBOX, you get a piece of audio interface hardware which connects to your Mac through USB. It also gets its power from that same USB cable. The MBOX is a small unit which can stand vertically on a desk. It also comes bundled with Pro Tools LE.
This is a very portable and fairly powerful system that only costs $500. You can find out more about the Digidesign family of products at their Web site: http://www.digidesign.com/

Logic Audio is made by a German company named Emagic; however, since June 30th 2002, they have been a wholly owned subsidiary of Apple. Because of their close ties with Apple, we can expect to see some interesting announcements in the future. Logic Audio is sold in three versions: silver, gold and platinum. The silver version is priced at about $200 and the platinum version is priced at around $800. The more expensive the version is, the more it can do. Logic Audio is considered difficult to learn but well designed. Once you learn how to use Logic Audio, you should be able to work more quickly than you could with any of the other audio software applications. Logic Audio is just the software piece of the puzzle. You will need to purchase hardware to get sound into your Macintosh. Emagic makes the “emi 216” for this purpose. It is a USB audio interface for your Mac which sells for $400. For more information on Emagic’s products, visit their Web site:
http://www.emagic.de/

For detailed videos teaching how to use Emagic’s Logic Audio, please visit: http://www.gearvision.com/

Cubase and Nuendo are two products produced by a company named Steinberg. Cubase is the audio tool I hear most about probably because Steinberg created a technology called VST which stands for “Virtual Studio Technology.” What VST does is allow other companies to make additional software to plug into Cubase. There have been a number of companies crop up to provide additional functionality and many music authors rely on those VST add-ons. The current version of Cubase sells for about $600 but you can purchase older versions for less than $100. In addition to VST, the other thing that makes Cubase popular is that it is intuitive and easy to use. Steinberg also gives you special tools to collaborate with other musicians over the Internet, so that you can discuss and even share music with each other. Nuendo is Steinberg’s flagship product. It is similar to Cubase but provides more features and sells for $1,300. Another interesting feature with Steinberg technology is “VST System Link” which allows you to connect multiple computers together and have them work cooperatively. For example, if one computer does not have enough power to handle a complex task, rather than having to buy a newer machine, you could simply connect two older computers together to get the same effect. For more information, you should visit Steinberg’s Web site:
http://www.steinberg.net/

The name of the Internet tools which Cubase uses to allow musicians to communicate and swap music with each other is called the “Rocket Network.” Users of other recording software tools may also subscribe to this network for a fee:
http://www.rocketnetwork.com/
It is not easy to choose which audio sequencing solution is best for you. You really need to look at how much money you are willing to spend and take a close look at the features offered by all the different companies. It is a very competitive business. You can at least rest assured that if you pick any of the above mentioned recording tools, you’ve got a quality product. It’s worth clarifying that though in some cases, audio input hardware when used with software from the same company can give you more control over the hardware, almost all the audio software packages will work with each company’s hardware. So in actuality, you can mix and match software tools and hardware tools. It should also be noted that there are a number of different add-on formats but VST is the most popular and VST will, in fact, work with many of the other audio tools, not just Cubase.

Should you purchase one software tool today and later find yourself wishing you had the capabilities of one of the other tools, don’t worry too much about it. The competition between these companies is so fierce that almost any company will offer you a “cross-grade” deal that is probably half of the retail price. An “upgrade” is when you buy a newer version of a particular software title at a reduced price out of respect for your initial investment. On the other hand, a “cross-grade” is often available when two or more companies offer a similar product and are trying to seduce customers to switch.

With respect to the big four recording packages just discussed, there is another package worth mentioning called “Reason.” Propellerhead Software’s Reason has a unique concept for a user interface. It gives you a replica of a rack inside of a window on your computer’s screen. In this rack, you can mount many types of musical hardware, such as synthesizers, drum machines, digital reverb machines, mixers, pattern sequencers, etc. You place each piece of equipment either above or below each other on the rack and are free to view either the front panel or back panel of each piece of equipment. When looking at the back panel, you can hook up cables with handwritten markings, so you know what goes where. Basically, if you’ve ever had to mess with real music hardware on a rack, complete with all the real world problems of cabling and interconnections, you’ll feel right at home with Reason. The software takes a real world analogy and puts it right into your computer, so there really isn’t much of a learning curve if you are already familiar with musical hardware. All the buttons are on the front panels and all the cables are in the back. Reason costs $450. You can find more information on their Web site:
http://www.propellerheads.se/

Apple has recently released a price competitive software tool called Soundtrack. This tool may be lacking some of the features of the others but it comes with enough sample music that you can create your own royalty free music to accompany your videos. Soundtrack was designed to be used by people with a limited musical background. To this end, Soundtrack will automatically adjust tempo and pitch of combined musical elements. It comes with a nice library of “loops” which you can piece together to create
effective background music. These loops are royalty free and can be used however you like. Soundtrack sells for $300. For more information visit: http://www.apple.com/soundtrack/

Before we discuss other aspects of music on your Mac, let me part with one Web site address which can teach you more about the types of software and hardware available for sequencing audio on your Macintosh: http://www.harmony-central.com/

Live performance

A product called Amplitube LIVE from IK Multimedia is in a class all by itself. If you are an electric guitarist, you need this software title. It can effectively replace bulky amp cabinets and allow you to use other speaker equipment but still keep the expected sound. Here's how it works: You plug your guitar into your PowerBook, the PowerBook is connected to the PA mixer, and the software will adjust the audio signal and play it out to the speakers with no noticeable latency. Amp cabinets generally have a peculiar frequency response which Amplitube LIVE can usually recapture even through a traditional PA mixer. Now, instead of being strapped into one type of amp's sound, such as the Vox AC30 Top Boost amp or the Marshall JCM 800 amp, you can recreate them all. The software costs $100 and their web site is: http://www.amplitube.com/

Teach yourself to be a better musician

The free “Fretboard Warrior” helps you learn to memorize the fretboard on a guitar. Fretboard Warrior is free but the author does request you send him a donation based on what you think this software is worth. This product is written by François Brisson. You can find out more information here: http://www.avatra.com/fretboardwarrior/

For learning how to play guitar, a company named eMedia produces a number of instructional products. They have three software packages to bring a person from being a beginner to an intermediate and then finally to an advanced level. Each training product sells for $60. If you already have some experience at playing the guitar, you can purchase additional software from them to teach you how to play famous songs at $30 per package, such as their “Blues Legends” package. For only $15, eMedia sells the “Guitar Toolbox” which uses your computer to act as a metronome, tuner, and quick chord reference guide. You can find more about eMedia at: http://emedia.org/

Not all of us got a good music education at school. Unfortunately, in many school districts throughout America, music funding is the first to go. This
can be rectified in part by a little bit of help from some computer training software. “Practica Musica” is such a product from Ars Nova. Practica Musica includes both software and a textbook which will teach you the fundamentals of music theory and pitch training. The cost of Practica Musica is $125. Another product is geared at simply teaching how to read simple music notes, it is called “Kid Music.” The Kid Music product actually comes with two parts called “Little Kid Music” and “Big Kid Music.” Children below the age of seven would use Little Kid Music to become acquainted with rhythms and songs. Big Kid Music allows you to play songs while the computer provides accompaniment. The whole Kid Music package sells for $75. More information on these products can be found at the following Web site:
http://www.ars-nova.com/

Another company which provides software to teach you music theory is MiBAC which stands for “Music Instruction By A Computer.” They produce two packages. The first is called “Music Lessons I” which teaches the basics of musicianship to the uninitiated. The second package is “Music Lessons II” which provides exercises and study for a musician at an intermediate level. Each of the Music Lessons packages costs $150. MiBAC also sells some software called “MiBAC Jazz” for providing Jazz accompaniment but unfortunately, it only works with older Macintoshes. For more information about MiBAC’s products, you can visit their Web site:
http://www.mibac.com/

Ear training is one of the most difficult aspects of becoming a professional musician. You need to be able to simply hear a chord, scale or interval and be able to identify it immediately. “MacGAMUT” can help you do this by providing a number of different exercises and dictation drills where you can train your ear to identify these in real examples that are recorded, not computer generated. MacGAMUT sells for only $35. You can find more information at the following Web site:
http://www.macgamut.com/

Another ear training software package is “Auralia” from Rising Software. This package seems to have a similar set of features as MacGAMUT but is considerably more expensive at $150. There has been a text book written which makes use of Auralia, it is called “The Performing Ear” and sells for an additional $30. Visit Rising Software’s site for more information:
http://www.risingsoftware.com/auraliamac/

The company which makes the professional “Logic Audio” software tool for audio sequencing also has a software package for ear training. Emagic’s “HearMaster” has similar functionality to the other two ear training packages but costs $100. Unfortunately, they seem to be no longer interested in supporting this product so it is difficult to find. Some places still sell the product, such as the following:
http://www.soundtech.co.uk/emagic/hearmaster.htm
Music instructors have always told me that the ability to detect perfect pitch is something you are either born with or not. Most people have the ability to discern what is called relative pitch. This means that you need to be given a starting key and can then tell if other notes are on key with respect to the first. A person who can hear perfect pitch can detect a pitch as being correct or not just by itself, without relationship to any other notes. When writing this book, I found some software which claims it can help train you with the ability to hear perfect pitch! The software title is called “PerfectPitchTrainer.” Because this software appears to be new, I’d wait a while and see if some people may write a review for it in a couple of months, so you can tell if this is a gimmick or not. The company who creates it is based in Australia and sells it for $40. You can visit their Web site, they have other software available as well:
http://www.education4music.com/

Portable tuners for acoustic instruments can be expensive. A shareware author has created a $25 piece of software called “Instrument Tuner” which simply uses your Mac’s microphone to tune your woodwind or horn. Note that this is not this author’s primary product. His current Web site did not mention this product until you look at his online store. The following is the author’s Web site:
http://www.buzzmac.com/

One of the difficulties a beginning instrumentalist has when they play in a band is learning to work with a group. You are not a solo performer, so you must keep time with everyone around you, as one unit, one team. Even a soloist needs to have accompaniment when they play their piece. Coda Music has some interesting software called “Smart Music Studio” which will use your Mac to provide accompaniment for you. Any time you feel like it, you can work on your tone and your ability to listen. The neat thing about Smart Music Studio is that it can understand the melody you are attempting to play and will play with you. If you slow down, your computer will slow down, and if you you speed up, your Mac will keep right up with you providing accompaniment at the right speed. Smart Studio costs $100 and each song which you wish to play must be purchased. On average, songs cost $25 a piece. Coda Music has recently allowed people to subscribe to a subscription service over the Internet where they can use the entire music library with over five thousand songs for about $100 per year. More information can be found at the their Web site:
http://www.codamusic.com/

Another problem which beginning instrumentalists have when they join a band is intonation. What happens when two people play a note but one is slightly higher or lower in pitch than the other? You will start to hear an annoying in-out pattern called beats or waves. Some instruments have notes which are almost always going to be a little flat or a little sharp and a skilled musician needs to learn how to physically adjust for that to make their instrument play in tune on every note. Coda Music makes some soft-
Create your own Internet radio station

Have you ever wanted to have your own radio station? Did you ever tune into a college FM or AM radio broadcast and think about what it would be like to create your own? With the Internet, it is possible to create a grassroots broadcast which can reach people all over the world.

A few years ago, it was pretty easy to create your own broadcast without any regulations. Times are different now. If you are broadcasting from America, you need to be careful what you put on the air. If you play any songs which are owned by a record label, you are entitled to pay some heavy royalties which come out to be something like $7 per song played per month aired per listener. Not only is it expensive, but it can get complicated. For example, you can’t play more than a specified number of songs from a particular album during a three hour period. This is called the “sound recording performance complement.” The list of stipulations and fees goes on and on. You are not even allowed to publish advance playlists for your listeners. For more legal information, you can visit the following Web sites:

http://www.kurthanson.com/
http://www.saveinternetradio.net/
http://www.riaa.com/
http://www.bmi.com/
http://www.ascap.com/

The legal ramifications shouldn’t scare you from creating an Internet broadcast if you really want to. It just means you need to spend some time to get the facts straight. In the old days, if people wanted to operate a shortwave radio transceiver, they needed a HAM amateur radio operator license. Perhaps in a few years, Internet broadcasters will need a license as well but for the time being there is none, so you need to study up and find out what the current laws are.

Because I’m not an expert on all the legal issues and, in fact, the laws seem to be changing rapidly at the moment, let’s move on to talking about the technical hurdles involved in making an Internet broadcast.

A company named “Live365” is dedicated to helping people create their own Internet broadcasts. For $7 a month, they give you space to store about
four hours of music on their computers. Live365 gives you software to alter the play order of this music but they will insert advertisements from time to time. This music is stored on Live365's computers which will allow for people to connect and listen from all over the world, regardless of whether your Mac is turned on or not. For $14 a month, they let Microsoft Windows users transmit a live broadcast directly from their home computer. This doesn't help us Mac users out any, though it may be worth buying a PC just for this purpose. The main disadvantage with both types of services from Live365 is that they add their own advertisements to your broadcasts and make it difficult for Mac users to do something like a talk show. The major advantage is that you are renting their computer services which allows for a large number of people all over the world to tune in to your music selection. You can find more information about Live365 at their Web site: http://www.live365.com/

If you are serious about having full control over your broadcast, what you'll need is a T1 connection from your phone company. This is a very stable and fairly fast Internet connection which can only be had in a metropolitan area. This connection will allow you to use your own computer to directly transmit content to listeners on the Internet, negating the need for a service, such as Live365. With a T1 connection, you can broadcast directly to roughly twenty-five simultaneous listeners at 56 kbps which produces a decent audio quality. In the Washington DC metropolitan area, a T1 connection will cost you about $200-$700 per month. For software on the Macintosh, the most respected is "Backbone Internet Radio." The least expensive version of Backbone Internet Radio is fairly pricey at $800. This software will allow you to create your own play lists and make your own talk shows. If your broadcasts become popular, you can upgrade the Backbone Internet Radio product and upgrade your Internet connection to something faster than a T1. The next step above T1 is T3 (there is no T2). The speed of a T3 connection is roughly twenty-eight times that of a T1. You can't get T3 speed from a home residence. You would need to purchase some special computer hardware from the Backbone Internet Radio company and place that at your phone company's premises in something called "co-location." From your home, you could use a DSL or cable connection to broadcast to your computer co-located at the telephone company and then have your transmission re-broadcasted to individual listeners from that point. You can find more information about Backbone Internet Radio at: http://www.backbone.com/

There are a few interesting Macintosh related talk shows that air on the Internet, here is a list of them:

Your Mac Life with Shawn King → http://www.yourmaclife.com/
The Gamesome Mac with Sean Smith → http://www.mactvnetwork.com/
Mac Help Radio with Dru Richman → http://www.mactvnetwork.com/
Three on a tree is the popular name these days for a column-shift manual transmission. A car, such as my father’s 1966 Chevrolet Bel Air, could be purchased with a stick shift in the floor or on the steering column instead. It had a three speed transmission controlled via a stick on the steering column; hence, “three on a tree.” This not only allowed an extra person to sit up front, but it also allowed you to steer with one hand while holding your honey in the other. You could work the clutch while she shifted gears. How romantic!

You still here? Good! You must be the type that doesn’t mind buying a used car. If you do buy a new car from the showroom floor, at least you’ve really thought about the decision and are excited about the specifications of the vehicle. You understand cars. You know how to evaluate horsepower, engine compression, low revolution versus high revolution motors, fuel injection versus carburetors and gear ratios. Maybe you even know what “three on a tree” means. This chapter is for you. It will give you a fundamental understanding of how computers work and enough knowledge to compare the relative merits of different types of computers.

Number theory

As stated earlier in this book, computers are the ultimate communications tool. But, at the basic level, they are nothing more than an adding machine. To fully grasp how they work their magic, we must learn how they represent numbers and do their computations. Only then can we appreciate the value of a particular computer processor (or CPU).

- Binary (bits and bytes)

Electrical impulses are the fuel that drives a computer processor. It is relatively easy for engineers to detect if electrical current is flowing through a particular region of a computer. Is there current, or not? This is a simple check and is analogous to connecting or disconnecting your TV set’s power plug from the wall outlet. The word binary is derived from Latin and has the meaning of “two.” It describes two possibilities: current or no current, there or not there, true or false, yes or no, 1 or 0. What does the following mean to you?:

True False True True → Yes No Yes Yes → 1011
The three examples at the bottom of the previous page are examples of one binary code. Its meaning is unclear because it is taken out of context. Engineers have created many sets of codes for making sense out of binary combinations.

Human beings are not used to binary codes. Before we explain binary codes in more detail, let's spend some time discussing how the human brain likes to process mathematics. Most of us have ten fingers. Those of us who don't can readily visualize ten fingers. Because of this, many cultures have developed a *decimal* number system. The word *decimal* is derived from Latin and basically means "ten." We can count on our fingers, so it makes sense that humans would gravitate to a counting system based on ten possibilities. In the ancient middle east, Semitic people created a written system for understanding these ten possibilities. These are the numerals 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. Count them. There are ten different digits there. Realize that zero is counted as one of them. To represent the value of ten, we need two digits; namely 1 and 0 to make 10. We are so accustomed to seeing numbers in the tens, hundreds and thousands that mentally, we don't stop to realize how this number system works. Consider the example below:

<table>
<thead>
<tr>
<th>10^3</th>
<th>10^2</th>
<th>10^1</th>
<th>10^0</th>
</tr>
</thead>
<tbody>
<tr>
<td>thousands column</td>
<td>hundreds column</td>
<td>tens column</td>
<td>ones column</td>
</tr>
</tbody>
</table>

\[
\begin{array}{cccc}
4 & 0 & 9 & 6 \\
\end{array}
\]

= 4,096

If your friend said he spent $4,096 on a new car, you would know exactly what he meant without even considering the example above. Let's consider it now. What it really means is take \(4 \times 10^3 + 0 \times 10^2 + 9 \times 10^1 + 6 \times 10^0 = 4,000 + 0 + 900 + 6 = 4,096\). Very interesting! We now understand why we can use ten possibilities (0 through 9) to represent any number.

You will find it intriguing to know that not all human cultures use a decimal system (ten digit system). The Mayans, for example, had two different systems. One system had five possibilities, probably because one hand has five fingers. The other system had twenty possibilities. Perhaps this is because they combined the number of fingers and toes. Some African tribes have a counting system based on six possibilities. This is four fingers plus two knuckles on the thumb. In the 1960's, a Brazilian mathematician named Ubiratan D'Ambrosio coined the term *ethnomathematics* to describe the study of all mathematical systems in the world.
As stated earlier, it is relatively easy for engineers to develop electronics which can sense if a current exists or not in a particular place. This two possibility system is called the binary system. Engineers have tried to create systems that differentiate between three or more possibilities. This involves detecting the amount of current in a particular area. The popular conclusion is that building electronics to recognize any more than two possibilities is very difficult and inaccurate. While it would be great to use a decimal mathematics (based on ten possibilities), the difficulty of building such a computer puts it out of reach.

The binary system of mathematics is not something humans think or calculate in. The computer must do its arithmetic in binary but computer software must convert the results into decimal when it displays on the computer screen. For example, how does a computer represent the number 4,096? The example below shows how:

<table>
<thead>
<tr>
<th>2^12</th>
<th>2^11</th>
<th>2^10</th>
<th>2^9</th>
<th>2^8</th>
<th>2^7</th>
<th>2^6</th>
<th>2^5</th>
<th>2^4</th>
<th>2^3</th>
<th>2^2</th>
<th>2^1</th>
<th>2^0</th>
</tr>
</thead>
<tbody>
<tr>
<td>4096</td>
<td>2048</td>
<td>1024</td>
<td>512</td>
<td>256</td>
<td>128</td>
<td>64</td>
<td>32</td>
<td>16</td>
<td>8</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

10000000000000

4,096

Confused? What the example shows is that the number 10000000000000 (in the binary system) is equivalent in value to 4,096 (in the decimal system). That means you take $1 \times 2^{12} + 0 \times 2^{11} + \ldots + 0 \times 2^0 = 4,096 + 0 + \ldots + 0 = 4,096$. What is most troubling here is how alien all of this looks and sounds. You see the number one followed by a bunch of zeros. This looks awfully large and so perfect; yet somehow it equals 4,096. Slow down and look at the math. As strange as it may look at first, it really does make sense.

You may wonder, “Can the binary system account for all the same numbers which are in the decimal system?” That is to say, if you pick any decimal number like 497, can it be represented in binary? The answer is yes. Both the binary system and the decimal system are valid methods for counting, and they can represent the same values. To prove this, let’s look at the binary representation for 0 through 9. Those ten digits are the building blocks of the decimal system. Surely if we can represent all ten of these values in binary, then we can represent any decimal number in binary. Turn the page for examples:
### Advanced Topics for the Curious

#### Binary Representation

<table>
<thead>
<tr>
<th>$2^3$</th>
<th>$2^2$</th>
<th>$2^1$</th>
<th>$2^0$</th>
</tr>
</thead>
<tbody>
<tr>
<td>eights column</td>
<td>fours column</td>
<td>twos column</td>
<td>ones column</td>
</tr>
</tbody>
</table>

- **$= 0$**

- **$= 1$**

- **$= 2$**

- **$= 3$**
2^3  2^2  2^1  2^0
  eights column  fours column  twos column  ones column

0 1 1 0 0 = 4

0 1 0 1 1 = 5

0 1 1 1 0 = 6

0 1 1 1 1 = 7
So there we have it, all ten binary representations of 0 through 9.

The term *bit* is the name given to one individual binary digit. The binary number 1001 is made up of four bits.

The term *byte* is a grouping of eight bits. Bytes are generally the minimum amount of data that engineers work with. 1 byte = 8 bits = $2^8$ possibilities = 256 possibilities. The English alphabet, with all its punctuation, is only 120 something symbols. This is easily represented by a single byte. Some Asian languages are made up of thousands of symbols. Engineers call Asian languages "double-byte" languages because one byte is not enough. You need at least 2 bytes = 16 bits = $2^{16}$ possibilities = 65,536 possible symbols. There are many different methods for mapping binary combinations to letters of the alphabet. Each method has a lookup table. All the methods work in the same way. Their only difference is that the values in the tables are different. The most popular system for the English alphabet is called ASCII. It stands for American Standard Code for Information Interchange. A popular double byte system for handling nearly all languages is called Unicode.

We will come back to bits and bytes when we talk about different types of computer processors.
There are eight \textit{bits} to every \textit{byte}.

TCP/IP stands for “Transmission Control Protocol / Internet Protocol.” Big endian format was arbitrarily chosen as the standard.

- Big endians and little endians

Normally, the topic of big endians and little endians would be the realm of a more advanced book on software programming or computer design. But because the topic has some important implications for Macintosh enthusiasts, it is a good idea that we discuss it.

Big endians and little endians...cute sounding terms! The first time I learned of their existence, I didn't know their history. Immediately, the children’s nursery rhyme, “One little, two little, three little Indians...” came to my mind. It is obvious that they are a type of pun. We'll learn the real history, but first let’s discuss what they physically are.

The byte is the smallest amount of data that a computer will read or write. Bytes are read from and written to disks. Bytes are also stored in computer RAM. Generally speaking, a number needs four bytes of space. This allows for a significantly large value for many calculations. $4 \text{ bytes} = 8 \times 4 \text{ bits} = 32 \text{ bits} = 2^{32} \text{ possibilities} = \text{a maximum numerical value of } 4,294,967,296.$

The four bytes which make up a number can be thought of as four individual symbols. How should they be written? There are two choices, either left to right (like English) or right to left (like Hebrew). Both methods have their merits, and neither is superior over the other.

With a number like 4,096, the most significant digit is the numeral “4.” This is because 6 is relatively insignificant in comparison to 4,000. The thousands place is more significant than the ones place. When writing a four byte number, you can choose to write the most significant byte first (big endian) or the least significant byte first (little endian). It may be easier to think of the most significant byte as the “big end” and the least significant byte as the “little end.”

Big endian is the method employed by all Macintoshe s. This is also the method used by Internet communications (TCP/IP), Java software and the majority of computer processors. It has a few advantages. By reading the first byte (the big end or most significant byte), you can immediately figure out if a number is positive or negative. You can also figure out roughly how large the number is, but more importantly, the data is stored in a way that is easy to convert to decimal format.

Little endian is the method employed by all Microsoft Windows PC computers plus a few others, such as the DEC Alpha (which also can run Microsoft Windows). The main advantage of the little endian method is double precision math. Suppose the 4 byte number is not large enough, you could combine 8 bytes together to create a much larger number. There is a performance penalty to do this because you are essentially creating extra precision through clever software design, rather than design-
ing the computer for extra precision. By putting the least significant digits first, the software is easier to write. I won't show how the software is easier to create, but ask you to accept it as fact.

Problems arise when information needs to be shared between big endian and little endian computers. Software designers need to know if and when they must rearrange numerical data for proper processing. If the numbers must be modified before and after using them, there is a corresponding drop in computing performance. Because of this, there have been, and continues to be, some arguments about which endian method is the best. Life would be easier for the software designer if one endian method was clearly made the standard.

The Macintosh runs on a PowerPC processor; this is the broad name given to a series of computer chips. Until recently, all of these processors had the ability to emulate a little endian computer even though they are basically big endian processors. A software tool called Virtual PC allows you to run Microsoft Windows on the Macintosh. This software utilized this unique ability of the PowerPC to pretend it is a little endian processor. The latest chip in the PowerPC family is the G5. It is a great chip that we'll talk about in more detail later in this chapter; however, the G5 no longer has the ability to fake and act like it is a little endian machine. The result? You can't use Virtual PC on a G5 powered Macintosh. At least not until Microsoft rewrites Virtual PC which they are probably doing at this moment.

As to the history of the terminology "big endian little endian," we need to step back and look at a literary classic. In 1726, Jonathan Swift wrote a book titled "Gulliver's Travels." Young children could enjoy the story with its crazy characters and interesting predicaments; however, it was also a scathing satire on politics which were happening in Europe. At one point in the story, the ruler of a town called Lilliput declared that all eggs must be cracked open on the little end before they were eaten. A significant group of the population was already accustomed to breaking eggs on the big end and were furious. Fighting ensued over this silly topic; not unlike the fighting between the Protestant Church of England versus the Catholic Church of France in the 1700's. In the story, the people who favored cracking on the little end of eggs were called "little endians" and the other side was called the "big endians."

In 1981, a man named Danny Cohen wrote an article titled "On Holy Wars and a Plea for Peace." In the article, he addressed the really bitter debate about how to create computer processors and where to store the most significant byte of a number. He equated this struggle with Gulliver's Travels and hence the terms "big endian" and "little endian." He felt it really didn't matter which method processor designers used because neither method was clearly superior. But unlike the story in Gulliver's travels, where it really didn't matter which end of the egg was

Virtual PC does not run on the G5 processor powered Macs. This is true as of 9/13/03 but should hopefully be rectified in the not too distant future.
broken, he argued that one method should be declared the standard for communication between computers. Danny Cohen wanted someone to flip a coin to choose the winner.

**Processors**

There is never one single solution to any problem. Engineers have all worked and developed many different types of computers. The processor, also called a CPU, is the most significant component. It is comparable to the engine of an automobile. For sure, there are other aspects that are important but the processor dictates what types of software can be run and directly affects the speed of the computer.

- **CISC vs. RISC**

  We can broadly break processor designs into two camps, CISC and RISC. Both methodologies are good and produce excellent results. Which is better is more a religious question than anything else.

  CISC stands for “Complex Instruction Set Computer.” The premise is that it is best to have a processor with many different instructions. Each instruction can be written to be efficient and do a single task really well. The result is a relatively large chip that does most of its calculations one at a time. To get good performance, the processor must be run at a very high speed.

  RISC stands for “Reduced Instruction Set Computer.” These types of chips are a newer idea and came after the CISC design. The idea is that many of the complex instructions on a CISC chip are rarely used. If that’s the case, why not eliminate them in favor of a small set of instructions which can be combined together to do complex operations. Sometimes the small instruction set will need to combine instructions over top of each other so many times that it would have been better to have a single complex instruction for that task; however, these cases rarely happen. It seems smarter to design a lean and mean processor that is really good at handling the common instruction requests. Designing a processor this way leads to a smaller chip and one that can better facilitate commands running in tandem.

  From reading the two definitions above, it sure seems that RISC is the logical choice for a superior processor. In reality, this is not so clear. Some companies continue to produce powerful CISC processors but the vast majority of companies have converted to the RISC paradigm.
• Java Virtual Machine

Java is a programming language developed by a company named Sun Microsystems. Java runs on a fictitious computer processor called the Java Virtual Machine. The fact that the Java Virtual Machine does not exist is enchanting. What Sun did was look at many different real physical processors and try to find some commonalities. Then Sun wrote a piece of software which will emulate the Java Virtual Machine on any computer processor. So when you are running software written in the Java programming language, you are really invoking the Java Virtual Machine software. This means so long as the Java Virtual Machine runs on computer XYZ, the software that a Java software engineer creates can run without worry on computer XYZ.

This is the real beauty of Java, “write once but run everywhere.” Normally, software written for a Macintosh will only run on a Mac. Software written for Microsoft Windows will run only on that platform. Software written for the Java Virtual Machine will run almost anywhere.

The drawback is that Java is essentially software running other software. It can do this pretty quickly but it usually can’t outdo the speed of software written in other programming languages. Java does an amazing job of utilizing most of the important operating system features of the computer it is running on. Still, without additional work, it is difficult to utilize esoteric (though sometimes useful) features of your favorite operating system.

The Java Virtual Machine is a big endian processor. When it runs on a little endian machine, the Java Virtual Machine must constantly change the byte order of numbers to get proper results.

The Java Virtual Machine is a 32 bit design. This means it deals with data in 4 byte chunks. This is common today.

The Java Virtual Machine for Mac OS 9 is a bit outdated but not bad. It is usually not installed by default; a person using OS 9 must download the “Macintosh Runtime for Java” called MRJ and install it. Mac OS X has a very good implementation of the Java Virtual Machine preinstalled. Apple has arguably the best Java solution, even better than Sun Microsystems (Java’s creator). Java exists for many other operating systems but usually it must be downloaded and installed separately. Mac OS X is unique in that Java comes preinstalled.

• Intel

Intel is the most well known chip maker for the Microsoft Windows PC. This chip is so popular that many companies have created compatible
chips at cheaper prices in the hopes that people will use them instead. The most popular of these companies is the Taiwanese chip maker AMD. All of these chips fall into the category of the CISC architecture. These companies have miraculously been able to continually enhance their chips and squeeze immense power out of them. Many engineers complain that these processors are hard to program for and have an ugly design. Beauty is in the eye of the beholder and the truth is that Intel chips and compatibles are fast and generally work well.

In addition to being a CISC architecture, Intel chips are also little endian machines. Though every year Intel releases improved processors, they haven’t changed much since the late 1970’s. They are the same family of processor since way back then and can run much of the same software.

Intel chips of the 1970’s were 16 bit machines which handled data in 2 byte chunks. Today’s chips are 32 bits and handle data in 4 byte chunks. Soon AMD plans to release 64 bit chips which can handle data in 8 byte chunks. In contrast, Intel doesn’t plan to release any such chip until 2007.

As of 9/13/03, the fastest Intel Pentium 4 chips run at a whopping 3.2 Gigahertz (that is 3,200 Megahertz!). Again, just as in automobile engine horsepower, Gigahertz speed is not the only indicator of computer performance. But at such a high Gigahertz rating, this is definitely not a slow computer, regardless of how the rest of the computer is constructed. It will be interesting to see for how long Intel can keep pushing up the Gigahertz speeds and continue to improve performance without radically changing their processor design. Anyone who purchases one of these PCs should really do their homework. Pentium chips running at 3.2 Gigahertz use a lot of energy and produce a great deal of heat. This heat can cause the system to fail in a few years time. In my opinion, generally the best PC systems are made by a company called Alienware. You can view their Web site at http://www.alienware.com/

- 68k

Motorola makes a line of processors collectively known as the 68k family. This is because the first processor was the 68000 (sixty-eight thousand). The “k” stands for “thousand.” The very first Macintosh, the Mac 128k, used the 68000 processor. Subsequent Macs used the 68020, the 68030 and finally the 68040 (the Macintosh Quadra series). Many other computers used the 68k chips as well. Atari computers (not the video game consoles) used them, so did early Sun Unix workstations, as did NeXt workstations and even the beloved Amiga. In fact, an Amiga clone even used the 68060 processor. It was called the “Draco.”

The 68k family has always been considered a good chip design and they are still made today. These are all CISC processors with some RISC like
features. Back in the day, Intel chips only had 4 registers (think very high speed RAM). In contrast, the 68k family had 16 general purpose registers but most true RISC chips have 32. Since register memory is blisteringly fast, RISC machines utilize them to great effect. The 68k family was a merger of some of the best ideas of both CISC and RISC. Since the mid 1990’s, few computers were built with 68k processors because Motorola decided that true RISC chips are the way of the future and so Motorola focused on creating the PowerPC family.

The 68000 processor was a 24 bit machine. This means it could process data in 3 byte chunks. Subsequent 68k processors were all 32 bit chips and could handle 4 bytes of data.

When Apple made the switch from 68k processors to PowerPC, they created one of the biggest unseen feats in the history of computing. The 68k chip and the PowerPC are totally different beasts. There is no way that any of the old software would be able to run on the new PowerPC based Macs. Apple brilliantly built a 68k Virtual Machine into System 7.1 and later Mac OS versions. This allowed the Macintosh to simply run almost all software that was designed for the 68k family of processors. It worked so well that most people never knew any of this was going on. I believe that this amazing accomplishment is what prompted Sun Microsystems to seriously think about a Java Virtual Machine. Sun had previously released a little known language called “Self” which never took off. Once they enhanced Self a bit and gave it a Virtual Machine, the world quickly took note making Java perhaps the most popular programming language in use today.

• PowerPC

In the mid 1990’s Apple, IBM, AT&T and Motorola joined forces to create what they felt to be the killer processor family, the PowerPC. Apple had significant input on the design, AT&T had a small amount of say-so as well, but it was Motorola and IBM that really took to implementing real processor chips. The PowerPC family is based on a RISC architecture since all four companies believe this offers more room for improved processor design over CISC.

The first chip was the PowerPC 601, followed by the 603e and the 604. There were plans for an ultra high performance 620 which never materialized. At the time, all four companies thought they could dramatically outdo Intel’s processor performance and create a PowerPC computing platform which could run both the Mac OS and Microsoft Windows. The proposed computer system was called CHRP (pronounced “chirp”) and stood for “Common Hardware Reference Platform.” Microsoft showed little interest in making their Windows operating system run on this platform and Intel quickly rallied with faster Pentium processors. Though
Source code are the files software engineers create in a particular programming language. Later, source code gets translated into computer code to make the software we use.

Computers actually handle numbers in two basic ways, integers and floats. Integers are well rounded numbers used for counting such as: 4, -7, 33, 981. Floats are numbers with a decimal point. The decimal point differentiates 972.83 from 97.283. Mathematicians call this “floating point” arithmetic hence the name, “float.” The PowerPC chips are peculiar because they handle integers as 32 bit (4 byte) values but floats as 64 bit (8 byte) values. This puts their performance roughly on par with Intel Pentiums in terms of integers, but they are much more accurate and quicker in terms of floating point arithmetic. Incredibly fast floating point math is a big advantage for programmers on the PowerPC platform. Previously, programmers were forced to use integer tricks to achieve adequate speed from 3D and other demanding software applications. Now programmers have started using simpler methods based on typical math which allow for fractions (floating point). Not only is their source code easier to understand, but in many cases it is faster than using the old integer tricks.

The PowerPC 601, 603e and 604 found their way not only into Apple made Macintoshes but also in Apple approved clones too. The Taiwanese company Umax made a series of popular Mac clones as did Motorola and a startup company named Power Computing. This was a very difficult time for Apple. The PowerPC was faster than Intel’s offerings but not by much. The idea of letting clone makers sell Macs and pay Apple royalties actually tore into Apple’s Macintosh sales and probably cost them money.

It is worth noting that Power Computing was very popular during the mid 1990’s. Their computers were boxy and ugly looking, not any different from Microsoft Windows PC computers. But their operating system was all Mac and the computers were significantly cheaper and often faster than Apple’s offerings. Coupled with that was
a downright edgy ad campaign with slogans like “Let’s kick Intel’s ass!” In 1997, when Apple purchased NeXT for $400 million, Steve Jobs came back to the helm. One of the first things Steve Jobs did was get rid of the clone makers and begin secret designs of the iMac. Apple ended up purchasing Power Computing and absorbing many of their engineers and workforce. Both Umax and Motorola were abruptly forced to stop producing clones and lost a great deal of money in the process. You can see some prime examples of Power Computing advertisements in the margin.

• G3

In 1998, Apple released the “bondi blue iMac” with a 233 Mhz PowerPC G3 processor made by Motorola. They called it a G3 because they felt it was a third generation processor. This offered a significant speed increase over previous PowerPC chips and was worthy of the new title. Apple only supports running Mac OS X on Macs which have a G3 processor. This is because OS X has a great deal of visual eye candy, such as transparency and animated effects, which need at least a G3 to provide a snappy and responsive computer experience.

The G3 is not drastically different from the previous PowerPC processors. In fact, it is closely related to the 603 processor but had a much higher Mhz. The G3 only used about 1/5 the power of Pentiums at the time. This allowed it to be used in both desktop Macs and PowerBooks. The Mac desktops were slightly faster than their PC competitors, whereas the Mac PowerBooks were much faster than PC notebooks. As a testament to the speed and durability of the G3 chip, the Cocoa Nuts Web site is actually run on a circa 1998 PowerBook G3 series. This computer has a 266Mhz G3 processor and runs Mac OS X. Not only does this computer handle our Web site, but it is also the secretary’s computer and our fax machine.

• G4

The fourth generation PowerPC processor is usually only slightly faster than a G3 which is running at the same Mhz. Namely, a 500 Mhz G4 is not much of an improvement over a 500 Mhz G3 for most tasks. Where a G4 really comes into its own is when a software engineer learns how to design for a vector processor. The term “vector” and “array” are interchangeable. They designate an ordered grouping of numbers.

In a typical processor, you are only able to multiply two numbers at a time and obtain a result. For example: $4 \times 5 = 20$. With a vector processor, you can multiply two arrays at a time and get one result. An array is just
Linear Algebra is the most important math skill for aspiring computer programmers.

Linear Algebra is a branch of mathematics that deals with vector math. It was created for its merits of “beauty” in the eyes of mathematicians because they found linear algebra intriguing and without any practical application. It wasn’t until computers were invented that engineers discovered a constructive use for this “artistic” linear algebra. Computer memory can manipulate large arrays of equations. The rules and theories of linear algebra allowed engineers to better visualize how they could work with numbers on a computer. The average computer can add, subtract, multiply or divide only two numbers at a time. Vector computers, also known as supercomputers, can do arithmetic on entire vectors at a time as depicted in the example in the middle of this page.

Say you had sixteen pairs of numbers which need to be added together like: 1 + 1, 2 + 1, 3 + 1, etc. On a traditional processor, you would need to do sixteen individual addition operations to get the result. On a vector processor, such as the one in the G4, it is possible to add all sixteen pairs of numbers in one quick motion. This is incredible. It means that a 500 Mhz G4 processor will be sixteen times faster than a 500 Mhz G3 processor for this particular job. To get this level of performance, a smart software engineer must rethink their programming effort to take advantage of a vector processor. They must arrange each of the numbers they wish to add into vectors (arrays).

This example shows two vectors added together to form a result vector:

```
|  1 |   1 |
|  2 |   1 |
|  3 |   1 |
|  4 |   1 |
|  5 |   1 |
|  6 |   2 |
|  7 |   2 |
|  8 |   2 |
|  9 |   2 |
| 10 |   2 |
| 11 |   2 |
| 12 |   3 |
| 13 |   3 |
| 14 |   4 |
| 15 |   4 |
| 16 |   4 |
```

```
+ vector2
```

```
= result_vector
```

```
|  2 |
|  3 |
|  4 |
|  5 |
|  6 |
|  7 |
|  8 |
|  9 |
| 10 |
| 11 |
| 12 |
| 13 |
| 14 |
| 15 |
| 16 |
| 17 |
| 18 |
| 19 |
| 20 |
```
The most popular supercomputer company is "Cray." You can find them on the Internet at their http://www.cray.com/ website. Traditionally, supercomputers were strictly vector processors. Customized software was written for them to solve unique mathematical challenges. Usually, each challenge needed its own software application to be developed. The government uses supercomputers to crack codes and ciphers from foreign nations. Industry uses supercomputers to track weather patterns and other complex problems which need to process enormous amounts of data.

The G4 is an interesting animal because it is a very nice traditional computer (also known as a scalar computer), but it also has a vector processing component integrated inside. Because not all problems are easily tackled by a vector processor, yet other problems get an intense speed boost, the G4 is a marriage of the best of both worlds. Apple calls the vector processing component of the G4 the "Velocity Engine." Motorola calls this same component the "AltiVec."

We see the benefits of the vector processing capabilities of the G4 in almost any big named software Application. Adobe Photoshop uses the Velocity Engine, so does iMovie and IBM's ViaVoice dictation software. OS X uses the Velocity Engine to animate the "genie effect" you see when you collapse a window into the Dock. Some of the OS X screensavers show images that zoom into view. This zooming is done with the Velocity Engine. Other software developers often haven't spent the time learning how to write software which takes advantage of vector processing. For these applications, the G4 is roughly the same speed as a G3.

The G4 Velocity engine is basically a 128 bit (16 byte) processor. This is another way to judge the speed of this component by the amount of data that it can suck through. Even though Pentiums run at a high Megahertz, they can only pull in 32 bits of data (4 bytes). The Velocity Engine can process four times the amount of data. In automobile terms, the Velocity Engine is a low revolution motor with a great deal of torque. Low revolution and high torque engines can drive a higher gear ratio to achieve the same miles-per-hour as a high revolution engine with a low gear ratio. The traditional aspects of the G4 are the same as the G3 and earlier PowerPC processors. The G4 can do 32 bit (4 byte) integer calculations and 64 bit (8 bit) floating point.

Another important point to the G4's credit is that it was created for SMP which stands for "Symmetric Multiple Processors" or "Symmetric Multithreading. This is where engineers put two or more processors into a single computer using the philosophy that two heads are better than one. If an operating system is written to make use of two processors, it can divide tasks amongst them and practically double the speed of the computer. The G3 and earlier PowerPC processors can be used for SMP. In fact, the early PowerPC 601 was used in the BeBox computer from the
The Velocity Engine is Apple's name for the vector processing capabilities of the G4 and G5. Motorola calls this the AltiVec.

Big endian, Little endian? for more information on this topic see the earlier section of this chapter titled “Big endians and little endians.”

Virtual PC will need to be rewritten to make use of the Permutation Engine to run at optimum performance on the PowerPC G5.

French company Be and could use up to eight of them at once! What is particularly unique about the G4 is that information can be shared directly from processor to processor. This is useful when data needed by processor A currently is located in processor B. This extra capability of the G4 allows SMP capable operating systems, like Mac OS X, to derive additional performance.

- G5

The fifth generation PowerPC processor is very appealing, as is the Mac that was developed to utilize it. Let us discuss the processor first and then get into other aspects of the entire computer.

The G5 is a full 64 bit processor. This means that not only are floats 64 bit (8 bytes), but now integers are also 64 bit. Software will need to be rewritten to make use of extra precision and amounts of storage that the 64 bit design offers. Previous PowerPC processors could do 64 bit floating point math but the integer math and access to RAM was all 32 bit. The G5 is able to run current 32 bit software without a performance penalty, but when software is rewritten there will be a boost in speed. In addition, the 128 bit AltiVec remains a big part of the G5 as it was in the G4.

The G5 is strictly a big endian processor. Previous PowerPC chips could pretend they were little endian but the G5 has lost this ability. Very few software applications made use of this functionality with the exception of one important title. Virtual PC gives Macintosh enthusiasts the ability to emulate a complete Intel Pentium PC for those times when they must run a software tool written for Microsoft Windows. Since the Intel Pentium is a little endian computer, the Virtual PC software made use of this little known trick of the PowerPC processor to mimic a little endian chip. With the G5’s removal of the “Hey I can do both big endian and little endian” capability, Virtual PC is now totally incompatible. Virtual PC will need to be rewritten to take advantage of the enhanced Permutation Engine of the G5.

The Permutation Engine was present in the G4 as part of the Velocity Engine. In the G5, it has been placed in its own optimized location of the G5 separate from the Velocity Engine. The word “permute” basically means to change the order of something. The Permutation Engine rearranges bits in memory. One potential use of this is to change a piece of Integer data from little endian to big endian order, with almost zero performance penalty. Virtual PC will need to use this ultra fast Permutation Engine of the G5 to make their software run as fast as possible. There are a number of other fascinating uses for the Permutation Engine which relate to quick sorting of data. Clever programmers will find the Permutation Engine invaluable.
The 64 bit nature of the G5 means that much more data can be utilized by the processor. Wider pipes allow more water to pass through. A 64 bit chip simply has wider pipes than a 32 bit chip and so allows more data to pass through. This is of limited value if data can not get to the G5 quickly. The Macintosh G5 Tower has a very fast two lane highway to transfer information in and out of the G5. This is the first time that a computer costing less than $3,000 has done this. To fully illustrate the point, a diagram is in order. The graphic below depicts two different computers. One computer uses two G4, Intel or other processors for SMP. The second is a Mac G5 Tower with two processors for SMP:

![Diagram showing two different computer architectures](image)

Traditional computers are designed to transfer information on a bidirectional path. This is like a one lane bridge. You know the type, the kind you often find crossing a stream on a country road. If you drive up to the bridge, you must wait for the person coming from the other side to pass before you can get on. If data is presently entering the processor, data which is currently ready to leave must wait.

The approach Apple utilized in the Macintosh G5 tower ensures that data never has to wait. Each processor on the G5 has a two lane path called a “two way unidirectional path.” This would be like a two lane bridge on a paved road. Two cars can traverse the bridge at the same time, even though they are going in opposite directions. It costs more to build computers this way. Apple is making a statement that they aren’t holding anything back; they are trying to make the fastest computers possible.

A 64 bit processor can access up to 18 exabytes of RAM, which is more than I can even comprehend (18 billion gigabytes to be exact). That fact is just an upper limit. What really matters is how much RAM a particular computer is designed to handle. The Macintosh G5 tower can utilize up to 8 gigabytes of memory! Most people are happy with 384 megabytes and satiated at 1 gigabyte.

Apple is ready to march forward with what is arguably the most advanced computer on the market.
Technically, some Macs which have pre-G3 processors will also run OS X, but they are not supported by Apple. You will need to tinker a bit with older Macs and install software called "XPostFacto" to run Mac OS X. More information can be found at: www.macsales.com

• Megahertz and horsepower

One of the main motivations of this chapter is to give the astute reader ample knowledge of computer hardware. This allows you to better understand which Mac may be best for you, especially if you plan to buy a used machine.

Megahertz is an easy way for people to discuss the speed of a processor. The higher the megahertz, the faster the processor. This fact is simple to understand but it does not give the full story of computer performance. It is a mistake to compare the megahertz of a chip in the Intel family to a chip in the PowerPC family. In this particular example, you can multiply the megahertz rating of a PowerPC chip by two which will yield a megahertz rating for a comparably powerful Intel chip. More concretely, a 500 Mhz PowerPC will perform most tasks as quickly as a 1,000 Mhz Pentium.

A question you may be asking yourself is “How powerful a processor do I need?” The truth is computers have gotten quite peppy in recent years. You may be perfectly happy with a model that is a few years old. Any Mac with a PowerPC chip will allow you to get on the Internet and write letters. If you join a Macintosh user group, you may be able to find a PowerPC 601 powered Mac with an assortment of software for only $100 to $200. Even if your budget is tight, I’d still set my sights slightly higher and give serious consideration to a Mac with a G3 processor. The G3 chip is a prerequisite for running OS X and you will have a significantly faster computer at a cost of $300 to $400 for G3 Macs in the 233 Mhz to 400 Mhz range. Of course, if you’d like to make movies, your best bet is to purchase a new Mac. Movie making puts a strain on even the fastest processors. In addition, you’ll need a large hard drive and a SuperDrive for putting your movies on a DVD. A new iMac will cost about $1,800, but it will give you everything you’ll need. It is worth every penny.

As a final thought, to put everything in perspective, consider the following. In 1999, Apple released a Macintosh tower with a 500 Mhz PowerPC G4. These computers were considered so powerful that the US government would not allow Apple to sell them to China, Iraq and North Korea. This means these Macs imposed a significant threat. In skilled hands, they could be used to crack codes and ciphers. Intel Pentium based machines never had this restriction. In fact, I can’t remember another time that a $3,500 computer was considered as dangerous as a nuclear weapon. In 1997, the University of California at Irvine created a custom computer with the exact same performance as the 500 Mhz G4 Macintosh, but it costed $50,000 to build. Technology advances quickly. While that 500 Mhz G4 is slower than today’s offerings, I would hesitate calling it slow. As a side note, the US government must have significantly enhanced the way that they create secret codes because the export restriction has been lifted on even the latest chips of the PowerPC processor family.
NEW IN OS 10.3 (PANTHER)

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NEW IN OS 10.3 (PANTHER)

Panther is the popular name for Mac OS 10.3, the latest operating system from Apple. The introduction of a new operating system is always surrounded with a bit of excitement mixed with apprehension. Of course, Apple needs to draw a revenue and sales of a new OS does this. Some people welcome the changes and innovations found in a new system; yet others are worried about those changes and the time it will take to learn and understand them. The jump from Mac OS 9 to Mac OS 10 is huge. The jump from 10 to 10.1, to 10.2 and now to 10.3 are all comparatively minor. The new Panther OS definitely offers many improvements and is worth the purchase price but you should not feel that it is a “must have” upgrade. Let’s discuss the aspects of Panther which stand out.

Improved Finder Window

Many critics say that before Panther came along, the Finder window was “computer-centric” but now it is “user-centric.” First, allow me to explain what these two new terms mean; then we can discuss what Apple is doing. There has been quite a bit of misinformation regarding the new Finder Windows but we’ll set the record straight.

Computer-centric tries to explain in a single word that the previous Finder Window showed people too much information. Rather than showing you only what you need, such as files you created and applications you use, the Finder showed you the entire structure and layout of your Hard Disk. See the graphic below for an example of Jaguar’s typical Finder Window:

![Finder Window Graphic]

Take a close look at the picture of the older Finder Window above. My personal user directory which contains all my files is “recurve.” Notice how this important directory is four levels down from the top. That means a person must navigate through four levels of structure to find the files which...
they use all the time, such as letters and other documents. That many levels of indirection can’t be good, can it? Or can it?!

The advantage of the older Finder Window is that it gives you a good feel for what is stored on your hard drive and where it is located. You don’t need to read a manual. You can explore the entire structure on your own. Clicking on the icon labeled “Home” at the top of the window will take you immediately to your important place where all your documents are located. Likewise, clicking on “Applications” will take you directly to where all of your software titles are stored. You can add any folder you want to the top of the Finder Window, such as my folder for pictures that I’m contemplating keeping called “undecided pics.”

The disadvantage of the older Finder Window is that, for many of us, the complexity of using a computer is nearly overwhelming. Giving us access to so many different locations on our hard drive is equivalent to loosing us in a sea of possibilities. There are many people who really get lost trying to get to their files. This has led Apple to think of additional ways of displaying files to us in the Finder which we see in OS 10.3 Panther.

*User-centric* attempts to put only the files and software we need to accomplish our daily tasks in front of us. Take away all peripheral information and focus on the items we use most often from our hard disk. Please see the example of Panther’s Finder Window below:

The example above shows a “Icon view” of the “Documents” folder. If it were in “Column view,” you would only see the “Documents” folder but would not be able to scroll to a higher level. Everything in the “Sidebar” on the left is made to put the most important folders right within your grasp. The “Action button” makes many useful features, such as “Get info,” more readily visible. It has the same effect as doing a “Control-click” on a file in any version of Mac OS X or even Mac OS 9.
The advantage of Panther's new Finder is that it drastically simplifies what you see. For many people, this is good. Putting too many options in front of a person can lead to confusion if they are not already well acquainted with computers. Disks are grouped into the top half of the sidebar while folders are grouped into the bottom half. You can drag your own folders into the lower half of the sidebar in much the same way as you used to be able to drag folders to the top of the Finder Window. Disks which can be removed will have an eject button next to their icon in the sidebar.

The disadvantage of the new Panther Finder Window is that it can mask the true location of many of your important folders. Some people may not care too much about this and are happy to quickly locate their important files. Other people may become quite confused as they learn more about their computer and want to know where their folders are located. Consider the example shown below:

![Image of Finder Window]

In the example above, my folder titled "The Old Fart's Guides" is selected in the lower left hand corner. Notice that the contents are shown in the column on the immediate right. Now here is the big question, where exactly is this folder located? It is not obvious. In the old Finder Window, there was a scroll bar on the bottom of the screen which showed me the parent folders by dragging the scroll bar to the left. Now, there is no scroll bar visible. This single issue has baffled many Mac enthusiasts because they have lost a sense of relative location in the new Finder. They don't know where their documents really are on their hard drive.

Fortunately there is a solution or "trick" to the problem of finding out where your folders are located and being able to navigate to other parts of your hard disk. Simply go to the top of your screen, select the "Go" menu, then select the "Enclosing Folder" option as shown on the right:

Note: You can put folders which you use often in the far left column just by dragging them there. This makes them readily accessible.
The command key: Selecting the “Enclosing Folder” option will reveal a scroll bar at the bottom of the Finder Window and give you full control of your hard disk just as previous versions of the Finder did. Another way to invoke this more quickly, without using your mouse, is to use the “Command-up arrow” keyboard combination. Hold down the Command key (looks like a clover-leaf and is beside the space bar). Keep the Command key held then find the arrow key which points up and tap it once. The arrow keys are located in the bottom right section of your keyboard. Now you can see where the “Old Fart’s Guides” folder is in relation to other documents as shown in the graphic below:

I hope you can now appreciate the issues surrounding what is called the “computer-centric” and “user-centric” approaches to Finder Windows. Take some time to experiment with this and get a feel for it on your own system. If you don’t “get it” then don’t fret over it. You will in do time. Also, don’t be afraid to visit our Forums and ask questions.

Searches can be done in the top right corner of Finder Windows in Panther and in Jaguar. The difference is that in Panther the searches happen much faster. So fast that you can even see results starting to appear as you type your query.

Labels are something we had before OS X, and now we’ve got them back with Panther. Have you ever wished you could give your folders color highlights? This is exactly what labels do. Labels give you another organizational tool to separate the purpose of different files. For example: make your draft documents a red color. To add a colored label to a file, “Control-click” it and select a color from the list. Alternatively, click once on the file and then click on the “Action button” to select a color from a list.
Exposé

In the early days of computing, we could only use one software title at a time. When the Macintosh came out in 1984, a large number of people got their first taste of using windows to work on documents. A Mac hardly ever has just one window open. Usually, you have several windows open at the same time, overlapping each other. For the most part, this isn't a big problem because you can click on the icon of a particular open application in the Dock and all of its associated windows will rise to the surface. Still, your windows can get awfully cluttered, and it can get a bit difficult to sniff out the window you want to use.

Early Mac users remember using the command "Tile windows" to take all the windows of a particular software title and space them evenly side by side on the screen. This changed the width and height of all the windows but at least it made them all visible without overlapping. Not a perfect solution but a workable one. Today Panther offers a much better alternative called "Exposé."

Exposé is the name of the special way in which Panther can do away with window clutter. Look at the screen below as an example of a somewhat messy work environment that can be cleaned up by Exposé:

Cluttered work environment

F9 key exposes all windows

F11 reveals the desktop

F10 key exposes all windows of the currently open software title

Note: Exposé is a great feature but it only works with OS X software. If you have a software tool open that is running in "Classic" (which is essentially OS 9), expose will not show any of that application's windows. If you are using expose and feel that a window should be displayed but isn't, it is probably running in the Classic environment. Just go down to the Dock at the bottom of the screen to find your software tool and click on its icon.
By pressing the F9 key on the keyboard, all open windows will magically shrink and fit side by side on your screen. While keeping the F9 key held, you may click on any window, and it will rise to the surface while all the other windows fall behind. You can find all the “F” keys at the top of your keyboard. F9 through F11 are in the top right corner of your keyboard. To display all the windows of only the software title which is currently on top, hold down the F10 key. To temporarily hide all the windows and expose the desktop, hold down the F11 key.

**iChat AV**

iChat AV is covered in detail in the “Communicate with audio and video (video conferencing)” subchapter of “What is the Internet?” This video conferencing software comes with Panther and may be a big reason for some people to pay for the upgrade.

If you currently own Jaguar, you can purchase iChat AV for $30; however, many people will probably rather upgrade to Panther for $130.

**Fast User Switching**

In an ideal world, everyone has their very own Mac and does not need to share it with anyone. In reality, there will always be times where we need to share our Mac with one or more people. Mac OS 9 did a good job of allowing us to create separate accounts on our computer for each person who wanted to use it. This allowed one person to logout and another to login, thus preserving the files and desktop of each person. Mac OS X does an even better job of partitioning your computer’s hard disk among users and makes sure nobody can accidentally reorganize the other’s work environment.

The only problem with the login/logout scenario is that it can take a significant amount of time. If one Mac is really used by two or more people in your home, there will surely be times when person B wants to quickly check their Email while person A is typing a letter and downloading a movie in the background. There are two alternatives to this situation, neither is ideal. Person A could immediately close down everything they are doing and let person B login and check their Email. Afterwards, person A could log back in and reopen their letter and restart the movie download. Alternatively, person B would simply have to wait for person A to finish what they are working on.

Fast User Switching is a new feature of Panther that makes it quicker to switch from one person to another. The idea is that person A does not need to logout for someone else to login. Instead, person A’s work environment can be put on hold and hidden while person B is logged in. When person B
is done, person A can reactivate their work environment where their letter will already be open and their movie may have finished downloading.

To activate fast user switching, you’ll need to enable it in the “Accounts” panel of “System Preferences.” First, move your mouse cursor to the bottom left corner of your display, then click once on the smiling Finder icon in the Dock. Second, move your mouse to the top left part of your screen and click once on the Apple icon. Third, in the menu which appears, move your mouse down and click once on “System Preferences...” Fourth, in the new window which appears, you’ll see many different panels to configure various parts of your computer. Find the panel named “Accounts,” then click on it once. You will be shown options to enable fast user switching.

Once you enable fast user switching, you can now switch between users by going to the top right corner of the screen and clicking on the currently logged in user’s name. A list will appear displaying all other people with accounts on the computer. Choose a name from the list, type in their password, and they will be logged in. This fast user switch does come with a price, and that price is RAM. For every person who would like to be able to quickly switch in and switch out (login and logout), you should have at least 256 Megabytes of RAM installed in your Mac per person. So if there are three people who regularly share the computer, ideally you’ll want to have at least 3 x 256 or 768 Megabytes of RAM. This is because as person B and C log into your Mac, person A’s work environment will still be utilizing your Mac’s resources. In fact, person A, B and C’s applications will invariably all have documents open simultaneously. If one of these people is creating a DVD movie with iDVD while others are using the computer, the Mac may feel slightly sluggish as the computer divides its time between making a movie for person A and checking Email for person B. This is still much better than having to ask person B to wait an hour for the DVD to finish before they could spend their five minutes checking mail.

When your Mac does a fast user switch from one person to the next, it creates a transition with some nifty visual fanfare. There is a visual transition which looks like a spinning cube as one work environment is phased out and the next is brought in. This is the same type of popular transition that you can achieve between slides in Apple’s “Keynote” presentation software. See the example below:
Improved Mail

The “Mail.app” application from Apple has always been a good one. People have their preferences about their software choices; especially when it comes to what Email software they use. However, Apple’s Mail software has always been a favorite among many. I can still remember NeXT’s mail software had “lip service” capability. That let you speak a voice message to send to your friend. Some doctor’s offices used this same tool to easily let secretaries transcribe a letter. Today’s Mail.app no longer has lip service but it has many other improved features.

*Threads* are the single biggest advance in Panther’s new Mail software. After you’ve gotten spoiled by the speed and usefulness of Email communication, you begin to want more. You may have noticed that you can use mail to discuss a particular topic between a group of people. It can be difficult to conceptually group all replies and discussions centered around a particular topic; especially when someone brings up a new point a week after you’ve pretty much forgotten the discussion. This is because the messages for that particular topic are interspersed between other messages. Panther’s mail now groups messages based on one topic into a single “thread.” This means that the first message that started the discussion will be at the top while all replies and additions will be indented underneath it. This happens automatically and Apple says that Mail.app can even keep a thread together when one of the participants changes the subject of the message. We’ll have to see how well this works but it is a great feature. Now when somebody adds something new to the discussion a few weeks after the fact, the whole thread will move up to the top of your inbox, and you’ll easily be able to read the message in context.

Jaguar’s Mail.app introduced a “Junk Mail” filter. This intelligent software tries to notice patterns in your messages which are indicative of a direct mail campaign to get you to purchase something. It does a pretty good job of guessing and allows you to help educate it. You can mark items as junk mail or not and then allow the software to automatically route such messages to a special junk mail folder. Of course, it might mistakenly put an important message in the junk pile, so it’s a good idea to look through the junk bin before trashing it. For people who happen to receive large amounts of junk mail, this single junk mail filtering feature has returned their sanity. Though it may not seem possible, junk mail processing in Panther has improved. If your Internet provider uses “Spam Assassin” or “Brightmail” junk mail analysis tools, you can now hook Mail.app directly into them and leverage their capabilities. I believe that Jaguar’s junk filtering capabilities are very accurate; however, Apple claims that Panther’s version of Mail.app has even improved the accuracy further.

Many other smaller but useful improvements in Mail.app exist. Previously, your Email signature always appeared below quoted text; now you can set
it up to appear either above or below. In general, the software feels more alive and malleable. For example, You can now click on an Email address in the To: and CC: fields to see some additional options, such as alternative addresses for a particular person or perhaps to add an address to your address book. Here is another example. Messages which you’ve replied to will now have a little “reply status” icon beside them. Clicking on this icon will take you directly to the reply you composed.

**FileVault encryption**

Panther has some fantastic security features not previously available. As neat as they are, they are probably not of much use to most people.

*FileVault* is a new System Preference that encrypts everything in your home directory. That means all files and documents will be scrambled. If someone were to steal your computer and try to access the files on the disk, they’d be of little use without knowing your password. That is because Panther will decrypt (unscramble) them only when you are logged into the computer and will only decrypt the files that you are using. It should be a relatively “behind the scenes” feature which won’t affect how you use your computer. Still, I’d utilize caution in invoking this functionality. Only if you work for a company and have sensitive information on your computer, or are self employed and have really critical data, should you consider this level of protection. Suppose that for some reason you forget your password or your hard disk crashes. You may be able to hire someone to recover most of what is on your hard disk; however, if FileVault encryption is enabled, they will not be able to recover anything.

Files can now be permanently deleted. Ever notice how it can take a while to copy one large file but to delete it happens instantaneously? That is because when a file is deleted, a small mark is put on the disk that says “the space used here that was once a file is now garbage.” That is to say a deleted file doesn’t actually get removed from a disk. Someone who is knowledgeable can scan a disk for these “deleted” files. If a new file has not overwritten a deleted one, it can be resurrected by skilled hands. Panther has an option called “Secure Erase Trash” that will actually overwrite a deleted file with random information. This method of deleting a file takes a bit longer but it makes sure that prying eyes can not recover a file which you never want people to see.

The most useful feature for most people is a setting which can force a person to enter a password when a computer wakes up from sleep. Since shutting down a computer completely and starting it up takes a lot of time, many people (myself included) prefer to put their computers to sleep when they are not using them. If you have a naughty family member that would like to mess with your work environment, you probably wouldn’t want to
put your computer to sleep without this feature. Now that it’s here you can rest assured that putting your Mac to sleep will not compromise access to the wrong person.

### Improved Preview application

*Preview* is the name of the application that can open most image files and most importantly, Adobe Acrobat PDF files. Previous versions of Preview could view PDF files very quickly but could not search them. For this, people needed to use the free Adobe Acrobat Reader. The new version of Preview that ships with Panther promises to be even faster and add additional functionality. You can now search PDF documents and copy and paste text that resides in them. The extra speed is important because very few companies actually print manuals for their software and gadgets these days. Instead they prefer to give you a CD with a manual in electronic PDF format. Any speed improvement you can get in reading PDF documents is essential.

### Improved PDF functionality

Adobe Postscript quickly became the most important way of describing how to layout text and graphics on a page when it came out with the first Laser printer, the Apple LaserWriter in 1985. Later Adobe released PDF which can be thought of as a slightly more limited form of Postscript. Postscript files are written in a full blown programming language; however, PDF files are not. That means a virus could potentially be written in a Postscript document but not in a PDF. Thus, after Adobe solved the problem of high quality printing using Postscript, they created PDF files, so that they could be printed and safely displayed on the screen.

Many applications and operating systems can easily produce Postscript files, not PDF files. In those situations, you need to convert Postscript files into PDF files if you’d like for people to be able to open and view them. Now in Panther, you can double click on any Postscript file and it will convert it to PDF and show it to you. If you’d like to save the Postscript file in PDF format before sending it in an Email, you can very easily go to “File” then “Print...” and choose “Save as PDF...”

When files are saved as a PDF in Panther, there is an option to set the amount of compression. The more a file is compressed, the smaller the file is (usually). This was missing in previous versions of OS X which always created huge PDF files. When you print a document, there are many options available from the print dialog box. See the example on the next page for a picture of the print dialog.
Below is a picture of the dialog which appears when you print:

If you'd like to reduce the size of the PDF files you create (at the sacrifice of a little quality), you need to invoke the "ColorSync" options. Normally, this is useful for matching colors between different devices such as your computer's display and your printer. ColorSync topics really need a chapter or book of their own; however, for some strange reason the ability for Panther to shrink documents relies on a particular ColorSync filter. Click on the "Copies & Pages" button above and choose "ColorSync" from the list of options as is shown here on the right:

Here is what the print dialog looks like now:

Now click on the word "None" beside the words "Quartz Filter." You see, the word "Quartz" denotes the name which programmers gave to the visual system which Mac OS X uses. The term "Filter" is synonymous with "transition" or "converter" in many software tools. There are a number of options here for adjusting the color of the document but there is one seemingly out of place option called "Reduce File Size." Select it and then choose "Save As PDF..." This is displayed in the graphic at the right:

For those who don't have Panther, they can convert Postscript files to PDF documents in one of two ways. One option is to purchase the full version of Adobe Acrobat which comes with a product called "Distiller" to do this conversion. The second option is free but requires more leg work. You need
to install the free “Ghostscript” Postscript Raster Image Processor and use its command line script called “ps2pdf.” You’ll need to use “FINK” to install this free Unix software. You can find out more about FINK in the “Advanced Topics for the Curious” chapter.

Font Book

Fonts are special collections of typefaces. For example, the body of text in this book is done in the Palatino font. The chapter headings and subheadings are done in the Helvetica font. The ability to choose many different font styles and use them in one document is one of leading factors in the demise of the typewriter.

All versions of Mac OS X have had excellent font support. Mac OS X users can use almost any font ever made; however, it was not until Panther that we got a good utility called “Font Book” to manage these fonts. Now you can double click on any font that you might have on a CD or elsewhere. Immediately, Font Book will open and you can install that font with the click of a button. Font Book allows you to create certain sets of fonts and swap them in an out. Most of us won’t need to do this but people who have immense collections will love this feature – it helps keep font selections manageable. You can use Font Book to help you find the right font for a product because it organizes fonts in many different ways and shows you nice previews of what each font looks like. An example of Font Book is shown below:

Integrated fax

In the past, iBook and iMac owners received a product called FaxSTF for sending and receiving faxes. Now everyone who owns Panther gets this type of functionality directly from Apple with Panther’s integrated faxing capability.
Any document that you print can just as easily be faxed. The Print dialog window has, in addition to "Print" and "Save as PDF...", another button labeled "Fax." You are able to fax to anyone who has a fax number listed in your address book; just be sure to hook a phone line into your Mac's modem first.

You can view received faxes in a folder inside of Mail.app, in a special folder on your hard disk, or you can simply set up all faxes to be printed immediately upon receipt to your printer. You may choose to view any saved fax in the Preview application.

**Improved iDisk**

iDisk is one of the services you get as part of the $100 per year .Mac subscription package. You can think of it like a CD or a hard disk except that it sits somewhere on the Internet, and you can connect to it only when you are on the Internet. It can hold up to 100 megabytes (about one sixth the size of a CD) but can be enlarged if you pay a higher yearly subscription fee.

iDisk works great in all versions of Mac OS X and even Mac OS 9. You can put files there and access them from almost any computer. The only drawback is that writing and reading files to this disk is quite slow. Accessing the Internet is bound to be slower than reading a disk physically connected to your computer but iDisk often feels unbearably slow.

The solution proposed by Panther is to not let users write directly to the iDisk. Instead, files that you write to and read from are stored in a 100 megabyte section of your own hard disk. Then, in the background, Panther will transparently copy the files on your computer's hard drive and put them on the iDisk. Panther is smart enough to look at the files on the iDisk and compare them to what is on your hard drive. If what you have on the iDisk is newer than what is on your hard disk, Panther will replace the outdated file. This is called synchronization and happens when you work on files on computer A at the office and then want to work with them later on computer B at home. This extra level of processing and indirection is necessary to create a very fast experience using the iDisk. Now you will feel the same speeds on your iDisk as what you feel on your hard disk.

**Xcode**

Since late 1986 (more like 1987), I remember the NeXT programming tools being called "Project Builder" and "Interface Builder." These names have remained the same all the way through Mac OS 10.2 Jaguar. Now with Panther, the tools are collectively known as "Xcode."
I am a programmer, and I find immense value in what Apple offers with its programmer development tools. I can't believe that for $130 I can get a full operating system and top class development tools. Back in the days of NeXT, developer tools were sold separately and costed thousands of dollars.

Panther's development tools are scary (in a good way). The new Xcode has significantly improved the programming experience and has found ways to reduce the time it takes to create software.

**Improved Address Book**

Label printing to Avery labels is one of the new tricks that Panther’s address book has learned. Once you have your contacts names, phone numbers and addresses entered in the address book, you can now print to one of several types of Avery labels. These labels can be purchased at Staples or Office Depot. What once required us to open up AppleWorks can now be done more simply and effectively right in the address book. You can specify exactly which information to print on the labels.

When you change important contact information about yourself, the Address book in Panther can make a notification to all of your contacts just a button click away. I’m not sure exactly how this will work. Hopefully, it will send messages in groups of five or ten; otherwise the notification will be rejected by most Internet service providers. That’s because most Internet providers feel that a message sent to more than ten people is almost certainly junk mail and will simply delete it.

It is useful to have your contacts in printed form too, like a little book. The new address book can format your contacts for printing, so that you can create one of those books. This way you can have a back up and also don’t need to turn on your computer just to find someone's phone number.

**Integrated X Windows**

Mac OS X is built on Unix. What is most special about this brand of Unix is that it has its own Windowing environment that provides the unique Macintosh (or NeXT) experience. Nearly all other versions of Unix use something called “X Windows” to display documents.

X Windows has many names including: X11, X11R6, X Windowing System, or just simply X (pronounced “ex”). There are commercial versions of this product but the free one is called “XFree86.” You can find more information on Unix and X Windows by reading the “Advanced Topics for the Curious” chapter. Suffice it say that the importance of X Windows is the ability to run a great number of excellent free software that will only run on this system.
Apple will polish off its own modification to XFree86 and will include this with Panther. There are other versions of X Windows available for the Mac but Panther’s version will be more tightly integrated and faster. It will be able to cut and paste better between Macintosh software and X Windows software as well as take more advantage of the 3D capabilities of current Macintoshes.

**Journaled hard drive**

A seldom discussed feature of Panther is “journaling.” This is where your Mac takes notes (as if it had a journal or diary) to keep track of what the hard drive is doing. Since there is a written trail of activities such as what was written, what was deleted, as well as a record of which tasks have completed, your Mac knows exactly how to keep your hard drive organized even if you suddenly lost power or your computer crashed.

In the past, when your computer was forced to abruptly turn off, there would be a long cycle of checking the folder structure of your hard drive before your Mac would start up. It did this verification process to be sure your hard drive was OK. If during the verification process some partially written files were discovered or inconsistencies were found, your Mac would make an arbitrary decision on how to rectify the problem. Therefore, there was always a chance that your Mac could lose a file or possibly the entire hard disk.

Now, with the journaling of the hard disk in Panther, you can feel a bit more at ease that your hard disk is safe. If you do have an abrupt crash or you lose power, your Mac will start up really quickly because it can just read its journaled notes about where problems might be, rather than attempting to verify the whole hard drive.

For some historical perspective, you should know that “ancient” computer operating systems from the 1980’s (and earlier) were pretty safe in the case of a power failure. These operating systems always wrote information to the hard disk as soon as software requested it. In the 1990’s, as computers got faster and hard drives could not catch up, some clever engineers decided to queue requests to write information to the hard drive. This gave a boost to performance because data would not be written to the hard drive until enough information was ready to make the trip to the disk worthwhile. But what if you lost power while data was in the queue? You would lose that information. Journaling was created to lessen the chance of data being lost and practically guaranteeing that your hard drive will always be functioning properly. The now defunct French computer company “Be” released their first computers in 1995. Their operating system was named “BeOS.” One of its hallmarks was a way of managing files on your hard drive with a corresponding database and journaling capability. “Be” showed the
world how wonderful journaling could be. They demonstrated faster start-up and shutdown. They showed increased reliability. Most importantly, they proved that journaling could be done in an efficient manner. In March of 2002, Apple hired the brainchild of the journaling idea at “Be,” his name is Dominic Giampaolo. Since the release of Mac OS 10.2.2, journaling has been available for the Macintosh. In Mac OS 10.2.2, turning on journaling would create a 10% drop in hard drive performance. Dominic must have been working hard lately because with Panther (OS 10.3), journaling is enabled by default and the drop in performance is virtually imperceptible.

Things to be aware of

When new operating systems are released, they sometimes cause unexpected problems or fail to meet expectations in a few areas. The good news is that Mac OS 10.3 (Panther) is very solid; however, here are a few wrinkles you should be aware of.

Some Macs have inexplicably become “unsupported”

In the past, OS X could officially run on practically any Mac with a G3 processor. In fact, the only exception was the first G3 PowerBook. Now, with the introduction of OS 10.3 (Panther), only Macintoshes with a G3 processor and built-in USB are officially supported by Apple. So, many computers released around 1998 - 1999 no longer work with Panther. This includes the beige colored desktop Macs and the early black colored PowerBook G3 series. Why support for these computers has been dropped is unknown. They are still vital machines for many people and have plenty of horsepower for all but the most demanding individuals. There may still be hope if you own one of these unsupported Macs. “XPostFacto” is a shareware tool that allows many unsupported Macs to run OS X. Visit the following Web site for the latest information:
http://eshop.macsales.com/OSXCenter/XPostFacto/

Old versions of OmniWeb

OmniWeb is one of the early Web browsers for OS X and very popular. Old versions of OmniWeb will now immediately crash when opened in Panther. As soon as you launch version 4.2 (or earlier), a message will show that the software inexplicably quit. This is too bad because at the moment, version 4.2 has a great “copy and paste” capability which is better than any other Web browser. Also, version 4.1 not only has the copy and paste functionality but in addition, has been localized into many languages. Version 4.5 of OmniWeb does not have the same ability to copy and paste elements from a Web page and maintain all the formatting. In fact, OmniWeb 4.5 actually
wraps itself around Apple's Safari Web browser and adds a few features to it. Hopefully the OmniGroup will release a new version of OmniWeb which supports Panther and supports advanced copy and paste.

**Beware — the black screen of death!**

You may be the proud owner of an iMac and are considering upgrading to OS 10.3 (or OS 10.2). Beware! Without proper precautions, you may cause your Mac's screen to go dim. Many people, myself included, attempted to install Panther (OS 10.3) or Jaguar (OS 10.2) on a candy colored iMac only to be shocked by the computer's screen seemingly ceasing to function. This type of headache is a rarity in the Macintosh world. Luckily, there are preventive measures and ways to fix a Mac that is exhibiting a black screen.

To avoid any problems altogether, you should do the following before installing OS 10.3 (or OS 10.2):

- Upgrade to Mac OS 9.2.2
- Install the latest "Firmware" update

The iMac's internal components can be reconfigured with different settings. This is exactly what "Firmware" updates do. Apple will sometimes give us a small software program (called a Firmware update) which will physically and permanently update various parts of your Mac. Most Firmware updates can be installed by going to the "Software Update" control panel.

If your Mac turns on but your screen is black and within a minute the Mac turns itself off, you may have a hard disk problem. If you can, request help from a user group to test your hard drive and be sure it has a working Macintosh operating system on it. They may need to physically remove the drive and put it in another computer to test this out.

If your Mac turns on but your screen is black and it stays on, then your hard disk is probably fine. Go ahead and wait five minutes after turning on your Mac to be sure it starts up and finishes launching the operating system. Now, tap the power button on the front of the iMac (not on the keyboard). The computer will very quickly go to sleep and the power button will flash orange. Wait three seconds then tap any key on the keyboard to wake the computer back up. Miracle of miracles! Your screen will come back to life. It may be slightly distorted, but it is workable. Go ahead now and perform the "preventive" measures which you would have done had you known this would happen. Namely:

- Upgrade to Mac OS 9.2.2
- Install the latest "Firmware" update

Installing the newer Firmware adjusts for something which Mac OS X would otherwise foul up. Performing the "preventative" measures after the fact will bring your screen back to life.
USEFUL WEB SITES

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• Miscellaneous... 377
• Nationwide Internet providers... 377
This chapter gives you a listing of Web sites and phone numbers. Its purpose is twofold. One is to organize the different Web references which are mentioned throughout this book in one handy location. The other purpose is to introduce a few additional places of interest to be found on the Internet which are not mentioned elsewhere.

Old Fart's Guide on the web

This book has a useful complement on the Web. The book's Web site will alert you of any errors, corrections or omissions to this text. The Web site also contains a bulletin board where you can post questions and receive answers. It serves as a forum to discuss how to make the most out of computers and technology.

Through our relationship with the good folks at Cocoa Nuts Technology, we are hosting our Web site through them. You can find us on the Web at: www.cocoanutstech.com

Apple Computer

www.apple.com
This is the most important Web site at Apple. From it, you can connect to all of the other Apple Web sites. Take some time to peruse what it has to offer. It is a very nicely designed Web site.

www.quicktime.com
This Web site takes you directly into specially chosen video content from Apple. Here you can view previews of all the blockbuster films currently showing in theaters. There are a number of educational videos and other sections of the site worth checking out as well.

www.apple.com/games/
Apple has done a remarkable job of introducing us to the different games we can play on our Macs. Please visit this site to get in depth reviews on many different types of games.

guide.apple.com
This is a product guide for both software and hardware made to work with the Macintosh. There is a lot of information listed at this site. It is a good place to go to find products and general information about them.
www.apple.com/usergroups
User groups are places where people can learn about computers and share their experiences with others. Some user groups are very active and host many interesting activities. To locate user groups close to your home, visit this Web site.

www.info.apple.com
If you need to find a manual for some Apple hardware or have a question about your Mac, you can find helpful documents at this Web site.

developer.apple.com
For those curious about how to use Apple’s tools for creating software, this is an indispensable resource.

Useful Apple phone numbers
When you have a problem or emergency with your Mac call 1-800-SOS-APPL, note that you can often get more experienced help and support from your local user group. If you’d like to purchase a computer directly from Apple, you can call 1-800-MY-APPLE.

Search engines and services

www.google.com
The Google search engine is one of my all time favorites. I find that my searches often return more relevant results than the other search engines. With Google, you can also search for photographs and browse USENET Newsgroups.

www.altavista.com
The Alta Vista search engine has been around for a long time. It is also good at finding relevant information. In addition to being a search engine, you can use Alta Vista to translate entire Web sites from one language into another.

www.yahoo.com
This is not really a search engine; it is more of an organized directory of information on the Internet. Using Yahoo, you can go through an hierarchy of organized topics to find Web sites which contain the topic you are interested in. Yahoo also has many services, such as travel planning where you can register for airline tickets or cruises. They also have a nice financial service for tracking stocks.

www.broadbandreports.com
When researching for a good ISP (Internet Service Provider), this Web site is your best source for information. It can help you locate ISPs in your area and also give you customer reviews.
**www.gameranger.com**
If you have some games on your Mac which could be played against an opponent, you need this Web site. The Gameranger service is free. It helps you find people on the Internet interested in playing their games against a human opponent. You can play at any time of the day or night with players from around the world.

**www.m-w.com**
This is Merriam-Webster's Web site. You can search through both their Collegiate Dictionary and their Thesaurus free of charge. To use their Unabridged Dictionary and some other services, there is a fee.

**www.pricescan.com**
This search engine helps you find merchandise at the cheapest price. If you know what you want to buy, such as a camera, you may use PriceSCAN to show you which stores carry the product and how much they are charging for it. You can search for new items as well as refurbished items.

**www.mapquest.com**
If you'd like some simple and clear driving directions to get you from point A to point B with custom maps which you can print, you should check out MapQuest.

**www.orbitz.com**
To plan your next vacation and compare airfares as well as prices for cruises, please visit the Orbitz Web site.

### Online games

All games in this section put the player into a massive computer generated world which never sleeps. When you open your game, you will role play a character in this fictitious land. These games all require a monthly subscription fee.

**www.lineageus.com**
This game is called "Lineage." It was created in Korea but is now played all over the world. The graphics are fairly detailed but not three dimensional.

**www.deltatao.com**
This is the main Web site for the company which produces "Clan Lord." This game was designed specifically for the Macintosh and only works with the Macintosh.

**www.everquest.com**
The "EverQuest" online game is the most well known. It is owned by Sony who has recently released the game for the Mac. The game is 3D.
www.shadowbane.com
The “Shadowbane” online game is the newest of the four online games listed here. It visually looks very similar to EverQuest because it too has an immense three dimensional world.

Unix related

This section lists important Web sites which help you make the most of the Unix capabilities built into Mac OS X. To find out about unix, please read the “Advanced topics for the curious” chapter.

www.ee.surrey.ac.uk/Teaching/Unix/
Good tutorial on how to use the Terminal to type Unix commands.

fink.sourceforge.net
This is the home of “Fink” which is a tool for installing many different free unix software applications.

sourceforge.net/projects/xonx/
This is the home of the X Windows graphical interface for Mac OS X. It is related to XFree86 but is given the name “X on X” or “DarwinX.”

oroborosx.sourceforge.net
This is the home of the “OrobosX” window manager for Mac OS X. When running X Windows to display graphical Unix software, you’ll need to pick a window manager to go with it, and OrobosX is arguably the best choice.

www.gnu.org
The home of the Free Software Foundation. Without this organization’s work, there would be no free Unix available. Perhaps even no Mac OS X since Apple makes use of many technologies which were developed by this organization.

Talk radio shows and magazines

www.yourmaclife.com
Your Mac Life with Shawn King.

www.mactvnetwork.com/radio/monday/
The Gamesome Mac with Sean Smith.

www.mactvnetwork.com/radio/tuesday/
Mac Help Radio with Dru Richman.
Without a doubt, “Mac Addict” is the greatest magazine for the Macintosh enthusiast. You will find good reviews, interesting articles, many “how-to’s” and a CD filled with interesting material every month. Their Web site is also a good source of Mac related reviews and information.

Macintosh related news and information

www.applelinks.com
The AppleLinks Web site is the first port of call for many people when they connect to the Internet each day. It contains a wide range of interesting information for Macintosh enthusiasts.

www.macopinion.com
The Mac Opinion organizes fascinating commentary from a handful of intelligent columnists. Each columnist has their own section of the Web site where you can read their comments and get their take on many topics related to the Macintosh.

www.lowendmac.com
The Low End Mac implies a Web site that helps people get the most from their investment in older Macintosh computers. It certainly does that but it also gives quite a great deal of useful insight on what makes Macs tick. All Mac enthusiasts should pay this site a visit on a regular basis.

www.spymac.com
There are many places where Mac users congregate and share information on the Internet. Spymac is my favorite hangout. Interesting news bits are updated regularly on their main page. They have a lively set of forums and a fun image gallery. You could call this an Internet version of a pub.

Interesting online stores

www.amazon.com
When “Amazon” first created their online store, they sold books at reduced prices. Today you can find not only books at good prices but also many other items, such as electronics, housewares, music, clothes, you name it!

www.ebay.com
The “eBay” store advertises themselves as an “online auction.” What this really means is that they provide a form of classifieds service linking buyers up with sellers. You’ll find all sorts of weird and wonderful items here.

www.dealmac.com
Technically, this is not an online store. Dealmac is a place to find the
absolute best deals on computer related paraphernalia. Everything from hard disks, to computers, to computer supplies.

**www.audible.com**
This store allows you to purchase recorded books and immediately listen to them with your iTunes software. They can also be reached by phone at 1-888-429-5575

**Mail order stores**

**www.macconnection.com**
MacConnection 1-888-213-0260

**www.cdw.com**
CDW 1-800-844-4239
note: MacWharehouse is now part of CDW.

**www.maczone.com**
MacZone 1-800-454-3686

**www.sunrem.com**
Sun Remarketing 1-800-821-3221

**www.powermax.com**
PowerMax 1-888-769-7629

**www.smalldog.com**
Small Dog Electronics at 1-802-496-7171

**www.macsales.com**
OWC (Other World Computing) 1-800-275-4576

**www.powerbookl.com**
MCE - Mac Components Engineered 1-800-5000-MAC

**www.id-ee.co.jp**
id east end - this is a Japanese company which makes it somewhat difficult to browse their Web site and do business with them. They are listed here because they offer merchandise you can’t find at other places because they designed it themselves specifically for the Mac.

**Furniture and accessories**

**www.anthro.com**
Anthro Corporation 1-800-325-3841
www.officeorganix.com
Office Organix 1-800-569-9236

www.biomorphdesk.com
Biomorph interactive desk 1-888-302-DESK

www.ergoquest.com
ErgoPOD by ErgoQuest 1-888-298-2898

www.roadtools.com
Podium CoolPad from RoadTools 1-877-696-9600

www.laptop-laidback.com
Laptop Laidback from LaidBack We ‘R’ Inc. 1-902-226-3092

www.tombihn.com
Cases and backpacks for portable computers by Tom Bihn 1-800-729-9607

www.wacom.com
Writing tablets by Wacom 1-800-922-9348

Miscellaneous

www.drivesavers.com
If you have a hard disk which gets damaged, perhaps the people at Drive Savers can recover the data on it. Their services are expensive, so you’ll want to use them only if you have some very important information which was not backed up and you can’t bare to lose. Phone: 1-800-440-1904

www.crewoftwo.com
“Duality” - a fantastic ten minute movie made by amateur videographers.

www.harmony-central.com
An excellent reference site for musicians who own Macintoshes.

 Nationwide Internet providers

www.aol.com
America Online 1-800-827-6364

www.earthlink.com
Earthlink 1-800-395-8425
68k
Generally refers to older Macintoshes. From 1984 through roughly 1995, Macs used the Motorola 680x0 CPU.

Account
Allotted space for someone to use a computer or to use an Internet service.

Acrobat
The name of a file format from Adobe which can be viewed and printed on nearly all computers.

ADB
Apple Desktop Bus. This is an outdated standard for connecting keyboards and mice to a Macintosh computer. It has been replaced by USB.

Algorithm
A series of steps used in a programming language to do a task. For example, to sort a list of numbers needs a sorting algorithm.

Amiga
A computer which excelled in making VHS movies and computer graphics throughout the late 1980's and early 1990's. Unfortunately, there were way too many viruses which attacked this computer. The company which produced the Amiga went out of business and a new company in Germany bought the rights to continue its development. Technically, there is still an Amiga company today and many Amiga enthusiasts but it is no longer a mainstream computer.

Apple
The computer company from California which builds the hardware and software of the Macintosh.

Apple IIe
The most popular computer model Apple Computer sold. It predates the Macintosh.

Application
See definition of "software title"

Atari
A computer which was popular during the late 1980's and early 1990's; particularly popular in Europe.

BASIC
A computer programming language considered one of the easiest to learn.

Bug
A mistake in a software title which can lead to either a crash or just simply weird behavior. Old computers used to be so large that moths could get inside, die, then short circuit the computer. People would have to de-bug these massive computers before they would work again. Later this term came to symbolize a mistake when programming.

Burn
To put information on an optical disk. A laser will burn data into the plastic disk.
C
The programming language which Unix is written in.

C++
A newer version of the programming language C which adds syntax to allow programmers to use Objects when programming, see “OOP.”

CD
Compact disc

CD-R
CD which can be written to only once.

CD-ROM
CD which can only be read from.

CD-RW
CD which can be written, erased, then rewritten.

Chat
To type many short messages with friends over the Internet. Your friends will only see what you have typed after pressing the return or enter key.

Classic
Mac OS 9 running inside of Mac OS X.

Click
To tap your mouse down for a short instant like you would tap a key on the keyboard.

Client
A computer which connects to a server.

Command key
The key next to the space bar which looks like a cloverleaf.

Commodore
The predecessor of the Amiga. An extremely popular computer during the late 1970’s and early 1980’s. It was similar to the Apple IIe.

Compile
To take something written in a programming language then translate it to machine language thus creating software.

Control-click
Hold down the Control key, sometimes labeled “ctrl,” then click the mouse button. This is roughly equivalent to a right button click in Microsoft Windows.

Copy
To put a sentence, paragraph or picture into your Macintosh’s temporary clipboard memory. You can do Command-c on the keyboard to copy something. See also “Cut” and “Paste”

CPU
Central Processing Unit. This is the heart of the computer which does all of its information processing. Sometimes the term CPU refers to the part of a Desktop computer which looks like a big box. In other words, the part which is not the display.

Crash
General term for something which stops working. If a hard disk crashes, it means it is physically damaged and must be replaced. If a software title crashes, it just quit without you asking it to do so. If an operating system crashes, you must manually restart your computer.
Cross-grade
When one company will give you a special deal on their software because you already own a copy of their competitor’s software. They hope to steal your business from the other guy.

CRT
Cathode Ray Tube, the type of computer display which is much like a TV set. They use lots of energy, give off radiation and are hard on the eyes. See also “LCD”

Cut
Similar to Copy except that it erases what is on the screen after placing it in the clipboard. You can do Command-x on the keyboard to Cut something. See also “Copy and Paste”

Darwin
The name of the Unix part of Mac OS X.

Data
Synonymous with information. Usually means information which is stored on the computer.

Desktop
The part of your Macintosh’s interface which resembles a real office work environment complete with files, folders and a trash can.

Desktop Publishing
Using computers to produce books, magazines and newspapers. Also refers to the special software which people use, such as QuarkXPress.

Digital
Anything which is put into a form which a computer can immediately use.

Directory
See “Folder”

Disk
A piece of hardware used to store data.

Double-click
Clicking twice in a fairly rapid succession. Usually used to open something or read something from the Desktop.

Drag
Once the mouse cursor is on top of an item, click the mouse and keep it held down. Next, move the mouse. This will move the item on the screen.

Drag and Drop
Selecting some words or paragraphs then dragging them to a different place in a document.

Drive
Hardware used to read and write to a disk.

Driver
Software used to tell a computer how to operate a peripheral.

DTP
See “Desktop Publishing”

DVD
Digital Video Disc, often used to view movies.

DVD-R
DVD disk which can be written to once.

DVD-RAM
DVD disk which can be written and erased in a random fashion, much like a hard disk.
**DVD-ROM**  
DVD disk which can only be read from.

**DVD-RW**  
DVD disk which can be written, erased and then rewritten.

**DVORAK**  
A special arrangement of keys on the keyboard which is supposedly optimal for typing. See also "QWERTY"

**ebook**  
Electronic book. A book which is a file that you must read on your computer or perhaps print.

**eMac**  
A Macintosh which has good performance but made some sacrifices in construction to keep the price as low as possible for the educational market. Presently, the main sacrifice is the use of a CRT instead of an LCD.

**Email**  
Electronic mail. Messages which are composed and then transmitted nearly instantaneously over the Internet to any location in the world.

**File**  
A representation of data on a disk. Perhaps one document, one movie, one software title, etc.

**Finder**  
The software component of the Macintosh operating system which creates the office Desktop illusion.

**FireWire**  
A high speed cabling standard, designed by Apple, for attaching peripherals to your computer. This is also the cabling standard for Digital Video editing.

**Flame war**  
Term which describes heated arguments between people on the Internet.

**Floppy**  
A type of disk which stores information magnetically. It is small, fragile, slow and can hold only a very small amount of information equal to approximately 1.5 megabytes.

**Folder**  
A place where you can put files to help you organize them. You can put folders inside of folders; this is called a subfolder.

**Font**  
Term denoting the shape of text which you type with. To change the style of your text, you need to use a different Font.

**Free Software Foundation**  
Organization which feels strongly that all software should be free. They have created many important software titles which have led to the creation of free Unix operating systems.

**Freeware**  
Software which is free to use and can not legally be charged for. It is still the property of the owner. Nobody is legally allowed to modify the software or charge for it without the author’s permission.
G3
Third generation PowerPC processor. A minimum requirement for using Mac OS X on a Macintosh.

G4
Fourth generation PowerPC processor. At one time it was considered a weapon and not allowed to be exported to countries with questionable relationship to the United States. See also “Velocity Engine”

G5
Fifth generation PowerPC processor. Currently the most advanced Macintosh processor. This is also the world’s first fully 64 bit processor in a computer which consumers can actually buy. See also “Velocity Engine”

Game pad
A peripheral used to play action games. It has buttons and directional controls.

GB
See “Gigabyte”

GIF
Graphics Interchange Format. A once popular format for storing images on the Internet. Due to legal issues, this format has become somewhat obsolete.

Gig
See “Gigabyte”

Gigabyte
A unit of measure which represents roughly one thousand megabytes.

GNU
See “Free Software Foundation”

Hard disk
See “Hard drive”

Hard drive
The internal disk of your computer which you can not see without opening your computer’s casing. It can hold a great deal of information. Today’s computers typically ship with hard drives much larger than twenty gigabytes.

Hardware
Physical computer components and peripherals.

IBM PC Compatible
The term given to the ubiquitous clone computer. Most computers have an Intel processor and run the Microsoft Windows operating system. They are common but they are horrid.

iBook
The affordable and portable Macintosh computer.

Icon
The small pictures on your Desktop which represent files, folders, trash cans, software titles, etc.

IEEE 1394
See “FireWire”

iMac
The Macintosh model which has lots of power, good looks and an affordable price.

IMAP
Internet Message Access Protocol, the better method for your Email client to connect to a mail server. See also “POP”
Install
To put a software title on your hard disk.

Internet
The worldwide network of computers.

Internet Service Provider
A company which connects your computer to the Internet for a monthly fee. Think of it as a utility charge just like your monthly phone bill.

ISP
See “Internet Service Provider”

Java
A new programming language which allows a programmer to write software quickly and efficiently for many operating systems and many types of computers.

Joy stick
A peripheral used to play games on your computer. Usually needed for flight simulators and certain types of action games.

JPEG
Joint Photographic Experts Group. Best file format for storing photographs which need be viewed on the Internet or sent via Email.

K
See “Kilobyte”

KB
See “Kilobyte”

Kilobyte
The smallest practical unit of measure for data on the computer. Five kilobytes is roughly equal to one half page Email message.

Laptop
A portable computer. See also “Notebook,” “PowerBook” and “iBook”

LCD
Liquid Crystal Display. A very thin computer display which produces vibrant colors, no radiation, uses little energy and is healthy for the eyes. See also “CRT”

Linux
The first free mainstream Unix operating system. Named after Linus Torvalds.

Lisa
The ten thousand dollar computer from Apple which was released in 1983. In 1984, Apple modified the Lisa and renamed it the Macintosh.

Luddite
Someone who thinks that technology in any form is a bad thing.

Mac
A cute way of saying “Macintosh.”

Mac OS 9
The last update of the Macintosh operating system which was created in 1984.

Mac OS X
The new version of the NeXT computer’s operating system. It has been heavily modified to become the tenth Macintosh operating system. The “X” is a Roman numeral ten and pronounced “Mac OS ten.”

Macintosh
The first computer under $3,000 to have a visual interface and an office desktop analogy as well as a mouse.
Massively Multiplayer
A type of game which is played on the Internet inside of a computer generated world where many people can play and interact with one another from across the globe.

MB
See "Megabyte"

McIntosh
A type of apple which you can eat.

Meg
See "Megabyte"

Megabyte
A unit of measure equal to roughly one thousand kilobytes.

Microsoft
The largest computer related company. They make the Windows operating system which runs on IBM PC compatibles. They also make the "Office" software application suite which consists of Word, Excel and PowerPoint.

Minix
The sample Unix-like operating system which accompanied a college text book on how to write an operating system written by Professor Andrew S. Tanenbaum. Linus Torvalds took the Minix code and asked for help from programmers around the world to make it a more robust Unix equivalent. In the early days, the work was called "Linus' Minix" but soon its name was changed to "Linux." See also "Linux"

Mouse
The pointing device which most people saw for the first time in 1984 with the release of the first Macintosh.

MP3
MPEG 1 Layer 3 audio, a file format for compressing the size of music in order to save space on your hard disk but still retain a high level of audio clarity.

MPEG
Motion Picture Experts Group, a file format for movies. MPEG version 4 is based on QuickTime. See also "QuickTime"

Multics
Predecessor to the Unix operating system. Unix and Multics are similar but Multics never had a free version of its operating system. It was only used on large expensive computers. After the year 2000, the last known computer running Multics was laid to rest. See also "Unix"

Netiquette
Internet Etiquette which basically boils down to not wasting other peoples' time, being polite and trying to read for answers to your questions before asking others.

Newsgroups
A large system of Internet bulletin boards where you can discuss almost any topic ever heard of by humankind.

NeXT
The computer and the computer company which Steve Jobs started after he left Apple in late 1985. Apple purchased NeXT in 1997 then started working on upgrading their operating system to replace...
the Mac OS. The release of Mac OS X marks the culmination of these efforts.

NoteBook
Term which means portable computer but is usually used to imply an IBM PC compatible portable computer. See also “Laptop,” “iBook,” and “PowerBook.”

Objective-C
The preferred programming language of Apple’s software engineers. It was the programming language which the NeXT used. The language has semantics for objects. See also “OOP”

Old Fart
The intelligent and charismatic people who have purchased this book.

Online
A term which is related to getting on the Internet or an object which is found only on the Internet.

OOP
Object Oriented Programming, the ability to label items as objects and use them to write software. See also “C++,” “Objective-C” and “Java”

Open Source
When a company decides to let anyone who is interested view their programming efforts and lend a helping hand.

Operating System
The software which governs how a computer works. It gives your computer its personality.

Optical Disk
A plastic disk which stores data by means of a laser burning information into the plastic.

OS
See “Operating System”

OS wars
When people argue about which operating system is superior.

Pascal
An early programming language with strong semantics which produced very fast software when compiled.

Paste
Taking the contents of the Macintosh clipboard and placing a copy of it into a document. See also “Copy” and “Cut”

PC
Used to stand for Personal Computer. Now it generally refers to any IBM PC compatible computer clone.

PDF
Portable Document Format, see “Acrobat”

Peripheral
A gadget which is connected to a computer.

Pirate
A person who uses software without paying for it or a person that sells software when they have no right to do so.

PNG
Portable Network Graphic. This image file format replaced GIF. It was created because there were some legal issues with people creating software to read GIF images.
POP
Post Office Protocol. This is a common method of connecting an Email client to a mail server to check for new messages. See also “IMAP”

Postcardware
Software which is free for you to use as long as like but you should send the author a thank you note in the mail.

Postscript
A programming language created by Adobe which enables laser printers to produce clear crisp curves and sharp text.

PowerBook
The top of the line Macintosh portable computer. See also “Laptop,” “Notebook” and “iBook.”

PowerMac
A Macintosh which has a PowerPC processor. The PowerMac succeeded the 68k Mac.

PowerPC
The name of the current processor family used with Macintosh computers. In contrast, most IBM PC compatibles use an Intel Pentium processor.

Processor
See “CPU”

Programmer
A person who knows how to write software.

Programming Language
A language with special semantics which can later be compiled into computer software.

Public Domain
Software which is available for people to do anything with. This includes selling it, modifying it, or even basing new software on it.

QuickTime
The technology which Apple developed to deal with movies, music, audio and images. It was first released in 1991 and marked the first software which could play a movie with synchronized sound in a computer window.

QWERTY
The layout of keys for the standard English keyboard. Story has it that the first typewriters could easily get jammed by people who could type too fast. To counteract this they developed the QWERTY keyboard layout to slow down the speed with which people can type. Look at the lettered keys in the top left corner of the keyboard, they spell “QWERTY.” The DVORAK layout is supposed to be superior. See also “DVORAK”

RAM
Random Access Memory. This is the thinking space your computer uses to process information. I recommend for today’s computers to have 384 megabytes of RAM.

Reboot
See “Restart”

Restart
Asking your computer to turn itself off then turn itself right back on. You do this sometimes after installing new software or if you just think your computer is acting strange.
Rip
To transfer music from an audio CD then compress it into MP3 format on your hard disk.

RIP
Raster Image Processor. A raster is the image created by a computer which understands the Postscript programming language. A RIP is a specialized computer that will take a Postscript file, create an image, and use that image to produce printed output.

ROM
Read Only Memory. Data which can be read from but never modified. If a computer has internal ROM, it is usually there to support the operating system.

RPG
Role Playing Game. A game in which you take on the role of a fictitious character who is embarking on an adventure.

Scroll bar
Macintoshes let you work within windows. When you open any software tool, it will make a window. Often, what needs to be displayed will not fit in the window’s viewable area. When this happens, you will see scroll bars on the right side and bottom of the window which allow you to see other areas which are not currently in view. By clicking and dragging the blue knobs in the scroll bar, you can see your entire document.

SCSI
Small Computer System Interface, pronounced “scuzzy.” This is a high speed cabling standard which has been replaced by FireWire. Technically, FireWire is a new version of SCSI.

Server
A computer which runs twenty-four hours a day, seven days a week. It does this to support Internet services, such as Email and the World Wide Web.

Shareware
Software which you are allowed to test out before you pay for it. It is a form of distribution which allows a small developer to make a living.

Shutdown
To turn your computer off completely.

Sleep
To put your computer into a state of suspended animation which uses little power. You can leave your work just as it is then ask your computer to go to sleep. When you ask your computer to wake up, it will do so almost instantaneously and everything will be just as you had left it.

SMTP
Simple Mail Transport Protocol. The standard which mail servers use to communicate with each other. SMTP is also used by Email clients to send mail to a mail server.

Software
Computer code which an operating system can utilize to provide functionality.

Software Engineer
See “Programmer”
Software title
A software tool which you use to create documents and do work at the computer.

Stylus
A special pen-like utensil which you use to write with on a writing tablet. See also “Writing tablet”

Talk
To have a conversation with another person or group of people on the Internet where each keystroke can be seen as it is being typed. See also “Chat”

TIFF
Tagged Image File Format. An image file format without any compression. It maximizes the quality of images but takes a large amount of disk space.

Touch pad
See “Track pad”

Touch typist
A person who can type without looking at any of the keys. The person can type without thinking much about what their fingers are doing. This is identical to the way people can talk without consciously thinking about what the lips and tongue are doing.

Tower
A desktop computer in a shape which is tall, slim and long. This configuration is the best for holding lots of different computer components. Usually, the really powerful computers are built with this shape.

Track ball
A pointing device which is a substitute for the mouse. It has a ball on top which you roll to move the pointer across the screen.

Track pad
A pointing device which is a substitute for the mouse. It is the most common pointing device for laptop computers because it is very slim and uses very little space. It moves the cursor across the screen in response to you sliding your finger across an electrically sensitive piece of film.

Universal Serial Bus
A cabling standard for connecting low speed to moderate speed peripherals to your computer. Examples are mice, keyboards and scanners.

Unix
An operating system which was designed to let multiple people share a computer’s resources simultaneously. The people who helped develop Multics would later go on to develop Unix. The word Unix sounds like “eunuchs” and means “Multics without balls.”

Upgrade
To purchase a new version of a software title at a significantly reduced price out of respect for your prior investment in a company’s software.

USB
See “Universal Serial Bus”

USENET
See “Newsgroups”
User
The person using the computer.

User Group
A club for people who like computers.

Username
The name you use to identify your account on a computer or Internet service.

Vector Processor
See "Velocity Engine"

Velocity Engine
The part of the G4 and G5 processor which can execute several instructions simultaneously.

Video conferencing
Communicating over the Internet with both audio and video using a microphone and a video camera.

Virus
Software which was maliciously written to cause harm to data stored on a computer or designed to cause an operating system to malfunction.

Web Browser
A software title which is used to view the World Wide Web.

Windows
The operating system created by Microsoft which runs on IBM PC compatible computer clones.

Word Processor
A software title which has effectively replaced the need for a typewriter. You should use a word processor to write letters and type reports.

World Wide Web
Like a never ending newspaper with pictures, audio, movies and text which is pieced together from information stored on computers found all over the world via the Internet.

Writing Tablet
The best pointing gadget which can replace a mouse. You use a Stylus to write on a flat surface much like you would with pen and paper.

WWW
See "World Wide Web"

WYSIWYG
What You See Is What You Get. This term has fallen out of popularity but it was once very common. When the Macintosh was introduced in 1984, its visual nature allowed you to create documents on the screen which resembled nearly exactly what you would get when you printed them. When the IBM PC compatible computer clones could start to mimic this ability, they labeled it "WYSIWYG" and pronounced it "wizeewig."

X Windows
The name of the graphical windowing system which most Unix operating systems use to display graphical software.

Y2K Bug
Prior to the year 2000, most IBM PC compatible clones did date calculations based on the last two digits of the year, such as '85, '92, '98. This meant that when the year 2000 came along, they thought the year was '00. This was not a problem for the Macintosh.
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Aaron Rosenzweig has a B.S. degree in Computer Science from the University of Maryland at College Park. His past work experience includes staffing a support line for a software developer, working as a programming consultant, and working as the Senior Software engineer of a Biometric software company which specialized in human facial recognition. Aaron has always enjoyed using Macs because they afforded him the ability to innovate.

Aaron had a good time writing this guide to the Macintosh but hopes you will have even more fun reading it. Please write to tell him your stories. He would love to hear about what you are doing with your computers. Hopefully, in some small way, this book has helped you gain confidence in your abilities and empowered you to be more creative. You may write him at the following Email address: aaron@cocoanutstech.com
From the Reviewers

By the way, if you've never used a Macintosh, you wonder what is so special about it. I warn you: reading this book may lead to an uncontrollable desire to adopt a Mac of your own, purchase one, or maybe even steal one. You will see that there truly is "a better way."

- Guy Kawasaki, former MacWorld columnist

Aaron is, how shall I say— a bit of a character, and that is reflected in his text, which also has character, something that helps make it a pleasure to read.

- Charles W. Moore, well-known columnist

This is one of those priceless books I will keep right beside my trusty Mac computer, along with my dictionary and thesaurus, at least until the author comes out with an updated version. It is a valuable and amazingly easy to use resource for Mac newbies and veterans alike, whether they are fifteen, fifty or far beyond.

- Marie D. Jones, BookIdeas.com

Aside from basic "how to use the computer" information, also included are some basic information on how to do word processing and even spreadsheet operations (both via AppleWorks). While this is not likely to be the last book for many people, for a surprising number, this may be all the 3rd party book some may ever require...

- Gary Coyne, www.applelinks.com

From the Author

Everyone can benefit from interaction with a Macintosh. This book takes the unique approach of introducing computers to those people who did not grow up with them, paying particular interest to those of us who are over fifty years young.

Inside, you will learn the history of the modern computer, what it is used for and how to use it. No assumptions are made. Reading these pages would be equivalent to stepping into a time machine to learn about computers as they were just becoming popular. In the 1970's and early 80's, there were many places one could go to learn or read about computers. Back then, the technology was new, so companies needed to work hard to prove that there was a market for the type of computer which an individual would want to buy. This book virtually takes you back to that era as no other book can. Topics are discussed in much the same way the books of yesteryear described them but with an important twist; it is current technology which is addressed with that same care, precision and sense of adventure.

No matter what dreams and goals you have in life, a Macintosh can go a long way toward helping you attain them. If you recently retired or otherwise have extra time on your hands, consider adopting a Mac. Just as one thousand years ago, the ability to read and write opened countless doors. Today those capable of making full use of a computer gain a whole new level of freedom. Let this book be your guide on the road to computer literacy.

About the Author

Aaron Rosenzweig has a B.S. degree in Computer Science from the University of Maryland. Though born in Arkansas, Aaron lived a few years in Texas, grew up in Maryland and now currently divides his time between America and Taiwan.