www.GetPedia.com

Building Small Business Websites

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New Generation thinking on the Plains…

Building Small Business Websites

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Foreword

History of NGP technology programs

In 1995 the Northern Great Plains Inc (NGP) of Crookston, Minnesota, operating at that time as The Red River Trade Council (RRTC), launched its first series of workshops and technical support programs geared to small businesses in rural areas. The first project, funded by the U.S. Department of Agriculture, was designed to investigate whether the Internet held potential for small agribusiness.

Working with seven agribusinesses located near Crookston, the project employed students from the University of Minnesota in Crookston to design websites for the businesses. Bruce Brorson, faculty member at the University and RRTC project manager, delivered a series of workshops to businesses to help them understand the Internet basics of using email, designing websites, and connecting their office computers to the Internet. It is interesting to note that all seven of these businesses are still actively maintaining web presences and one business has progressed to an eCommerce site that sells fertilizer and chemicals online.

Brorson's expertise was essential to the success of the workshop series. As a small business owner, professor of business and marketing, self-confessed technology guru, and tenacious researcher, Brorson drew together a set of issues and provided expertise that was highly relevant to this new frontier of the Internet.

The next NGP/RRTC project, funded by the Ford Foundation, targeted women-owned businesses. Again employing students to design web pages for participant businesses, the project culminated with a "Women in Business" web portal, complete with a topic specific search engine and our first secure eCommerce store in 1998.

In 1998, NGP/RRTC received funding from Minnesota Technology, a manufacturing support organization funded by the State of Minnesota. The Manufacturer's Network project was designed to serve a much larger audience, scaling from the seven to twelve participants in previous projects to over 200 companies served.

In February 1998, Steve Hannah joined NGP/RRTC as the Internet Systems Administrator. In addition to having students develop websites for those companies who decided to employ their services, NGP/RRTC would help them register a domain name, host their sites for an incubation period, provide email services at their domain name, offer company network evaluations and onsite configuration services, and act as a Help Desk for computer issues, and offer technical support for most any technology issue.

By the end of 2001, NGP/RRTC had provided the following services:

- Over 300 participants from 200 businesses had attended at least one of over 90 workshops.
- Student web designers had created over 100 websites.
- NGP/RRTC servers were hosting over 90 websites.
- Approximately 20 businesses had received onsite technical configuration services for their computers and networks.
- Over 1500 telephone and email requests for technical advise were logged.

In February of 2002, NGP received funding from the U.S. Department of Labor for a project entitled "Building an eBusiness Workforce in the Northern Great Plains." The goals of the project were to:

- Provide approximately 40 hours of training in the use of the Internet for small business to at least 200 participants and at least 50 businesses in 10 communities in the states of Minnesota, North Dakota, South Dakota, Iowa, and Nebraska.
- Assist in short and long range community technology education planning.
- Provide technical assistance and Help Desk services to project participants.
- Provide community grants of up to $10,000 to help communities continue their technology education programs.

As of the end of 2003, this project has provided training and planning services in the following communities:

- Iowa – Centerville, Cherokee, Laurens, Lake Mills
- Nebraska – Cambridge, West Point
- South Dakota – Canton, Lemmon
- Minnesota – Lakefield
- North Dakota – Hettinger, Bottineau

How to use this workbook

This workbook is intended to serve as a guide and resource for people in small businesses seeking to leverage the power of the Internet. Use this workbook as a self-guided study or for instructor led delivery. Instructors are encouraged to conduct their own research and study the references found in this workbook to personalize their presentations. Instructors are also encouraged to create their own materials using the ideas and information found in this workbook.

These workshop materials were developed with funding from the U.S. Department of Labor and are copyright free. They may be reproduced without permission.

Hints for successful workshops

If you are an experienced instructor or are fortunate to have that "natural instinct" you don't need any hints. But if teaching is new to you and you are a bit nervous these ideas may help you launch a successful workshop.

- Don't try to cover too much in a short workshop. These materials have been used to deliver dozens of 32 – 40 hour workshop series. Contrary to common belief, adult learners will do very well with 3-4 hour sessions and concentrated back-to-back 4 hour session work well if you are entertaining.
- Take time for warm-ups and introductions at the beginning of a workshop series. Find out what types of experience the participants have with the materials to be covered before heading in.
- Expect a wide range of computer proficiency. Most people will know how to operate a computer but will not be gurus. Make sure you explain any technical terms you use that are not common. Also, expect at least one participant who got their first computer a few months ago.
- Take breaks every 1.5 hours, or less.
- It is best if there is computer for everyone in the lab in which you are delivering the workshop. Even though many of these topics are not hands-on training it helps participants stay involved, no matter if they only check their email or look up websites. There are example activities in every chapter that require a computer.

Introduction – What is eBusiness?

When hearing the term "**eBusiness**" people commonly considered it synonymous with "**eCommerce**." Often vendors selling eCommerce software will refer to their product as an "eBusiness Solution." According to Dictionary.com, "**Business**" is defined as "*the occupation, work, or trade in which a person is engaged."* "**Commerce**" is defined as "*the buying and selling of goods, especially on a large scale, as between cities or nations.*" Adding the *e* before these terms does not change their definitions, but rather changes the means and methods we use to achieve the objectives of our business and to facilitate commerce.

We will use the term eBusiness instead of eCommerce because it represents a more comprehensive approach to the needs of most businesses. Others will use these terms interchangeably. Although selling online (eCommerce) is a potential component of an Internet marketing strategy, it is not feasible for many businesses and not successful for others. The focus of this course is designed to help small businesses be "Internet enabled" or "Internet *savvy*", to embrace **eBusiness**, whether or not directly selling online is part of their strategy.

eBusiness is more than Internet marketing. It includes communications, data acquisition and exchange, financial analysis, customer management, business research, production technologies, building partnerships, and a wealth of other activities that are part of "doing business." What is changing is that we are now doing those same activities with computers, and are increasingly conducting our business over the Internet. We are doing business *e*lectronically.

References for Understanding Small Business Websites

Small business and websites
http://www.bricklin.com/smallbusiness.htm

Basic terminology definitions for eBusiness
http://www.learn-ecommerce.com/ebusiness-definition.html

Tutorials on eCommerce
http://www.learn-ecommerce.com/index.html

A comprehensive site of tutorials and articles, used throughout this workbook
http://www.tamingthebeast.net

10 secrets to eCommerce success
http://ecommerce.about.com/cs/faqstutorials/a/aa041103a.htm?iam=savvy&terms=%2Bebusiness+%2Bdefinition

Suggested Workshop Activities

1. After discussing what eBusiness really is, survey the audience and ask if anyone realizes they are more of an eBusiness than they thought during the introductions. Some possible activities that the audience may not have realized include:

    a. Using email for business correspondence
    b. Buying business supplies and other items online
    c. Using electronic accounting and inventory software
    d. Using a customer contact database
    e. Using computer design programs to make flyers and advertisements
    f. Locating potential or new suppliers via the Internet
    g. Electronic banking
    h. Any other electronic means of doing business

2. Ask the audience if there are other business activities they currently conduct through traditional (paper-based, fax, phone, etc.) methods that they are interested in moving to electronic methods.
3. Discuss the drawbacks of moving away from traditional methods of business and adapting eBusiness methods.

Chapter 1
Basic Principles of Website Design

Understanding the essential elements of website design

As of 2003 the estimates of the number of "pages" on the Internet range from 4 – 6 billion with Google search engine actually indexing over 3 billion. It is safe to assume that not all these "pages" are well designed, as a matter of fact there are quite a few that are absolutely terrible!

Good website design is as much a science as an art. An emerging field of research called Human Computer Interaction (HCI) is the study of how humans search, navigate, and locate information on computers. Information Architecture (IA) is another new discipline that studies how users prefer information organization and presentation. Considerable study has been done on information design principles that are commonly accepted in the print industry and adaptations of these principles are being transferred to website design.

As we learn more about these new sciences we find that the interactive nature of the Internet requires that information be presented differently than we would for a printed publication. We find that the ability to create hyperlinks allows us to offer multiple levels of detail for the website visitor so they can choose anything from a quick overview (scan) to a detailed description of the information presented on our website.

We want to make a good first and lasting impression to our new virtual visitors. This may be even more important than a good first impression in person! I went to the grand opening of a newly opened store in a small town. The sign on the front was hand-painted on a piece of paneling, the display window was broken and duct taped, and the inside of the store was disorganized and very dull. Some items had price tags, some didn't. Items that should have been grouped logically together were on opposite sides of the showroom floor. Needless to say, I wasn't impressed.

Your website visitor's first impression is at least as important as their first impression of your physical store. There is a vast chasm between having the ability to design a website and designing a good website. By identifying and avoiding some of the most common website design mistakes we can greatly increase our chances of a successful Internet marketing campaign.

References to bad website design:

Dear Webby, - a guide to the first time web developer
http://www.tlc-systems.com/webby01.htm

Stupid Web Tricks
http://www.tlc-systems.com/stupid01.htm

Art and The Zen of Websites – excellent article
http://www.tlc-systems.com/webtips.shtml

The Tao of Websites
http://www.tlc-systems.com/tao.htm

Robin Williams (not the actor) is a renowned author of graphical design books.
http://www.ratz.com/featuresbad.html

Another list with a few good "bad" ideas
http://www.doghause.com/top15.html

Top 10 mistakes in website design
http://www.sun.com/960416/columns/alertbox/index.html

Ten deadly sins for small business websites
http://www.bcentral.co.uk/marketing/ebusiness/10Sins.asp

References to Good Website Design

It is interesting to note how some of the greatest websites on the web break one or more of the rules discussed in the Bad Websites articles above. When viewing some of these examples, ask questions like "why can they get away with a black background" or "why is this Flash animation good when the articles say to avoid animated graphics." All rules are meant to be broken if there is a reason and if it is done right.

Web Design "Tips and Tricks"
http://www.web-writer.com/tips.htm

A good source of inspiration for website design
http://www.coolhomepages.com/

WebAward winners for best websites
http://www.webaward.org/winners.asp

Suggested Workshop Activity

Everyone has their "pet peeves" about websites but they may not really be able to put their hands on what it is that they don't like about the website. A good opening discussion for this section is to ask your audience what those pet peeves are. Invariably the following problems will be mentioned in one form or another.

Common Web Page Problems

I. Slow Loading Pages

According to the Federal Communications Commission (FCC) broadband services are available to 85% of the households in the U.S. as of the end of 2001. Whereas 57% of the households in the U.S. have Internet access, only 10%-13% have broadband. Of the total U.S. households connected to the Internet, 20% have broadband and 80% have dialup.

Dialup connection speeds typically range between 19,000 and 52,000 Kilobits per second. To translate that into actual performance, dialup connections will download data at between 1.5 Kilobytes (KB) and 5.0 KB per second. Broadband is defined as a downlink speed of at least 200,000 Kilobits (25 Kilobytes) per second. Most cable modem and DSL connections will download data between 25 KB and 120 KB per second.

The end result – many web designers have broadband Internet connections and do not properly design their websites to accommodate dialup users. Everything works great for the designer, their Internet connection is 10-50 times faster than dialup.

The big culprits are graphics and images. It is not uncommon for a single page to have 10 – 30 or more images on it. The pages may not seem graphical to the users since we have become accustomed to graphical pages. But consider the following actual example of a single page:

Graphic	Size of Graphic	Number on Page	Total
Navigation buttons	2 K	10	20 K
Company logo	24 K	1	24 K
Banner graphics	8 K	1	8 K
Photographs	20 K	3	60 K
Actual HTML page	2 K	1	2 K
Total		16	114 K

This is a very typical web page and one that is actually fairly efficient. Now, looking back to the download speeds of dialup connections we see they range from 1.5 K to 4.5 K per second. Taking a 3 K per second average and dividing it into 114 K we find that this single page will take 38 seconds to download over a dialup connection. The same page will take 2-4 seconds over a broadband connection.

Various studies show that Internet users will wait 7 – 10 seconds for a page to load, or at least for evidence that the page is loading, before leaving the page. Dialup users may be a bit more patient, broadband users a bit less.

In the Digital Graphics workshop we will further examine how to "optimize" graphics for the smallest file size and we'll look at the mathematics involved.

References to Study

Design your website graphics with "loading time" in mind
http://www.ideasformarketing.com/graphics.htm

Top Ten Tips for a Faster Website
http://iimall.hypermart.net/e-Commerce/story/1999-5-22-04-11-22.html

Floor it! Let's get outta here!
http://www.website101.com/Wizard.html

II. Poor or Inconsistent Navigation

Have you ever been in an unfamiliar metropolitan area following a map? The street may switch to a one-way (toward you) for several blocks then continue on as a two-way. By the time you circle around and try to find the street again you may be hopelessly lost.

Website navigation should be consistent and predictable or your visitors will get lost. Although there are no set standards for website navigation there are a few common "best practices" that are used. A typical navigation scheme is a set of buttons or hyperlinks, either on the left side or across the top, that take the visitor to a page or section of the website. Sub-pages may be linked from the inside page, or on fly-out or drop-down menus from the links on the main page. Some sites use drop-down menus exclusively.

Creating hyperlinks within the text of a web page is a simple task with website development software. Because of this simplicity many website developers

overuse this convenience and create hyperlinks to everywhere within the text. Some of the links may take the visitor to another website, some to pages within the website. Other than using the "back" button the visitor often has no method to return to the text they were reading.

When designing website navigation, think of your website as organized hierarchically, the same way the Windows Explorer file system is arranged. Avoid "nesting" pages too deeply unless your site has grown to hundreds of pages. Most website development tools will help you design your navigation structure but it may be important for you to map it out on paper before beginning your site. Some website development tools make it simple to change your mind about navigation, others are not so forgiving.

References to Study

Website Navigation
http://www.yourhtmlsource.com/accessibility/navigation.html

Site Navigation
http://www.yournew.com/090401mail.htm

On the following link, click on the article "Website Navigation is Useful." The article has good advice, but notice the page? There is no navigation back to the main page.
http://www.merges.net/theory/

III. Inaccurate or Out-of-date Information

When was the last time you picked up a current newspaper and read about an "upcoming" event that happened some time ago? Have you ever ordered something from a parts book or catalog only to find out later there was a misprint and the product number was incorrect?

Announcements, sales, and events that are dated should be removed from the website as soon as the event is over. Inaccurate information, whether it is a part number, a quote, or a misrepresentation of your products will quickly destroy your credibility on the web. Those persons who pay attention to grammar, punctuation, and spelling may leave your site simply because there were language errors on the site.

If you are not comfortable with your writing skills don't hesitate to engage someone with those skills to write your website ad copy. If there are no professional advertising writers in your area or you cannot afford to hire them, check with your local schools to see if there is a faculty member or student who is known for their writing skills. Whatever you do, don't publish your website with poorly written content.

A website that is up-to-date, accurate, and carefully proofread will create a professional and favorable impression of your company, just as the first impression of a physical store may determine whether a shopper ever returns.

If you have a site that frequently publishes dated content you may want to look into having a web developer create an events page or calendar that will automatically publish and expire content on the dates you specify. This involves using technologies such as javascript or asp, which is something we will talk about in another chapter.

IV. Difficult to Read Text or Content

When was the last time you read a book or magazine that had red text on a green paper? Or black pages with white text? How about a `fancy font` or tiny text. Or how about reading an article that uses real large type.

We are most accustomed to reading black text on a white background. Scientific studies have shown that standard fonts such as Arial or Times Roman have easier readability. Resist the temptation to be creative when it comes to text. Color combinations besides black and white are possible but remember the contrast between the background and the text is most important. Don't use heavily patterned backgrounds or dark colors.

How we write our website content is very important. Studies show that web readers are far more likely to "scan" the text than read it word for word. Savvy web users are learning to filter through the "information overload" that has flourished since the Internet became a household word. Users are looking for visual clues to the location of specific information and will expect to find them quickly or they will move on.

Writing for the web requires that we introduce information with concise and abbreviated statements. We may start with bold headings or a list of the contents in the site. This may be a function of the navigation buttons or of brief summaries of products or information inside. We may use other visual clues, such as graphics or colored text to draw attention to key information. From there we can hyperlink to more detailed information and pictures. Depending on how much information we wish to present there can be two to four levels of detail.

Larger manuscripts or documents should be broken down into smaller sections, much smaller than we would divide the chapters of a book. We should provide frequent cues to the content of sections with headings or callouts. It is ideal for each section to take no more than a single screen on the computer although that is not always achievable.

References to Study

Web Readability Research
http://www.nellco.org/jim/presentation/research.html

Colour Choices on Web Pages: Contrast *vs.* Readability
http://www.writer2001.com/colwebcontrast.htm

How Users Read on the Web
http://www.useit.com/alertbox/9710a.html

V. Scrolling Up and Down and Sideways

When a web page is longer than you can view on your monitor, scroll bars are available on the side of the page. This is not really a problem, billions of web pages scroll up and down. But there are "rules of thumb" to follow when designing your web page length and width for user friendliness.

1. The home page (first page of your site) probably should not scroll. Design the page to fit in a single window on a monitor set to 800 X 600 resolution.

2. Try to limit other pages to 2 or 3 times the height of the window view. Long documents should be broken into smaller pieces and published across multiple pages. If the document is fairly long, consider putting hyperlinks at the top or visual clues that will help visitors locate specific topics on the page.
3. Never include graphics or tables that cause the viewer to scroll sideways unless there is no other alternative to present the information. An acceptable example might be a spreadsheet table that simply won't fit in one window width.

References to Study

Web page design layout principles
http://www.dsv.su.se/jpalme/layout/

Scrollin' Scrollin' Scrollin'
http://world.std.com/~uieweb/scrollin.htm

VI. Pop-Up Advertising

There is only one bit of advice we can offer in this category. Absolutely do not offend your visitors with pop-up ads. There are advertisers who will offer you money to have their advertising pop-up when someone visits your site. Free website hosting services will have pop-up ads as the "string attached" for the free hosting. Nothing has annoyed and frustrated Internet users more vehemently than pop-up advertising.

Chapter 2
Web Marketing – Audience, Content, and Graphics

Whether you are designing a website for a for-profit business, non-profit institution, school, governmental entity, or your local club, you have a purpose and an audience for your website. Many basic principles of effective marketing that apply to other promotional and informational media should apply to your website design – with a few adjustments for the web.

The following excerpt from an article in Web Marketing Ezine http://www.webmarketingezine.com/backissues/030108.shtml#3of4 states that 75% of small business websites fail for the following reasons:

> **3 Out of 4 Websites Are a Waste of Money**
>
> A major UK web company has looked at the statistics of 327 business websites they evaluated. While readers of WME will be convinced of the value of Web Marketing, this survey helps illustrate the gap between potential, and performance! Here are the errors they found...
>
> 87.2% - Website is not being promoted correctly. (Search Engine Chapter)
> 96.3% - Website suffers from poor content. (Web Marketing Chapter
> 75.8% - Failing website costs money rather than makes money. (Website Design Chapter)
> 72.4% - Site fails to mention benefits of products/services to customer. (Web Marketing Chapter)
> 47.4% - Site aimed at general audience but contains jargon words that only experts would understand. (Web Marketing Chapter)

The best marketing approach for your business or organization will be significantly different than the approach that works best for other businesses, and you may benefit from a marketing plan that is much different than your competitor's! In a small business world that is quickly moving toward niche markets, defining and capturing new customers is your biggest challenge.

You Have 7 Seconds

That's right. Studies show that the typical Internet searcher, clicking on result pages in an Internet search service, will spend 5 to 10 seconds determining if the site has what they want. The average is 7 seconds.

This sounds like a very short time, but compare this to your television viewing habits. If a commercial does not catch your attention immediately, do you watch it or tune it out? How many commercials do you watch simply because they are entertaining, visually appealing, or are advertising a product you might be interested in? How many magazine or newspaper advertisements catch your attention because they are appealing but not necessarily a product or service you are interested in?

The Internet has an advantage over television or print ads – the visitor is often actively looking for information about something, possibly something your business offers. The website visitor may be further along in their buying or information seeking decision process than a television viewer or magazine reader.

According to Phillip Kotler, author of numerous textbooks on marketing, the average American is bombarded with over 1600 advertising opportunities each day. While that number sounds outrageous, think of the amount of time we spend listening to the radio, watching television, reading newspapers and magazines, sorting through our mail and email, driving down the highway (billboards), reading paper placemats, and closing popup ads on the Internet. Advertisers are even taking advantage of the blank wall men stare at in the rest room. Everyone wants to sell us something.

How does a small business grab the attention of a potential customer, client, or information searcher in the midst of this cacophony of advertising messages? We can benefit from marketing concepts that have been successful for big businesses.

Who is Your Target Audience?

Do you know who your customers, or potential customers, are? What information do they want from your website? What age groups are you targeting? How technically savvy is your audience? Are you looking to reach new markets? Is your goal to reach consumers, businesses, or provide information to the general public? How does your target audience expect to find information organized?

Your website's graphic design and textual content should appeal to your target audience. A "Dollar Store" targets a different audience than a high-priced gift shop. A used automobile dealer that specializes in "under $2000" vehicles has a different target audience than a dealer who specializes in "exotic imported sports cars."

We sometime may overestimate how large our potential audience is. If we are marketing commodity products or services (a tough market for a small business on the Internet) then our target audience will be general and large. However, in this author's experience consulting with hundreds of small businesses virtually every business had a unique selling proposition, a significantly differentiated product or service, and a relatively narrowly defined niche audience. Small businesses on the Internet are specialists - offering those wonderful things that you can't get anywhere else.

Defining your target audience involves a systematic approach. Let's analyze a fairly typical small business that is hoping to find new customers on the Internet.

Joe's Western Wear custom engraves Western-style belt buckles with a name or can even engrave a picture on some styles of belt buckles. When asked who his target audience is, Joe says "Anyone who wears a belt."

We started narrowing that down. Since Joe has decided he doesn't want to do business outside the U.S. he has already eliminated over half of the Internet users. Western wear clothing is a small niche in the overall clothing market and searching the Internet for "Western style clothing" will find more sites about the market for traditional American clothing in foreign markets than sites that cater to selling "Western wear."

To be found by people in Joe's market we need to think about keywords that target audiences will use if they are searching for belt buckles or Western wear clothing. Joe would also like to be found if his target audience is searching for other interests this audience may have, such as

rodeos, ranches, and horses. Although Joe's product is fairly narrow it may be possible to capture customers who are not necessarily looking for custom engraved belt buckles.

Joe's website text will use other keywords, such as horses, rodeos, Western wear, and ranch. Writing a narrative that incorporates these words may increase the chances that visitors will find his site in a search engine even if they aren't looking specifically for belt buckles. Joe also needs to decide on the "personality" he wants his website to convey to his audience. Joe is a delightful person, always spinning a tale or telling a joke. His dry style of humor and wit will be sparingly used in the narrative copy of his website.

Examples of Sites with Obvious Target Audiences

Let's look at a few sites that have obvious target audiences. These examples range from websites of Fortune 500 companies to small businesses. Your website should graphically appeal to your target audience and should provide a strong clue to the content contained within the site. High quality websites are a delicate blend of attractive graphics, clear information, and easy navigation to the most relevant information.

Disney.com (Children)

Actual website image from http://www.Disney.com

It isn't too difficult to figure out who Disney's target audience is – children. The site is animated, colorful, interactive, and fun. It uses the latest Flash technologies; probably not a problem for children but this high interactivity may be intimidating to older adults.

Pepsi.com (Teens – Young Adult)

Actual website image from *http://www.Pepsi.com*

Pepsi has traditionally targeted a younger audience, teenage and young adult. Music, wallpapers and screensavers, games, and pop stars are the focus of this site. There is very little product information.

Dick Blick Art Supplies (Crafters & Artisans)

Actual website image of http://www.dickblick.com

Dick Blick Art Materials site is no-nonsense and the navigation takes you directly to the products you are looking for. Mature audiences are more likely to prefer business-like interfaces that get the job done without confusion. Because of the wide variety of art supplies available on this site, no one artistic specialty is represented – the site is not graphically "artsy."

Home Visions Furnishings

Actual website image of http://www.HomeVisions.com
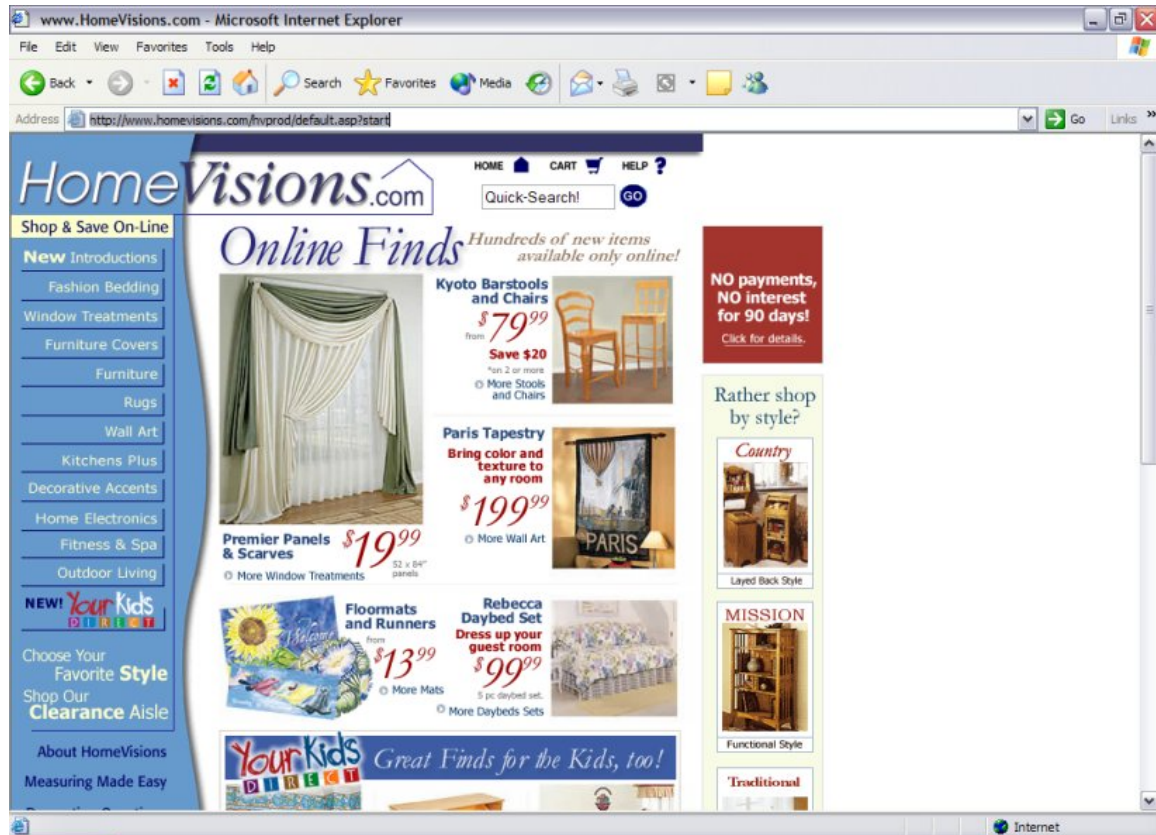
The Home Visions home furnishings site has a familiar newspaper insert look. The navigation is organized the same way we would expect the physical store to be. The simplicity of shopping this site will appeal to most any online shopper.

Thief River Linen

Actual website image of http://www.trlinen.com
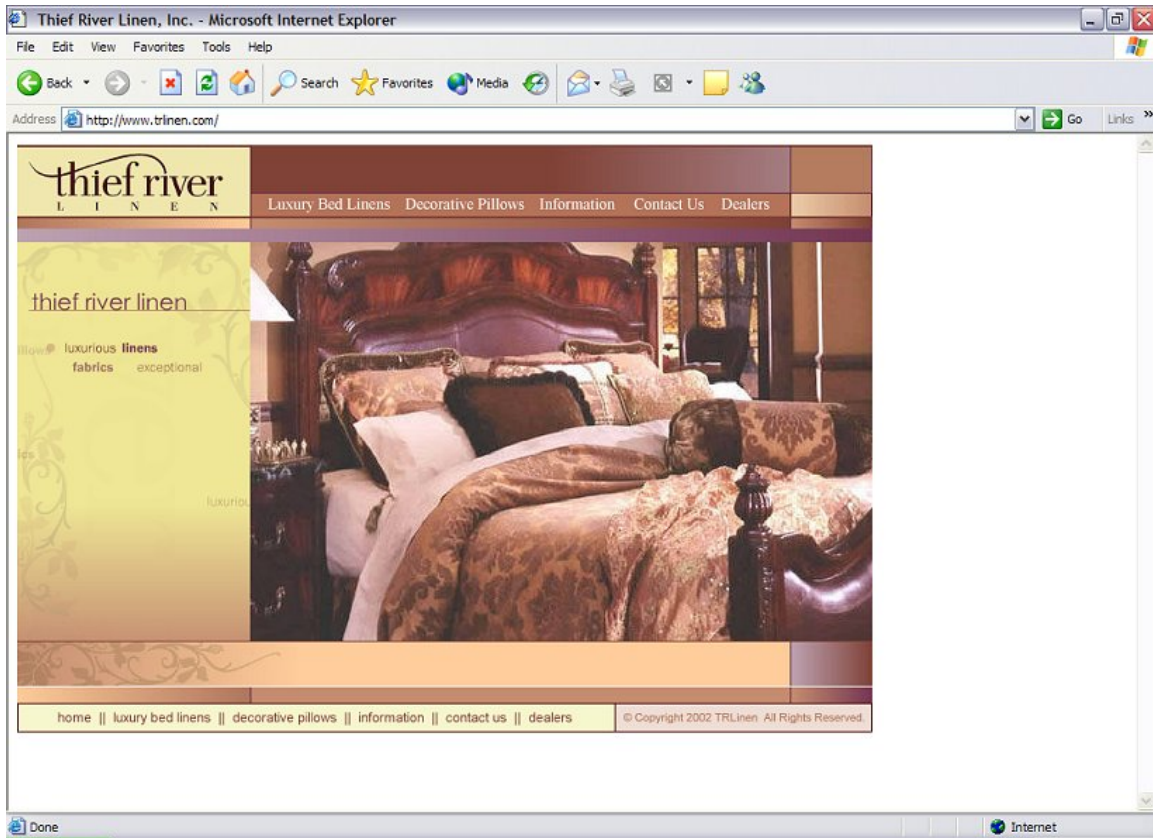
Thief River Linen is a small company in northern Minnesota that specializes in luxury bed linens and decorative pillows. The richness and elegance of the site will appeal to the upscale buyer who understands that quality comes at a price.

Resources about Target Audiences and Website Marketing

Internet Marketing Strategy: Thesis Internet Marketing (a comprehensive web marketing site)
http://www.marketingprinciples.com/articles.asp?cat=362

8 Steps to Creating an Infectious Business
http://www.webmarketingezine.com/customer-evangelists.shtml

Web Design, Ad Copy and Targeting your Target Audience
http://dianev.com/web-design-help/web_design_basics/target_audience.html

Marketing and Promotion by Joi Motley – an excellent mini-tutorial
http://www.searchengines.com/marketing_intro.html

The Importance of Page Content

By far the most important and most overlooked component of a successful small business websites is the textual content of the website. The survey earlier in this chapter states that 96.3% of small business websites suffer from poor content. Wouldn't you like to be in the top 3.7%?

If your website didn't answer most of your visitor's questions it will be a rare day in the world of Internet marketing when someone calls you on the telephone after visiting your site.

We need to remember that the biggest advantage of the Internet is instant access to information. People can use the Internet at any time of the day or night, any day of the week, from anywhere in the world. Most Internet users do not expect to "call for more information" about a product or service unless your products or services cannot be fully explained or the final negotiations cannot be completed without a face-to-face, email, or telephone conversation.

Home Page Suggestions

Have you ever visited a website where you weren't sure what the purpose of the website was? Did they make it clear what the potential was for you to be their customer? Did the site provide the information you were looking for?

Some companies don't need to tell us who they are or what they do. Pepsi and Disney have no need to explain who they are. Unfortunately, most small businesses are not so well known or they wouldn't be small businesses.

Small business websites often are short on content and lacking in clarity. We may assume that our current customers know who we are and what we do so our web visitors will know too. However, a stranger to your website will leave quickly if they aren't sure that you have what they want.

Remember the six W's (actually five W's and an H)? Your narrative on the home page should include this information.

Who: Who are you?
What: What do you do?
When: When are you open for business?
Where: Where are you located?
How: How do I communicate with you and do business with you?
Why: Why would I want to do business with you?

You should cover these six W's in 500 words or less. Incorporate the keywords and phrases you think are most important to your business, repeating them several times. In the chapter on search engines we'll discuss why careful repetition of keywords is essential to optimum placement in the search engines. Make your introduction inviting and informative, friendly and readable, and you will have accomplished a big part of your web marketing task!

Let's review this example: A costume rental business website had this content on their home page (information that identifies the company is blacked out).
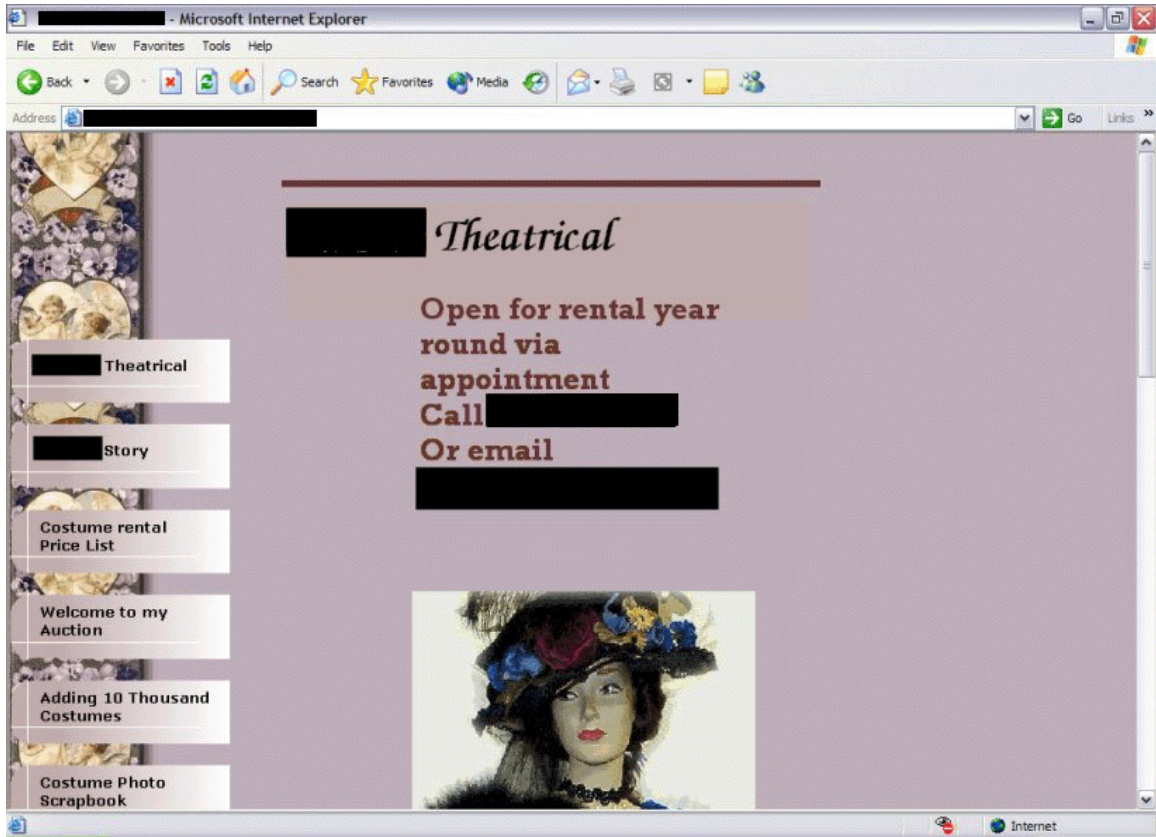
Now, assume you found this site and didn't know where they were located (the only clue is the area code on the phone number). Would you call them to find out where they were? Would you be interested in knowing if they rented costumes over the Internet? Would you bother to contact them if you found another site that clearly stated that you could rent costumes from them over the Internet?

Let's write a short home page narrative for this website that should answer most of the commonly asked questions a new visitor may have. (Name has been changed for demonstration purposes.)

> Thompson Theatrical is the largest costume and vintage clothing rental business in northern State. We stock over 15,000 costumes including complete costume sets for over 250 of the most popular theatrical productions. We will rent costumes, formal wear, and vintage clothing to customers anywhere in the United States and Canada and will ship via UPS or FedEx.
>
> Please browse our gallery for photos of some of our most popular vintage clothing and costumes. Because of our huge selection we are unable to show all of our rental clothing and costumes but please feel free to email us at sales@thompsontheatrical.com or call us toll-free at **1-800-333-3333** to discuss your needs. We are open **M-F from 9:00 – 4:30 p.m. Central Time**. We will gladly take photos of costumes or clothing that may suit your needs and email them to you to assist you in finding exactly what you are looking for.
>
> Most of our theatrical production costumes are size adjustable, our vintage clothing is not. All of our costumes and vintage clothing rent for less than $60 per week with special discounts available for theatrical sets starting as low as $15 per week per costume. We only carry high quality costumes and clothing and are committed to providing exceptional customer service. Your satisfaction is guaranteed and we ship promptly. Contact us for rates on overnight or priority shipping information.

There are a number of reasons our page content is essential.

- The example above is 227 words.
- Search engines have some important keywords to index (this topic is covered in the Search Engine chapter)
    - The word "costume" appears 11 times in this introductory text.
    - The phrase "vintage clothing" appears 4 times in the introductory text.
    - The word rent (or rental) appears 4 times, making the search terms "rent costume" or "rent vintage clothing" very powerful
- The visitor knows where they are located, what services they offer, what their business purpose is, and that they can rent costumes from them from anywhere in the U.S. and Canada.
- Visitors know they can receive photographs of costumes or clothing before renting them to ensure they are getting what they want.

The end result of this minor change – the site will index better in the search engines and potential customers know that they can do business with this company over the Internet.

Next, let's review the website of a truck dealer.
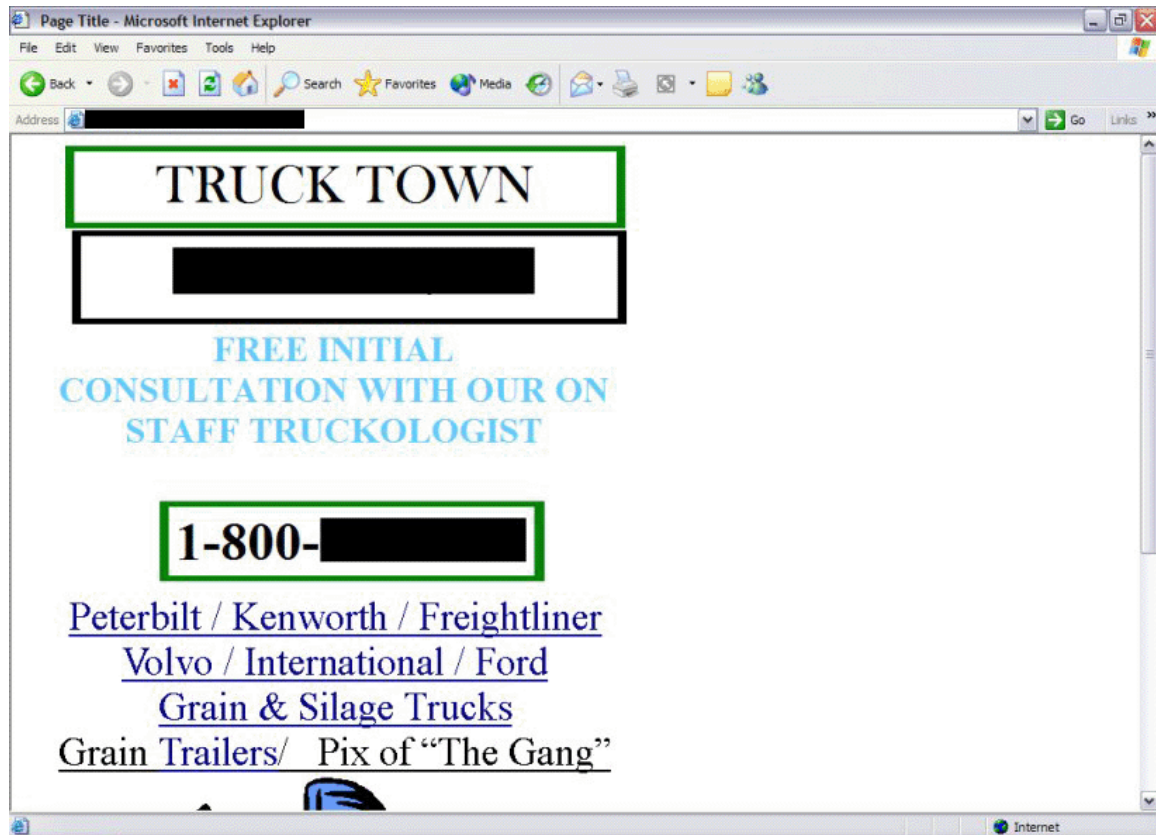
This home page says very little about the business except it has something to do with trucks. The term "truckologist" is exclusive to this business and it would be better to use a more standardized description of this person such as a "truck sales consultant." Clicking on the links under the 800 number takes us to pages with a few trucks and prices so we may assume they sell trucks.

The site is short on visual appeal and has very few keywords to index. There is almost no text and no descriptions of the trucks for sale except for the year, make, and price.

Resources about Writing Effective Website Copy

How to Write Your Own Ad Copy: A Guide to Get You Started (free one-day pass, no signup)
http://www.marketingprofs.com/3/maur7.asp

Top tips for Website taglines that engage first-time visitors
http://www.imakenews.com/wordbiz/e_article000104147.cfm

Let Them Know What Your Site Is About
http://www.clickz.com/design/write_onl/article.php/843371

Providing Summary and Detail Information

One of the biggest advantages of the web is that we can publish an incredible amount of information for a relatively low cost. This does not mean we should go overboard but it does mean that we have opportunity to present our products, services, or information in both a summarized and detailed view.

Often we can divide our information into categories by properly designing our navigation structure. This may be the first level of our summary information. Navigation can lead visitors to information by breaking it down by product, service, audience, or topic.

I. Clicking on a navigation link should bring up more specific information, or many navigation links use "drop down" menus of the subcategories of products or information below them.

II. Clicking on Digital Cameras brings us to another more detailed breakdown of information. Depending on how many products or how much information you have on your website you may begin to summarize specific products or information on this secondary page or do as CDW has done – provide a further breakdown.

Brands	Hardware	Software	Networking	Accessories	Services

DIGITAL CAMERAS

SELECT FROM THE MENU BELOW

» **Digital Cameras**
  Digital Camera Accessories
  Digital Cameras

» **Photographic Accessories**
  Camera Accessory Kits
  Camera and Camcorder Lenses
  Lens Filters/Caps
  Lights, Flashes & Accessories
  Tripods

» **Video Camcorders**
  8MM Video Camcorders
  Compact VHS Camcorders
  Digital Video Camcorders
  Video Camcorder Accessories

» **Video Conferencing-Web Cameras**
  Desktop Webcams

» **Flash Memory**
  CompactFlash Memory
  Flash SIMMs/DIMMs
  Memory Sticks
  MultiMedia Cards
  PC Card Memory
  SmartMedia

» **Film Cameras & Binoculars**
  Binoculars
  Standard Film Cameras
  Std Film Camera Accessories

DIGITAL CAMERA SPECIALS

Canon PowerShot A70
2048 x 1536 resolution; 16MB Compact Flash
$299.00
More Canon...

III. Clicking on Digital Cameras in the above page will take you to a complete listing of the cameras available. You can further sort the results by various means such as price or brand. Notice the first level of product detail, a summary specification description of the camera.

Brands	Hardware	Software	Networking	Accessories	Services	

Category: Digital Imaging-Camera/Scanner ❯ Digital Cameras ☒

☐ Show ready to ship products only (Shipping Definitions)   ☐ Hide product images
Sort By: BEST MATCH | GROUP | BRAND | LOWEST PRICE | HIGHEST PRICE

Showing 1 - 25 of **154** Products

[⨄ Compare]   **Product Details**

☐   **Canon PowerShot A60**
1600 x 1200 resolution; 16MB Compact Flash

☐   **Olympus D 390 - Digital camera - 2.0 Mpix**
Digital camera - 2.0 Mpix

☐   **Canon PowerShot A300**
2048 x 1536 resolution; 16MB Compact Flash

IV. Finally, clicking on a product link brings up detailed specifications and an appealing description of the particular product.

Writing Styles for the Web

Not everyone is a great writer, and many people are reluctant to write. If writing is not your "cup of tea" then by all means find someone who is good at it. However, someone who is recognized as an excellent writer may not understand the best writing style for the web.

Considerable research has been conducted in the area of website readability. A few common suggestions have emerged from many studies:

- Use a casual, personal style, as if you were talking to someone.
- Use the KISS method of writing: Keep It Short and Simple.
- If detailed information is necessary, summarize first then link to the more detailed information.
- Web readers tend to scan rather than read when locating information, therefore:
    - Keep the paragraphs short.
    - Use common language and terminology.
    - Break longer text into subsections with headings.
    - Use "callouts" to bring attention to important information or notable statements.
- SPELL CHECK!! GRAMMAR CHECK!! (If you are rusty on punctuation and grammar rules, have someone with good writing skills review it. Also, utilize word processors such as Microsoft Word to help you identify errors.)

References to Study

Writing Well for the Web
http://www.webreference.com/content/writing/

Writing for the Web
http://wdvl.internet.com/Internet/Writing/

Wired Style (for those who really want to learn the new-age writing style)
http://hotwired.wired.com/hardwired/wiredstyle/toc/index.html

Activity for Writing Web Copy

Try your hand at writing a few short paragraphs for the home page of the truck business shown earlier in this chapter. Concentrate on the content, on making the "business of the business" clear. Don't worry if the information is accurate, you can invent the content. Remember to address the six W's in your narrative.

Next, think about your own business. What are the six W's of your business? Writing the sentences that state **Who** you are and **What** you do may be the most challenging. Remember, keep the home page narrative short and simple and provide the detail on the inside pages.

Chapter 3 - Search Services

Probably the most common question asked by small businesses that have websites is "How do I get my website found in the search engines?" There is good reason for asking this, after all, we went through the expense and effort of marketing our business on the Internet because we were looking for new customers and if they don't find us in the search engines all this effort seems in vain.

First, we are going to change our terminology from 'search engine' to 'search service'. Hopefully, by the end of this Chapter the reason will become clear as we create the distinction between a search engine, a meta-search engine, and a directory.

The search service business is a rapidly changing, highly competitive, high technology segment of the Internet economy. Various sources estimate that the number of search services on the Internet range from 60,000 – 150,000. But with all these search services a dozen or so dominate the market.

If you are able to get your website listed in the top 50 results for keywords relevant to your business in half of the top 12 search services, your site is far above average. That may not sound like a real success, but if we understand the workings of these computerized (and human powered) wonders we may find why this is cause for celebration.

Search Engines and Directories

There are two types of search services – computerized search engines and human developed directories. There is also another category of search service called the meta-search engine. Most of the top search services are hybrids, giving first preference to results delivered from their directory followed by results from the search engine.

In a nutshell, search engines provide computer generated results based upon mathematical algorithms that provide a statistical 'relevancy' to the keyword submitted.

Directories are built by humans, who review and categorize sites into a hierarchal structure, write or approve submitted descriptions of the site, and determine relevancy to the keywords.

The first section of this chapter will focus on the search engine. For most small businesses the search engines represent the most realistic potential we have to be found on the Internet. That is because virtually all directories require for-profit businesses to pay for inclusion and pay a premium to be placed at the top of the results. But…more on that later.

The following references from Search Engine Watch Website are some of the most readable and informative resources about search engines and directories on the web although there are many other sites that provide excellent information.

Understanding Search Engines

References for Understanding Search Engines

About.com Introduction to Search Engines
http://websearch.about.com/library/weekly/bl-search101-enginea.htm

Search Engine Watch website is one of the most definitive and complete resources for understanding search engines. We will use the following links to provide consistency to the reading.

Search Engine Watch Submission Tips
http://www.searchenginewatch.com/webmasters/index.php

Or, follow these links from the above page to specific topics. It is recommended you read the short articles in the first two sections in sequence to get a basic understanding of how search engines work.

Articles on Essentials of Search Engine Submission

1. Intro To Search Engine Submission
2. Your Search Engine Submission Budget
3. Submitting To Directories: Yahoo, LookSmart & The Open Directory
4. Submitting To Crawlers: Google, Inktomi, AllTheWeb, Teoma & AltaVista
5. Submitting Via Paid Listings: Overture (GoTo), FindWhat & Google

Articles on Optimizing for Crawlers

1. Intro to Search Engine Optimization
2. How Search Engines Work
3. How Search Engines Rank Web Pages
4. Search Engine Placement Tips
5. How To Use HTML Meta Tags

Optional and Helpful Articles

- The Major Search Engines and Directories
- Search Engine Results Chart
- Who Powers Whom? Search Providers Chart
- Buying Your Way In: Search Engine Advertising Chart
- Checking Your Listing In Search Engines
- Measuring Link Popularity
- Search Engines and Frames
- What Are Doorway Pages?
- Search Engine Features For Webmasters
- How Major Search Engines Regionalize
- Search Engines And Capitalization
- Search Engine Optimization
- SpiderSpotting: When A Search Engine, Robot Or Crawler Visits

The Spider Web

If you read the article "How Search Engines Work" you will recall it discusses some mysterious creature that visits your website and indexes it. What we are really talking about is software – the crawler or spider – whose job it is to 'read' the text on your website and 'index' it, or add it to a database.

When you submit a query (type a keyword into the "Search" box) to a search engine or directory it searches through its index, or database, for the most relevant matches to the keyword rather than searching the Internet. Searching the Internet would take weeks or months, not fractions of a second.

There are many business cross-relationships between the various search services. Some of them are owned or partially owned by other search services, others license search engine software or directory listings from each other. In many cases, submitting your site to one search service will get it indexed for other search services. Although many search services may use the same index or database the results you get will vary greatly because of the methods and rules the search service uses to 'query' the database.

Search Engine Submission

Getting your site indexed is not that difficult. Search engine *submission* is a process where the site owner or a paid service requests that the search engine crawlers visit a site and index the text on the site. Many people assume that submitting a site to a search engine is all they need to do and the search engines will place them as the one of the first results on whatever words they want. If only it were that simple.

Many of us receive unsolicited email from businesses offering to "submit your website to over X thousand search engines for only X dollars." In reality, you can buy software for your own use for about $50 - $150 and submit your own site as many times as you want. This software has many benefits including the ability to submit your site to tens of thousands of smaller search engines, but unfortunately the most popular search engines have blocked these automated submission tools and they require you to manually submit your site to them, one by one.

Submitting your site to a search engine does not guarantee you any preferred placement, in fact it does not guarantee the search engine crawler will visit your site although most search engine crawlers will eventually visit your site and index it. In order to have the best chances of good placement we must *optimize* our web page content.

Activity for Search Engine Submission

Check out the submission pages for the following sites:

Google – Notice how simple this is, just type in your website address and a comment if you wish.
http://www.google.com/addurl.html

LookSmart – Submitting through LookSmart will get your website indexed in MSN, About.com, InfoSpace, RoadRunner, CNET and Inktomi. But it is a *paid-inclusion* service, something we will discuss more in the section on directories.
http://listings.looksmart.com/home/

AltaVista – You have a number of choices here, including *pay-for-positioning.* However, you can submit your site for free and your submission will get you indexed in the search engine (not the directory) section of AltaVista, Yahoo!, Lycos, InfoSpace, DMOZ, Excite, and others. http://addurl.altavista.com/

Optimizing Web Pages for Search Engines

The process of optimizing web pages for search engines requires that the website designer and copy writers have a blend of search engine knowledge, patience, persistence, and plain old good luck. Each search engine will "view" a web page differently according to their "rules" (the mathematical algorithm) for *relevancy.* Relevancy is a determination made by the search engine software that your page is an important resource for a keyword or keywords. A measure of success for optimizing web pages is the 50/50 rule – 50% of the major search engines list us in the top 50 results for our preferred keywords. But hold on to that thought, there are a number of roadblocks to achieving that success ratio.

Search engine optimization of web pages requires a delicate blend of website text design elements that will present your site as a good candidate for relevancy with the different search engines. Achieving this blend may require experimental adjustments periodically. It is not uncommon for a website to achieve good placement, then have a few minor changes to the website text cause it to lose that position. This does not mean we shouldn't make changes to our website but a major redesign or significant changes in the text may cause us to start over from scratch with optimization.

There are a few key elements of website text design that are essential in varying degrees to all search engines. Remember that the search engine crawler only can index text for relevancy; graphics cannot be "read" by the crawler although the graphic filename and an "alt" tag that describes the image can be indexed. Many search services, such as Google, provide an image search.

Page Titles

By far the most overlooked element of page optimization is the page title. The page title appears on the top bar of your web browser and is analogous to the title of a book or an article headline. The graphic below shows the page title from one of the links in our reading:

Note the page title – Search Engine Optimization and Positioning – at Spider Food. The 'Microsoft Internet Explorer' is added at the end of the page title by the browser. If you were looking for a book on Search Engine Optimization would consider a book entitled 'Spider Food'? Or would you look at a book named 'Page 1' or 'Untitled'?

There are a number of reasons why the page title is so important. Virtually all search engines consider the page title heavily in their relevancy formulas. Also, when your page is listed in the search engine results the page title becomes the hyperlink to your page. Persons scanning

through the search results are more likely to click on your link if the page title identifies the content on the page.

The temptation exists to write a page title that has all of your keywords in it, and that may help your relevancy in some cases. But page titles that don't 'read' like a title are not descriptive of the content and have a lesser chance of being clicked on by searchers scanning the search results. Always keep your page titles informative and readable to increase search ability.

Activity on Page Titles

Go to http://www.google.com and search for 'collectible salt and pepper shakers'. Look at the top 10 results and see how many of the pages returned have the words you searched for in the page title (the hyperlink). Try other search engines, such as http://www.msn.com or http://www.altavista.com . We'll use this search later to demonstrate other concepts of page optimization.

Now try a few keywords that you consider relevant to your business that you would like to be found by in the search engines. Use several keywords or keyword combinations for best results. Were your keywords in the page titles of the search results? Were there other instances of the keywords in the text of the pages? Was the site relevant to your interests?

Page Content

The most important element of your website, both for the visitor and the search engine, is the content on your web pages. Remember, we are in the Information Age, and people searching on the Internet want information. Search engines cannot index your site by keywords if those keywords are not in the text on your web pages.

Although the rules of relevancy are closely guarded secrets and are different for each search service, we can write our own 'rule of thumb' by analyzing the results we get with various search services. We'll start out with an activity that will demonstrate this concept.

Activity on Page Content

Run the query 'collectible salt and pepper shakers' that we ran in the page title activity on three major search services. Use http://www.google.com, http://www.altavista.com, and http://www.lycos.com. Go down the page of search results past any results that are referred to as 'sponsored links' or 'sponsored matches'. These are paid placement positions and they could be fairly expensive for a small business. Click on the first search result under 'web pages' or that has no special designation. These are the search engine results, the free placement you may get if your page is optimized for the search engine.

On your Internet Explorer browser menu, choose Edit - Find (on this page) and type in 'salt and pepper shaker' (without the quotes). Start at the top of the page and search down. Count how many times the phrase is used on the page. Repeat this process for the word 'collectible', and repeat the process for several more search results in the same search engine. Then, run the same query with the other two search services. See if any of the same pages show up in the other search engines.

Although relevancy results will vary, it is most likely that the phrase 'salt and pepper shaker' is found at least 3 times and possibly found more than a dozen times. The term 'collectible' is not

found as many times but it is found on every search result. Most of the results will have one or both of the search phrases or terms in the page title.

In this example we may find search results that have up to 15 or 20 references to 'salt and pepper shakers'. Notice that those pages are typically product pages, probably an online store with many sets of shakers for sale. However, some pages may have many references to salt and pepper shakers within the parenthetical text.

Do any of the same pages show up in several search services? Analyze any pages that place well in all three search services. What seems to be the key? Copy and paste the web page text into Microsoft Word and do a word count. What is the ratio of keywords to the total number of words on the page?

Try the same example for other search keywords relevant to your business. Note that single, common keywords are likely to have many pages of 'sponsored links,' which are paid inclusion or paid positioning. Some services will have 3 to 5 'sponsored links' at the top of each page of results followed by the 'web pages', or unpaid positions. Studies have shown that a large percentage of searchers are most likely to click on results at the top of the page and not scroll down.
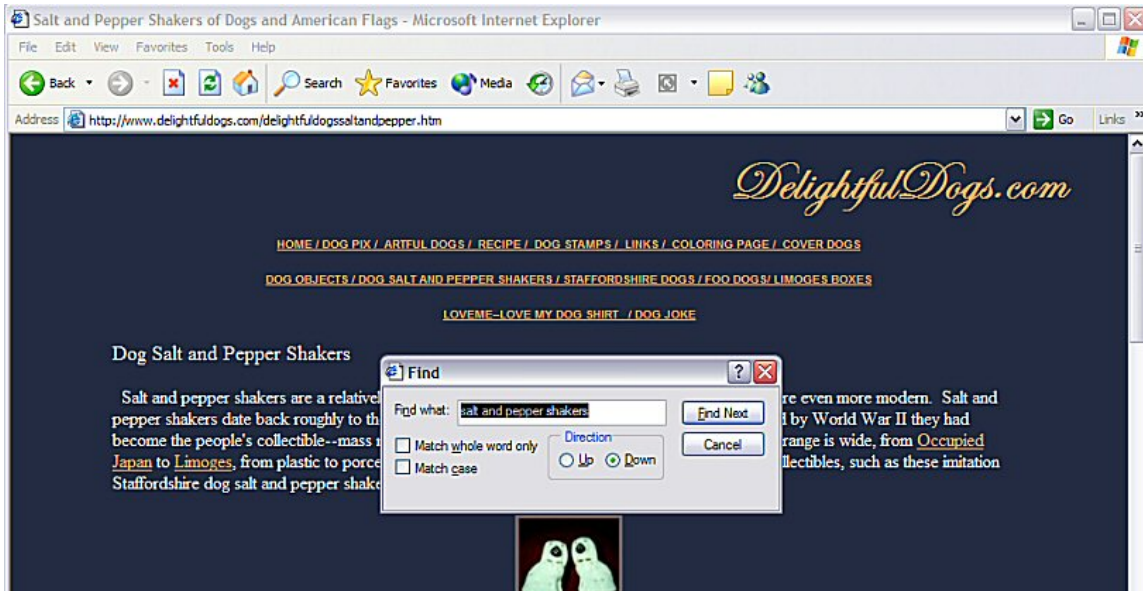
Using Meta-Tags

Meta-tags are a simple bit of website code and associated variables that the visitor to the web page cannot see (without viewing the code) but that web crawlers can see. Remember that the crawler can only read text; it doesn't know how beautiful your site is.

To see if a web page has meta-tags, you can view the source code for the page. Choose View – Source from the Internet Explorer menu.

The source code from this page looks something like this:
```
---------------
<HTML>
<HEAD>
<TITLE> Salt & Pepper Shakers (Black)</TITLE>
```
<META NAME="description" CONTENT="L & J Antiques and Collectibles - Salt & Pepper Shakers (Black)">
```
<META NAME="templateName" CONTENT="inventoryPage.html 02/08/2003">
<link rel='SHORTCUT ICON' href='http://www.tias.com/favicon.ico'>
```
<**META NAME="keywords" CONTENT="Salt & Pepper Shakers (Black)">**
```
---------------
```

The two meta-tags we will discuss are the "description" and "keywords" tags.

Once considered the silver bullet for search engine placement, the importance of meta-tags has been greatly reduced or even been eliminated from the relevancy formulas of most search engines.

References for Understanding Meta-tags

The Death of the Meta-tag
http://www.searchenginewatch.com/sereport/article.php/2165061

How To Use HTML Meta Tags
http://www.searchenginewatch.com/webmasters/article.php/2167931

An End to Meta-tags
http://www.traffick.com/article.asp?aID=102

Activity for Understanding Search Result "Descriptions"

The 'description' meta-tag is designed to be used as the description for your search results. However, most search services also use other methods to build search result descriptions. Let's use an activity to show how search services build search result descriptions.

Go to http://www.msn.com and search for 'crafts'. This is a very common and popular search word. Note that the first five results are called 'Featured Sites'. This is a premium paid-placement position and has little to do with the optimization of the page. The first search result is Dick Blick Art Supplies:

FEATURED SITES - ABOUT

Dick Blick Art Materials

Find art and craft supplies online.
www.dickblick.com

Notice that the Description "Find art and craft supplies online" is not the same as the meta-tag description nor is the sentence found anywhere on the web page. The search results for this common keyword are returned from the MSN directory, not the search engine. Directory search results have pre-approved descriptions that are displayed when the site matches search criteria.

Now, let's look at the first result from the 'Sponsored Sites'. Sponsored sites are also Directory results, not search engine results. These are also paid-inclusion sites although the position may be paid, or may be the result of the page being optimized as most relevant to the keyword. Note that the first sponsored site on MSN does not use the word 'crafts', our keyword, in either the page title or the description. In fact, the page does not have the word 'crafts' anywhere on it. That is a good indication that this position is paid so optimizing the page is not as important.

SPONSORED SITES - ABOUT

Find Unique Gifts at CreatorsOutlet

CreatorsOutlet is the Internet marketplace for people who value handcrafted work. Shop for jewelry, ceramics, photos, artwork, textiles and much more.
www.creatorsoutlet.com

Once again, the Description provided for CreatorsOutlet is a pre-approved description for directory listings.

Scroll down the page a bit further until you find the 'Web Directory Sites'.

WEB DIRECTORY SITES - ABOUT

CraftWEB Homepage

Find advice, plus links to artisans, a chatroom, a newsletter, vendors and downloadable software.
www.craftweb.com

Again, this is a paid-inclusion directory listing that pulls its pre-approved description from the MSN directory.

Using the popular keyword 'crafts' in MSN you will need to go through hundreds or even thousands of search results until you reach the 'Web Pages' results – the MSN category for the free search engine results. In other words, if you want to be in the top results for the word 'crafts' on MSN (or any other search service) be prepared to wince when you get out your checkbook.

So how do we get found in the search services without paying these high fees? Although bigger business may pay for placement for single search words, few will pay for multiple keywords or phrases. Let's use MSN again, and see what results and descriptions we get for a more specific keyword search – 'wheat weaving kits.'

WEB PAGES - ABOUT

Wheat Weaving Kits

... **Wheat Weaving Kits**. $14.95 each plus shipping and handling...
www.geocities.com/wheatfarmer_1/kits.htm

Notice now that our first result is in the 'Web Pages' category. These are free listings and the optimization of the text on your page has everything to do with your placement in the search results. The page title has our exact keyword phrase, and *the description is pulled from the first words on the page*. 'wheat weaving kits' only appears once on the page, and *the page has no meta-tag keywords or description.*

Now look at the second search result:

Wheat Weaving Gallery One

Ancient **wheat weaving** (or corn dollies) dates back 5000 years to the cultivation of the Nile Valley in Egypt. **Weaving** the last sheath of grain was believed to capture the fertility of the fields to bless the home. Humboldt artist creates…
www.manyhandsgallery.net/weavgal.htm

Again, part of our search phrase is in the page title, but the description is not pulled from the directory (this is not a directory listed site) nor is it derived from the first sentences of the page. Instead, *this description is pulled from the meta-tag description and is substituted for the first words of the page*, which are not descriptive of the page content. Without a meta-tag description, the description for this page would be 'Featured Galleries: Baskets SOLD Baskets Lighthouses Weapons Malachite Glass Wheat Weaving Laurel Burch Books and Kits Collectible Shoes.'

Use search terms relevant to your business in MSN. See if the keywords you want produce paid directory listings or if your keywords have potential to be found in the free 'Web Pages' search engine results. Look at the descriptions for the 'Web Pages' results and see if they are pulling those descriptions from the meta-tags or from the page content.

This activity suggests that search result descriptions on MSN may come from three sources:

- Pre-approved descriptions for directory listings (including sponsored sites, featured sites, and web directory sites)
- Descriptions pulled from the meta-tag description for those pages that have the meta-tag and are not in the web directory
- Descriptions pulled from the first text on the page if there is no meta-tag description

There is one other common method of producing a description for a page. Google and many other services use a 'text extraction' method of building a description, showing the parts of sentences on the page that contain the keywords you are searching for.

Here is a typical result from the search engine results in Google:

[Wheatweaving Company Projects page](#)
... Our starter **kits** are a good way for you to try **weaving wheat** without spending a
lot of money, having to decide what kind of **wheat** to buy or where to buy it **...**
www.wheatweaving.com/supplies.html - 4k - Jul 16, 2003 - [Cached](#) - [Similar pages](#)

Notice how the keywords are bold? The sentence used for this description is in the second
paragraph of the page and contains the keywords used to determine relevancy. Although this
page has a meta-tag description, Google ignores meta-tags.

The general advice for the meta-tag description – include a relevant description on all your pages
for those search engines that use the meta-tag in lieu of pulling the first sentences off your page
as a description. Otherwise the description for your search results may not make much sense.

Understanding Meta-tag Keywords

We have already stated that Google ignores meta-tag keywords as do most other major search
services. Inktomi and Teoma do include them in their relevancy algorithms. Because of the
limited use of the keywords meta-tag and the low value placed on them by those services that
use them it is difficult to demonstrate their effectiveness. The contemporary advice for meta-tag
keywords is "include them but don't count on them." But, the next time a web developer tells you
all you need to do to get found in the search engines is to use meta-tags you can assume they
are living in the last century.

The Location – Frequency Algorithm

All search engines use a location-frequency algorithm, a rules-based mathematical formula, for
determining a web page's relevancy to the search terms you are looking for. The exact weight
each element of this formula is given is a closely guarded secret. Because each search engine
uses different rules they will produce different results, even if they query the same index.

The following article discusses the location-frequency algorithm:

How Search Engines Rank Web Pages
http://searchenginewatch.com/webmasters/article.php/2167961

Link Popularity and Click-through Rates

To varying degrees, different search engines may use many other determinants of relevancy,
including link popularity and click-through rates.

Link popularity is determined by how many sites link to you. As a small business this may be
challenging. You are not likely to have your competition link to you. But there are a number of
potential sites that may provide pages of links to businesses. Find out if the following
organizations and businesses have websites with business directories:

- Chamber of commerce – economic development – county government
- Companies for which you are a dealer
- Local or regional business directories

- Web directories (you may have to pay to be listed in most web directories)

Click-through rates are calculated by some search engines. If your page is initially ranked lower in relevancy than other pages but more visitors click on your site than the ones above you, your site relevancy may be increased for those keywords. This is somewhat like having the searchers rate the search results for relevancy. Don't bother finding yourself in the search engine and clicking on your web page link until your mouse is worn out – search engine servers will only record the first click you make.

Understanding Directories

Directories are databases of websites that are reviewed by humans, a description is written, and the websites are assigned to a category. Think of a web directory as similar to the yellow pages of the phone book, with each business listing reviewed by the phone book company.

Most of the major search services are hybrids – with the results from the most popular keywords coming from the directory and less common or multiple keyword searches bringing results from the search engine. Although a search on a directory may seem transparently similar to a search engine, upon closer examination we can determine if the results are from the directory or search engine.

The most popular directories require commercial businesses to pay for inclusion, or for reviewing a site for inclusion. Inclusion in a directory is not a guarantee of placement – that will cost more. Some directories, such as Yahoo, will guarantee a certain time frame within which they will review your site if you pay. You may submit for free but there is no guarantee they will ever get around to reviewing your site and the majority of the unpaid submissions won't be reviewed.

There are only a few major directories but with the cross relationships in the search service industry many different search sites use the same directory listings. The largest or most utilized directories are Yahoo, MSN, LookSmart, and DMOZ. There are also a vast number of topic and country specific directories that specialize in targeted interests.

References for Understanding Directories

Understanding the Search Directories – Looksmart and Yahoo
http://www.search-engine-professionals.co.uk/newsletters/search-engine-optimisation-directories.pdf

How MSN Provides Search Results
http://www.topsitelistings.com/searchengines/msn_search_results.htm

Paid and Free Listings

There are a number of different plans offered by various search services that determine how you can be listed or receive premium placement in the service. Each service will have its own business model, and possibly different options depending on the popularity of the keywords you wish to be found by.

Paid Inclusion

Paid inclusion is a fee that some search engines charge to include your site in their crawler schedules, and directory services charge to review your site and place it in the appropriate category. Paid inclusion suggests that you will be in the search engine or directory if you pay the fee – but it does not guarantee any optimum placement.

Paid Review

Paid review is a fee based service that guarantees the search service will review your site and will consider it for inclusion. If your site does not meet their standards it will not be included and you will not receive a refund of your fee. Yahoo is one such service. Most sites will be included.

Pay per Click

Various pay per click business models include a flat monthly fee for inclusion coupled with a 'per click' fee each time a visitor clicks on your link in the search results. Most services allow for a maximum monthly budget.

Paid Placement

Paid placement plans guarantee placement to the highest bidder for a keyword. The placement may be in the first page of results, or in the top three results of one of the results pages. Overture, whose services are contracted by Yahoo, AltaVista, MSN, Lycos, and others, is a paid placement business model. Prices for top placement of popular keywords may be prohibitive for a small business.

Free Listings

Virtually all search services, in particular search engines, will crawl your site for free and include it in their index. To place well in these services will require your web pages to be optimized for multiple keyword searches. The search results you get when using single popular keywords are typically paid placements. Small businesses will want to carefully budget their paid positions and design their sites for optimum placement in the free listings.

Chapter 4 – Web Technologies

How many of us repair our own vehicles? It requires specialized knowledge and experience, the proper tools, and a lot of time. It is usually easiest and most economical to take our vehicle to a repair shop that knows what they are doing and has the tools to do it.

However, when the mechanic tells us what is wrong it is also nice to have a basic knowledge of how an automobile works to help us understand why it costs so much and to remind us of why we are hiring someone else to do it. The same basic conceptual understanding is essential if you are embarking on your first website development project or if you are an Internet user. We don't have to be computer gurus but it is nice to have a fundamental understanding of the language.

This chapter discusses both website technology and generalized explanations of how the Internet works. This is not designed to be a comprehensive technical resource – there are millions of pages of technical information available on the Internet and in books. If anything, this chapter is an oversimplification of very complex topics.

We'll start by examining the Internet, and how it works.

What is the Internet?

Al Gore's classic slip of the tongue in a 1999 interview with Wolf Blitzer has been the brunt of many jokes. Gore stated "During my service in the United States Congress I took the initiative in creating the Internet." We all know that Al Gore did not invent the Internet. However, the early technologies that led to the development of the Internet were funded by the U.S. Government and were designed to provide a redundant network link between military bases.

In 1957 the Soviet Union launched the first satellite – Sputnik. Rather than view this as a technological breakthrough with peaceful intentions the U.S. Government speculated that satellite technology would be used as an advantage in nuclear warfare. Congress formed the Advanced Research Projects Agency (ARPA) to research technology for military use.

In 1962 ARPA commissioned RAND, another government agency, to research technologies that would allow the U.S. to maintain control and command of their nuclear weapons in the event of a nuclear attack. The system would need to be decentralized and redundant. Paul Baran of RAND proposed the concept of a "packet switched" network:

> *"Packet switching is the breaking down of data into datagrams or packets that are labeled to indicate the origin and the destination of the information and the forwarding of these packets from one computer to another computer until the information arrives at its final destination computer. This is crucial to the realization of a computer network. If packets are lost at any given point, the message can be resent by the originator."*

In 1968 the first experimental computer network was built, linking four University locations in California and Utah. The network was called ARPANET.

In 1972, a researcher named Ray Tomlinson developed the first email program. In 1973 a Stanford University team headed by Vinton Cerf designed the TCP/IP protocol.

How Computers Communicate - The TCP/IP Protocol Suite

In order for the estimated (May 2003) 248 million computers on the Internet to communicate, they need standard rules to transmit data. A network protocol is a standard for communication between computers. TCP/IP stands for "Transmission Control Protocol/Internet Protocol." We refer to TCP/IP as a "suite" of protocols, actually it is a system comprised of several protocols, each with specific functions. The two primary protocols serve the following functions:

- **IP** - is responsible for moving packet of data from computer to computer. IP forwards each packet based on a four byte destination address (the IP address). The Internet authorities assign ranges of IP numbers to different organizations. The organizations assign groups of their numbers to others.
- **TCP** - is responsible for verifying the correct delivery of data. Data can be lost on the network. TCP detects errors or lost data and requests retransmission until the data is correctly and completely received.
- There are many other protocols in the TCP/IP suite with specialized functions for discovering routes from computer to computer, including RIP, OSPF, and IGRP

Every computer on the Internet has a unique IP Address which is a 12 digit number in the form of 123.456.789.101. If it doesn't look like a 12 digit number, such as 12.13.1.9 we can assume the first numbers are zeros – 012.013.001.009. An IP address could be compared to a phone number for a computer.

Resources for Understanding TCP/IP

Most TCP/IP articles may be more in depth than most people wish to study. I will only provide one of the more simple explanations.

Cisco's Brief Description of TCP/IP
http://www.cisco.com/warp/public/535/4.html

Packet Switching Network

Have you ever ordered a large item and it arrived in separate packages? After opening the packages and reading the instructions you had to assemble it. Data sent over the Internet and over local networks is broken up and sent in separate packages called packets. When all of the packets arrive at the destination, they are assembled with instructions from the TCP/IP protocol. If a packet is lost or corrupted, the TCP protocol can ask the sending computer to resend the packet instead of the whole file.

There are many advantages to packet switching. If a large file was sent as a single packet instead of breaking it up, one small error would require resending the whole file. A large file would have to complete sending before another computer could use the transmission medium (the wire or fiber optic it is traveling on). This would lead to delays and congestion. If a particular route the packets are traveling on becomes congested or goes down, the routing protocol can find an alternative route for the remaining packets without the sender or receiver even knowing.

Servers and Clients

You may hear the terms "server" and "client" or "client/server architecture" used in technical computer documentation. There is nothing mystical about clients or servers; the terms describe a computer's function more than its physical design. Your desktop PC is probably a client but it could be a server if it had server software on it.

A server is a computer that provides services to other computers. A client is the computer requesting the services. The term "server" is also used to describe software running on the server computer, such as a web server, a database server, an email server, a DHCP server, and so on. A server computer could be dedicated to only one server-type service, such as a web server, or could provide multiple services, such as an email server, a web server, a database server, and so on.

Server computers generally use more expensive, higher quality components to ensure reliability and redundancy. A typical server will have multiple hard drives, the thing in your computer that stores the data, and they will continue operating without a hitch if one of the drives fails. They may be connected to battery backups in the event of a power failure and may even have a backup power converter to take over if one fails. They typically have large amounts of memory and fast CPU's, the processor "brain" of the computer. However, today's desktops have very powerful CPU's and the same components may be used in a server or a client computer.

Whenever you surf the web your client computer requests web pages from a web server. When you check your email, you are retrieving it from an email server. Many smaller businesses have a server in their offices that may provide a centralized storage area for files, run a database application, and could potentially host (store and deliver) your web page and email. But it is recommended that you pay someone else to host your website and email unless you or someone in your business is technically proficient and understands the business of running servers on the Internet.

Internet Protocols

There are a number of protocols and technologies which may be used when transferring information to or from a website. We'll only cover the most common ones in this tutorial.

HTTP

HTTP stands for "hyper-text transfer protocol." HTTP is not really a part of the TCP/IP suite but it uses TCP/IP for transporting web pages over the Internet. We see http all the time, usually as the beginning of a website address. Since all web pages use http many people will leave it off when displaying their address, such as www.mycompany.com. Most new word processors and email clients even recognize website addresses such as the fictitious one in the previous sentence and will automatically create a *hyperlink (hypertext link)* to the web page. A hyperlink is the underlined words you click on to go to a website. What a wonderful invention this is!

Resources for Understanding HTTP

Webopedia Definition

http://www.webopedia.com/TERM/H/HTTP.html

WhatIs Definition
http://whatis.techtarget.com/definition/0,289893,sid9_gci214004,00.html

FTP

FTP stands for "File Transfer Protocol." Although HTTP will also do an excellent job of transferring files, FTP is designed specifically for that purpose. FTP is faster and more efficient than HTTP at moving large files from one computer to another. Although our web browser, such as Internet Explorer or Netscape, can be used as an FTP client more typically we will use a separate software program such as WS-FTP or CuteFTP to transfer files by FTP. Most website development applications have an FTP client built in since this is by far the most common method of transferring a website developed on one computer to the server that will host it.

Resources for Understanding FTP

WhatIs Definition
http://searchnetworking.techtarget.com/sDefinition/0,,sid7_gci213976,00.html

Tucows listing of free and shareware FTP clients
http://www.tucows.com/ftp95_default.html

Web Page Technologies

Static and Dynamic Pages

There are a number of different web page technologies in use today. Web pages which deliver text that is hard-coded into the web page itself are known as *static pages.* Static pages require the web developer to republish the entire page to make changes. We can think of a static web page as the equivalent of a printed publication or advertisement. However, republishing static pages is quite simple now due to the improved website development software currently available.

Dynamic pages are pages on which all or part of the *content* is pulled from a database or generated by a *script*. Dynamic pages may have their information pulled from the database, but where it is positioned on the page may be determined by a static *template*. Many larger websites use database-driven or dynamic web pages.

The advantages of dynamic pages are many, especially for large websites that have several or even dozens of people contributing content to the website. They allow for consistency of design (via the templates) while allowing employees with little or no website design knowledge to contribute information to the website. The more sophisticated website management systems will simply have a web form that the content contributor fills out, often by copying and pasting text and submitting it for approval.

We see dynamic websites all the time. Whenever you fill out a form, log in with your username and password, or buy something online, you are using a dynamic website.

There are a number of reasons a small business may want to consider developing a dynamic website, for example, if they have a large amount of frequently changing information to publish or

to support specific functions such as a calendar of events or a searchable database. An online ecommerce store will be a dynamic website.

Developing dynamic sites is more technically challenging than developing static sites, but advances in development software and the availability of "boxed", or pre-written, software is making the development of dynamic sites or site components within easier reach of small businesses. Your dreams of a dynamic website should not be dismissed, but unless you are fairly sophisticated in your technical knowledge you may find yourself hiring someone to develop it for you.

HTML

Web page *source code* is "interpreted" by your web browser, such as Internet Explorer or Netscape. A beautiful, graphical web page has a very boring and geeky looking source code that the browser sees. The source code of static pages is written in a markup language *called HTML, or HyperText Markup Language*. This is sometimes referred to as a programming language although true computer programmers will scoff at that notion.

Early web developers (including this author) learned to create web pages by typing the web code into a simple text editor, such as the NotePad program you have on any Windows computer. What HTML does is tell the browser where to place the text on the page, how to format it, where to put the graphics, what the names of the graphics are and where to find them, and so on. It is like a written description of what the page should look like.

There are a number of website design software products that automatically generate the HTML code for you. The software lets you or the developer work in a WYSIWYG (What You See Is What You Get) environment. Instead of concentrating on writing code, the developer can simply lay the page out in a graphical environment and the software will write the code for them.

Some of the most popular WYSIWYG web development software products include Microsoft Front Page, Macromedia Dreamweaver, Net Objects Fusion, Adobe GoLive, and more complex products that provide greater support for programmers, such as Microsoft Visual Developer.

Small businesses that wish to develop and maintain their own websites may want to consider learning how to use one of these WYSIWYG products; their learning curves are not out of the realm of the non-technical person.

Suggested HTML Activity

How would you like to write a web page with a bit of pure HTML code? This is what the web browser will see when the web page loads:

```
<HTML>
<HEAD>
<TITLE>My First HTML Page</TITLE>
</HEAD>
<BODY BGCOLOR="Blue">
<CENTER><H1>This is an example of a hand coded HTML page</H1>
<P><B>This is Bold Text</B>
<P><I>This is Italic Text</I>
</CENTER>
<P>Now the centered text is ended.
</BODY>
</HTML>
```

The HTML *tags* are the markup part of the HTML language. Tags are stuff inside the <>. The text inside the <> doesn't show up in the web browser but instead tells the browser what to do with the stuff that's between them. Most tags have a beginning and ending tag, such as the Bold tags <B></B>. Paragraph tags <P> don't need an ending tag, to start a new paragraph simply insert another paragraph tag at the beginning of the text. But you can use a paragraph ending tag </P> if you want to end a paragraph to start new formatting.

1. Copy the HTML code above into NotePad.
2. Save the file where you can find it (such as the desktop) with the file extension .htm or .html. On the "Save as Type" drop down menu at the bottom, choose "All Files."
3. Double click on the file you just saved.
4. It will open in your web browser with a blue background, with a page title of "My First HTML Page", with a large headline that says "This is an example of a hand coded HTML page", and with examples of centered text, bold text, and italic text.

Resources for Understanding HTML

Getting Started with HTML
http://www.w3.org/MarkUp/Guide/

Advanced HTML Syntax
http://www.w3.org/MarkUp/Guide/Advanced.html

Dynamic Web Page Technologies

There are a number of programming languages or mark-up languages designed to support database technology. Each database technology has its own programming, or more accurately, *scripting language* with its own *syntax.* You can usually tell which language the website is by the *file extension* the page filename uses, such as http://www.mycompany.com/***pagename.htm*** or http://www.mycompany.com/***pagename.asp***.

Most dynamic web pages use *a server-side technology,* which means the code on the dynamic web page sends commands to the web server which interprets them and generates the HTML code *on the fly.* Choosing a website hosting company will require that their web server supports the technology your dynamic website uses. Developers will need to publish their dynamic web pages to a server that supports the technology to test the site. Static web pages can be tested directly on a computer without a web server.

The programming or scripting languages for the various dynamic web page technologies are fairly complex and will require quite a bit of study and practice to master. Most small business people will hire someone to design dynamic websites for them.

ASP

The acronym ASP stands for Active Server Pages. ASP is a technology that was developed by Microsoft and at first was only supported by Microsoft web servers. Virtually all web servers now support ASP technology. ASP supports two different scripting languages, Visual Basic script (VBSCRIPT) and Javascript (JSCRIPT).

There are a plethora of pre-written ASP applications available on the web, with straightforward instructions on how to incorporate these dynamic tools into your website. For many small business websites these applications will greatly reduce your time and cost to offer dynamic components on your websites. Many of the ASP applications are free and you may be able to copy and paste the code directly from a web page. Other applications are more sophisticated and are available for a nominal cost. These pre-written applications range from calendar and guestbook applications to password protected pages and dealer locators.

Microsoft has recently introduced a new ASP language and server software technology built on the original ASP called ASP.NET. Considerably more powerful and proportionally more difficult to learn, ASP language is beginning to gain acceptance. ASP.NET pages have a filename extension of .aspx.

Resources for Understanding ASP

ASP 101 Tutorials (requires free login)
http://www.101-asp-tutorials.com/su.php

Active Server Pages Tutorial
http://msdn.microsoft.com/library/default.asp?URL=/library/en-us/dnasp/html/asptutorial.asp

CFM

CFM, or Cold Fusion Markup, is a technology designed by a company called Allaire, who has now merged with Macromedia. Macromedia is considered an industry leader in web development technologies. Cold Fusion is a very powerful development platform and is widely used for large scale websites.

Very similar in server-side function to ASP and other dynamic web page technologies, the Cold Fusion Markup Language (CFML) is generally considered easier to learn, especially for developers who have experience with HTML.

Cold Fusion Server is the product that must be licensed and installed on the web server that delivers the CFM web pages. As a result of licensing costs there may be more expense involved for a web hosting company that supports CFM pages.

Resources for Understanding CFM

WhatIs definition
http://searchdatabase.techtarget.com/sDefinition/0,,sid13_gci211812,00.html

What is Cold Fusion?
http://www.futuresystems.com/coldfusion.htm

PHP

PHP stands for Hypertext PreProcessor, which according to the Apache Software Foundation is considered a recursive acronym (we certainly wondered about that!). PHP is a server-side scripting language that has been developed by volunteers worldwide as an *open source* project.

As a result, the products to develop PHP and the server software to deliver the pages are offered for free. There is a wealth of books and websites devoted to learning and supporting open source software.

However, PHP is a difficult language to learn and the tutorials are generally quite geeky. In contrast to learning CFML, PHP will be a real challenge. Web developers who use PHP are adamant about its power and it certainly is a technology to consider if you have established a good relationship with your developer.

Resources for Understanding PHP

Getting Started with PHP
http://us4.php.net/manual/en/getting-started.php

CGI

CGI stands for Common Gateway Interface. CGI is a script that is often used to interpret and convert data entered in a web form and make it usable for the website owner, such as sending it as an email message or putting it in a database. CGI is a server-side technology. Although it is generally considered slower and less efficient than other technologies used to perform these functions it is still widely used because of the large number of developers who are well-versed in writing the scripts.

CGI scripts are usually written in one of two programming languages, C or PERL. PERL, which stands for Practical Extraction and Report Language, is more widely used because of the increased functionality it allows and because it is in the open source realm and is free.

Resources for Understanding CGI

Ada's Introduction to CGI Programming
http://cgidir.com/Tutorials/Beginner/tutorials/ada.html

Other Web Page Technologies

There are other technologies that can add interactivity and functionality to your website. Some only serve a limited purpose, such as an animated .GIF graphic; others have potential for a wide range of application, such as Macromedia Flash. Rather than go through lengthy descriptions of what these technologies can do, examples are provided so you can see them in action.

Macromedia Flash

Flash is a very powerful development program. You've probably seen Flash applications on web pages; they are often used for those moving advertisements. But Flash can be used for more than animating graphics; in fact there are websites that are built entirely in Flash, as well as interactive database driven applications and games. There are even online stores built with Flash.

Macromedia Flash Examples

First, let's look at the Macromedia website. In the center of the page is an eye-catching graphic with a few hyperlinks to the site. Scrolling or moving text brings home a marketing message. This is an example of the most common use of Flash technology, for navigation and moving graphics.

Flash animations are often referred to as Flash movies.
http://www.macromedia.com

Here is an online store for children's clothes that uses Flash for the navigation system.
http://www.bestdressedkids.com/

Jimmy McGrath Photo is a site built entirely in Flash. Check out the photographer's portfolio and the digital transformations he does to photos. Slide your mouse pointer over the photos to see what happens. This is a very sophisticated site although I find it somewhat difficult to read.
http://www.jimmymcgrathphoto.com/

PixelRanger is the website of a Flash developer named Shane. Check out his portfolio.
http://www.pixelranger.com/

Actually, you can surf at your leisure at http://www.flashkit.com/sites

Although these Flash sites are very creative there are some things to consider. Navigation is difficult to find on many of them, you need to run your mouse over different graphics to find the links. For some reason creative Flash designers often use text that is so small that it is difficult or impossible to read. And – this creativity will cost you lots of money for an experienced developer.

But simpler Flash animations and navigation are very effective. Let's look at a few that have been created by college students at the University of Minnesota in Crookston.

Thief River Linen is a small designer and manufacturer of luxury bed linens and pillows. The site uses Flash for a small moving attention getter on the left side of the website.
http://www.trlinen.com

The Crookston Convention and Visitors Bureau site sports a Flash header that rotates pictures.
http://www.visitcrookston.com

A UMC graduate now designs web pages for the Minnesota Historical Society. This site is a historical overview of a dark time in the history of Duluth, Minnesota.
http://collections.mnhs.org/duluthlynchings/

Professor Dan Lim at the University of Minnesota in Crookston has developed a number of Flash learning games, based on the "Who wants to be a millionaire" game. These games use an Access database that can be updated quickly with new question and answer sets. Check out his work:
http://webhome.crk.umn.edu/~dlim/itc/

JavaScript

JavaScript (not to be confused with Java Server Pages) is a scripting language developed by Netscape that is interpreted by the browser on the client (your) computer, not on the server. JavaScript is about the handiest technology ever developed to compliment HTML web pages. You may see JavaScript in use on many sites that are otherwise considered static.

JavaScript developers are a sharing bunch and there is a wealth of script code available on the Internet that you can simply copy and paste into the code of your website.

What can you do with JavaScript? Here is the category list of free scripts available on http://javascript.internet.com/. Check the site out and try out some of the free utilities and effects available. About 2200 scripts are available on this site alone including buttons, background effects, calculators, calendars, clocks, equivalents, folder trees, forms, games generators, messages, miscellaneous, page details, navigation, and scrolls.

JavaScript Animations and animated text are also very common. The scrolling message in the task bar (at the bottom) is JavaScript. Other items created using JavaScript include website menu buttons that change color or appearance when pressed, as well as most of the fly-out or drop-down sub-category menus on website navigation.

Because JavaScript is so ubiquitous there are a host of tools and free code available to help the web developer who does not know how to write the code. Net Objects Fusion website development software has a number of built-in JavaScript utilities as well as a developer forum called CoolMaps that sells many other useful tools developed in JavaScript. Putting these on your website is as easy as clicking a few buttons and filling in a few wizard boxes.

Animated GIF

GIF is a graphic format that works well in web browsers. GIF will be discussed in further detail in the chapter on digital images. Animated GIF's are simply a series of images with a bit of code that rotates the images to give the perception of motion or to rotate a series if dissimilar images. You've seen plenty of animated GIF's, those cutesy moving mailboxes and pulsing buttons, blinking advertisements and rolling divider bars. There are also some very creative and professional uses for animated GIF's.

Creating an animated GIF is relatively simple, even if you hand code it. But there are also many software tools to develop animated GIF's, Paint Shop Pro has one built right in.

There are probably millions of free animated GIF images available on the Internet. The Animation Factory http://www.animfactory.com/ offers 3000 on their site alone.

A Word of Caution

Professional website developers know how to make use of animations and moving things. Many amateurs go overboard when they learn how easy it is to do, and create websites that literally will make the visitor dizzy. If there is a design reason why you want things to move on your website then by all means do so. But, don't add animation just because you can. We've all become accustomed and unimpressed by flashing email icons and dancing bears, snowflakes or ghosts flying across our screen, and so on. Do not present your business to the world with amateur looking free moving graphics.

Chapter 5 – The Name Game

Shakespeare's Juliet asked, "What's in a name? That which we call a rose, by any other name would smell as sweet." Juliet was attempting to justify the fact that she and Romeo, after falling in love, discovered that their surnames were from rival families.

Accounts from early cultures place high significance on what a person, deity, or place is named. Names carry meaning with them, they are a lifelong identity for someone. People who are unhappy with the name their parents chose for them may change their name.

Choosing a domain name for your web identity is important. We may think this sounds easy but in fact it may be one of the more important marketing decisions we make.

Understanding Domain Names

If you were to phone someone and didn't know their telephone number the first place you would probably look is the phone book. There, we would look up the name and it would provide us with a phone number.

The Internet isn't really much different. A website address might be named www.yourcompany.com but to the computer it is hosted at your website has an IP address of 123.456.789.100. Think of the domain name as your name, and the IP address as your telephone number.

DNS – The Domain Name System

When you click a hyperlink or type in an address (known as an URL, or Uniform Resource Locator) your web browser uses DNS (the Domain Name System) to look up the IP address of the website and conceptually "automatically dials" that website for you. You never need to know the IP address, only the domain name. It would be like choosing a name from your autodialer menu instead of pressing the buttons to dial the number.

Resources for Understanding DNS

Understanding DNS
http://www.luxsci.com/extranet/articles/dns.html

TLD – Top Level Domains

The DNS system is organized by a system of TLD, or Top Level Domains. Looking at a diagram of the organization we find that it resembles a tree, with the roots at the top. Normally when we access the home page of a website we type in the FQDN, or Fully Qualified Domain Name, such as amazon.com. The .com part of the FQDN is the TLD.

Most Internet users expect a business site to be in the .com TLD. Although there are many other TLD including .net, .org, .info, and so on. Businesses will want to find a fit in the .com name space. Most TLD are unrestricted, meaning anyone can register domains under them.

There are certain TLD that are restricted for use by qualified entities, such as the .edu (accredited colleges), .gov (government), and .mil (military).

One of the main purposes of creating the TLD is to create an identity or indicator of the type of site sponsored at this domain: .com stood for commercial, .net for network service provider, and .org for non-profit organizations. Recently, .info for informational sites and .biz were designed to provide new registration possibilities for names already registered in the .com TLD.

There are also country specific TLD, such as .us for United States, .ca for Canada, .jp for Japan, .au for Australia, and a two-letter TLD for every country in the world. One, .tv, is designated for the islands that form the country Tuvalu, formerly the British colony of the Ellice Islands. The .tv TLD is unrestricted although they are premium priced. Tuvalu has received profits from the proceeds.

Resources for Understanding TLD

ICANN – Internet Corporation for Assigned Names and Numbers
http://www.icann.org/tlds/
http://www.icann.org/registrars/accredited-list.html

Name Servers

When you register a domain name (we'll cover that in a bit) you must assign at least two Name Servers (DNS Servers) as Authoritative for your domain. Most registrars (the companies who register domain names) will provide you with the use of their Name Servers. However, most web hosting services prefer to have you change the Authoritative server to their own server so they can make changes quickly and easily.

Name servers are responsible for giving answers to Internet applications that make DNS queries. Here is a simplified and shortened view of how it works:

1. You click on a hyperlink or type in www.domainname.com
2. Your computer is configured to use a Name Server to resolve these queries (geek talk for answering the DNS questions). Usually this is the DNS server of your Internet Service Provider.
3. Your DNS server looks into its records to see if it has Authority over that domain name or whether it has a cached (stored) record for the domain. It may have a cached record if someone asked for that site previously and the TTL (time to live) period hasn't expired on that record. However, we'll assume the DNS server can't find a record that answers your query.
4. The DNS server then looks at its records to see what Name Server is in charge of the .com TLD. It asks that server who has SOA (Start of Authority) for the domainname.com domain.
5. The TLD Name Server returns the answer. Your DNS server queries the server with SOA for the domain and receives the IP address for domainname.com from its records. Your browser then accesses the web page with that IP address.

Resources for Understanding Name Servers and DNS

Exploring the Domain Name Space
http://hotwired.lycos.com/webmonkey/webmonkey/geektalk/97/03/index4a.html

Choosing a Domain Name

As a small business your business name may be well known in your community and to your customers. Changing your physical business name might not be a wise decision since you may lose the familiarity and reputation you have built over the years.

When we add the Internet to our business model we not only add another marketing medium but we present ourselves with the opportunity for a whole new business plan and identity. What works well in the physical world may not work well on the Internet.

Domain Registrars

There are currently about 150 companies who are accredited to register domain names. The "master database" of all registrations is managed by Network Solutions. Network Solutions started as a not-for-profit organization that managed all domain name registrations under the guidance of ICANN. A few years back, deregulation forced Network Solutions to allow other companies to register domain names. Network Solutions was sold to Verisign.

To see if a domain name is available, go to Network Solutions http://www.netsol.com and type the name you want into the search box. Choose the extensions (TLD) you are interested in searching for.

You have several options if the domain name you want is taken. First, type the domain name you want in your web browser (such as www.mydomainname.com) and see if there is a website at that domain. If the owner of the domain name is using the name, chances are they will want a significant amount of money to give it up.

However, if no site is published at that domain name it may be for sale or the owner may not renew it. One option you have if the domain is unavailable is to backorder the domain name. If the current owner does not renew it and you are the first person to backorder it, you will automatically become the new registrant for the name.

Before backordering a domain name and waiting to see if it is renewed by the current owner it is wise to find out how long it will be before the current registration expires and to check who the current registrant is. To do this, we use the WHOIS function at Network Solutions. You'll see the link to WHOIS next to the Help link on the top of the home page.

Searching for a WHOIS record will require you to type in a security code that is generated when you do a query. This is to prevent automated scripts from harvesting information in the database. Searching for my domain name stevehannah.net returns this record:

---

stevehannah.net   **Back-order this name**

Registrant:
Hannah Consulting (STEVEHANNAH-DOM)
RR 1 Box 68 A
Fisher, MN 56723
U.S.

Domain Name: STEVEHANNAH.NET

Administrative Contact:
Hannah, Steve (EHAPNZOWTI) shannah@ngplains.org
37725 210th Street SW
Fisher, MN 56723
U.S.
218-773-3555 fax: 218-281-8457
Technical Contact:
Red River Trade Council (HS1145-ORG) hostmaster@ngplains.org
2900 University Avenue
Crookston, MN 56716
U.S.
218-281-8463 fax: 218-281-8457

Record expires on 10-May-2008.
Record created on 15-Oct-2002.
Database last updated on 29-Aug-2003 15:06:44 EDT.

Domain servers in listed order:

WWW2.RRTRADE.ORG 146.57.182.40
WWW3.RRTRADE.ORG 146.57.182.41

You will see that the record expires on May 10, 2008. That would be a long wait to see if the domain name is renewed.

Buying a Registered Domain Name

If you are interested in purchasing the domain name, send a letter (or email, if the address is provided) to the Registrant or Administrative contact of the domain name. Don't make an offer in your first letter; simply see if they respond with an interest in selling the domain. Typical domain name prices range from $100 and up.

If the current registrant is interested in selling the domain the process of negotiation will vary. Domain speculators (people who buy domain names hoping to resell them) will probably make the process quite easy for you since they are in that business. Otherwise, it is suggested that you find someone, such as your ISP or web developer, to assist you in securing the domain name.

Searching for domain names that are for sale is quite easy. There are quite a few web businesses that specialize in buying and selling domains. Check out www.greatdomains.com or www.afternic.com.

References for Understanding Domain Names

What's in a Name? How To Snare A Good Domain
http://www.sitepoint.com/article/838

Where are all the Internet domain names registered and maintained?
http://www.howstuffworks.com/question422.htm

Alternatives to YourBusinessName.com

In the previous section we discussed registering your business name or some derivative as your domain name. But this is often not the best identity you could create on the web. Perhaps your business name is difficult to spell or it doesn't look very readable as a single word. Let's look at some examples that may represent good and bad company domain names.

Let's say your company is named Anderson Truck Sales. We look at andersontrucksales.com as a domain name and we'll assume it is available. We decide that we will write it as AndersonTruckSales.com on our printed advertising to make it more readable. The capital letters are not necessary when typing the address in the browser, domain names are not case-sensitive.

But suppose your business is named Paderewski and Associates Realtors and you sell homes in Timbuktu Minnesota. You search and find that paderewskiandassociatesrealtors.com is available. This does not read very well, it is difficult to spell, it is too long, and even capitalizing makes it only marginally easier to read: PaderewskiAndAssociatesRealtors.com. Other derivatives such as paderewskirealtors.com are not much easier to read.

Ideally we will choose a domain name that is:

- Short, preferably eight or less letters
- Easy to remember
- Easy to spell
- Easy to read
- Catchy

Here is where your creativity comes in. Try to think of a name that fits your business but is easy to identify. Product names, generic names, and catchy invented words all fit an online business marketing plan.

Are you old enough to remember when the word "google" was used in the phrase "google-eyed" and that meant staring at something in wonder or admiration? Or when Amazon was a river in South America and a native tribe of people, not an online bookseller? We have cyber names abounding, new words that may not make the dictionary but have found their way into industry vocabulary. Compusa.com; profusion.com; microtek.com; the list is endless.

Most popular generic domain names are taken, but most may be available for sale. Depending on the industry or generic name you are interested in the price may vary considerably. Many domain name speculators start with an outrageous price but may negotiate down substantially if they know they can sell the domain.

Many companies register domain names for their trademarked product names. You may have as many domain names as you want pointing to your website, or to specific areas of your website. But exercise caution, too many domain names dilutes your singular identity on the web.

Registering Your Domain Name

First, to register a domain name you must select a Registrar to use. There are several hundred approved Registrars, with varying prices and service. Annual registration fees will vary from $6 - $35, with most Registrars offering discounts for registering a name for several years. The lowest fees are for people who register large numbers of domains, such as speculators or ISP's.

You can register with Network Solutions, their single year registration is $35 with discounts for multiple year registrations. Network Solutions may be one of the most secure Registrars, but their "new and improved" Manage Your Account interface may seem confusing.

Other larger companies in the domain name business include Yahoo.com, Tucows.com, and several others. One smaller Registrar this author has used is Intercosmos Media Group http://www.directnic.com. Annual fees are $15 with no multiple year discounts. The interface is easy to use and you can search for domain names containing certain words or look for domains for sale.

For a listing of approved domain name Registrars, visit http://www.internic.com/alpha.html

There are several contacts you can assign to your domain name registration. Most important will be the Registrant, which should be your actual legal business name. Other contacts vary with the Registrar, but typically you will have at least an Administrative Contact, a Technical Contact, and possibly a Billing Contact.

The Administrative Contact should be the business owner or a top level manager. Some businesses use a "role" account in case personnel change. If there is no Billing Contact listed the Administrative Contact will receive the bill for renewal.

The Technical Contact should be the entity or person who manages your Name Servers. Initially when you register your domain name you can use the Name Servers and Technical Contact of the Registrar. This can be changed when you select a hosting company to host your site.

Alternatively, if you already have a good working relationship with your hosting company you can have them give you the correct Name Servers and Technical Contact information. Your hosting company may have a preferred Registrar they want you to use. However, don't relinquish control of your domain name to the hosting company. Some companies want to list themselves as Registrant, and as all the Contacts. If you decide to move your website elsewhere litigating ownership of the domain name can be problematic…believe me.

Chapter 6 – Digital Graphics

The computer revolution has provided us so many useful tools, all wrapped up in one box. The industry talks about "killer apps"; software applications that are so powerful and frequently used that we wonder how we ever got by without them.

The first killer app was probably the Word Processor. Throw away the whiteout, park the typewriter, and pocket your pen. You could collaboratively create a document, move a paragraph or word, delete a sentence, and it would even check your spelling!

The next software wonder may have been the spreadsheet. At first touted as the tool of accountants and mathematicians, soon others were discovering it worked well for maintaining address lists and other information. One by one killer apps became mainstream and accepted as necessary business tools.

Email and the web browser became killer apps in the mid-1990's when the Internet explosion hit. Since then, we have quickly become accustomed to receiving photos from family and friends, viewing graphically intense websites, and may have purchased our own digital camera. The instant gratification of not waiting to have pictures developed and the low or no cost per snapshot of digital photography make compelling reasons to take pictures at will!

Digital graphic software is one of the more recent killer apps. The $500 desktop PC of today has thousands of times more processing power than $5000 computers of a few years ago and consumer grade software bundled with low cost cameras, scanners, and computers have placed digital graphics well within the reach of small businesses and home users.

Understanding the Basics of Digital Graphics

At first this chapter may seem very confusing (actually it is) so please be patient! Have you ever worked with graph paper? As children we may have had an art project where we had to make a picture by coloring in the squares on the grid of a graph paper, and had to decide what color to make each square so the picture would look good, at least from a distance.

Monitor Resolution

Computer monitors and digital graphics can be compared to a piece of graph paper. Your computer monitor is divided into little grid squares called *pixels*, a word derived from *pic*ture *el*ements (OK, so picture has a c, not an x). You can adjust the *resolution* you see on your monitor, a function of your *video card*. Resolution is the number of pixels across by the number of pixels down that your monitor is set to display. The lowest resolution is normally denoted as 640 X 480, or 640 pixels across by 480 pixels down. Because computer screens (and most conventional televisions) are designed at a 4:3 ratio, the resolution numbers will also maintain that ratio. Thus we have monitor resolutions of 800 X 600, 1024 X 768, 1280 X 1024, 1600 X 1200, and some variations in between.

The size of your monitor does not affect how many pixels any given resolution displays but it may affect how crisp or detailed the graphics are. If you have a 14" monitor set at 800 X 600 resolution each pixel will be smaller than a 21" monitor set at the same resolution. Because of that, larger monitors are often set at higher resolutions than small monitors.

Not all monitors or video cards can display all resolutions. To use the highest resolutions you will need high quality (synonym – expensive) equipment.

The following links explain in more detail.

Resources for Understanding Computer Monitors and Graphic Cards

Webopedia.com – Resolution
http://www.webopedia.com/TERM/r/resolution.html

Master the Basics – Computer Monitors
http://www.learnthenet.com/english/html/06settng.htm

How Stuff Works – Graphic Cards
http://computer.howstuffworks.com/graphics-card2.htm

Digital Graphic Formats for the Web – JPG, GIF, PNG

There are two commonly used formats for use in web pages – the JPG (or sometimes referred to as JPEG) and the GIF. A new graphic format, PNG, is emerging with high quality and low file size.

The best graphic format to use depends on the type of image you are displaying. Any digital image can be saved as a GIF or JPG but there are a few guidelines to help you decide which one is best to use.

JPG images are capable of displaying up to 16.9 million colors. For photographs or images with subtle gradations in color, JPG is your best bet.

GIF images are capable of displaying a maximum of 256 colors. GIF images have sharper definition and are more suitable for clip art, line art, logos, and images of text. GIF also has another wonderful feature – the ability to make a single color *transparent*. Transparency can give you the opportunity to make the background of an image disappear into the background of your web page.

At higher quality settings it is not easy to distinguish between a GIF and JPG of the same image. The human eye has difficulty distinguishing between more than 256 colors so in most cases the images will look nearly identical. Likewise, the file sizes in Kilobytes will be nearly equal at maximum quality settings.

Full Quality **JPG** Image – **81 Kb**

This JPG image taken in the South Dakota Badlands is 480x313 pixels and is 81 Kb.

Full Quality **GIF** Image – **90 Kb**

The same image, saved as a GIF, is 480x313 pixels and is 90 Kb. You may notice that the colors are a bit less intense, the result of reducing the original JPG image from 16.9 million colors to 256 colors. However when we *optimize* the images (discussed later in this chapter) we see a distinct quality difference between JPG and GIF in a photographic image.

Optimized **JPG** (30% compression), **16 Kb**

Optimized **GIF** (128 colors), **30 Kb**

We can clearly see the differences between JPG and GIF optimization in these examples. In order to reduce the file size of images we need to reduce the number of colors. JPG images can display more colors than GIF at a smaller file size and thus render higher quality photographs at smaller file sizes.

However, if your image only has a small number of solid colors and is more linear in composition, GIF is the format you will prefer. The same results will be evident here – at their highest quality settings the JPG and GIF formats are nearly indistinguishable but at optimized settings the GIF will show higher quality.

JPG image, 200x200 pixels, 36 Kb

GIF image, 256 colors, 200x200 pixels, 4 Kb

Optimized JPG image, 200x200, 4 Kb

Optimized GIF image, 16 colors, 200x200, 2 Kb

Note the blurriness that occurs when optimizing the JPG image to equal the 4 KB file size of the full quality GIF image. If you look very closely at the optimized GIF image you will see subtle outlines of the pixels on the edges of the shapes. At 4 Kb for the full quality GIF image it may not be necessary to optimize the GIF at all, maintaining the full, crisp quality of the GIF.

Graphic Resolution

Computer monitors display graphics at either 72 or 96 pixels per inch (PPI). If you create a digital image that measures 72 X 72 pixels (image dimensions) and it is created at 72 PPI (sometimes referred to as Dots per Inch, or DPI), it will measure 1" X 1" on a computer monitor regardless of the resolution your monitor is set to.

If we create the image at 300 PPI but with 72 X 72 pixel image dimensions the image will still be 1" square on our computer monitor.

So – here's the crux of the issue: **the higher the PPI of your images, the larger the file size**. Here's an example:

The above image measures 600 X 450 pixels (the image dimensions). It has been captured at 72 PPI. The file size is 107 Kilobytes.

This image measures 600 X 450 pixels. It was captured at 300 PPI. The file size is 792 Kilobytes.

This becomes important on the web because the larger the file size (in Kilobytes), the longer it takes to download the image. Web visitors on slower connections will appreciate every Kilobyte you eliminate from your website.

Images with higher PPI are preferred for better printing results but they are meaningless for image quality on the Internet. It is always recommended that you scan or create your images at a high PPI if you wish to print them with high quality, but if they will only be used for the Web then 72 or 96 PPI is all you need.

If you are scanning photos or taking them with a digital camera it is recommended that you start with a higher quality image and *optimize* your images for use on the Web. For example, scanners can be set to scan at anywhere from 72 PPI (DPI) to over 9600 PPI (DPI). If you know you will only be using the scan for the web you may want to first scan it at 200-300 PPI and optimize it. Most digital cameras can be set to capture photographs at sizes ranging from 640x480 and up. Although the lowest settings will probably be sufficient for most web work it is still a good idea to capture at least a 1024x768 image in case you need to crop the image before optimizing.

Resources about Creating Graphics for the Web

A Word on Image Resolution
http://www.ieee.org/organizations/pubs/magazines/imageres.htm

Computer Graphics
http://www.mda.org.uk/graphics.htm

Resolution – DPI, SPI, LPI, PPI
http://graphicdesign.miningco.com/library/weekly/aa070998.htm

Graphics in Multimedia
http://seamonkey.ed.asu.edu/~webdev/jharun/media/graphics/quality4.htm

Raster and Vector Graphics

Graphic files are designed in one of two ways – raster or vector. There is a significant difference in how these graphics are designed, where they should and shouldn't be used, what types of images they can and can't create, and in how well they scale to larger sizes.

Raster Graphics

A computer *displays* graphics as raster graphics. Raster graphics are often described as "painted" graphics. Another term used to describe raster is *bitmap*.

If we scan an image or take a digital picture we are capturing a raster image. All computer devices that display graphics are raster devices so the way we create them is meaningless to the device that we see them on. Raster images are made of colored pixels, the "squares on the graph paper." They are the only choice for photographs and scanned images.

But if we capture a raster image at a small size and want to enlarge it we run into a problem. Since raster images are made of a finite number of square pixels, as we enlarge them the pixels become noticeable. The image below shows how an enlarged raster image of an A would look:
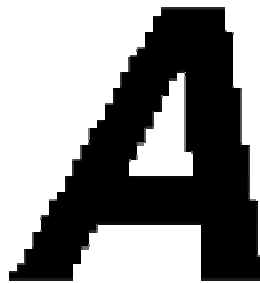
One drawback to bitmapped (raster) images is that they maintain their quality when reduced in size, but quickly lose quality when enlarged. Enlarging bitmaps increases the size of each pixel and causes the rough, square corners of the pixels to show. The photographs below show the loss of quality that occurs when enlarging a bitmapped (raster) image.

This raster image is displayed at its original size of 200 x 200 pixels. We will notice that it is relatively clear and crisp. Raster images will *reduce* in size very well, typically gaining crispness and clarity.

The above image has been reduced in dimensions to 50 X 50 pixels. It maintains its crispness and clarity.

Enlarging the 50 X 50 pixel image from above back to 200 X 200 pixels gives us a blurry, washed out image. If we enlarged it further we would see that the actual pixels have become visible, as shown below.

Starting with large, high resolution images and reducing the resolution and image size to the optimum combination for your website is your best bet for maintaining high quality images. Enlarging raster images will result in a considerable loss of quality.

Vector Graphics

Vector graphics are created by "mathematically describing" points and drawing lines between them. We can think of a vector graphic as a "dot-to-dot" picture. Vector graphics are best for creating line art and clip art, or for logos, graphic lettering, and drawings.

Because vector graphics only need to recalculate their formulas to describe larger images they can be sized larger without loss of clarity. Although they are still displayed on your monitor as raster images, the resizing that occurs in your graphic program (such as Photoshop) does not cause them to lose quality.
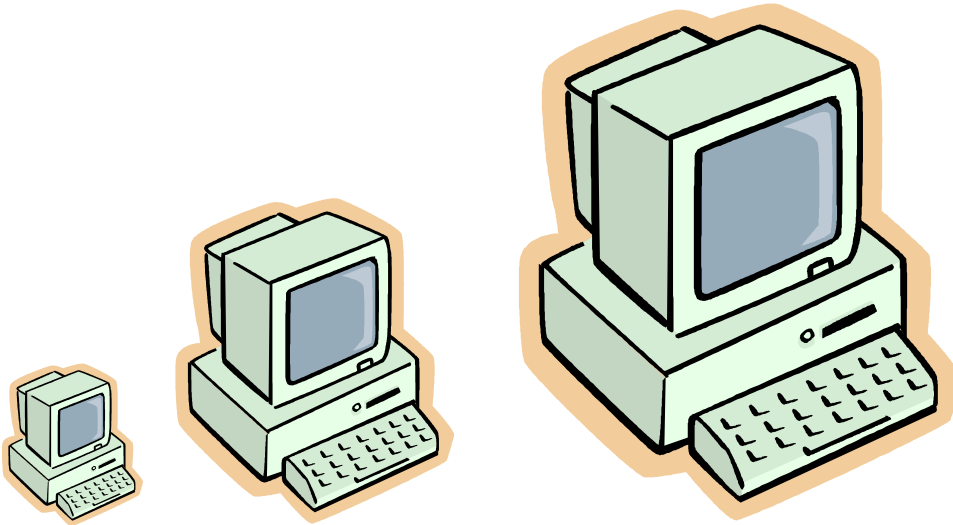
Here is an example of three text images designed in a vector format, showing the ability to resize them and distort them:

Vector

Vector

Vector

Note how clarity is maintained when the graphic text is resized or the shape distorted. Most clip art is vector based, allowing for resizing without loss of quality:

Resources for Understanding Raster and Vector Graphics

Vector vs. Raster - who's the master?
http://www.123clipart.com/vectrast.html

Two Kinds of Computer Graphics
http://www.sketchpad.net/basics1.htm

Raster vs. Vector
http://www.jello.net/report/Issues/2000/03/15/20000315.asp

Optimizing Graphics for the Web

In a previous section it was explained why digital images with lower resolution in Pixels per Inch (PPI) were important for smaller file sizes and quicker downloading speed. The two pictures of the abandoned house show how two identical images that measure 600 x 450 pixels will range from 107 Kilobytes in file size when created at 72 PPI to 792 Kilobytes when created at 300 PPI.

Our first step to reduce our image size (in Kilobytes) for the web is to reduce our image to 72 PPI or 96 PPI (many newer monitors use 96 PPI). But, we may be able to make the 107 Kilobyte image even smaller in Kilobytes and faster for downloading by *optimizing* it for the web.

Graphic optimization is performed with tools in graphic software such as Adobe Photoshop or Paint Shop Pro. Besides reducing the resolution of the image to 72 or 96 PPI and reducing the file dimensions to the appropriate size (width and height) for your web page, we may be able to reduce the file size even further by *optimizing* the image.

Optimizing JPG (JPEG) Images

Your graphic software uses slightly different methods to optimize JPG images than to optimize GIF images. JPG images are *compressed* when they are optimized. Depending on the level of compression used, JPG images can become blurry and will lose quality. However, lower levels of compression will result in significantly smaller file sizes with little noticeable loss in quality.

Optimizing a JPG image with Photoshop 7 is quite easy. You can compress the image when you save the image by moving the Image Options Quality slider bar to the desired quality when you save it. The maximum quality is 12, and you will note at the bottom that it estimates the file size at 208 Kb for this full quality image.
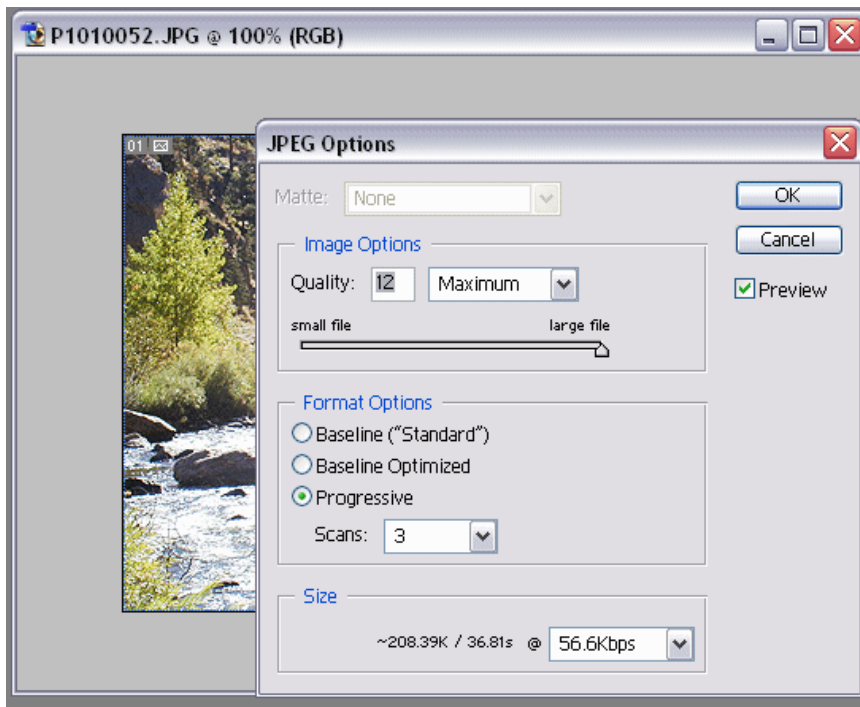
A more comprehensive option with Photoshop is the Save for Web feature on the File menu. Save for Web allows you to see the actual results of different levels of JPG compression or of GIF color reduction. You can choose the image that looks best at the lower file size.
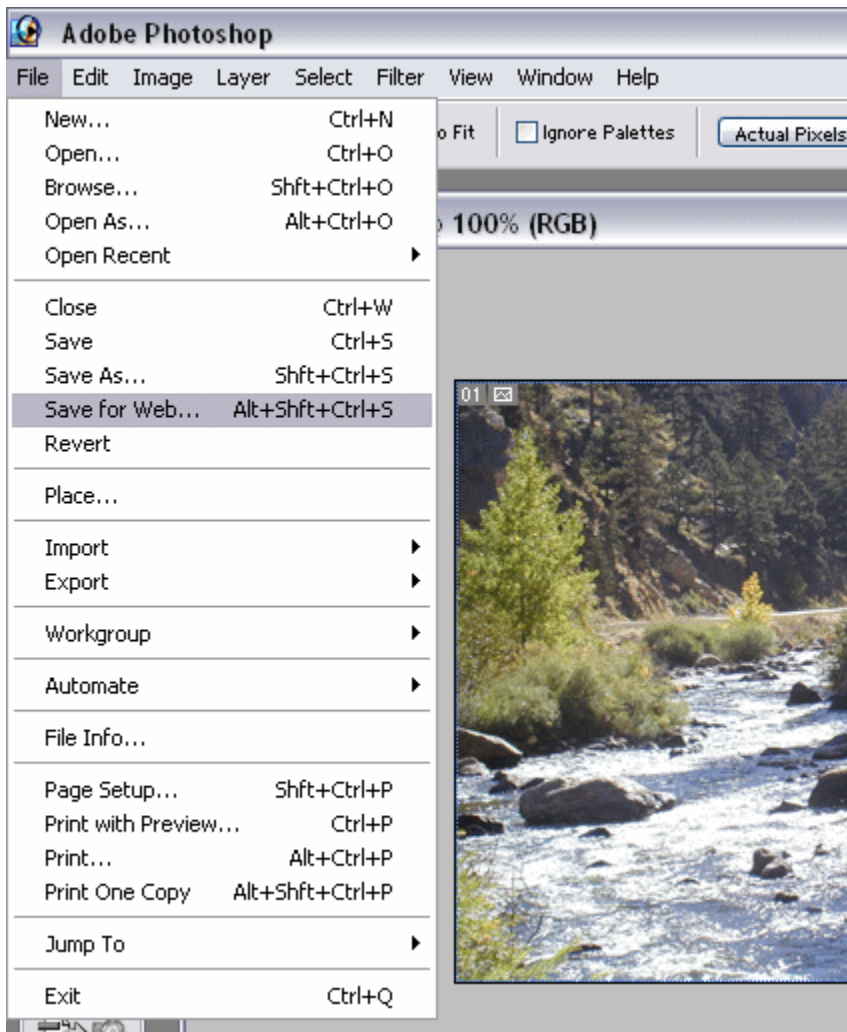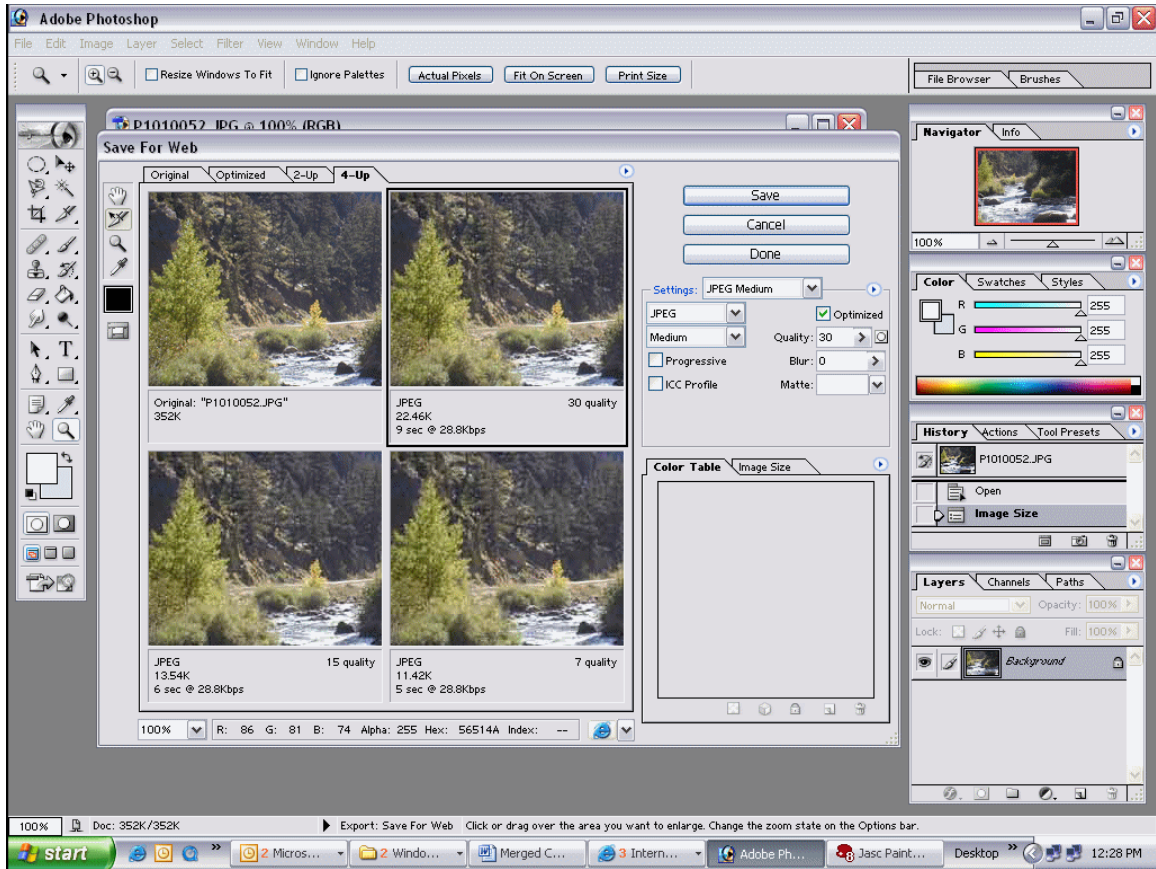
The Four-Up view in Save for Web lets you see the quality and file size of the different compression ratios.

Optimizing GIF Images

GIF images are optimized by reducing the number of colors they display. The color reduction does not result in blurriness but it may easily create a blocky appearance on a photograph due to individual pixels being assigned a different color. GIF images can only display a maximum of 256 colors and reducing the number of colors in a photograph may cause severe loss of quality. On images such as clipart with solid colors the loss of quality is minimal or non-existent although a shift in color may be noticed, especially if you do not use "web safe" colors.

In Adobe Photoshop the Save for Web option on the File Menu is the best method to optimize GIF images. On the right side of the dialog window you can use the drop down menu to choose between GIF, JPG, PNG, and several other graphic formats. The GIF optimization has many options, one of which is the number of colors. We won't go into the details of the other settings.

Graphic Design for the Web
http://www.fred.net/dhark/graphics.html

Understanding and making most of GIFs and JPEGs
http://www.designer-info.com/master.htm?http://www.designer-info.com/Writing/web_graphics_tutorial.htm

Adjusting Brightness, Contrast, Color

One of the most useful features of digital graphic software is the ability to enhance photographs and images that may have been over or underexposed or that need color correction. Even photographs that seem well exposed can be enhanced to create a more striking image.

There are no hard-set rules of thumb to use when enhancing photos. You will need to experiment and try different settings to determine which combination of change is most appealing.

We will use Adobe Photoshop again for this demonstration although similar capabilities are available in most digital graphic software products. We'll start with the original photograph of a Colorado stream taken with a digital camera from the top of the river bank. The wildflowers in the foreground are properly exposed from the flash and the river below is underexposed in the shadows.

We have a dilemma here. If we brighten the entire photo to enhance the detail in the stream the flowers will become overexposed. We want to increase the brightness of the stream without overexposing the flowers.

We will use a Photoshop tool called the Magnetic Lasso. This tool lets us select certain areas of a photograph. It has sort of a "sticky" magnetic characteristic that attempts to connect to outlines in the photograph. We will use this tool to outline everything but the flowers in the above photo. The exact outline of the flowers won't be necessary although it will be essential to get as close as possible.
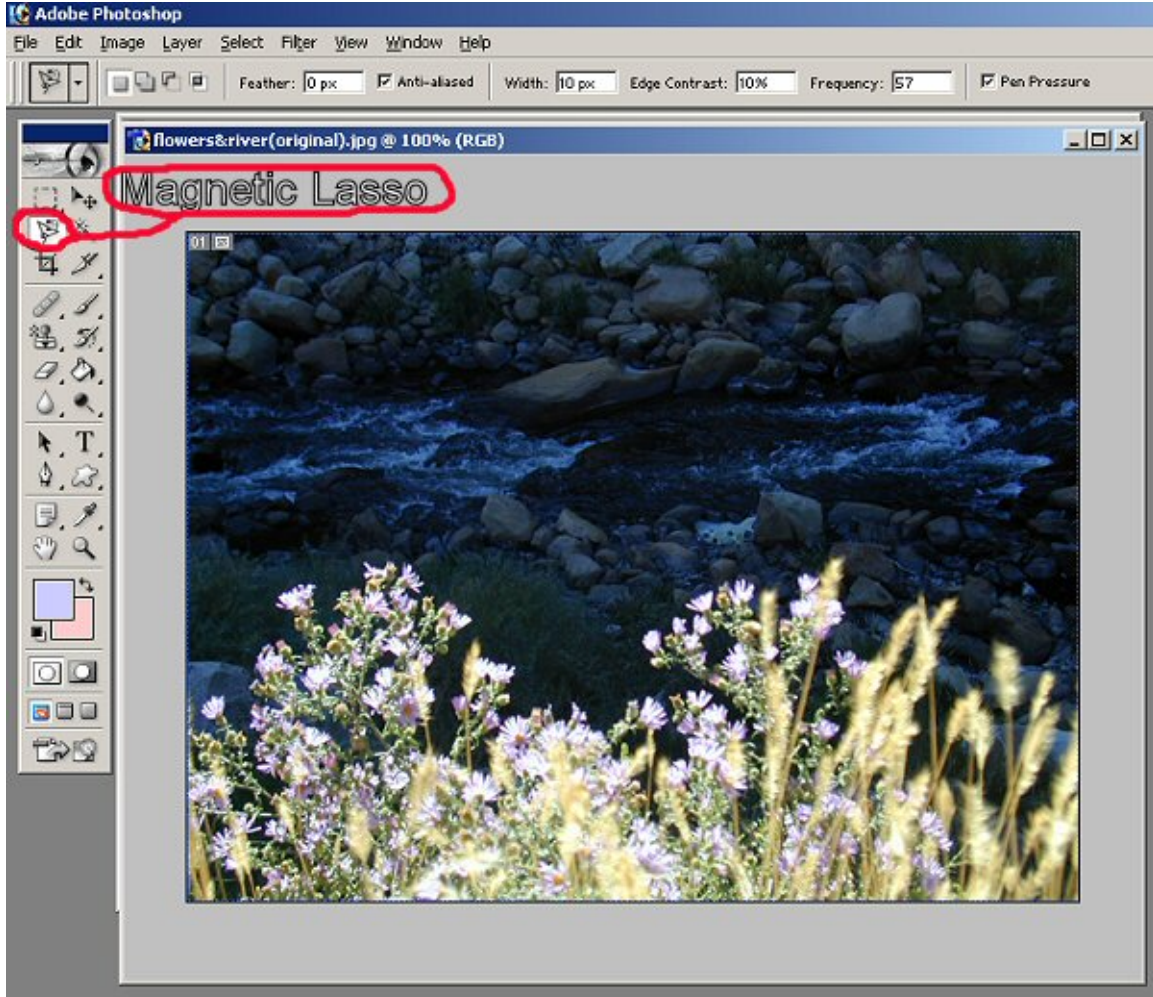
Using the magnetic lasso to outline the darker background is a bit time-consuming. The tool will automatically "connect" to points by moving the tool close to the outline but you can also use the left mouse button to connect it to the outline if it is not doing what you want it to. When you have outlined the area you want to work with it will show as a dotted, moving outline.
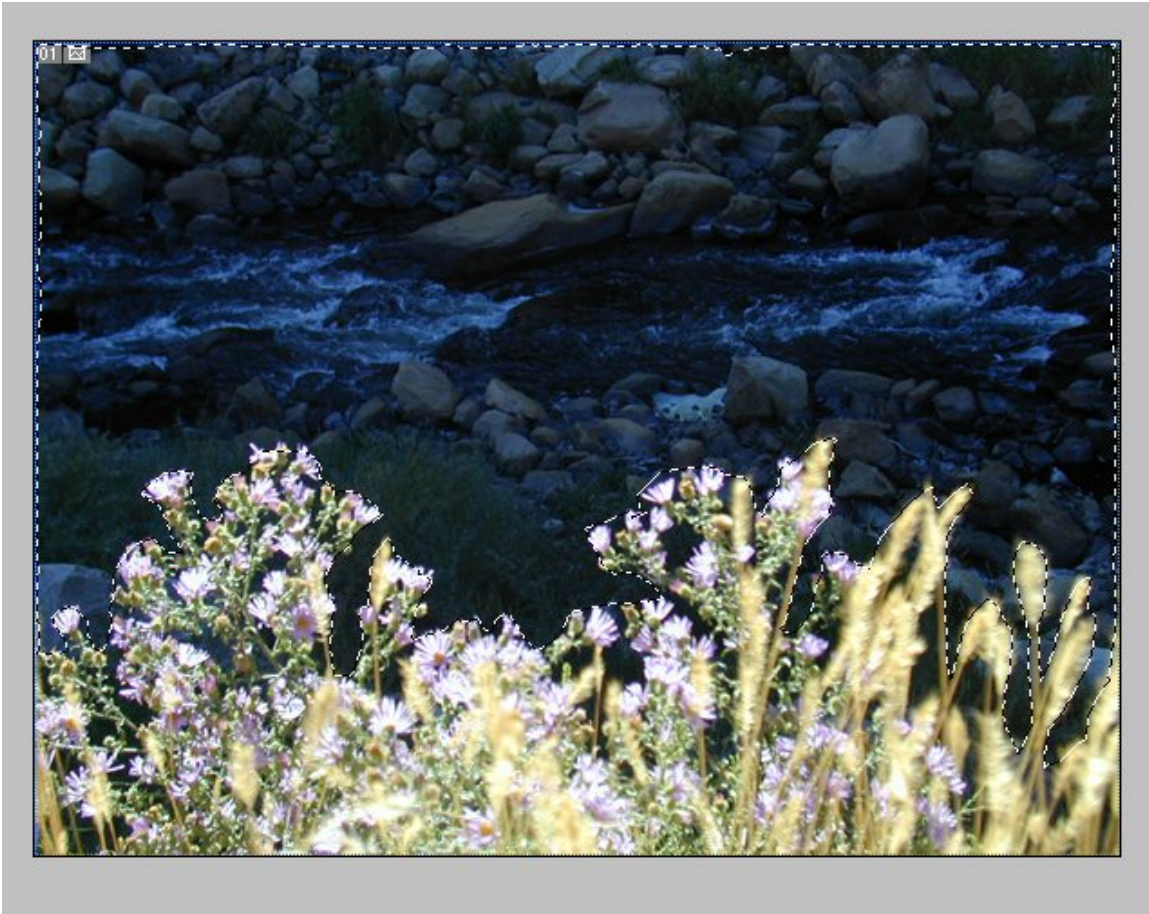
Next, we are going to use a handy tool called Curves. This tool automatically adjusts both brightness and contrast in proportion to each other. One phenomena of adjusting brightness is that contrast will typically need to be increased to avoid a washed out image.
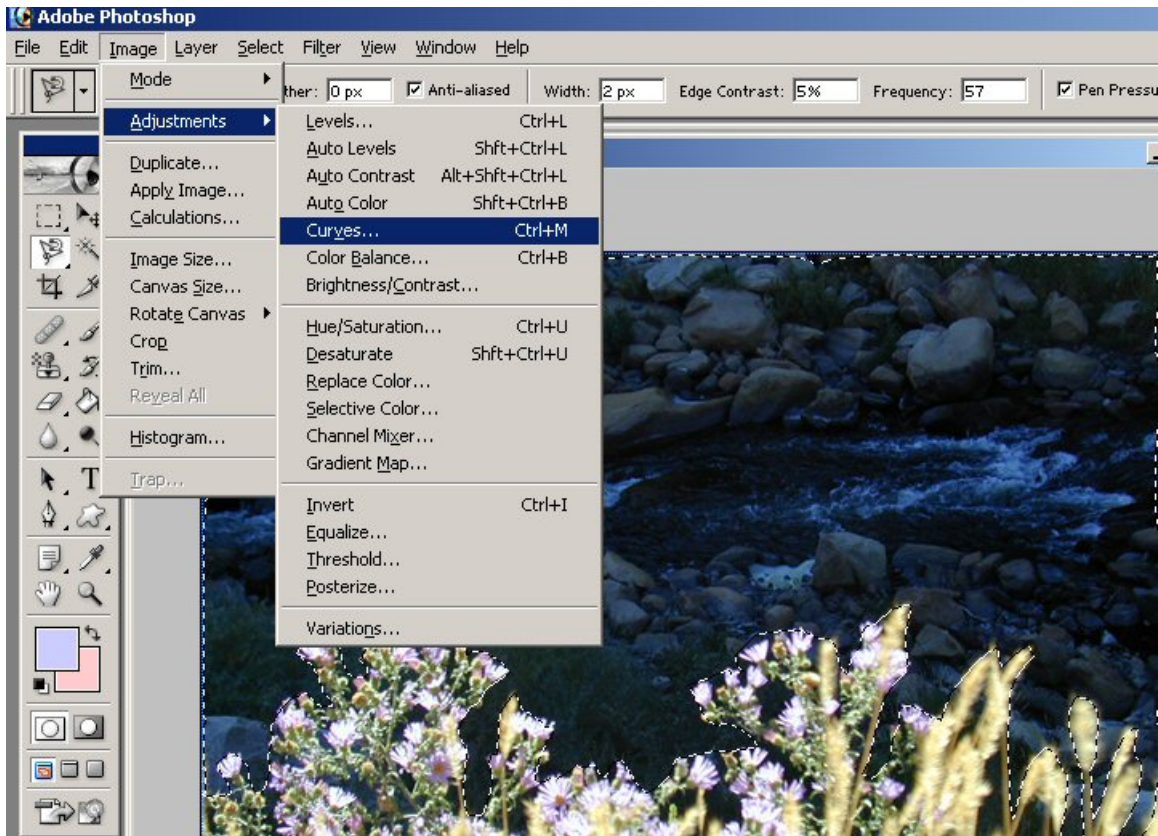
Moving the line on the Curves toolbox will increase or decrease our brightness and contrast. We can also click on another segment of the line, leaving the first adjustment anchored as shown by the dot on the line.
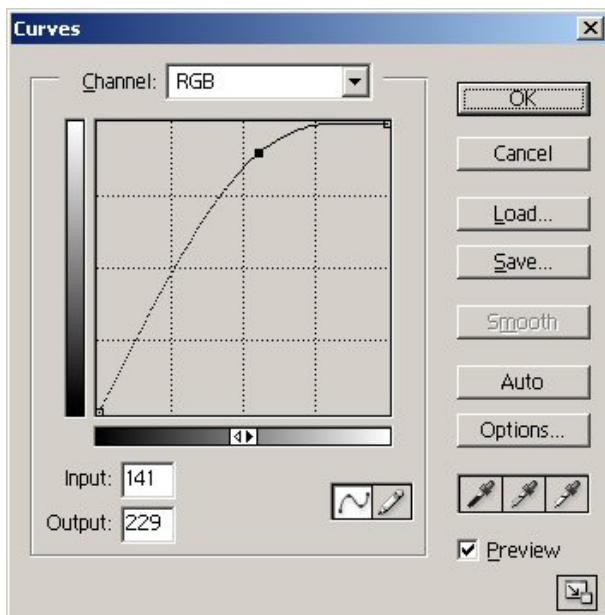
The enhanced image shows clearer detail in the shadowed river and creates a dramatic effect contrasting the wildflowers with the blues of the stream. Brightness and Contrast, and many other adjustments, can also be made from the Adjustments menu in Photoshop.

Suggested Activities for Digital Graphics

There is no substitute hands-on training with an experienced instructor. Check with your local high school or college to see if they offer training with Photoshop or other graphic software. If you are a self-learner and are comfortable with computer software there are a number of self-paced tutorials available on the Internet

Although Adobe Photoshop is one of the most widely used graphic applications, it sells for about $700 and may be out of price reach for many small business people. It also may have more features than most people will ever use.

There are dozens of excellent graphic applications on the market. Many of these are lower priced than Photoshop. The major hardware vendors such as Canon, Epson, HP, Dell, etc. will often bundle consumer-grade software with computers, digital cameras, printers, and scanners. However, the limitations of these consumer-grade software products will be evident as you become more experienced with graphic enhancement and design.

Here is a list of some of the better known digital graphic products on the market and links to some quality tutorials on how to use them. **An excellent source of video training for many software products is the Virtual Training Company http://www.vtc.com . For $25 per month you have unlimited access to any of their video tutorials.**

Windows Graphic Software

Adobe http://www.adobe.com

Photoshop Tutorials

- Tutorials and Tips http://studio.adobe.com/
- Adobe Photoshop Basics http://graphicssoft.about.com/library/course/bllps5out.htm
- Photoshop Crash Course
  http://hotwired.lycos.com/webmonkey/design/graphics/tutorials/tutorial1.html
- Planet Photoshop http://www.planetphotoshop.com/tutorials.html

Adobe Products

- Photoshop
- Photoshop Elements (a "Photoshop Lite version", sometimes bundled with hardware products and sells for less than $100. Elements is a good alternative to Photoshop)
- Adobe Illustrator

JASC Software http://www.jasc.com

Paint Shop Pro Tutorials

- PSP Tips http://psptips.com/7/
- Paint Shop Pro Tips and Tutorials http://www.jasc.com/support/learn/psptutorials.asp

JASC Products

- Paint Shop Pro 7
- Paint Shop Pro 8 (recently released as an entirely reworked product)
- WebDraw

Macromedia http://www.macromedia.com

Macromedia Fireworks Tutorials

- Macromedia Fireworks Support Center
  http://www.macromedia.com/support/fireworks/tutorial_index.html
- Webmonkey One Day Fireworks Tutorial
  http://hotwired.lycos.com/webmonkey/98/30/index2a.html

Macromedia Products

- Fireworks
- Freehand

Corel http://www.corel.com

CorelDraw PhotoPaint Tutorials

- **C**orelDRAW PhotoPaint How-To's
  http://graphicssoft.about.com/cs/coreldrawtutorials/ht/
- CorelDRAW 101 http://www.huntfor.com/design/tutorials/coreldraw.htm

Corel Products

- CorelDRAW Graphics Suite

Ulead http://www.ulead.com

- PhotoImpact

Xara http://www.xara.com/products/webstyle/features/

- WebStyle 4

Serif http://www.serif.com/

- DrawPlus
- PhotoPlus

MacIntosh Graphic Software

- Apple iPhoto
- Adobe Products
- Corel Products
- Macromedia

Linux Graphic Software

- a number of graphic programs are available for Linux although these products are not as mature as the applications available for Windows and Macintosh.

Chapter 7 – Building Small Business Websites

Small businesses are well known for their self-sufficiency. The entrepreneurial spirit is the driving force behind most small businesses startups and the do-it-yourself ethic is what has kept most of them in business. Capitalizing on the new marketing frontier of the Internet is no exception.

This chapter focuses on two potential tracks a small business may follow when developing a small business website.

The **do-it-yourself track** is the route many small businesses and sideline ventures choose. There are a number of reasons people wish to design and maintain their own website.

- **Cost** – Hiring a professional web developer will cost from hundreds to thousands of dollars.
- **Immediate availability** – If a small business has control over their website and knows how to update it they can publish new information quickly without working around a web developer's schedule.
- **Intrinsic motivation** – For many people the challenge of learning how to develop a website is fun and rewarding.

There are also a number of drawbacks to developing your own site.

- **Time** – Learning new technologies and developing adequate skills is time-consuming.
- **Professional quality** – Let's face it, not all of us are professionals at everything we do. A quality website is a delicate blend of information and content design, organization, and pleasing graphics.
- **Cost** – Software and hardware costs could easily exceed the fee charged by a professional developer for a small site.
- **Technical proficiency** – Although basic "static" websites are relatively easy to design with today's software many of us have need for more sophisticated capabilities such as web forms, video, or database driven content. Unless you are a technology guru, the time it takes to learn how to create more advanced features is outside of the time restraints of most small business people.

The **outsourcing** track may be the best choice for most small businesses. Not many of us fix our own automobiles or fill our own teeth (unless your profession is mechanic or dentist). Although many good websites have been developed in-house the drawbacks listed above may make the option of hiring someone else your best choice.

The advantages to hiring a professional developer include:

- **Cost** – Although you may spend less money developing your own website, if you put a value on your time you will find that the cost savings are significant.
- **Professional quality** – If you carefully review a developer's portfolio or are referred by a trusted person you should be able to locate a developer who can create a professional presence for you on the Internet.
- **Time** – Learning the software and acquiring the graphic skills necessary to build your website will take you much longer than hiring a professional developer who has already invested that time into learning.
- **Technical proficiency** – Understanding the complexities of the Internet and websites is a specialization that most business people neither have the desire nor time to learn. Simply troubleshooting a simple error in a website or a publishing problem is enough to motivate most people to hire a professional.

Some of the disadvantages of hiring a professional developer include:

- **Cost –** Although an experienced developer will likely work at warp speed in comparison to a learner, rates typically range from $25 - $150 per hour. We have seen excellent small business sites developed for less than $1000.
- **Loss of internal control or scheduling –** Busy web developers may not be available precisely when you want them. You may wish to post daily or weekly specials or make a simple correction to your site and will need to wait days or weeks until your developer has time to do it.

Preparing to Design your Website

Whether you decide to develop your website internally or outsource, many of the processes you follow will be the same. Developing the site yourself will require you to take all the responsibility but outsourcing also requires a considerable amount of work on your part. A few of the most important considerations you will have with either development path include:

- **Strategy –** Think back to the website marketing ideas you formulated. If you are working with a web developer you will need to convey your vision for your website to the developer. Be sure to explain who you perceive as your target audience and help them understand your product or service. Make your objectives clear.

    o   Are you trying to attract new customers?
    o   Are you interested in providing service to existing customers?
    o   Do you intend to sell directly online?
    o   Do you have potential for international business, regional business, or are you only interested in servicing local customers?
    o   Many website developers come from either a graphic design background or a computer science background. Hopefully you will find a skilled developer who also has small business and marketing experience.
    o   Larger website development companies often have web marketing specialists and can take you through the entire process of developing a marketing plan. This could end up costing a lot of money.
    o   How will you service new customers?

        ▪   Do you currently use email for business?
        ▪   Do you have your domain name and email at that domain name?
        ▪   Are you connected to the Internet at work?
        ▪   Have you determined policies such as shipping, returns, service?

- **Content –** Many full-service web developers will write website content and take photographs or arrange a photographer. You should have a good idea of what you want on your website before your first meeting with a developer. Often a business person will visit with a web developer and say "I need a website," expecting the developer to take it from there.

    o   Do you have printed materials (brochures, catalogs, advertisements, etc.) that have established a consistent "look" for your business? You will want your website to "match" the look of your other promotional materials. However, if your "look" needs to be updated or improved, developing a website can be an opportunity to redesign all your marketing materials.

o Do you have a company logo? Designing a logo is a good marketing decision. Large corporations have established an identity that is universally recognized – with or without reading the company or product name. Do you recognize these logos?

All logos are ©Copyright their respective companies.

o Do you have advertising copy ready to go, at least in draft form? You may have most of your website materials ready if you have recently updated your printed materials.

o Have you decided on an initial layout for your site? Use sheets of paper or sticky notes to design a rough layout. Try to envision how your visitors will navigate through the site. Think about what your main categories will be on the home page. Use software products such as PowerPoint or Word to create a "nested" hierarchy of bullet points that represent your site structure:

- Home Page
  - Products Page
    - Product 1
      - Product 1 Detail
    - Product 2
      - Product 2 Detail
    - Product 3
      - Product 3 Detail
  - Customer Service Page
    - Customer Service Request Form
  - Testimonials
    - Testimonial 1
    - Testimonial 2
  - Contact Us
    - Contact Us Form
  - Company Profile
  - Photo Gallery

o Do you have professional photographs available or will you need to take them? The higher the quality of your graphics and photos the more impressive your website will be. Consider purchasing your own digital camera. Cameras selling for $200 are suitable for web photography although they may not be suitable for smaller product photos.

- **Budget –** Whether you are building the website yourself or hiring someone else to do it you will need to make a small investment. The question "How much does a website cost?" is as elusive as "How much does a house cost?" A simple five page website with limited graphic design could be a few hundred dollars if built by a developer or almost free if you decide to do it yourself and use free software. But the cost doesn't end there. You will inevitably have recurring costs for maintenance and updates, hosting fees, domain name registrations, and other related costs. Here are some potential costs you may incur.

- o **Development** – Website designers charge between $25 and $100 or more per hour. An experienced developer can develop a small website in a day. Before going the do-it-yourself route ask what value you place on your time. If this type of work fascinates you then by all means immerse yourself in learning how to do it. But if you find yourself frustrated and impatient you are not a good candidate for the do-it-yourself route.
- o **Hosting** – Your site needs to be hosted on a server somewhere. This could be your Internet Service Provider or any one of thousands of hosting services in the world. Monthly hosting fees range from around $5 per month and up. Typical fees are $20 - $30 per month.
- o **Domain Name Registration** – Depending on the registrar you choose and the number of years you register for, this could range from around $6 to $35 per year.
- o **Software** – If you decide to develop your own website you can expect to spend between $250 and $1500 on website development software and graphic software. eCommerce software licensing will be additional.
- o **Graphic Design and Photography** – If you are artistic and experienced with digital graphic design software you may be able to design the graphics for your site. Many companies choose to hire a professional photographer for product shots or business photography. You may decide to use a stock photo from a photo service and these can easily cost hundreds of dollars each. Your costs could vary considerably. No matter what, I recommend purchasing a digital camera. They're great for business and pleasure.

References to Building Small Business Websites

Building Small Business Websites
> (Note: this website is written for web developers but it is an excellent tutorial on the problems they face with small business customers. Read through the article and the web developer discussions that follow. You will find very useful information here.)

http://www.webmasterworld.com/forum10/1066.htm

Seventh Avenue Design
http://www.7designavenue.com/website_design/planning.html

Planning for success
http://smallbusiness.ninemsn.com.au/smallbusiness/online/step1.asp

Advice for Small Firms: Don't Neglect Your Site
http://www.internet-marketing-firm.net/marketing-articles-1.htm

Do it yourself Website Development

Building your own website can be a fun and rewarding experience. Those inclined to take on this challenge will find it will take many hours of learning and practice, and probably a few frustrating moments as well.

Before committing to design your website by yourself, ask yourself if you honestly have the time, patience, technical understanding, and creativity that it takes to create a professional appearance on the web. With that said, many fine websites have been developed by small business people.

The first step is to decide on web development software. Many choices are available with varying degrees of user friendliness and features. As a novice web developer you will prefer to learn with relatively easy to learn and widely supported software.

Most basic websites are developed with WYSIWYG (What You See Is What You Get) software with a number of mature and widely used software products available. There is no substitute for hands-on training to jump-start your learning. Check your local community education schedules or look for commercial training opportunities. Many colleges and high schools offer website development courses. You may choose to use the software that is taught in courses available in your area. However, don't expect to be a pro after 4 or 8 or even 40 hours of workshops. It takes time, practice, and experience.

Microsoft Front Page

Front Page is one of the most widely used website development products on the market. More workshops and community education courses currently teach Front Page than any other website development product. A big reason may be the favorable academic license pricing that Microsoft offers to schools. Front Page is a good product and is very stable. It automates many features and even offers a wizard to develop a basic website.

As with most WYSIWYG software, Front Page has built in "styles", which add basic buttons and banners to your site. It is not a good idea to use the built-in styles for your business website. First – they are generally ugly (not just Front Page, all web development software). Second, they are easily recognized since so many people use this software. Built-in styles may be OK for your local club or a personal site but you will not impress anyone with your professionalism by using them.

Developing pages with Front Page requires you to create a table to put page elements in. Table cells can hold text and images and cells can be merged to make larger cells. Pages developed in Front Page can be set to dynamically resize to fit the dimensions of the web browser or can be set with a fixed width. Designing pages that dynamically resize is significantly different than designing pages that have a fixed width. As the browser is resized, images and text can be moved and the layout you intended your visitors to see may be substantially different if they resize their browser.
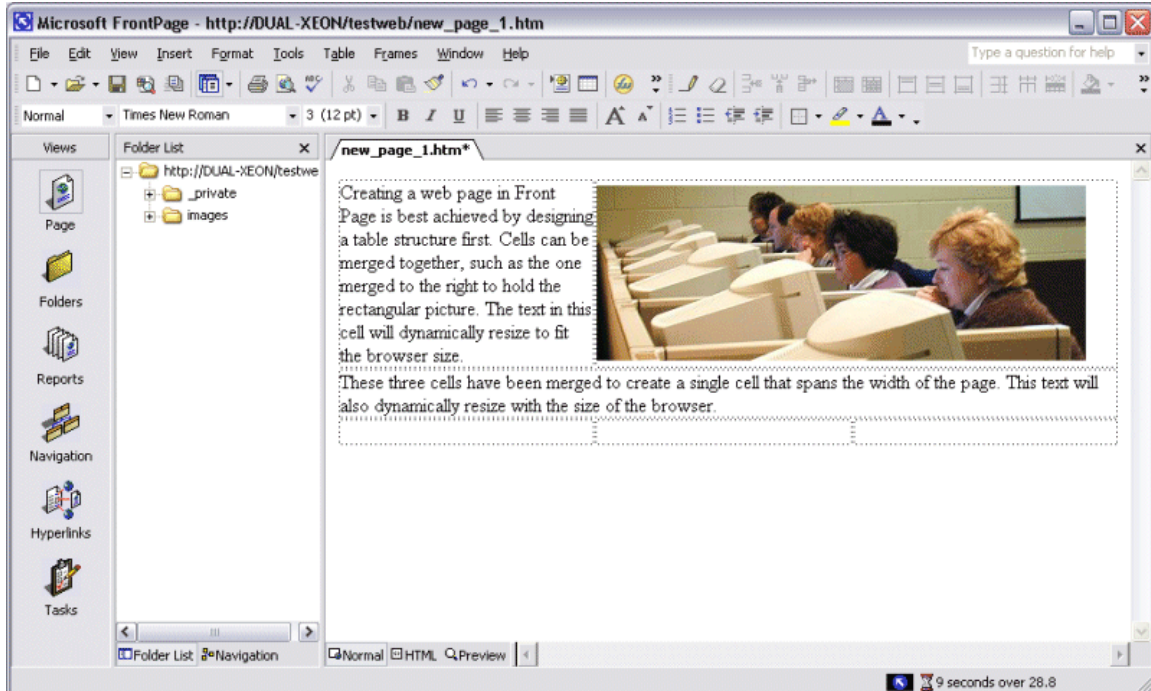
Front Page offers a number of built-in features that allow you to quickly and easily design more complex features into your website. However, in order for these features to work your website must be hosted on a server that supports "Front Page Server Extensions." Many commercial web hosting services support Front Page and finding a hosting company is not a problem. Front Page sites that don't use the extensions can be hosted on any web server.

These features may be the easiest way to design pages that collect data from your visitors. You can create a web form that sends an email to you and keeps track of the submissions in a database. This is handy for creating email lists or recording customer comments. You can also create a simple search for your site, embed spreadsheets from Excel, and a number of other real cool things.

Front Page is a pretty good choice for the novice developer. Here are some links to online tutorials to get you started.

Resources for Front Page

There are a number of versions of Front Page as Microsoft has improved it over the years. Make sure the tutorial you use is the same as the version you have. Front Page comes in 97, 2000, 2002 (XP), and 2003 versions. The software is very similar over the years and many of the fundamentals are the same.

Microsoft Front Page Home
http://www.microsoft.com/office

Ball State University – Front Page Tutorial
http://www.bsu.edu/web/fp_tutorial/

Front Page 2000 Tutorial from Microsoft
http://www.microsoft.com/downloads/details.aspx?FamilyID=299DFA4E-8BEC-4A9D-9F8A-277F43EE8EF6&displaylang=EN

Virtual Training Center
Front Page 2002 http://www.vtc.com/frontpage2002.htm
Front Page 2000 http://www.vtc.com/frontpage2000.htm

NetObjects Fusion

NetObjects Fusion (NOF) has been on the market since the early days of the Internet. NOF is probably the easiest website development software to learn. NOF pages are designed with a fixed width by default and the software allows you to position text and graphics precisely down to the pixel. The pages will display almost exactly as you see them during the design phase, truly WYSIWYG.

NOF is not as well known as Front Page or Dreamweaver. It doesn't support database driven web pages very well although there are a number of plug-in applications available if you are familiar with Cold Fusion. The latest version 7.5 has support for three eCommerce software products that should make the development of an online store about as easy as it gets (for now). It has a method of designing its own proprietary "stacked pages" from information pulled from a database and a method of adding data to a database with the Form Handler component. But – these are not the strength of NOF.

Where this software shines is in its ability to quickly and easily design and generate a website. Many people have attended hours of workshops on Front Page or Dreamweaver and a few minutes demonstrating Net Objects has them shaking their heads in amazement. It truly is a user friendly application and it is not unusual for someone to be off and designing a site after a few hours practice.

A number of built-in and third party components allow you to create animated and interactive features very easily. With a few keystrokes and mouse clicks you can have a series of pictures rotate or build a photo gallery. Scrolling messages, meta-refresh pages, and pop-up windows are just a few of the features available without writing a single line of code.
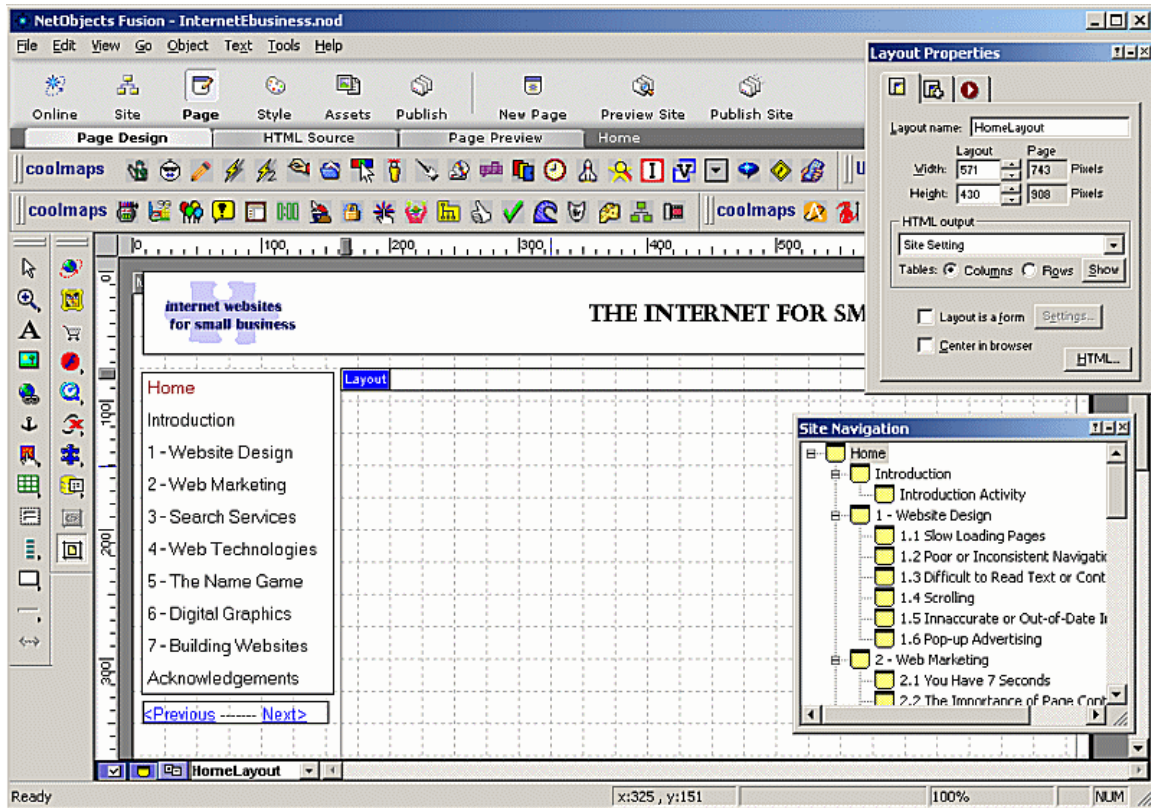
There are a few frustrations with NOF, as with any software. One is the Properties sheets that don't "dock" on the outside but instead are floating and usually in the way of what you are doing. The screenshot above shows all the components loaded, the colorful icons at the top are the third party Coolmaps components.

NOF will automatically manage your website navigation and create buttons and banners from blank image templates. Most of the tools are familiar if you have worked with word processing applications or publication design applications.

As a casual website developer NOF may be your choice. There are certainly more professionally accepted products on the market but this is a top-notch choice for in-house small business developers. For large websites or companies that will be moving to database driven components it is not the best choice.

Resources for NetObjects Fusion

NetObjects Fusion Home Page
http://www.netobjects.com

CoolMaps Add-on components
http://www.coolmaps.com

The next two links are tremendous support sites for the NetObjects Fusion community.

GotFusion tutorials
http://www.gotfusion.com/menu/index.cfm

eFuse Tutorials
http://www.efuse.com/tutor/

Macromedia Dreamweaver

Macromedia's Dreamweaver and the suite of web development products known as Studio MX is widely acclaimed as the premier toolkit for website development. Dreamweaver is a powerful product with the ability to build static and dynamic websites. Database driven sites can be built without writing code, but for the experienced developer writing code is no problem. Dreamweaver supports ASP, ASP.NET, Cold Fusion, PHP, and SQL. It also uses Cascading Style Sheets (CSS), the industry standard for creating template based websites. CSS define such items as text size, font, and colors.

The learning curve for Dreamweaver is steep and it is not the first choice for do-it-yourself web development. Because Dreamweaver assumes the user understands the technical side of websites many non-professional web developers may become frustrated and confused.
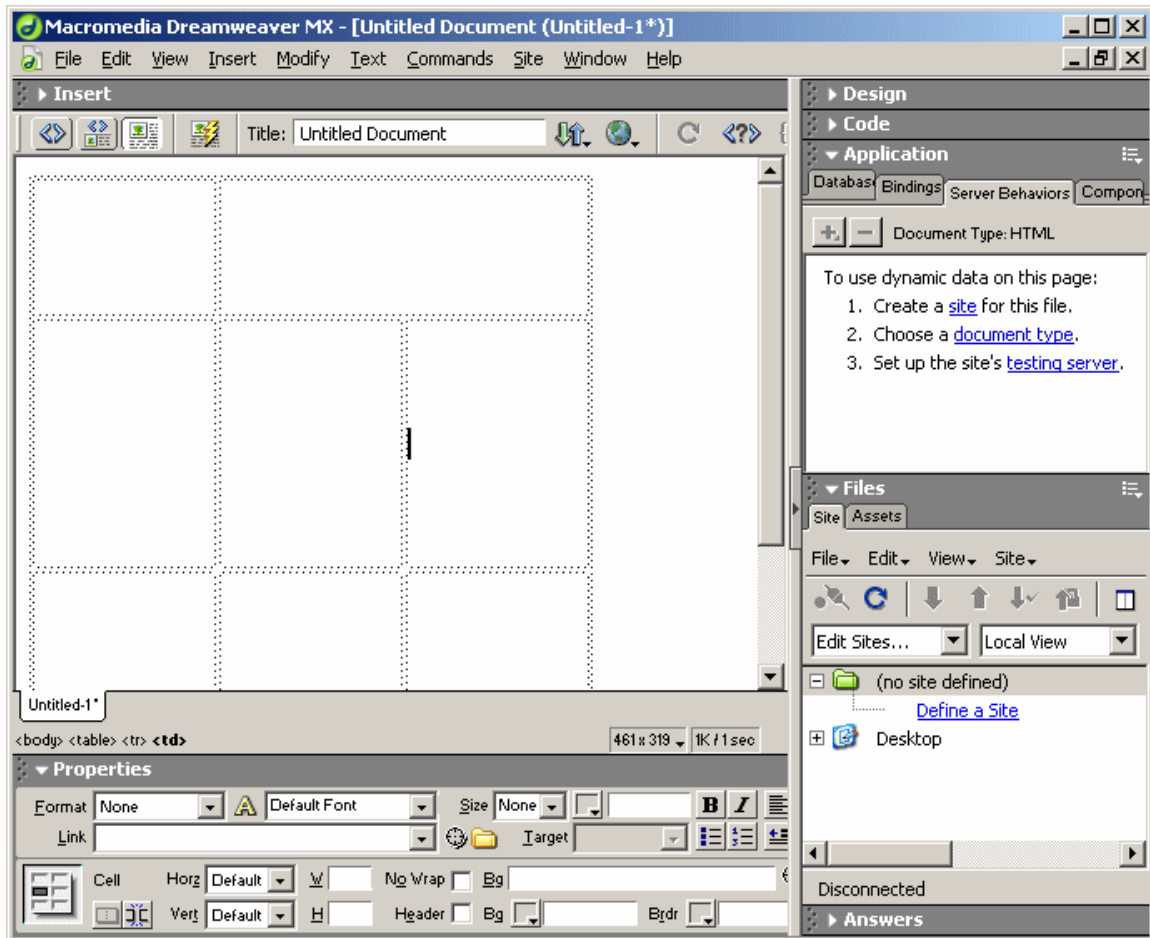
Resources for Dreamweaver

Macromedia Home Page
http://www.macromedia.com

Macromedia's Dreamweaver Tutorial
http://www.macromedia.com/support/dreamweaver/tutorial.html

iBoost Dreamweaver Tutorial
http://www.iboost.com/build/software/dw/tutorial/786.htm

WebMonkey Dreamweaver Walkthrough
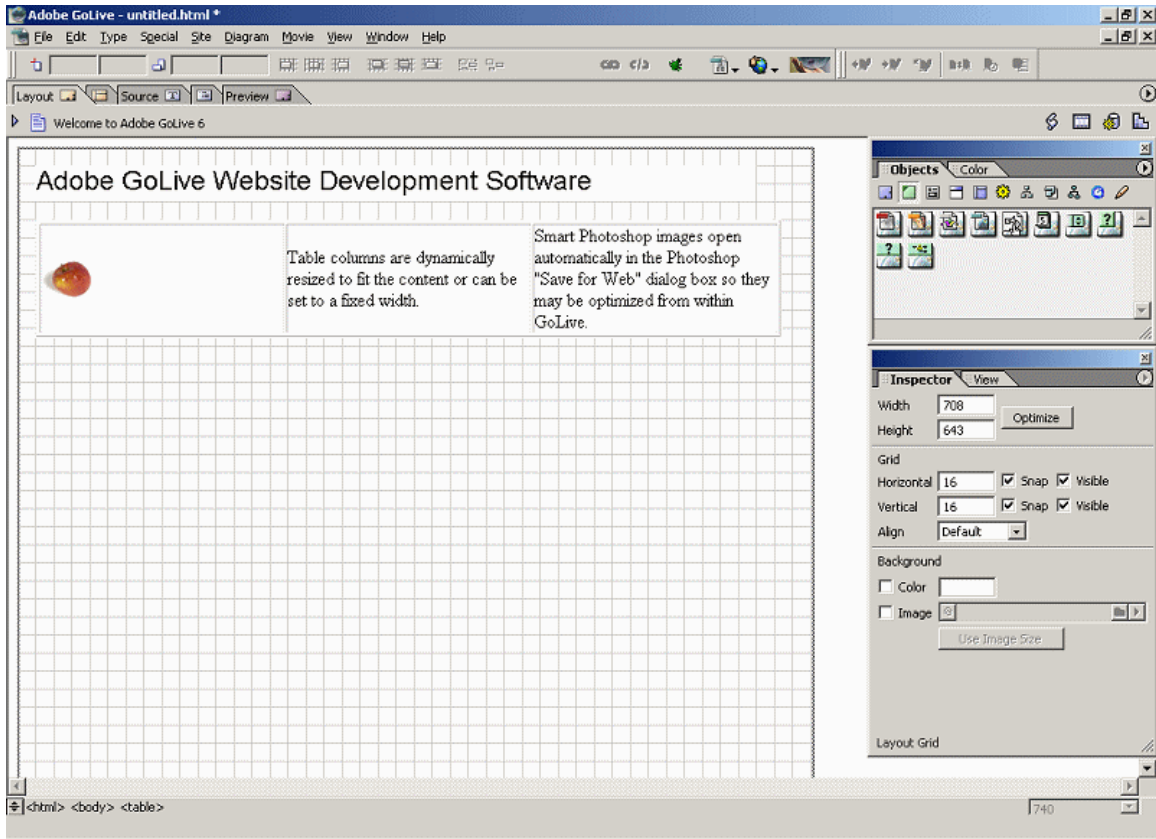http://hotwired.lycos.com/webmonkey/authoring/tools/tutorials/tutorial1.html

Adobe GoLive

Adobe's GoLive is quickly gaining popularity with web developers. There are a number of really cool features in GoLive, such as the Smart Images. You can insert an image on the page and the Photoshop "Save for Web" dialogue box will open, allowing you to optimize images right within GoLive. Page elements can be placed in tables or directly on the layout grid for pixel-by-pixel control of their position on the page.

GoLive supports Cascading Style Sheets and includes an internal editor to create or modify them. GoLive also has strong support for database driven pages without learning code. But, like Dreamweaver, don't expect to learn how to design dynamic sites in a few evenings.

Another excellent feature built into GoLive is the ability to set it up so more than one person can update and manage portions of the site. You can also design a site so that others can contribute content without needing to know how to develop web pages. For larger organizations with multiple content contributors this is a big plus.

Adobe GoLive is quite user friendly and integrates well with the Adobe graphic programs such as Illustrator and Photoshop. GoLive is a good choice for the beginning to intermediate web developer.

Resources for Adobe GoLive

Adobe GoLive 911
http://www.futurastudios.com/golive911/tutorials.html

Virtual Training Center GoLive 6
http://www.vtc.com/golive6.htm

WebMonkey Golive 5 Tutorial
http://hotwired.lycos.com/webmonkey/99/19/index3a.html

HTML Editors

There are literally hundreds of software products in this category. Die-hard web developers "hand code" websites, giving them the ultimate flexibility to design the page the way they want it. WYSIWYG editors have the option to edit the code, making HTML editors less necessary for customized coding. But – these editors have their place if you want to take the time to learn HTML code.

Most HTML editors are available as trial versions that are downloadable from the developer's website. Sold as either "shareware" (for a nominal fee) or offered as "freeware" (that's right, free), they vary widely in features and usability. A couple of them are quite popular and have been around for some time, such as Hot Dog Pro and Coffee Cup. One of the most comprehensive

lists of HTML editors is available on Tucows shareware website at
http://visicom.tucows.com/htmledit95_default.html.