CHAPTER 5

Web Design

Chapter Objectives In this chapter, you will learn how to . . .

- Describe the most common types of Web site organization
- Create clear, easy Web site navigation
- Design user-friendly Web pages
- Improve the readability of the text on your Web pages
- Use graphics appropriately
- Create accessible Web pages
- Describe design principles
- Describe Web page design techniques
- Apply best practices of Web design

As a Web site visitor, you have probably found that certain Web sites are appealing and easy to use while others seem awkward or just plain annoying. What separates the good from the bad? This chapter discusses recommended Web site design practices. The topics include site organization, site navigation, page design, text design, graphic design, and accessibility considerations.

Whatever your personal preferences, your Web site should be designed to appeal to your target audience—the people who will use your Web site. They may be teens, shoppers, college students, young couples, the list goes on and on. You should follow all of the recommended Web site design practices with an eye toward your target audience.

For example, NASA's site, http://www.nasa.gov (Figure 5.1), features compelling graphics and has a different look and feel from the text-based, link-intensive Bureau of Labor Statistics site (see http://www.bls.gov, Figure 5.2).

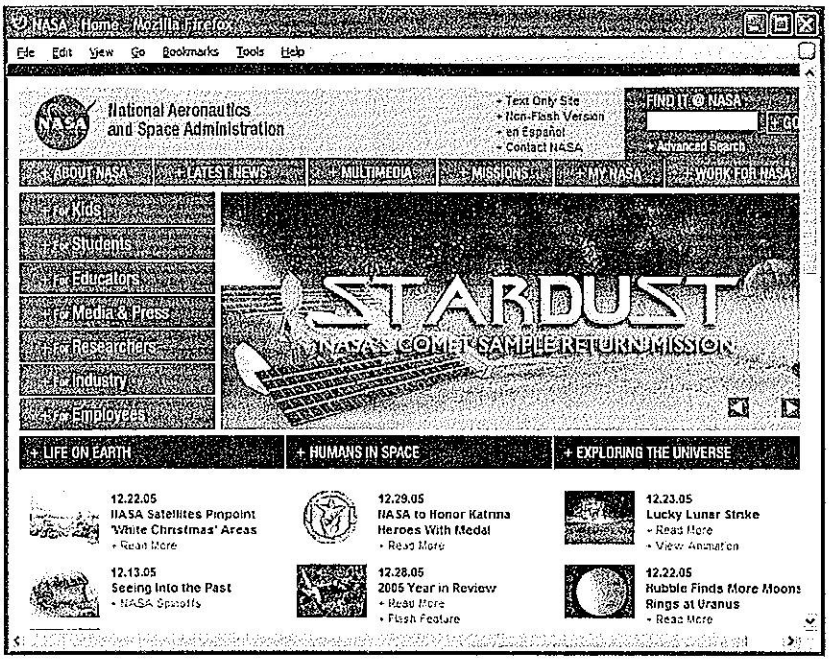


Figure 5.1
The compelling graphics draw you in

Figure 5.2
This Web site offers numerous choices

The first site engages you and draws you in. The second site provides you with a wide range of choices so that you can quickly get down to work. With your target audience in mind, take a look at some common recommended Web site design practices.

5.1 Web Site Organization

How will visitors move around your site? How will they find what they need? This is largely determined by the Web site's organization or architecture. There are three common types of Web site organization:

- Hierarchical
- Linear
- Random (sometimes called Web organization)

A diagram of the organization of a Web site is called a **site map** or **storyboard**. Creating the site map is one of the initial steps in developing a Web site (more on this in Chapter 10).

Hierarchical Organization

Most Web sites use **hierarchical organization**. A site map for hierarchical organization, such as the one shown in Figure 5.3, is characterized by a clearly defined home page with links to major site sections. Web pages within sections are placed as needed.

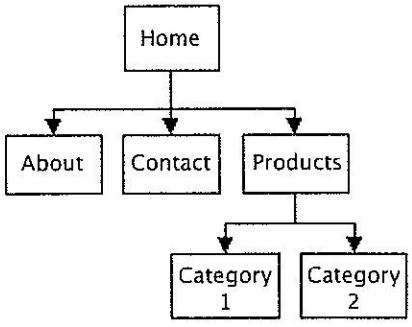


Figure 5.3
Hierarchical site organization

It is important to be aware of pitfalls of hierarchical organization. Figure 5.4 shows a site design that is too shallow—there are too many major site sections.

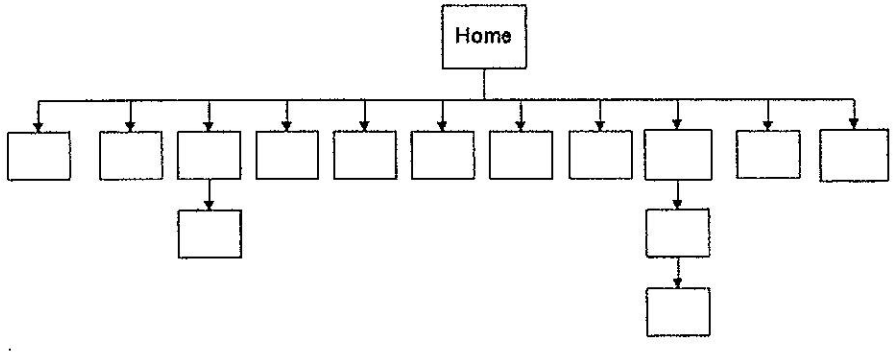


Figure 5.4
This site design uses a shallow hierarchy

This site design needs to be broken down into small, easily managed topics or units, a process called **chunking**. In the case of Web page design, each unit of information is a page. George A. Miller, a research psychologist for Princeton University's WorldNet

(http://www.cogsci.princeton.edu/~wn/) found that humans can store only five to nine chunks of information at a time in short-term memory (see http://www.well.com/user/smalin/miller.html). He called this the "seven plus or minus two" principle. Following this principle, many Web designers try not to place more than nine major navigation links on a page, unless they are creating a very large site. Even then, they may try to chunk the navigation links into visually separate sections on the page with each group having no more than nine links.

Another design pitfall is designing a site that is too deep. Figure 5.5 shows an example of this. The interface design "three click rule" says that a Web page visitor should be able to get from any page on your site to any other page on your site with a maximum of three hyperlinks. In other words, a visitor who cannot get what they want in three mouse clicks will begin to feel frustrated and may leave your site. This rule may be very difficult to satisfy on a large site, but in general, the goal is to organize your site so that your visitors can easily navigate from page to page within the site structure.

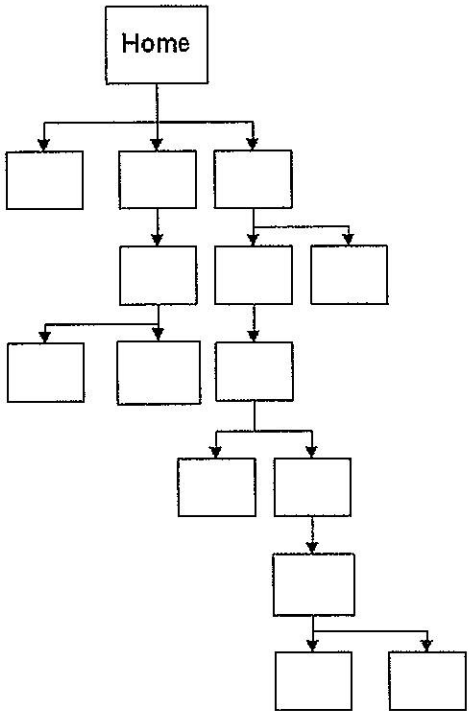


Figure 5.5
This site design uses a deep hierarchy

An example of hierarchical organization is the Map Collections area of the Library of Congress site at http://memory.loc.gov/ammem/gmdhtml/gmdhome.html. A partial site map is shown in Figure 5.6.

The Map Collections Home Page contains navigation to the main map areas. It functions as a map to the site (see Figure 5.7) and it is intentionally different from the content pages.

The main section content pages of a site usually have a similar look and feel. Two content pages are shown in Figure 5.8.

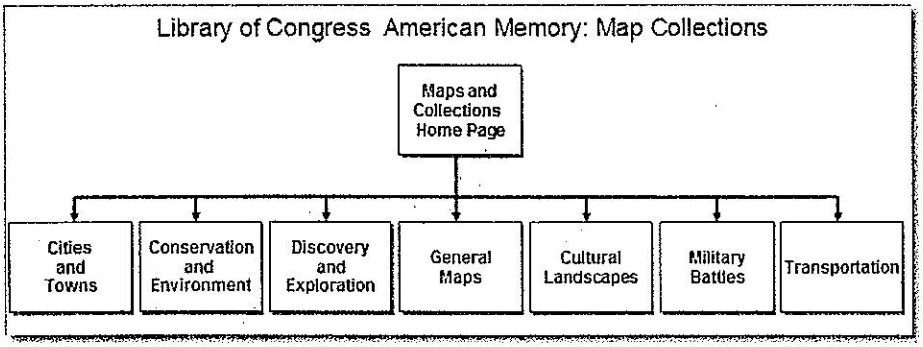


Figure 5.6
Map Collections site map

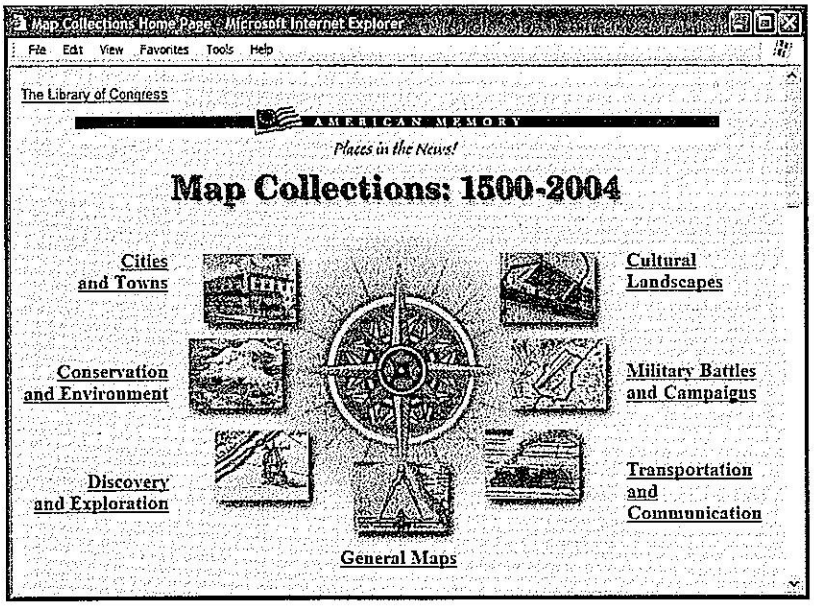


Figure 5.7
Map Collections Home page

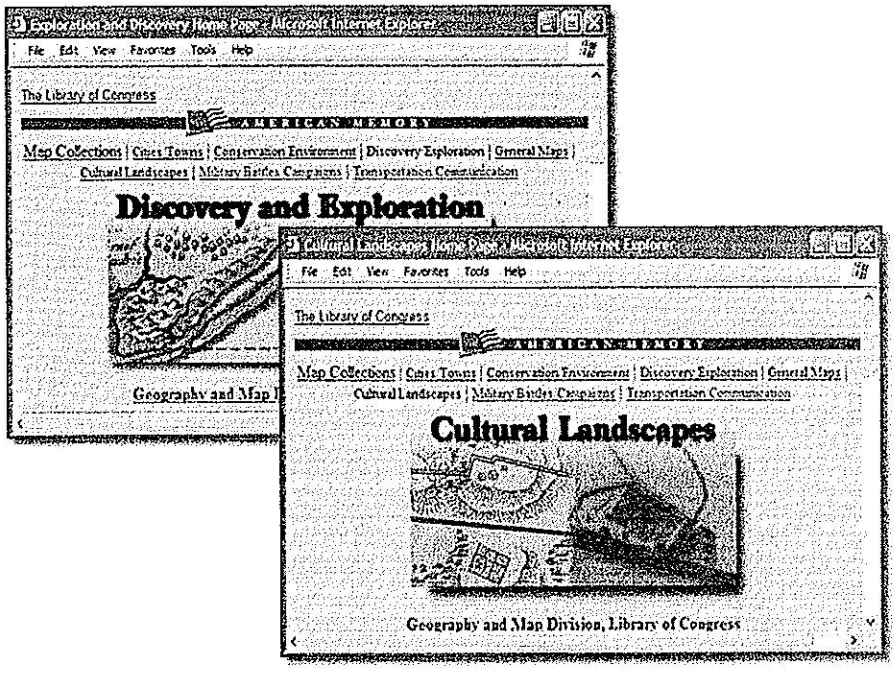


Figure 5.8
Sample content pages

Each main section may have one or more subpages. Some sites with a hierarchical organization may use a consistent design for the home page and the content pages. Either method is acceptable. Most commercial sites, such as http://amazon.com and http://ebay.com use hierarchical site organization.

Linear Organization

When the purpose of a site or series of pages on a site is to provide a tutorial, tour, or presentation that needs to be viewed sequentially, **linear organization**, as shown in Figure 5.9, is useful.

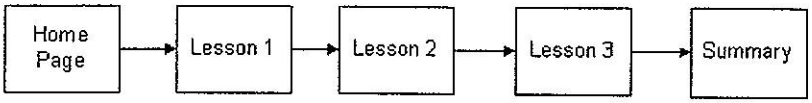


Figure 5.9
Linear site organization

In linear organization, the pages are viewed one after another. Some Web sites use hierarchical organization in general, but with linear organization in a few small areas. An example of this is the National Library of Medicine site at http://www.nlm.nih.gov. The main site organization is hierarchical with linear organization used for tutorials. Notice the "Next" link in Figure 5.10; it's the link to the next page in the linear presentation.

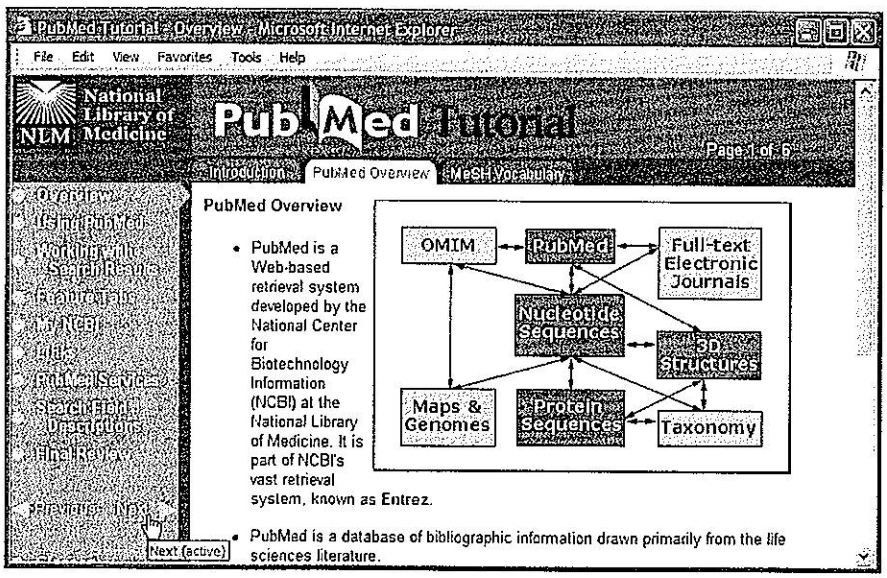


Figure 5.10
Tutorial linear organization using the "Next" link

Random Organization

Random organization (sometimes called Web organization) offers no clear path through the site, as shown in Figure 5.11 There is often no clear home page and no discernable structure. Random organization is not as common as hierarchical or linear organization and is usually found only on artistic sites or sites that strive to be especially different and original. This type of organization is typically not used for commercial Web sites.

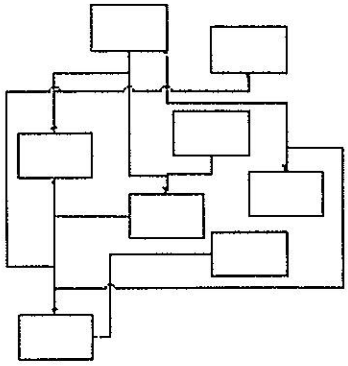


Figure 5.11
Random site organization

FAQ

Where do I begin?

Sometimes it is difficult to begin creating a site map for a Web site. Some design teams meet in a room with a blank wall and a package of large Post-it® Notes. They write the titles of topics and subtopics needed on the site on the Post-it® Notes. They arrange the notes on the wall and discuss until the site structure becomes clear and there is consensus within the group. If you are not working in a group, you can try this on your own and then discuss the way you have chosen to organize the Web site with a friend or fellow student.

5.2 Web Site Navigation—Best Practices

Ease of Navigation

Sometimes Web developers are so close to their sites that they can't see the forest for the trees. A new visitor will wander on to the site and not know what to click or how to find out what it offers. Clearly labeled navigation on each page is helpful—it should be in the same location on each page for maximum usability. A visitor should not feel lost in the site. Jakob Nielsen, a well-known Web usability and Web design professional, favors what he calls **breadcrumb trails** for larger sites. Figure 5.12 shows a page from http://www.fdic.gov, a site that has a well-organized navigation area near the top of the page in addition to personalized breadcrumb trails for each visitor. To access the

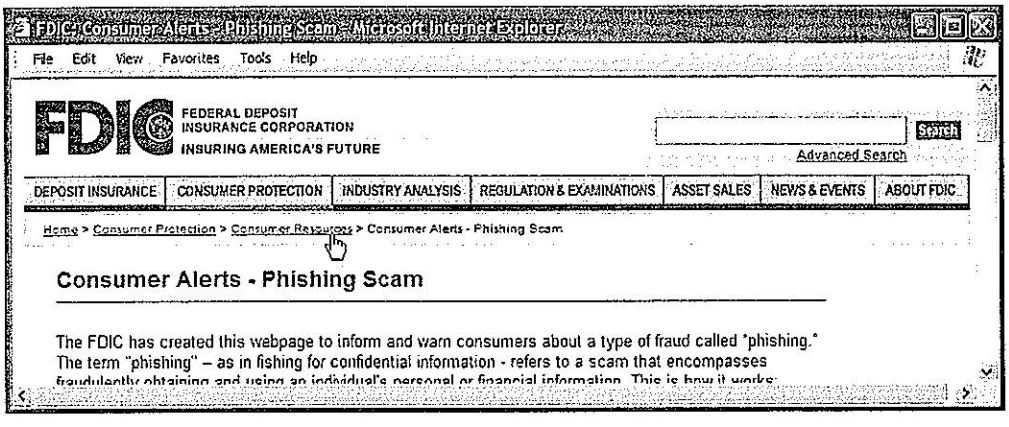


Figure 5.12
Visitors can follow the "breadcrumbs" to retrace their steps through the site

Phishing Scam page currently displayed, the visitor has already viewed the Home, Consumer Protection, and Consumer Alerts pages. Note the breadcrumb navigation at the top of the main content area: Home > Consumer Protection > Consumer Resources > Consumer Alerts-Phishing Scam. Visitors can easily retrace their steps or jump back to a previously viewed page.

Navigation Bars

Clear navigation bars, either graphic- or text-based, make it obvious to Web site users where they are and where they can go next. The site shown in Figure 5.13 includes a vertical text navigation bar down the left side of the page.

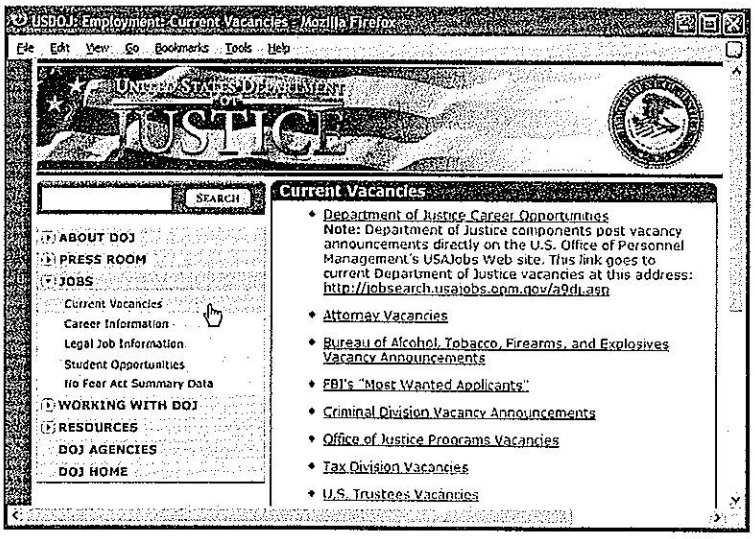


Figure 5.13
Vertical text-based navigation is used at http://www.doj.gov

The display of the Current Vacancies link shown on a contrasting background color, provides a visual cue that the visitor is at that location. The page header and page title also display the text "Current Vacancies." The **navigation bar** indicates other choices available to the Web site visitor.

Sometimes graphics are used to convey navigation, as in the Web site for the Department of Transportation (http://www.dot.gov), as shown in Figure 5.14.

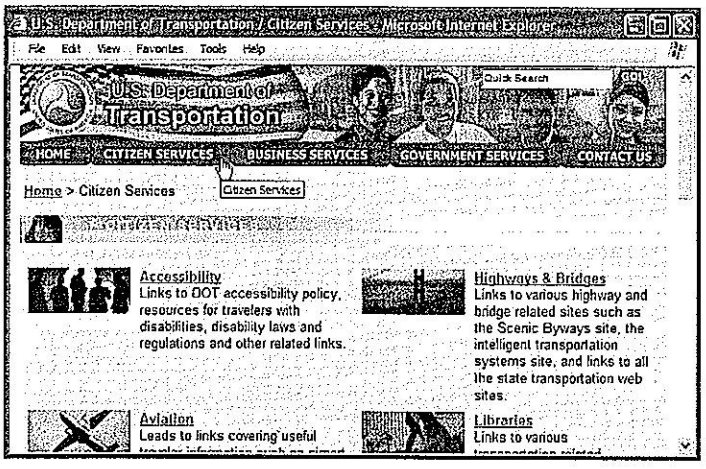


Figure 5.14
The tabs provide horizontal graphics-based navigation

The "text" for the navigation is actually stored in image files. This technique of placing text in navigation images is used to create interactive Web pages. In this case, JavaScript is used to detect when the Web page visitor has placed the mouse over an image of text, which then displays an alternate image. Even though images provide the main navigation of the site, the site is still accessible: a row of text links appear in the footer section of the page (not shown in Figure 5.14) and the image tags are configured with text descriptions using the `alt` attribute. Combinations of text with graphic images can be helpful to your visitors and add visual interest. Figure 5.15 shows a graphical navigation bar at http://www.genome.gov.

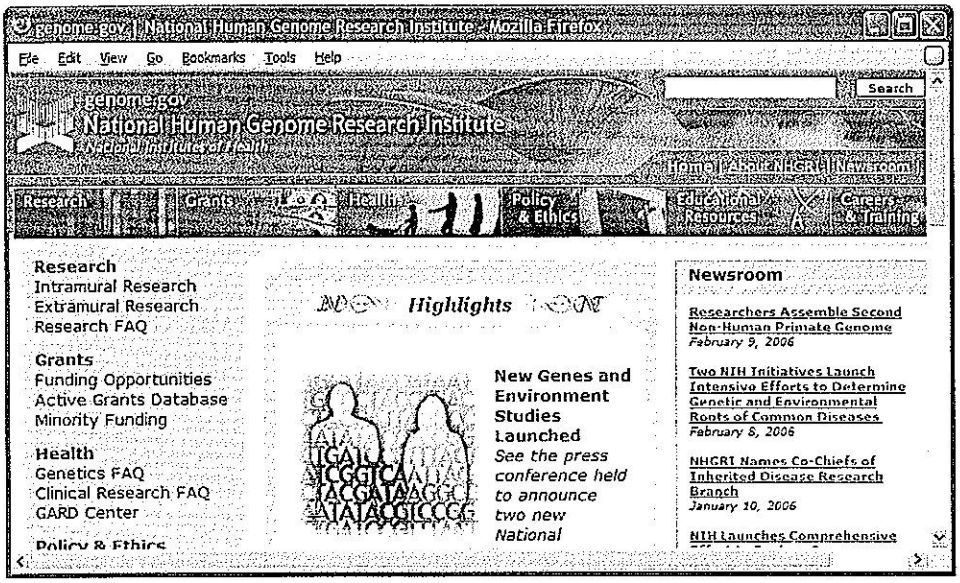


Figure 5.15
The graphical navigation bar adds visual interest

Technologies such as Adobe Flash can be combined with XHTML to create interactive, interesting navigation. See the screenshot in Figure 5.16 of http://www.loc.gov/wiseguide. The designers of this site used Flash to create the dynamic navigation and interactive images.

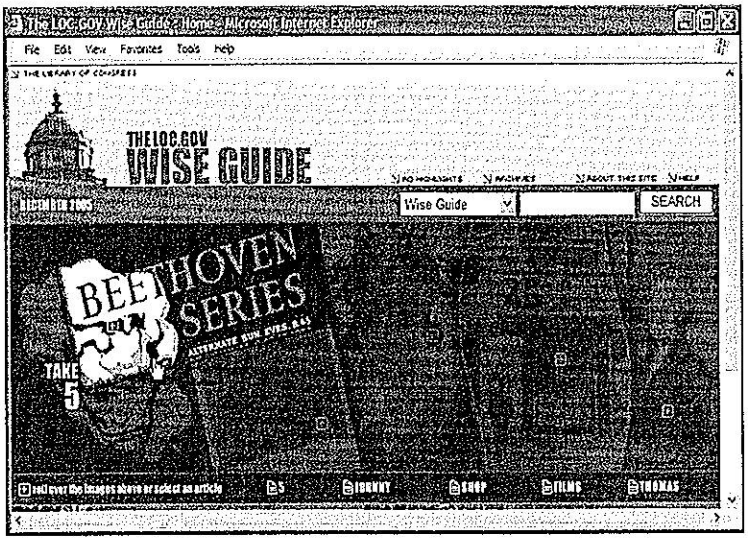


Figure 5.16
Flash navigation

Java applets and Dynamic HTML (DHTML) can also be used to create similar interactive effects. Chapter 11 discusses using these technologies to create interactive Web pages.

In Figure 5.17, Programs has been selected causing the vertical menu to appear. This type of navigation on a large complex site keeps the visitor from feeling overwhelmed by choices. The visitor first chooses a major menu category, and then sees the individual additional choices that can be made.

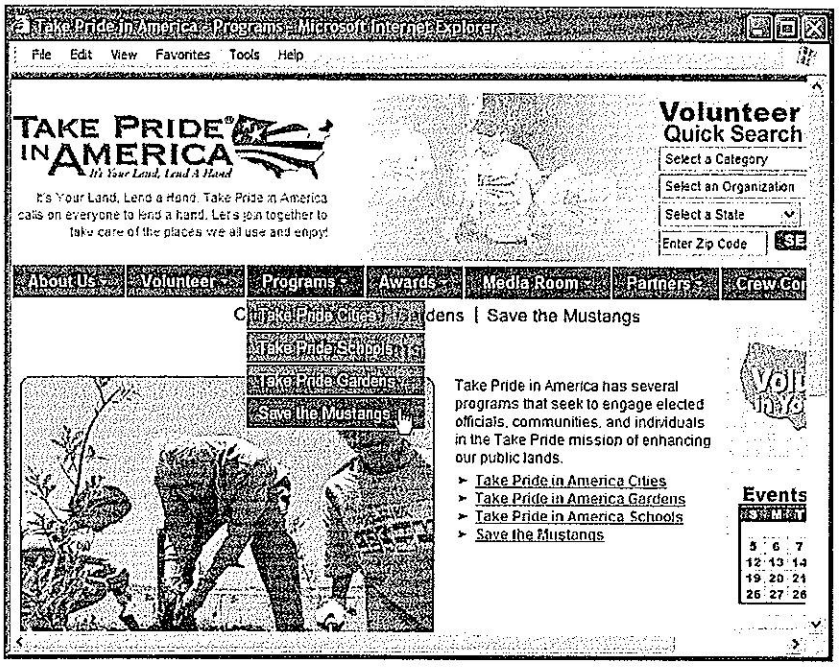


Figure 5.17
The Take Pride in America (http://www.takepride.gov) Web site uses DHTML to create dynamic navigation menus

Short Pages

A Web page is considered long if it is three or more screen lengths. Long pages are usually slow to load. Your visitors are probably only interested in portions of a long page, so consider breaking a long page into multiple short pages—possibly using linear organization to link the ideas.

Table of Contents

When a long Web page must be kept as a single file, a **table of contents** or bulleted list at the top of the page can provide links to specific parts of the page. This will help visitors find exactly what they need. An example of this is the page shown in Figure 5.18. Note the list of questions near the lower right of the page—they all link to corresponding answers at another location on the same page.

Site Map and Site Search Features

The city of San Diego Web site shown in Figure 5.19 has a **site search** and site map on the same page. The site map allows a visitor to scan the contents of the site visually. The search helps visitors find information that is not apparent from the navigation or

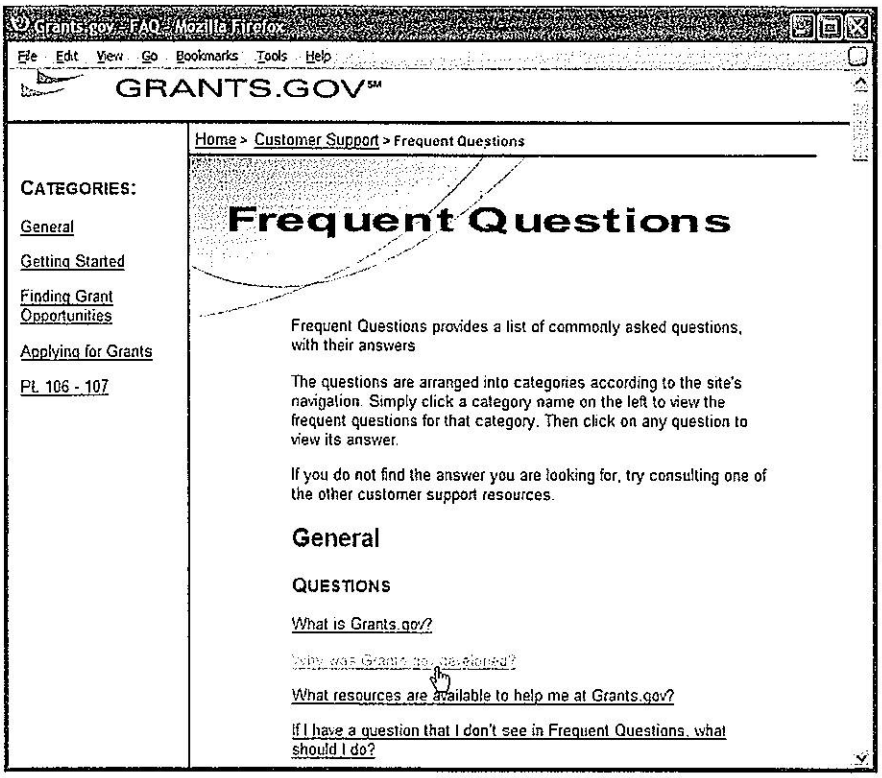


Figure 5.18
A list of FAQ links to answers on the page

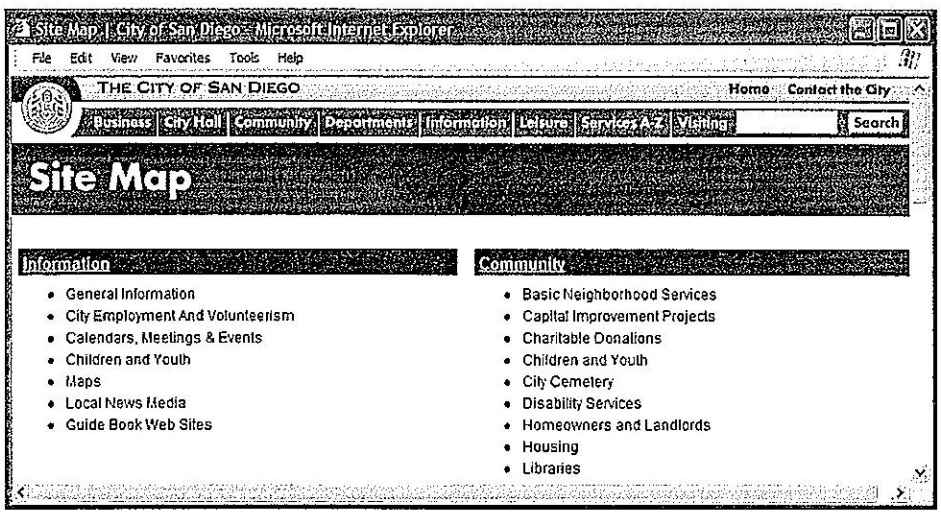


Figure 5.19
This large site offers a site search and a site map to visitors

the site map features. A Web developer could add the `title` attribute to these anchor tags to provide a brief text description.

Commercial site search applications are available, including FreeFind (http://www.freefind.com) and FusionBot (http://www.fusionbot.com), which provide a free service for sites that are under a certain number of pages.

You are now familiar with Web site organization and navigation. The next section continues with a discussion of visual design principles.

5.3 Design Principles

There are four visual design principles that you can apply to the design of just about anything: **repetition, contrast, proximity,** and **alignment.** Whether you are designing a Web page, a button, a logo, a CD cover, a brochure or a software interface—the design principles of repetition, contrast, proximity, and alignment will help to create the "look and feel" of your project and will determine whether your message is effectively communicated.

Repetition: Repeat Visual Elements throughout Design

When applying the principle of repetition, the designer repeats one or more elements through the product. The repeating aspect ties the work together. Figure 5.20 displays the home page of Starbucks (http://www.starbucks.com). The repetition of the square icons with rounded corners helps to unify the navigation area. Page content areas are divided using a number of rounded rectangles—again repeating the shape. Each rounded rectangle uses the same background color. This color is also present in the subtle vertical stripe on the page background. Whether it is color, shape, font, or image, repetition of elements helps to unify a design.

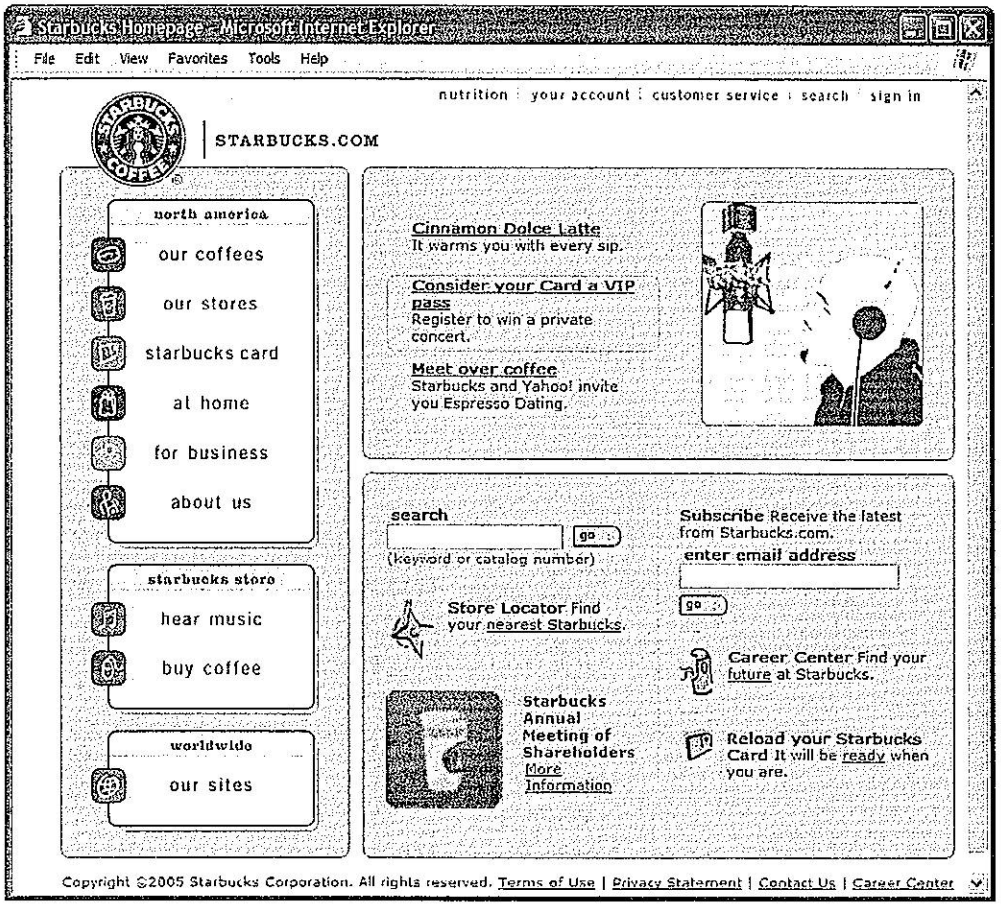


Figure 5.20
The design principles of repetition, contrast, proximity, and alignment are well used on this site

Contrast: Add Visual Excitement and Draw Attention

To apply the principle of contrast, the designer should make elements very different (add contrast) in order to make the design interesting and direct attention. When designing Web pages, there should be good contrast between the background color and the text. Notice how the navigation area in Figure 5.20 pops out of the upper-left rounded rectangle due to the contrast change in background color. The Starbucks site uses dark text on a medium or light background to provide good visual contrast and easy reading.

Proximity: Group-Related Items

When designers apply the principle of proximity, related items are placed physically close together. Unrelated items should have space separating them. The placing of interface items close together gives visual clues to the logical organization of the information or functionality. In Figure 5.20, the vertical navigation links are all placed in close proximity to each other. This creates a visual group on the page and makes the navigation easier to use. Notice the proximity of the account and shopping cart related links in the top right corner of the page. Proximity is used well on this page to group related elements.

Alignment: Align Elements to Create Visual Unity

Another principle that helps to create a cohesive Web page is alignment. When applying this principle, the designer organizes the page so that each element placed has some alignment (vertical or horizontal) with another element on the page. The Starbucks page shown in Figure 5.20 also applies this principle. Notice how the rounded rectangles are aligned with each other. Within each rounded rectangle, alignment is again used—the vertical navigation links, the placement of the content links/descriptions in the upper-right rounded rectangle, and the two columns of site-related links in the lower-right rounded rectangle. Notice also the horizontal alignment of the links in the top right side of the page. Good alignment is used throughout the Starbucks home page.

Repetition, contrast, proximity, and alignment are four principles that can greatly improve your Web page designs. If you apply these principles effectively, your Web pages will look more professional and you will communicate your message more clearly. Keep these visual design principles in mind as you explore recommended Web site design practices related to page layout, text, graphic, and accessibility in the next section.

5.4 Web Page Design—Best Practices

The major components of Web page design are as follows:

- Page layout design
- Text design

- Graphic design
- Accessibility considerations

Web sites that look great and are easy to use don't happen by accident. Outstanding Web sites are carefully planned and created by using recommended design practices. (They also require a little bit of talent!) There are a number of factors to consider when designing a Web page. Some factors relate to the usability, accessibility, and appeal of the site to the target audience—use of color, text, graphics, and animations. Other factors relate to the medium of the Web itself—load time issues, browser support, and monitor screen resolution.

Load Time

The last thing you want to happen is for your visitors to leave your page before it has even finished loading! Make sure your pages load as quickly as possible. How long do you generally wait for a page to load? Many Web page visitors will not wait more than several seconds. It's a good practice to limit the total file size of a Web page and all of its associated images and media files to under 60KB. It takes about eight seconds at 56KB for a browser to display a Web page and associated files of 60KB.

According to a recent study by the PEW Internet and American Life Project http://www.pewinternet.org/PPF/r/184/report_display.asp, the percentage of U.S. Internet users with a broadband (cable, DSL, and so on) connection at home or at work is rising. Forty-two percent of adult Americans have access to broadband at home. Even with the trend of increasing bandwidth available to your visitors, keep in mind that approximately one-half of households do not have broadband Internet access. For the most up-to-date statistics, visit http://www.pewinternet.org and http://www.clickz.com.

The 60KB per page limit is a guideline—it's better if the file size of your home page and associated media files is smaller. Go over the limit for content pages only when you are sure your visitors will be interested enough to wait to see what your site is presenting. The chart shown in Figure 5.21 compares file sizes and connection speed download times.

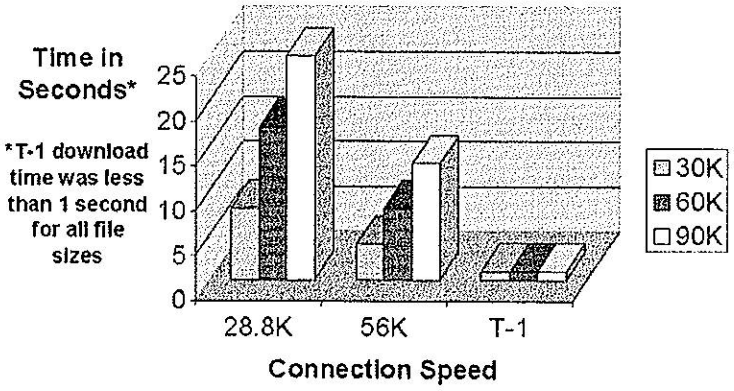


Figure 5.21
File size download times and Internet connection speeds

One method to help determine if the load time of your page is acceptable is to view the size of your Web site files in Windows Explorer. Calculate the total file size of your Web page plus all its associated images and media. If the total file size for a single page and

its associated files is over 60KB, take a closer look at your design. Consider if you really need to use all the images to convey your message. Perhaps the images can be better optimized for the Web or the content of the page should be divided into multiple pages. This is a time for some decision making!

Popular Web authoring tools such as Microsoft Expression Web and Adobe Dreamweaver will calculate load time at various transmission speeds.

Perceived Load Time

Perceived load time is the amount of time a Web page visitor is aware of waiting while your page is loading. Since visitors often leave a Web site if a page takes too long to load, it is important to shorten their perception of waiting. A common technique is to shorten the perceived loading time by breaking the long page into multiple smaller pages using the methods described earlier. This might even aid in the organization of your Web site.

Web pages containing large graphics may appear to load very slowly. Image slicing—dividing or slicing large images into multiple smaller images (see Chapter 4), divides large images into several smaller graphics. Since each graphic displays as it loads, the perceived load time is shorter than it is for a single large graphic. Even though the total download time is about the same, the visitor sees the browser window changing and perceives the wait as being shorter.

Above the Fold

Placing important information **above the fold** is a technique borrowed from the newspaper industry. When newspapers are placed on counters and in vending machines waiting to be sold, the portion above the fold in the page is viewable. Publishers noticed that more papers were sold when the most important, attention-getting information was placed in this location. You may use this technique to attract and keep visitors on your Web pages. Arrange interesting content above the fold—the area the visitor sees before scrolling down the page. At a commonly used screen resolution, 800 pixels wide by 600 pixels high, the amount of screen viewable above the fold (after accounting for Web browser menus and controls) is about 410 pixels.

Web Page "Real Estate"

There is a saying in the real estate field that the three most important factors about a property are location, location, and location. The Web page location you choose for high-profile components such as logo banners, page headings, and navigation is also important. Web page visitor eye tracking studies reported by The Poynter Institute (http://www.poynterextra.org/eyetrack2004/main.htm) indicate that "eyes most often fixated first in the upper-left of the page, then hovered in that area before going left to right." This makes the most valuable Web page "real estate" the upper-left side and top center of the page. Avoid placing important information and navigation on the far right side—this area may not be initially displayed by browsers at some screen resolutions.

Horizontal Scrolling

In order to make it easy for Web page visitors to view and use your Web pages, avoid creating pages that are too wide to be displayed in the browser window. These pages require the user to scroll horizontally. Using a common screen resolution, 800 pixels wide by 600 pixels high, the amount of viewable screen (after accounting for area used by the Web browser) is about 760 pixels. An easy way to make sure your page will not require **horizontal scrolling** is to place the page contents in a layout table that uses a percentage width of 100 percent or less. Another method is to use a fixed table width set to 760 pixels or less. If you expect your pages to be printed often, set the width to 560 or less pixels.

Adequate White Space

This term **white space** is also borrowed from the publishing industry. Placing blank or white space (because paper is usually white) in areas around blocks of text increases the readability of the page. Placing white space around graphics helps them to stand out. Allow for some blank space between blocks of text and images. How much is adequate? It depends—experiment until the page is likely to look appealing to your target audience.

Target Audience

Use of Color. Younger audiences, such as children and preteens, prefer bright, lively colors. The United States Mint's Site for Kids home page (http://usmint.gov/kids/) shown in Figure 5.22 (shown also in the color insert section), features bright graphics, lots of color, and interactivity.

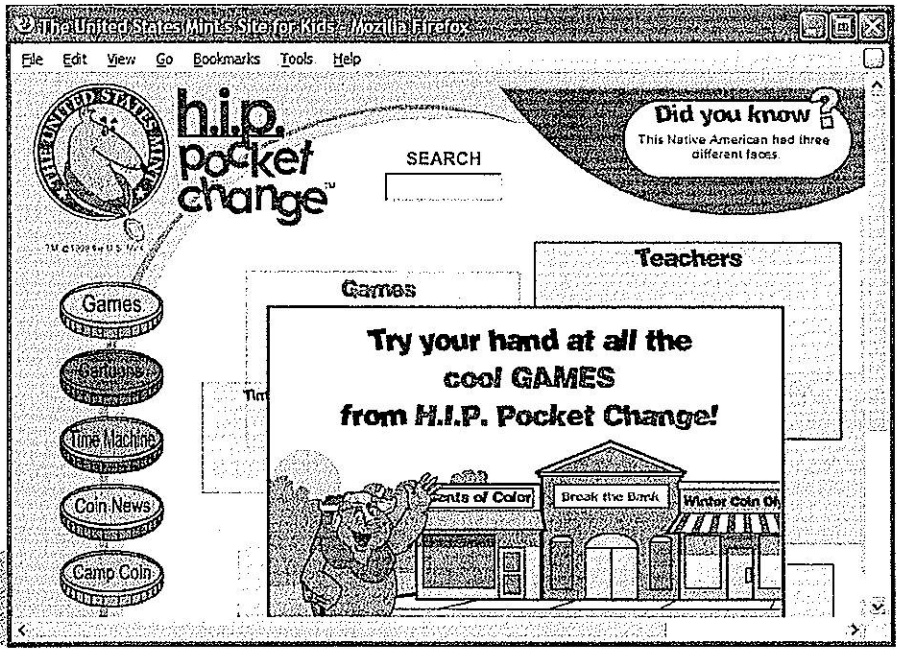


Figure 5.22
A typical site for children

See the center color insert

Individuals in their late teens and early twenties generally prefer dark background colors with occasional use of bright contrast, music, and dynamic navigation. Figure 5.23 (shown also in the color insert section) shows http://www.cnccz.com, a gaming Web site designed for this age group.

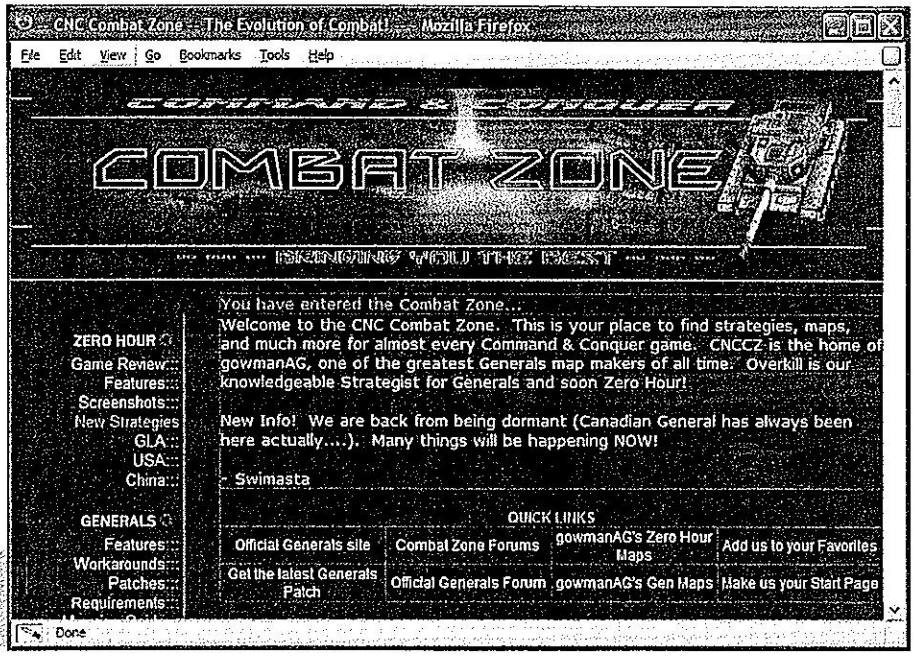


Figure 5.23
Many teens and young adults find dark sites appealing

See the center color insert

Note how it has a completely different look and feel from the site designed for children.

If your goal is to appeal to everyone, follow the example of the popular Amazon.com and eBay.com Web sites in their use of color. These sites use a neutral white background with splashes of color to add interest and highlight page areas. Use of white as a background color was also reported by Jakob Nielsen and Marie Tahir in Homepage Usability: 50 Websites Deconstructed, a book that analyzed 50 top Web sites. According to this study, 84 percent of the sites used white as the background color and 72 percent used black as the text color. This maximized the contrast between text and background—providing maximum readability.

For an older target audience, light backgrounds, well-defined images, and large text are appropriate. The screenshot of the http://www.drs.wa.gov shown in Figure 5.24 (shown also in the color insert section) is an example of a site intended for the over 50 group.

Focus on Accessibility

Another issue related to color is the fact that many individuals experience color deficiency (color blindness). The inability to differentiate between red and green, called deuteranopia, is the most common type of color deficiency. To increase the accessibility of Web pages for these individuals, a Web designer can use high contrast between background and text. The choice of colors is important—avoid using red, green, brown, gray, or purple next to each other. White, black, and shades of blue and yellow are easier for these individuals to differentiate. To see what your pages look like to a person with color blindness, try the online simulator at http://www.vischeck.com/vischeck/.

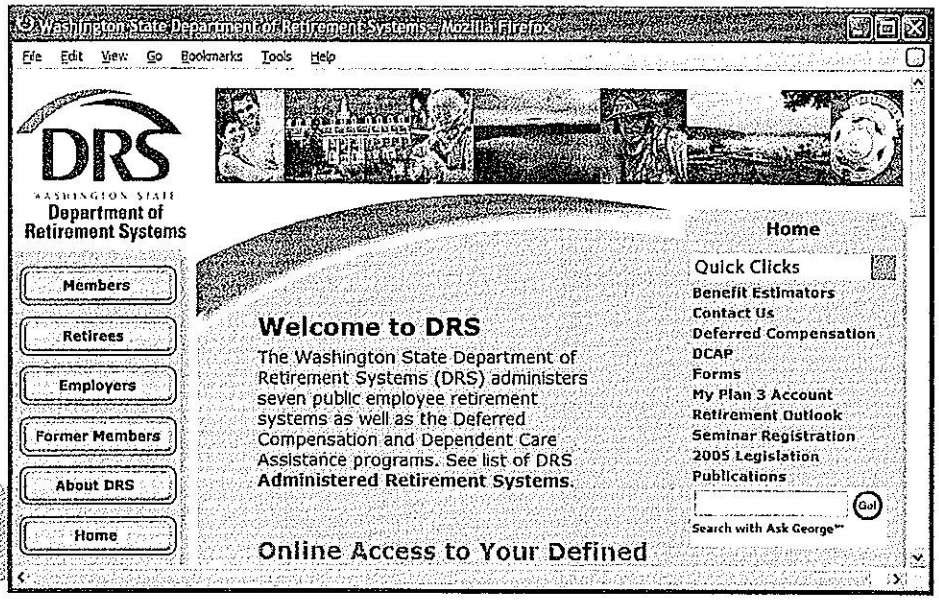


Figure 5.24
A site designed specifically for the 50 and over age range

See the center color insert.

Reading Level. Match the reading level and style of writing to your target audience. Use vocabulary that they will be comfortable with.

Animation. Use animation only if it adds to your site. Don't include an animated GIF just because you have one. In general, animation appeals more to younger audiences than to older audiences. The United States Mint's Site for Kids (Figure 5.22) is geared to children and uses lots of animation. This would be too much animation for a Web site targeted to adult shoppers. However, a well-done navigation animation or an animation that describes a product could be appealing to almost any target group. Adobe Flash is frequently used on the Web to add animation to Web pages and even to create entire animated Web sites.

FAQ

Which browser is everyone using?

A recent survey by Janco Associates' IT Productivity Center (http://www.itproductivity.org/browser.htm) indicates that while Microsoft's Internet Explorer is still the most popular Web browser, the Firefox open source browser has been gaining ground. The survey reports that 64 percent of users use Internet Explorer and 17 percent use Firefox (http://www.mozilla.org/products/firefox/). However, even though Internet Explorer seems to have the market cornered, it is still important to test your site in the major browsers (and versions). You never know which browser your next client will favor!

If you are developing for an intranet, ask what browser (and version) is installed at the organization. If you are developing for a client, ask what browser he or she regularly uses.

Browser-Friendly

Just because your Web page looks great in your favorite browser, doesn't automatically mean that all browsers will render it well. Determine the browser most likely to be used

by your target audience. A good source of statistics is http://www.thecounter.com/stats. Develop the site so that it looks great in your target audience's most popular browser and looks acceptable (degrades gracefully) in other browsers. Visit http://www.upsdell.com/BrowserNews/ for timely information about current browsers.

Always try to test your pages in the most popular versions of browsers and in the newest versions. At the time of this writing, these are Firefox 2, Internet Explorer 7, Safari (both Mac and Windows versions), Opera 9, and Netscape 9. While it is possible to install multiple versions of Netscape on the same computer, dual installs cannot easily be done with Internet Explorer. Unless you have multiple computers to work with, test with the most popular version of Internet Explorer. If you can, it is also a good idea to test your pages on both the Mac and PC platforms.

Large information technology departments and Web design firms will dedicate a number of computers with various operating systems and browser versions for compatibility testing. Many Web page components, including default text size and default margin size, are different among browsers, browser versions, and operating systems.

Screen Resolution

Most users have their monitors configured for 1024×768, 1280×1024, or 800×600 screen resolution. You should design your page to avoid horizontal scrolling at these resolutions. Higher resolutions are becoming more popular. However, depending on your target audience, you still may have some visitors using 640×480 screen resolution! One way to create a page that looks good in multiple screen resolutions is to center the entire page. A code sample follows:

```
<html>
<head>
... header section of Web page document
</head>
<body>
  <div style="text-align: center">
  ... page content goes here
  </div>
</body>
</html>
```

FAQ

Which screen resolution is everyone using?

A recent survey by The Counter (http://www.thecounter.com) about Web visitors for sites monitored by their service reported 1024×768 is currently the most popular screen resolution. Of visitors surveyed, 51 percent use 1024×768, 25 percent use 1280×1024, 11 percent use 800×600, 3 percent use 1152×864, and less than 1 percent use 640×480.

Wireframes and Page Layout

A wireframe is a sketch or blueprint of a Web page that shows the structure (but not the detailed design) of basic page elements such as the logo, navigation, content, and

footer. Depending on the purpose of a particular Web site, the wireframe may incorporate additional components including pull quotes, news items, and interactive features such as a login or search function. Wireframes are used as part of the design process to experiment with various page layouts, develop the structure and navigation of the site, and provide a basis for communication among project members. Figures 5.25 through 5.27 can be considered very basic wireframes. See the textbook website at http://www.webdevfoundations.net/4e/chapter5.html, for more detailed examples.

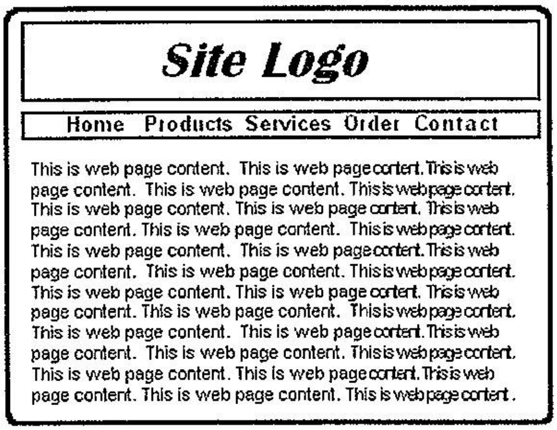


Figure 5.25
An adequate page layout

Figures 5.25, 5.26, and 5.27 show diagrams of three possible Web page layouts. Note that the exact content (text, images, logo, and navigation) does not need to be placed in the diagram in order to illustrate this concept. The page area where the content will appear is indicated. This type of sketch, called a wireframe, can be used to experiment with page structures and find the one that will work best for a site. Figure 5.25 shows a diagram of a Web page with a logo, navigation area, and content area.

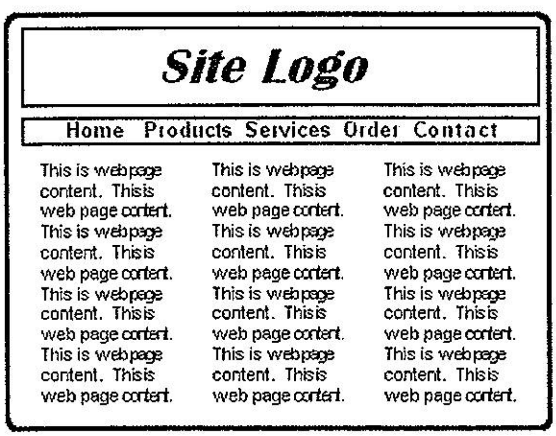


Figure 5.26
The columns make this page layout more interesting

This layout is adequate and may be appropriate for some content, but it's not very interesting. Figure 5.26 shows a diagram of a Web page containing the same content, but formatted in three-columns.

This is an improvement, but something is still missing. Figure 5.27 shows a diagram of the same content but formatted in three columns of varying widths, with graphics interspersed.

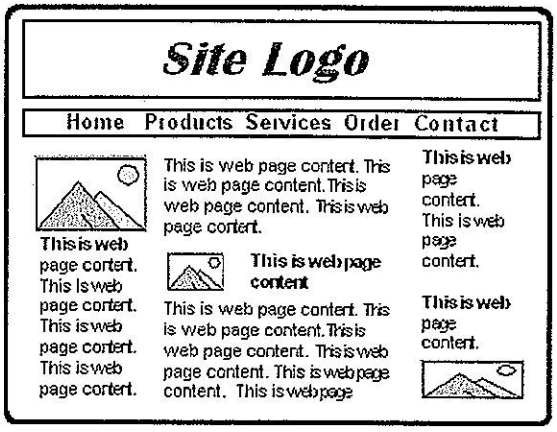


Figure 5.27
This page layout uses images and columns of varied widths

This is the most interesting page layout of the three. Notice how images and tables make the same content more appealing. Try using this concept when designing your pages. In Chapters 6 and 7 you'll learn how to use CSS to configure Web pages with multiple columns.

Often the page layout (sometimes called a storyboard) for the home page is different from the page layout used for the content pages. Even when this is the case, a consistent logo and color scheme will produce a more cohesive Web site. Using style sheets to create interesting page layouts can keep visitors interested in your Web site. Web authoring tools such as Microsoft Expression Web and Adobe Dreamweaver offer templates and example sites to assist you with layout ideas.

5.5 Page Layout Design Techniques

Now that you have been introduced to Web page design best practices and page layout, it's time to consider three popular techniques of Web page layout design: ice, jello, and liquid.

Ice Design

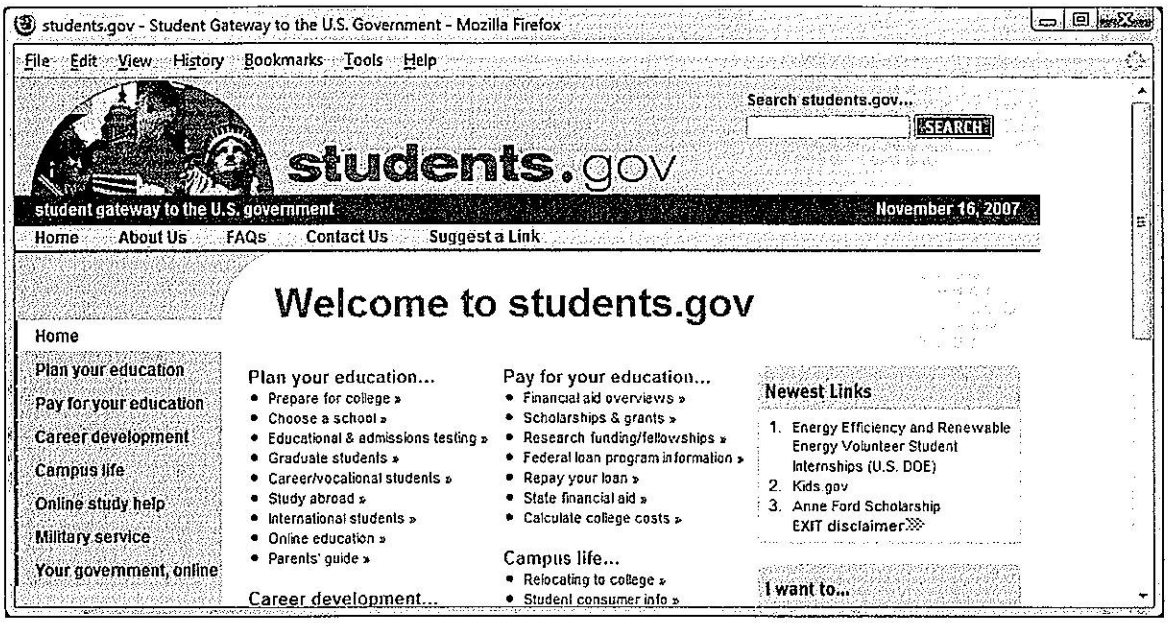
The ice design technique is sometimes referred to as a solid or fixed design. The page hugs the left margin and generally either CSS is used to configure a fixed-width block-level element or an XHTML table (see Chapter 8) is used to format the page. A CSS style rule is shown below that configures an id named `wrapper` in this manner.

```
#wrapper { width: 700px; }
```

Due to the fixed width, the designer has much control over the layout and formatting—configuring the page to look best at a certain screen resolution (often 800×600) and degrade gracefully when other screen resolutions are used. The right-hand side of the browser window will often contain much empty space—especially at higher screen resolutions.

The students.gov site (http://www.students.gov), shown in Figure 5.28, is an example of ice design. This particular page is formatted with one or more fixed width tables. Other sites that currently use this technique include http://www.cabelas.com and http://www.league.org.

Figure 5.28
This page is configured with a fixed width and demonstrates ice design



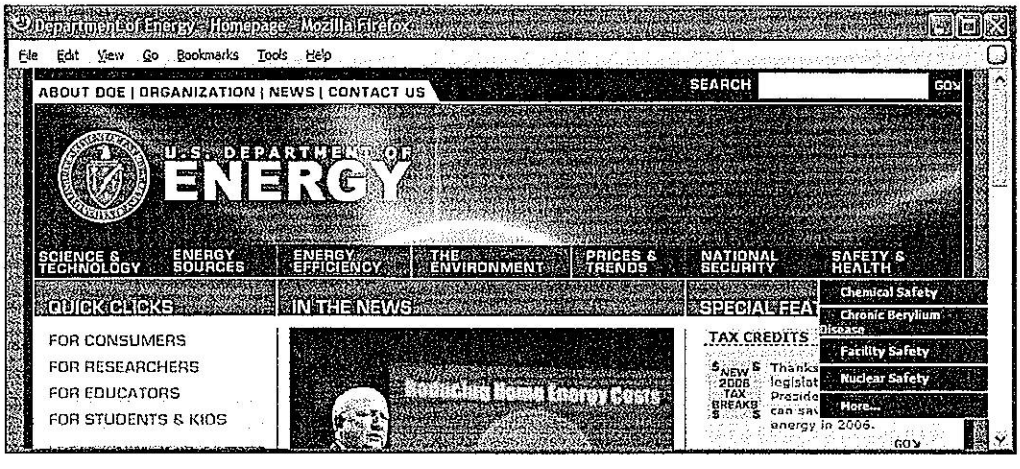
Jello Design

The jello design technique configures content that is centered and may be of a fixed width or a percentage width such as 80 percent. A CSS style rule that configures an id named `wrapper` in this manner follows:

```
#wrapper { width: 80%;
           margin-left: auto;
           margin-right: auto;
}
```

Jello design pages typically are more pleasing to view at higher screen resolutions than ice design pages. No matter the screen resolution, the content is centered in the page with even margins on both sides. The Department of Energy site (http://energy.gov), as shown in Figure 5.29, uses jello design. Other sites currently using this technique include http://www.pbs.org and http://www.officedepot.com.

Figure 5.29
The left and right margins are balanced on this page using jello design



Liquid Design

The **liquid design** technique results in a fluid Web page with content that takes up 100 percent of the browser window regardless of the screen resolution. There is no blank margin on the left or right—the multicolumn content will flow to fill whatever size window is used to display it. This type of design can be created with CSS or with XHTML using a table with width set to 100 percent (see Chapter 8). Figure 5.30 shows a page from the State of Illinois site at http://www.illinois.gov/tech/. Other sites currently using this technique include http://www.amazon.com and http://moodle.org.

Figure 5.30
This page uses liquid design to adjust content to fill the browser window

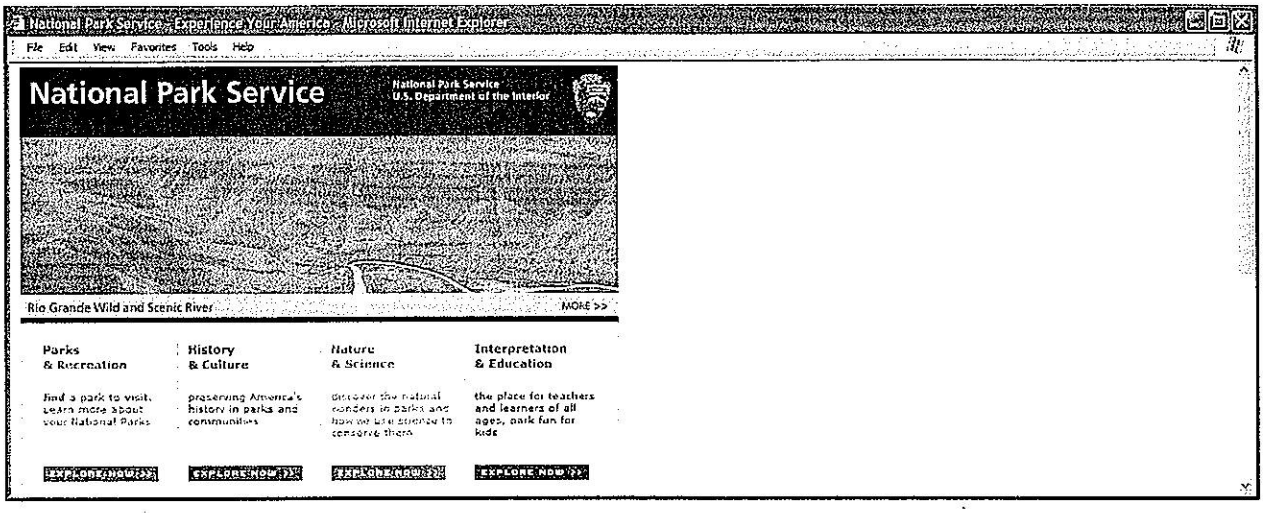
Digital Web (http://digital-web.com), an online magazine, uses liquid design to position the elements on the page. Using CSS instead of a table to configure Web page layout has a number of advantages, including smaller Web page document file sizes, quicker loading pages, and more accessible pages that are easier for screen readers to access. The home page of the NSA, as shown in Figure 5.31, uses CSS to configure the page layout.

Figure 5.31
This page is configured using CSS

Sites designed using ice, jello, and liquid techniques can be found throughout the Web. Ice and jello designs using a fixed-width layout provide the Web developer the most control over the page configuration but result in pages with large empty areas when viewed at higher screen resolutions.

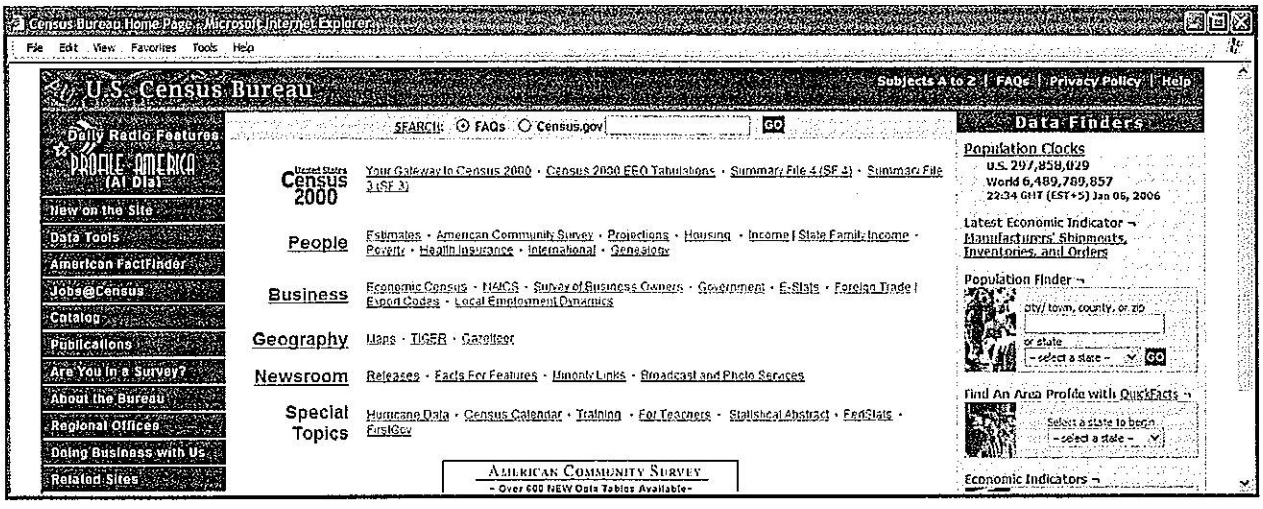
Figure 5.32 shows the National Park Service (http://nps.gov) site viewed using 1280×1024 screen resolution. Note how more than one-third of the browser window is empty. Liquid design avoids this awkwardness and takes advantage of the entire browser window.

Figure 5.32
At 1280×1024 resolution the right side of this page is empty

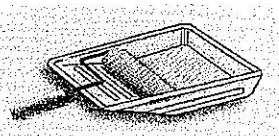


See the liquid-designed Census Bureau (http://www.census.gov) site using 1280×1024 screen resolution in Figure 5.33—the site still fills the browser window. Since liquid design pages are intended to stretch, it's very important to test pages using this technique at various screen resolutions.

Figure 5.33
This page stretches to fill the browser window—even at 1280×1024 resolution



Ice, jello, and liquid designs using CSS for page layout can be displayed on most browsers used today. Be aware that older browsers, such as Netscape 4.x, do not support CSS used for positioning and will not display your site as you intend. Keep the preferences of your target audience in mind as you make design choices.



CHECKPOINT 5.1

1. List the four basic principles of design. View the home page of your school and describe how each principle is applied.
2. View http://www.walmart.com, http://www.mugglenet.com/, and http://www.sesameworkshop.org/sesamestreet/. Describe the target audience for each site. How do their designs differ? Do the sites meet the needs of their target audiences?
3. View your favorite Web site (or a URL provided by your instructor). Maximize and resize the browser window. Decide whether the site uses ice, jello, or liquid design. Adjust the screen resolution on your monitor (Start, Control Panel, Display, Settings) to a different resolution than you normally use. Does the site look similar or very different? List two recommendations for improving the design of the site.

5.6 Text Design—Best Practices

Long blocks of text and long paragraphs are difficult to read on the Web. Use the text equivalent of sound bytes—short sentences and phrases. It's important to be concise. Bulleted lists stand out on the page and are easily read. Long-winded sentences and explanations are often found in academic textbooks and romance novels, but they really are not appropriate on a Web page.

You may be wondering how to know if a page is easy to read. The following are some suggestions that will help increase the readability of your pages:

- Use common fonts such as Arial, Verdana, or Times New Roman. Remember that the Web page visitor must have the font installed on his/her computer in order for that particular font to appear. Your page may look great with Gill Sans Ultra Bold Condensed, but if your visitor doesn't have the font, the browser's default font will be displayed.
- Serif fonts, such as Times New Roman, were originally developed for printing text on paper—not for displaying text on a computer monitor. Research shows that sans serif fonts, such as Arial, are easier to read than serif fonts when displayed on a computer screen (see http://www.alexpoole.info/academic/literaturereview.html or http://www.wilsonweb.com/wmt6/html-email-fonts.htm for details). The sans serif Verdana font, designed by Microsoft specifically for display on a computer screen, may be more readable than Arial due to the increased width and openness of the letters.
- Be careful with the size of the fonts—12 point font size is the same as "Medium" size and is the same as `1 em`. Be aware that fonts display smaller on a Mac than on a PC. Even within the PC platform, the default font size for Netscape is larger than the default font size for Internet Explorer. Consider creating prototype pages of your font size settings to test on a variety of browsers and screen resolution settings.

- Use appropriate color combinations. Students often choose color combinations for Web pages that they would never dream of using in their wardrobe. An easy way to choose colors that contrast well and look good together is to select colors from an image or logo you will use for your site. Make sure your page background color properly contrasts with your text and hyperlink colors. Refer to Chapter 3 for additional color scheme ideas.
- Be aware of line length and alignment—use white space and multiple columns if possible. Review Figures 5.24, 5.25, and 5.26 for examples of text placement on a Web page.
- Bold (use the `<strong>` element) or emphasize (use the `<em>` element) important text.
- Hyperlink keywords or phrases—do not hyperlink entire sentences.
- Avoid the use of the words "click here"—users know what to do by now.

Finally, check spelling and grammar. Many Web sites every day contain misspelled words. Most Web authoring tools have built-in spell checkers; consider using this feature. Also, be sure that you proofread and test your site thoroughly. It is very helpful if you can find Web developer buddies—you check their sites and they check yours. It's always easier to see someone else's mistake than your own.

5.7 Graphic Design—Best Practices

Chapter 4 discussed the use of graphics on Web pages. This section summarizes and adds to the recommended practices discussed in that chapter.

- Choose colors on the Web Color Palette. If you would like your site to look consistent when displayed on various monitors using various computer platforms, choose from the 216 colors on the Web Color Palette.
- Use antialiased text in images. Antialiasing introduces intermediate colors to smooth jagged edges in digital images. Graphic applications such as Adobe Photoshop and Adobe Fireworks can be used to create antialiased text images. The graphic shown in Figure 5.34 was created using antialiasing.

Figure 5.34
Antialiased text

Figure 5.35 contains an image that did not use antialiasing; note the jagged edges.

Figure 5.35
This graphic has a jagged look and was not saved using antialiasing

The only letters not affected are the i and I because the edges of these letters are perfectly horizontal and vertical.

- Use only necessary images. Don't use extra images, just because you have them. Oh, by the way, isn't my dog (see Figure 5.36) cute?

Figure 5.36
This is Sparky—but do you really need to see a picture of my dog in this book? Use necessary images only.

- Keep images as small as possible. Try to display only exactly what is needed to get your point across. Use a graphic application to crop an image or create a thumbnail image that links to a larger version of the image.
- Make sure the site is usable if images are not displayed. If a Web page visitor is using an assistive technology, such as screen reader, he or she will not see your images but will still want to navigate through your Web site. If your main navigation uses images, DHTML, Flash, or other interactive technologies, place a plain text navigation bar at the bottom of each page. The Studentjobs.gov Web site, http://www.studentjobs.gov/, shown in Figure 5.37, uses this technique.

Focus on Accessibility

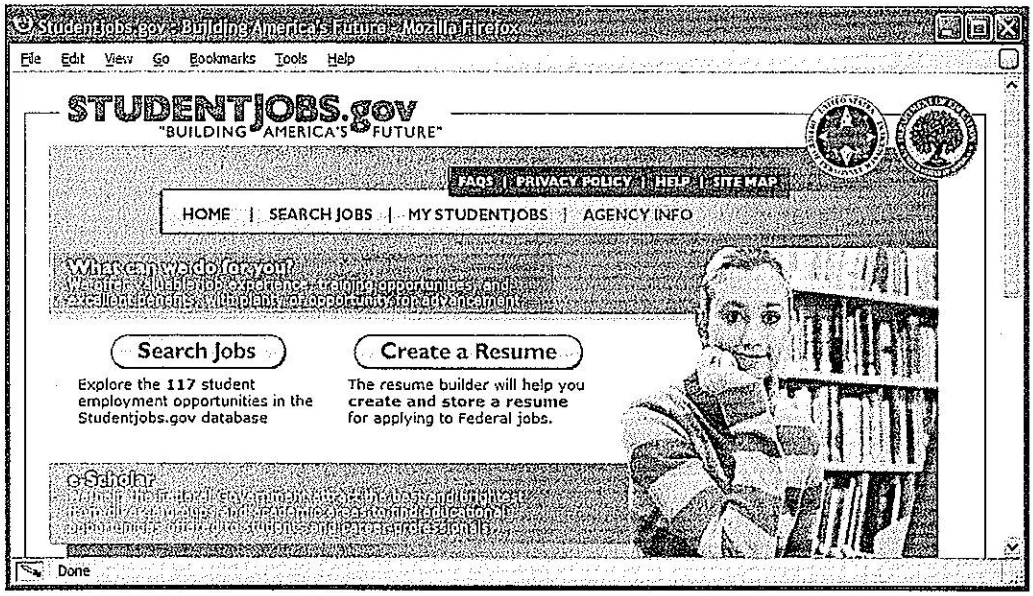
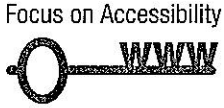


Figure 5.37
Scrolling to the bottom of this page will display simple text links, which provide accessibility

Image links are used for the main navigation in the upper-left column on the page. There are plain text links to the main site categories at the bottom of the page. These text links provide for accessibility.

Focus on Accessibility



It is also a good idea to include text descriptions of important concepts or key points that your site is trying to communicate. Don't rely on images alone—some individuals

may not be able to see them—they may have set their browser not to display images or use an assistive technology such as a screen reader to visit your page.

- Use alternate text for images. Place the `alt` attribute with descriptive text on each `<img />` tag. (See Chapter 4 for a discussion of the `<img />` tag and use of the `alt` attribute.)
- Limit the use of animated items. Only use animation if it makes the page more effective. Consider limiting how long an animation plays.
- Create a text only version of the page. If there are a large number of images, or the images are integral to your content, consider creating an alternate version of the page that contains text only. Keep in mind that this means double maintenance for all future page modifications. Figure 5.38 displays both the standard and text-only versions of the U.S Fish & Wildlife Service Birds page, http://www.fws.gov/birds/.

Figure 5.38
The standard page provides a link to the text-only version

Focus on Accessibility

- Provide a method to skip repetitive navigation links. It is easy for visitors without vision and mobility challenges to scan a Web page and quickly focus on the page content. However, long, repetitive navigation bars quickly become tedious to access when utilizing a screen reader or a keyboard to visit a Web page. Consider adding a Skip Navigation or Skip to Content hyperlink before your main navigation bar that links to a named anchor (see Chapter 7, Internal Links) at the beginning of the content section of your page. The Department of Transportation site, as shown in Figure 5.14, uses a transparent image link to provide this feature. Since the image is "invisible," visitors using a graphical browser are not even aware of the additional functionality.

Figure 5.39 shows comparison screenshots of the page when viewed with Internet Explorer and Firefox's Web Developer extension (available at https://addons.mozilla.org/extensions/moreinfo.php?id=60) to display image `alt`

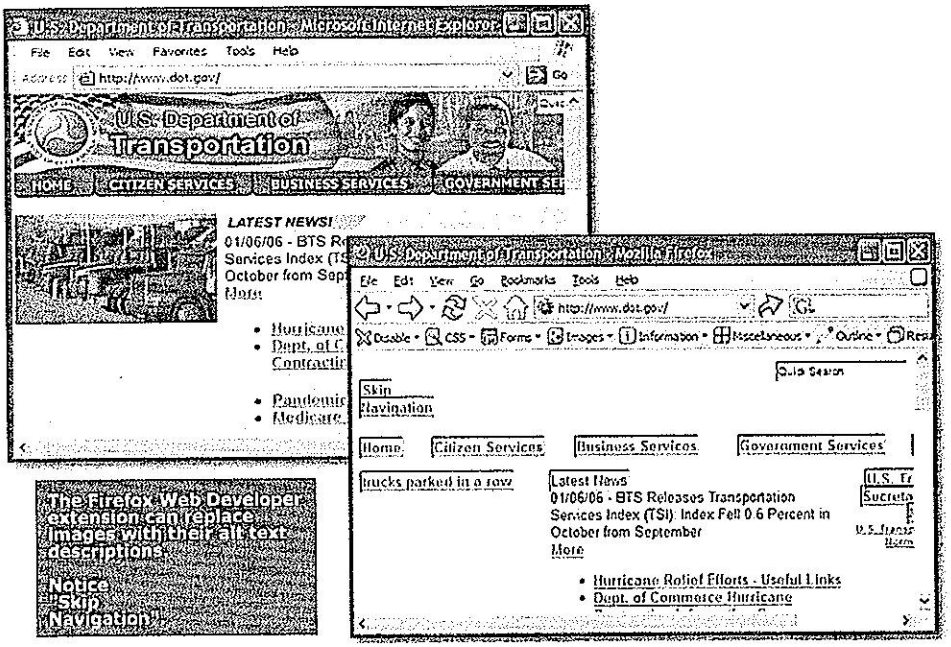


Figure 5.39
The Firefox Web Developer extension can display the text descriptions of each image

attribute text instead of images. Notice the Skip Navigation alternate text displayed in the upper-left-hand corner—convenient for visitors using screen readers or nongraphical browsers.

Figure 5.40 shows another way to implement this feature. Notice the subtle Skip Navigation link in the upper-right side of the Web page. Other Web sites, such as http://studentjobs.gov, provide this functionality using a text link the same color as the page background.

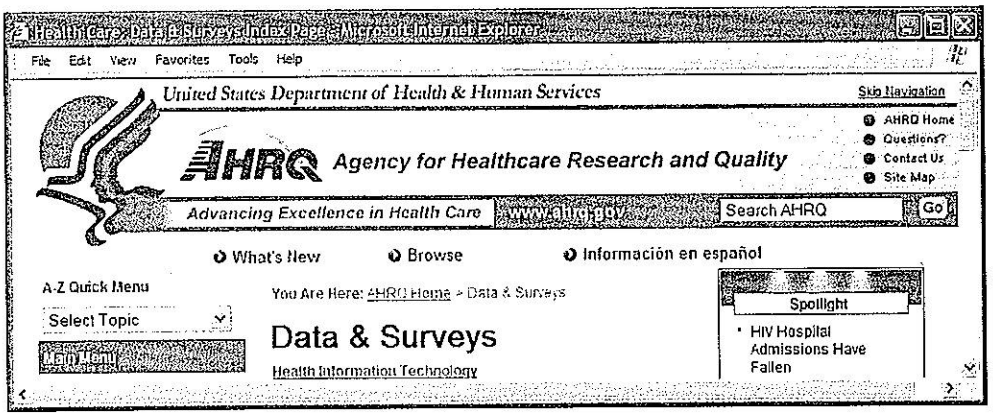


Figure 5.40
The Skip Navigation link is subtle

5.8 Design to Provide Accessibility

Focus on Accessibility

WWW

Vinton Cerf, the coinventor of TCP/IP and the former chairman of the Internet Society, proclaimed that "The Internet is for everyone" (see http://www.isoc.org/isoc/media/speeches/foreveryone.shtml). Tim Berners-Lee, the inventor of the World Wide Web, states that "The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect" (see http://www.w3.org/WAI/).

Who benefits from increased accessibility? Consider the following scenarios:

- Maria, a young woman in her twenties with physical challenges who cannot manipulate a mouse and who uses a keyboard with much effort
- Leotis, a college student who is deaf and wants to be a Web developer
- Jim, a middle-aged man who has a dial-up Internet connection and is using the Web for personal enjoyment
- Nadine, a mature woman with age-related macular degeneration who has difficulty reading small print
- Karen, a college student using a different type of user-agent, such as a cell phone, to access the Web
- Prakesh, a man in his thirties who is legally blind and needs access to the Web to do his job

All these individuals benefit from Web pages designed with accessibility in mind. A Web page that is designed to be accessible is typically more usable for all—even a person who has no physical challenges and is using a broadband connection benefits from the improved presentation and organization of a well-designed Web page.

The Internet and Web are such a pervasive part of our culture that accessibility is protected by laws in the United States. Section 508 of the Rehabilitation Act requires electronic and information technology, including Web pages, used by federal agencies to be accessible to people with disabilities.

The accessibility recommendations presented in this text are intended to satisfy the Section 508 standards and the W3C Web Accessibility Initiative guidelines See http://www.access-board.gov/sec508/guide/1194.22.htm for an informative, descriptive list of the Section 508 Standards for Web pages (Web-based intranet and Internet information and applications).

The federal government is promoting accessibility by law and the private sector is following its lead.

The W3C is also active in this cause and has created the Web Accessibility Initiative (WAI) (see http://www.w3.org/WAI/) to create guidelines and standards applicable to Web content developers, authoring tool developers, and browser developers. The Web Content Accessibility Guidelines 1.0 (WCAG 1.0) created by the WAI are organized in three groups of guidelines; Priority 1, Priority 2, and Priority 3.

- Priority 1 guidelines must be met by Web developers to ensure accessibility of page content.
- Priority 2 guidelines are stricter in nature—they should be met by Web developers to ensure that all visitors can access their pages.
- Priority 3 guidelines are the most stringent and may be met by Web developers.

In addition to satisfying the Section 508 guidelines, the accessibility recommendations discussed in this textbook are also intended to fully satisfy the WCAG 1.0 Priority 1 guidelines and partially satisfy the Priority 2 and Priority 3 guidelines. See http://www.w3.org/TR/WCAG10/full-checklist.html for a descriptive checklist of these guidelines.

The WAI (http://www.w3.org/WAI/References/QuickTips/)has developed a collection of materials designed to promote accessibility, including the following quick tips:

- **Images and Animations.** Use the `alt` attribute to describe the function of each visual.
- **Image Maps.** Use the client-side map and text for hotspots.
- **Multimedia.** Provide captioning and transcripts of audio, and descriptions of video. (See Chapter 11 for information on multimedia)
- **Hypertext Links.** Use text that makes sense when read out of context. For example, avoid "click here."
- **Page Organization.** Use headings, lists, and consistent structure. Use Cascading Style Sheets (see Chapter 3) for layout and style where possible.
- **Graphs and Charts.** Summarize or use the `longdesc` attribute.
- **Scripts, Applets, and Plug-ins.** Provide alternative content in case active features such as JavaScript, Java applets, and Flash are inaccessible or unsupported.
- **Frames.** Use the `<noframes>` element and meaningful titles.
- **Tables.** Make line-by-line reading sensible. Summarize.
- **Check Your Work.** Validate. Use the tools, checklists, and guidelines at http://www.w3.org/TR/WCAG.

At the time this was written, the WAI has released a working draft of the WCAG 2.0 guidelines at http://www.w3.org/TR/WCAG20. The purpose of this new version of Web content accessibility guidelines is to address a variety of different Web technologies, be easier to understand, and be more precisely tested. Check the WAI's WCAG Overview page (http://www.w3.org/WAI/intro/wcag.php) and the textbook Web site (http://webdevfoundations.net) for updates on WCAG 2.0.

Developing accessible Web sites is an important aspect of Web site design. Web authoring tools such as Adobe Dreamweaver provide extensions that will help you create accessible sites. Watchfire's WebXACT (http://webxact.watchfire.com) is a free Web page validator that will check your Web page for common accessibility issues. The Cynthia Says Portal (http://www.cynthiasays.com) also provides a free accessibility validation service. This portal was developed as a joint effort by Hisoftware and the Internet Society's Disability and Special Needs Chapter. Both online validators test one page at a time.

Finally, the Section 508 Standards require that if a Web page cannot comply with accessibility requirements, then a separate text-only version of the Web page must be provided and regularly updated. Although the text pages could be coded manually, other options exist to provide this functionality. The LIFT Text Transcoder server, available from UsableNet (http://www.usablenet.com), dynamically generates text-only, accessible pages that comply with accessibility standards. For a live example of this technology in action, compare the graphical University of Illinois home page (http://www.uiuc.edu) with the text-only version generated by UsableNet at (http://transcoder.usablenet.com/tt/http://www.uiuc.edu).

5.9 Best Practices Checklist

Table 5.1 contains a checklist of recommended Web design practices. Use this as a guide to help you create easy to read, usable, and accessible Web pages.

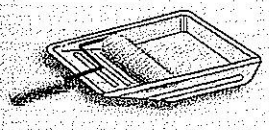
Table 5.1 Web Design Best Practices Checklist

Page Layout		
❑	1.	Appealing to target audience
❑	2.	Consistent site header/logo
❑	3.	Consistent navigation area
❑	4.	Informative page title that includes the company/organization/site name
❑	5.	Page footer area—copyright, last update, contact e-mail address
❑	6.	Good use of basic design principles: repetition, contrast, proximity, and alignment
❑	7.	Displays without horizontal scrolling at 800×600 and higher resolutions
❑	8.	Balance of text/graphics/white space on page
❑	9.	Good contrast between text and background
❑	10.	Repetitive information (header/logo and navigation) takes up no more than one-quarter to one-third of the browser window at 800×600 resolution
❑	11.	Home page has compelling, interesting information above the fold (before scrolling down) at 800×600 resolution
❑	12.	Home page downloads within 10 seconds on dial-up connection
Browser Compatibility		
❑	1.	Displays on current versions of Internet Explorer (6+)
❑	2.	Displays on current versions of Firefox (2+)
❑	3.	Displays on current versions of Netscape (7+)
❑	4.	Displays on current versions of Opera (9+)
❑	5.	Displays on current versions of Safari (both Mac and Windows)
Navigation		
❑	1.	Main navigation links are clearly and consistently labeled
❑	2.	Navigation is easy to use for target audience
❑	3.	If image, Flash, or DHTML is the main navigation, clear text links are in the footer section of the page (accessibility)
❑	4.	Navigational aids, such as site map, skip navigation link, or breadcrumbs, are used
❑	5.	All navigation hyperlinks work
Color and Graphics		
❑	1.	Use of different colors in page backgrounds/text is limited to a maximum of three or four
❑	2.	Color is used consistently
❑	3.	Color has good contrast with associated text
❑	4.	Color is not used alone to convey meaning (accessibility)
❑	5.	Use of color and graphics enhances rather than distracts from the site
❑	6.	Graphics are optimized and do not slow download significantly
❑	7.	Each graphic used serves a clear purpose
❑	8.	Image tags use the `alt` attribute to configure alternate text to display if the browser or user agent does not support images (accessibility)
❑	9.	Animated images do not distract from the site and either do not repeat or only repeat a few times

Table 5.1 Web Design Best Practices Checklist (*continued*)

Multimedia (See Chapter 11)		
❑	1.	Each audio/video/Flash file used serves a clear purpose
❑	2.	The audio/video/Flash files used enhance rather than distract from the site
❑	3.	Captions are provided for each audio or video file used (accessibility)
❑	4.	Download times for audio or video files are indicated
❑	5.	Links to downloads for media plug-ins are provided
Content Presentation		
❑	1.	Common fonts such as Arial or Times New Roman are used
❑	2.	Techniques of writing for the Web are used: headings, bullet points, short sentences in short paragraphs, use of white space, and so on
❑	3.	Fonts, font sizes, and font colors are consistently used
❑	4.	Content provides meaningful, useful, information
❑	5.	Content is organized in a consistent manner
❑	6.	Information is easy to find (minimal clicks)
❑	7.	Timeliness: The date of the last revision and/or copyright date is accurate
❑	8.	Content does not include outdated material
❑	9.	Content is free of typographical and grammatical errors
❑	10.	Content provides links to other useful sites
❑	11.	Avoids the use of "Click here" when writing text for hyperlinks
❑	12.	If standard link colors are not used, all links use a consistent set of colors to indicate visited/nonvisited status
❑	13.	If graphics and/or media is used to convey meaning, the alternate text equivalent of the content is provided (accessibility)
Functionality		
❑	1.	All internal hyperlinks work
❑	2.	All external hyperlinks work
❑	3.	All forms function as expected
❑	4.	No JavaScript (see Chapters 11 and 14) errors are generated by the pages
Accessibility		
❑	1.	If image, Flash, or DHTML is the main navigation, clear text links are in the footer section of the page
❑	2.	Color is not used alone to convey meaning
❑	3.	Image tags use the `alt` attribute to configure alternate text replacement
❑	4.	Captions are provided for each audio or video file used
❑	5.	Use attributes designed to improve accessibility such as `longdesc`, `title`, and `summary` where appropriate
❑	6.	If the site uses frames, use frame titles and place meaningful content in the noframes area
❑	7.	*Optional*: To assist screen readers, the html element's lang and xml:lang attributes indicate the spoken language of the page.

Note: Web Design Best Practices Checklist is copyrighted by http://terrymorris.net. Used by permission.



CHECKPOINT 5.2

1. View the home page of your school. Use the Best Practices Checklist (Table 5.1) to evaluate the page. Describe the results.
2. List three best practices of writing text for the Web. The following text was found on a real Web site. The company name and city have been changed. Use the hints in the text design best practices described earlier in the chapter to rewrite the following content for the Web:

   "Acme, Inc. is a new laboratory instrument repair and service company. Our staff at this time has a combined total of 30 plus years of specimen preparation instrumentation service and repair.

   Our technicians are EPA refrigeration certified. We are fully insured and all of our workers are fully covered by workman's compensation insurance. A proof of insurance certificate can be provided upon request.

   We are located in Chicago, Illinois. Which houses shop repair facilities and offices. Acme, Inc. technicians are factory trained and equipped with the best diagnostic and repair equipment available.

   We keep a separate file on every piece of equipment we work on. When a technician is sent on a repair, he has a file which lists the whole repair history on that piece of equipment. These files also help us answer any of your questions about past repairs.

   Our rates are $100.00 per hour for Labor and Travel with a 2 hour minimum. $0.40 per mile and all related expenses PARTS are not included."
3. List three best practices of using graphics on Web pages. View the home page of your school. Describe the use of graphic design best practices on this page.

CHAPTER SUMMARY

This chapter introduced recommended Web site design practices. The choices you make in the use of color, graphics, and text should be based on your particular target audience. Developing an accessible Web site should be the goal of every Web developer.

Visit the textbook Web site at http://www.webdevfoundations.net for examples, the links listed in this chapter, and updated information.

Key Terms

above the fold
alignment
antialiased text
breadcrumb trails
chunking
contrast
hierarchical organization
horizontal scrolling
ice design
jello design
linear organization
liquid design
load time
navigation bar
page layout
perceived load time
proximity
random organization
repetition
screen resolution
site map
site search
storyboard
table of contents
target audience
white space
wireframe

Review Questions

Multiple Choice

1. Which of the following recommended design practices apply to a Web site that uses images for its main site navigation?

a. provide alternative text for the images
b. place text links at the bottom of the page
c. both a and b
d. no special considerations are needed

2. Which of the following are the three most common methods of organizing Web sites?

a. horizontal, vertical, and diagonal
b. hierarchical, linear, and random
c. accessible, readable, maintainable
d. none of the above

3. To avoid overly long load times for your pages, try not to let the file size of the page and its associated media exceed which of the following?

a. 30KB
b. 60KB
c. 1MB
d. 60MB

4. Which of the following is not a Web design recommended practice?

a. design your site to be easy to navigate
b. colorful pages appeal to everyone
c. design your pages to load quickly
d. limit the use of animated items

5. Which of the following would a consistent Web site design *not* have?

a. the same fonts on each content page
b. the same logo in the same location on each content page
c. a similar navigation area on each content page
d. a different background color on each page

6. Which of the following are influenced by the intended or target audience of a site?

a. the amount of color used on the site
b. the font size and styles used on the site
c. the overall look and feel for the site
d. all of the above

7. Which of the following should the main site navigation or a section offering navigation choices contain?

a. no more than nine links
b. as many links as you need
c. only the most important pages
d. none of the above

8. Which of the following is known as white space?

a. the empty screen area around blocks of text and images
b. the background color of white used for a page
c. both a and b
d. none of the above

9. Which of the following should you do when creating text hyperlinks?

a. create the entire sentence as a hyperlink
b. include the words "click here" in your text
c. use a key phrase as a hyperlink
d. none of the above

10. Which of the following is the design technique used to create pages that stretch to fill the browser window?

a. ice
b. liquid
c. jello
d. none of the above

Fill in the Blank

11. The most common Web site structure used for commercial Web sites is _____ Web site organization.

12. Placing _____ around graphics and headings helps them to stand out.

13. Animation should be used only if it _____ to your Web site.

14. All browsers and browser versions _____ display Web pages in exactly the same way.

15. The _____ is a group whose mission is to create guidelines and standards for Web accessibility.

Hands-On Exercises

1. Practice creating site maps for the following situations. You may either draw your site map using a pencil and a ruler or use software such as Microsoft Visio, Microsoft Word, or Microsoft PowerPoint.

a. Doug Kowalski is a freelance photographer specializing in nature photography. He often gets work on contract, shooting photos for textbooks and journals. Doug would like a Web site that showcases his talents and that provides publishers with an easy way to contact him. He would like a home page, a few pages with samples of his nature photographs, and a contact page. Create a site map based on this scenario.

b. Mary Ruarez owns a business, named Just Throw Me, that handcrafts specialty pillows. She currently sells at craft fairs and local gift shops but would like to expand her business to the Web. She would like a Web site with a home page, a page that describes her products, a page for each of her seven pillow styles, and an order page. She has been advised that since she is collecting information from individuals, a page describing her privacy policy would be a good idea. Create a site map based on this scenario.

c. Prakesh Khan owns a dog-grooming business named A Dog's Life. He would like a Web site that includes a home page, a page about grooming services, a page with a map to his shop, a contact page, and a section that explains how to select

a good pet. The content for the part of the Web site on selecting a pet will be a step-by-step presentation. Create a site map based on this scenario.

2. Practice creating wireframe page layouts with the following situations. Use the style for page layout composition shown in Figures 5.25, 5.26, and 5.27, where places for logo, navigation, text, and images are indicated. Do not worry about exact wording or exact images. Use a pencil, ruler, and paper to draw the diagrams.
   a. Create sample page layout diagrams for Doug Kowalski's photography business, described in 1(a). Create one page layout diagram for the home page. Create another page layout diagram for the content pages.
   b. Create sample page layout diagrams for the Just Throw Me Web site described in 1(b). Create one page layout diagram for the home page. Create another page layout diagram for the content pages.
   c. Create sample page layout diagrams for the A Dog's Life Web site described in 1(c). Create one page layout diagram for the home page and the regular content pages. Create another page layout diagram for the presentation pages.
3. Choose two sites that are similar in nature or have a similar target audience such as the following:
   - http://amazon.com and http://bn.com
   - http://kohls.com and http://jcpenney.com
   - http://cnn.com and http://msnbc.com

   Describe how the two sites you chose to review exhibit the design principles of repetition, contrast, alignment, and proximity.
4. Choose two sites that are similar in nature or have a similar target audience such as the following:
   - http://www.crateandbarrel.com and http://www.potterybarn.com
   - http://www.harpercollege.edu and http://www.clcillinois.edu
   - http://chicagobears.com and http://greenbaypackers.com

   Describe how the two sites you chose to review exhibit Web design best practices. How would you improve these sites? Recommend three improvements for each site.
5. Think about the following scenarios and how you would design a home page using the ice design technique. Describe the advantages this technique provides for the Web developer. Describe the advantages this technique provides for the Web site visitor. Create a wireframe page layout for the home page.
   a. See 1(a) for the description of Doug Kowalski's photography business.
   b. See 1(b) for the description of Just Throw Me.
   c. See 1(c) for the description of A Dog's Life.
6. Think about the following scenarios and how you would design a home page using the jello design technique. Describe the advantages this technique provides for the Web developer. Describe the advantages this technique provides for the Web site visitor. Create a wireframe page layout for the home page.
   a. See 1(a) for the description of Doug Kowalski's photography business.
   b. See 1(b) for the description of Just Throw Me.
   c. See 1(c) for the description of A Dog's Life.

7. Think about the scenarios described below and how you would design a home page using the liquid design technique. Describe the advantages this technique provides for the Web developer. Describe the advantages this technique provides for the Web site visitor. Create a wireframe page layout for the home page.
   a. See 1(a) for the description of Doug Kowalski's photography business.
   b. See 1(b) for the description of Just Throw Me.
   c. See 1(c) for the description of A Dog's Life.

Web Research

This chapter offered suggestions for organizing text on Web pages. In this research exercise, take this topic a step further and investigate writing for the Web. A few resources are listed here:

- http://useit.com. Search for the article "Writing for the Web."
- http://www.efuse.com/Design/web_writing_basics.html. Explore the article "Writing for the Web."
- http://www.webreference.com/content/writing. If you cannot find that page, visit webreference.com and search for "writing for the Web."
- http://www.webwritingthatworks.com
- http://www.alistapart.com/articles/writeliving

If these resources are no longer available, search the Web for information on "writing for the Web." Read one or more articles. Select five techniques that you would like to share with others. Write a one-page summary of your findings. Include the URLs of your resources.

Focus on Web Design

1. This chapter discusses recommended Web design practices. Sometimes it is helpful to learn about good design by examining poor design. Visit http://www.webpagesthatsuck.com and read about their examples of poor design. Try to think of Web sites that you have visited on the Web. Do any of them have similar qualities? Find two Web sites that use poor Web design practices. Write a one-page report that includes an introduction about the design practices not followed at the Web sites, a link to each site, and a description of how each site has practiced poor Web site design.

2. Visit any of the Web sites referenced in this chapter that interested you. Print the home page or one other pertinent page from the site. Write a one-page summary and reaction to the Web site you chose to visit. Address the following topics:
   - What is the purpose of the site?
   - Who is the intended audience?
   - Do you think the site reaches the intended audience?
   - List three examples of how this Web site uses recommended Web design guidelines.
   - How could this site be improved?

WEB SITE CASE STUDY

Web Design Best Practices

Each of the following case studies continues throughout most of the text. This chapter asks you to analyze the design of the Web sites.

JavaJam Coffee House

See Chapter 2 for an introduction to the JavaJam Coffee House case. Figure 2.26 shows a site map for the JavaJam Web site. Three pages for this site were created in earlier chapters. In this case study you will review the site for recommended Web site design practices.

Hands-On Practice Case

1. Examine the site map in Figure 2.26. What type of site organization is used for the JavaJam Web site? Is it the most appropriate organization for the site? Why or why not?
2. Review the recommended Web page design practices from this chapter. Use the Web Design Best Practices Checklist (Table 5.1) to evaluate the JavaJam site that you created in earlier chapters. Cite three design practices that have been well implemented. Cite three design practices that could be implemented in a better way. How else would you improve the Web site?

Fish Creek Animal Hospital

See Chapter 2 for an introduction to the Fish Creek Animal Hospital Case. Figure 2.30 shows a site map for the Fish Creek Web site. Three pages for the site were created in earlier chapters. In this case study you will review the site for recommended Web site design practices.

Hands-On Practice Case

1. Examine the site map in Figure 2.30. What type of site organization is used for the Fish Creek Web site? Is it the most appropriate organization for the site? Why or why not?
2. Review the recommended Web page design practices from this chapter. Use the Web Design Best Practices Checklist (Table 5.1) to evaluate the Fish Creek site that you created in earlier chapters. Cite three design practices that have been well implemented. Cite three design practices that could be implemented in a better way. How else would you improve the Web site?

Pete the Painter

See Chapter 2 for an introduction to the Pete the Painter Case. Figure 2.34 shows a site map for the Pete the Painter Web site. Three pages for the site were created in earlier

chapters. During this case study you will review the site for recommended Web site design practices.

Hands-On Practice Case

1. Examine the site map in Figure 2.34. What type of site organization is used for the Pete the Painter Web site? Is it the most appropriate organization for the site? Why or why not?
2. Review the recommended Web page design practices from this chapter. Use the Web Design Best Practices Checklist (Table 5.1) to evaluate the Pete the Painter site that you created in earlier chapters. Cite three design practices that have been well implemented. Cite three design practices that could be implemented in a better way. How else would you improve the Web site?

Prime Properties

See Chapter 2 for an introduction to the Prime Properties Case. Figure 2.38 shows a site map for the Prime Properties Web site. Three pages for the site were created in earlier chapters. During this case study you will review the site for recommended Web site design practices.

Hands-On Practice Case

1. Examine the site map in Figure 2.38. What type of site organization is used for the Prime Properties Web site? Is it the most appropriate organization for the site? Why or why not?
2. Review the recommended Web page design practices from this chapter. Use the Web Design Best Practices Checklist (Table 5.1) to evaluate the Prime Properties site you created in earlier chapters. Cite three design practices that have been well implemented. Cite three design practices that could be implemented in a better way. How else would you improve the site?

Web Project

The purpose of this Web Project Case Study is to design a Web site using recommended design practices. Your Web site might be about a favorite hobby or subject, your family, a church or club you belong to, a company that a friend owns, the company you work for, and so on. Your Web site will contain a home page and at least six (but no more than ten) content pages. In the Chapter 5 Web Project Case Study you will complete the following documents: Topic Approval, Site Map, and Page Layout Design. You will not develop Web pages as part of the Chapter 5 Web Project Case Study—you will complete that task in later chapters.

Hands-On Practice Case

1. **Web Project Topic Approval.** The topic of your Web site must be approved by your instructor. Complete the following:
   - What is the purpose of the site?

     List the reason you are creating the site.

- What do you want the site to accomplish?

  List the goals you have for the site.

  Describe what needs to happen for you to consider your site a success.
- Who is your target audience?

  Describe your target audience by age, gender, socio-economic characteristics, and so on.
- What opportunity or issue is your site addressing? *Note*: Your site might be addressing the opportunity of providing information about a topic to others, creating an initial Web presence for a company, and so on.
- What type of content might be included in your site?

  Describe the type of text, graphics, and media you will need for the site.
- List at least two related or similar sites found on the Web.

  Hand in this document to your instructor for approval of your Web project topic.

2. **Web Project Site Map.** Use the drawing features of a word processing program, a graphic application, or paper and pencil to create a site map of your Web site that shows the hierarchy of pages and relationships between pages. Hand in this document to your instructor.
3. **Web Project Page Layout Design.** Use the drawing features of a word processing program, a graphic application, or paper and pencil to create wireframe page layouts for the home page and content pages of your site. Unless otherwise directed by your instructor, use the style for page layout composition shown in Figures 5.25, 5.26, and 5.27. Indicate where the logo, navigation, text, and images will be located. Do not worry about exact wording or exact images. Hand in these documents to your instructor.