Designing Documents and Interfaces

ter, you will learn:

echnical documents for electronic and paper-

rinciples of design: balance, alignment, grouping, contrast.

techniques that enhance readability in a

t and grouping strategies to add visual structure

cy and contrast to balance uniformity and design of a document or interface.

e design expectations of international readers.

cess to design documents.

r binding documents, as well as the sizes, colors, aper available.

Document design has become ever more important with the use and availability of computers. Today, readers expect paper-based documents to be attractive and easy to read, and to include images and color. Meanwhile, screen-based documents like websites and multimedia texts are highly visual, so readers expect the interface to be well designed. Readers don't just *prefer* well-designed documents—they *expect* the design to highlight important ideas and concepts.

Five Principles of Design

People rarely read technical documents word for word, sentence by sentence. Instead, they tend to look over technical documents at various levels, skimming some parts and paying closer attention to others.

Good design creates a sense of order and gives readers obvious "access points" to begin reading and locating the information they need. Good design is not something to be learned in a day. However, you can master some basic principles that will help you make better decisions about how your document should look. Here are five principles to consider as you design documents:

Balance—The document looks balanced from left to right and top to bottom.

Alignment—Images and words on the page are aligned to show the document's structure, or hierarchy.

Grouping—Related images and words are placed near each other on the page.

Consistency—Design features in the document are used consistently, so the document looks uniform.

Contrast—Items in the document that are different look significantly different.

These principles are based on theories of Gestalt psychology, a study of how the mind recognizes patterns (Arnheim, 1969; Koffka, 1935). Designers of all kinds, including architects, fashion designers, and artists, have used Gestalt principles in a variety of ways (Bernhardt, 1986). You will find these five principles helpful as you learn about designing documents.

Design Principle 1: Balance

Balance is perhaps the most prominent feature of design in technical documents. On a balanced page or screen, the design features should offset each other to create a feeling of stability.

To balance a text, pretend your page or screen is balanced on a point. Each time you add something to the left side of the page, you need to add something to the right side to maintain balance. Similarly, when you add something to the top of the page, you need to add something to the bottom. Figure 18.1, for example, shows an example of a balanced page and an unbalanced page.
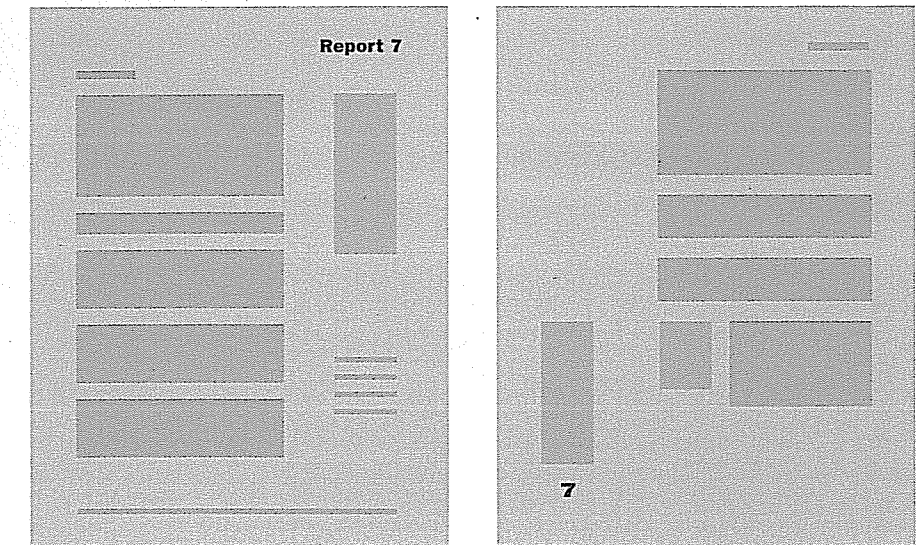
Balanced and Unbalanced Page Layouts

In Figure 18.1, the page on the left is balanced because the design features offset each other. The page on the right is unbalanced because the items on the right side of the page are not offset by items on the left. Also, the right page is top-heavy because the design features are bunched at the top of the page.

Balanced page layouts can take on many forms. Figures 18.2 and 18.3 show examples of balanced layouts. The idea is not to create symmetrical pages (i.e., where left and right, top and bottom mirror each other exactly). Instead, you want to balance pages by putting text and images on all sides.

Balance is also important in screen-based documents. In Figure 18.4, the screen interface is balanced because the items on the left offset the items on the right.

Weighting a Page or Screen

When balancing a page or screen, graphic designers will talk about the "weight" of the items on the page. What they mean is that some items on a page or screen attract readers' eyes more than others—these features have more weight. A picture, for example, has more weight than printed words because readers' eyes tend to be drawn toward pictures. Similarly, an animated figure moving on the screen will capture more attention than static items.

Here are some basic weighting guidelines for a page or screen:

- Items on the right side of the page weigh more than items on the left.
- Items on the top of the page weigh more than items on the bottom.
- Big items weigh more than small items.

A Simpler Design That Is Elegant

The two-column format balances the text.

Your eyes naturally flow down the page.

This image draws your eyes to it.

Restoring V-Site— Birthplace of the *Gadget*

V-Site is located deep inside the current high explosives (HE) research and development area at Los Alamos National Laboratory. This site is significant because the activities that took place in six wooden sheds and the events leading up to those activities transformed the world and ushered in the Atomic Age. The buildings of V-Site are among the most historically significant buildings of the 20th century.

V-Site buildings were typical of World War II temporary wood structures at military installations. The buildings were wood post-and-frame construction that rested on concrete slab floors. Asbestos shingles covered the exterior. Earthen berms, which served as protection against HE accidents, surrounded the buildings and were secured by heavy wood post-and-beam retaining walls.

The Manhattan Project
The Manhattan Project (1942–1946) consisted of two major efforts: production of fissile material and the research, design, and production of a new class of weapon that could end World War II. Manhattan Project installations at Oak Ridge, Tennessee, and Hanford, Washington, focused on production of enriched uranium and plutonium that could be used with new weapons designed at Los Alamos.

Los Alamos, known as Project Y during the Manhattan Project, was the location of the secret research and development efforts to design and build the first atomic weapons. Project Y brought together physicists, engineers, and the Special Engineering Detachment of the US Army to design and build the weapons.

The initial plans called for a gun-type design employing Oak Ridge's enriched uranium and Hanford's plutonium. The gun design was concep-

tually simple and involved shooting one subcritical mass of fissile material into another subcritical mass. The two subcritical masses would form a critical mass, thereby releasing a tremendous amount of nuclear energy.

An early alternative to the gun design was the implosion method. The implosion method, a technically efficient approach, was intended to be a backup to the gun design. In 1943, J. Robert Oppenheimer, the Laboratory's first director, allowed a small number of scientists to pursue the implosion method.

In 1944, Los Alamos scientists determined that the gun design was not suitable for use with plutonium. The main reason was that plutonium produced in nuclear reactors, such as the plutonium produced at

Fat Man assembly at V-Site.

Source: Nuclear Weapons Journal, p. 13.

A Balanced Design with Energy

The significantly larger title brings your eyes to the beginning of the text.

The elements on the page offset each other to create balance.

Notice how your eyes are drawn to the hawk. Animals or people in a picture usually attract the most attention from readers.

Manitoba's Species At Risk

Threatened

Ferruginous hawk
Buteo regalis

Ferruginous hawk (*Buteo regalis*) is the largest of North American soaring hawks, with a wingspan of up to 135 cm (53 inches). In flight, the Ferruginous hawk has a light underside with reddish-brown markings on the underside of the wings and on the legs, forming a characteristic dark V against the bird's white underparts. Reddish-brown shoulders and a white window patch on the upper surface of the dark primaries are also distinctive.

The Ferruginous hawk occurs in two colour phases. Dark birds are chocolate brown throughout with a whitish tail and primaries. Although dark birds comprise up to 15 per cent of the population in some areas, in Manitoba they probably make up less than 1 per cent of the population.

Habitat
These birds prefer open areas dominated by native grasses and scattered trees or shrubs, with abundant ground squirrels for food. Isolated trees or some other elevated structure are usually required for the nest site, but the species occasionally uses a highly built-up nest on the ground. Ferruginous hawks typically avoid areas with greater than 30 per cent cultivation, sites that are prone to disturbance, or parkland areas where trees are abundant. However, a few pairs in Manitoba have been found nesting near busy roads, in areas with no surrounding grasslands, or in fairly large clumps of trees.

Life History
Ferruginous hawks arrive in summer nesting grounds by late March. Males usually return first, often coming back to the general area where they were raised. Pairs often maintain the same mate. Successful pairs traditionally use the same nest year after year, but unsuccessful pairs may select an alternative nest within their territory. The nest is built by both adults using large quantities of sticks and roots and lined with dead grass, sod and cow dung. These birds are also comfortable using artificial nesting structures, consisting of a wire basket filled with sticks and

placed in large trees. In Manitoba, nearly three-quarters of the nesting pairs observed since 1990 have occupied artificial nests.

Three to five eggs are laid in late April or early May and are incubated by the female for about 30 days. The male spells off the female on the nest during incubation. Young remain in the nest for six to eight weeks, and are dependent on adults for food for several weeks after they learn to fly. Birds leave their summer grounds in September or October. Young first breed when they are two or three years old. Adults can live for 20 years in the wild.

Ferruginous hawks hunt during the day, eating mostly ground squirrels and prairie dogs. Pocket gophers, voles, mice, rabbits and even birds will also be eaten. Adults frequently perch and hunt from the ground, using the sit-and-wait technique, crouching at the mouth of a burrow and snatching up a ground squirrel as it emerges. They also use trees, hydro poles and power lines as hunting perches.
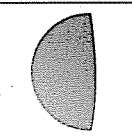
Distribution
Ferruginous hawks nest in western North America, from the Canadian prairies south to New Mexico and Texas. In Canada, Ferruginous hawks are common in southern Alberta and Saskatchewan. They are rarely found in southern British Columbia, and have recently re-established in southern Manitoba. In Manitoba, the species is concentrated in southwestern Manitoba, as far north and east as Lenore, Brandon and Glenboro. Non-breeding adults have been observed north to St. Lazare and east to Oak Hammock Marsh. Ferruginous hawks winter in the southwestern United States and in Mexico.

Status
The Manitoba Conservation Data Centre lists the Ferruginous hawk as provincially rare (S2). Although it has declined in many provinces and states, it is considered apparently secure (G4) rangewide by NatureServe. Since the early 1900s, populations in North America have

Any native Manitoba species likely to become endangered or at risk due to low or declining numbers in Manitoba if the factors affecting it don't improve. Threatened species are declared as such by regulation under the Endangered Species Act.

Protecting & Managing *our Future*

Manitoba Conservation

Source: Manitoba Conservation Wildlife and Ecosystem Protection Branch.

Grids for Designing Page Layouts

One-column grid

Two-column grid
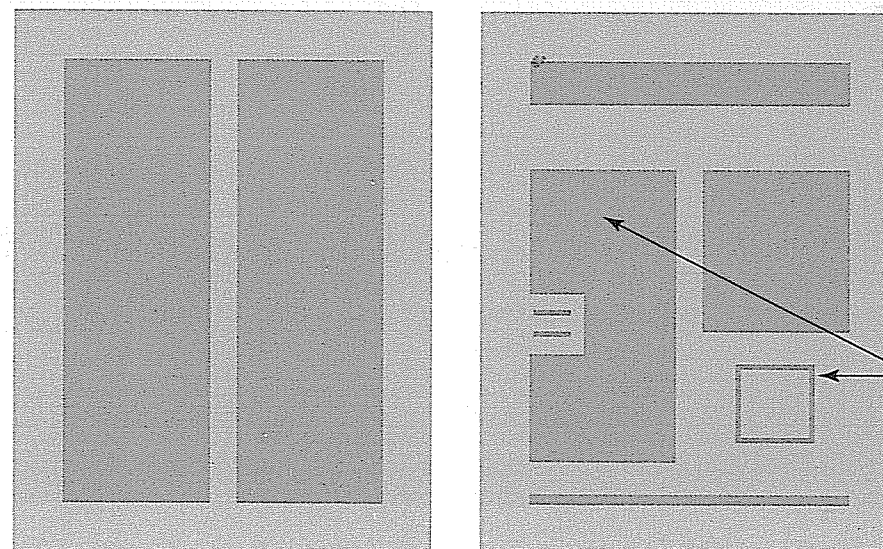
With more columns, you have more flexibility for design.

(continued)

A Balanced Interface
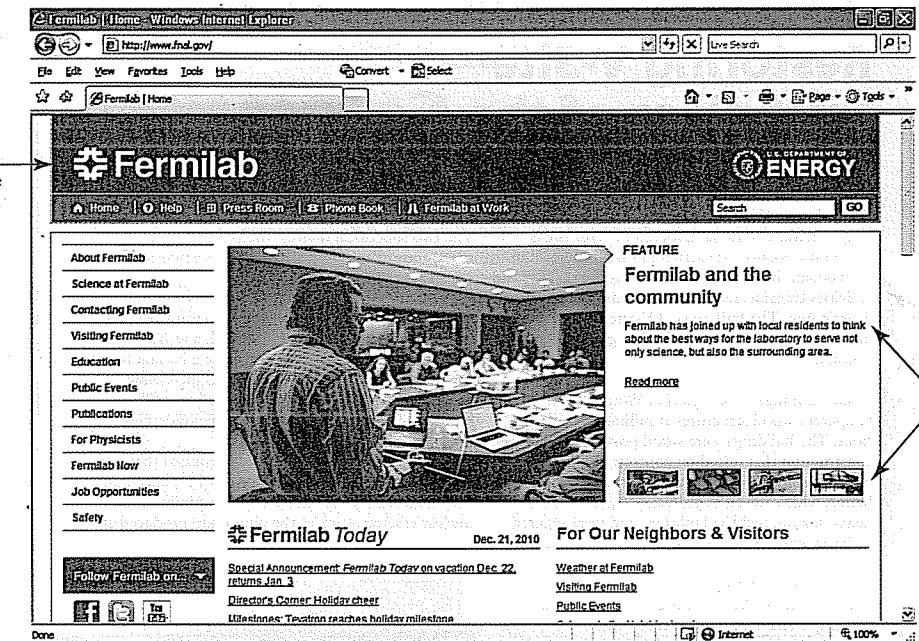
The banner at the top of the screen offsets text and images lower on the page.

Left and right images and text are used to balance the screen

Source: Fermilab.

- Pictures weigh more than written text.
- Graphics weigh more than written text.
- Colored items weigh more than black-and-white items.
- Items with borders around them weigh more than items without borders.
- Irregular shapes weigh more than regular shapes.
- Items in motion weigh more than static items.

As you are balancing a page, use these weight guidelines to help you offset items. For example, if an image appears on the right side of the page, make sure that there is something on the left to create balance.

Using Grids to Balance a Page Layout

When designing a page or screen, your challenge is to create a layout that is balanced but not boring. A time-tested way to devise a balanced page design is to use a *page grid* to evenly place the written text and graphics on the page. Grids divide the page vertically into two or more columns. Figure 18.5 shows some standard grids and how they might be used.

Figure 18.6 (on page 489) shows the use of a three-column grid in a report. Notice how the graphics and text offset each other in the page layout.

To see samples of unbalanced webpages, go to **www.pearsonhighered.com/johnsonweb4/18.3**

A three-column layout structures the whole page.

Images on left and bottom create balance with text.

An image can cross two columns, as this one does.

Figure 18.6: A three-column grid was used to lay out this text in a balanced manner.
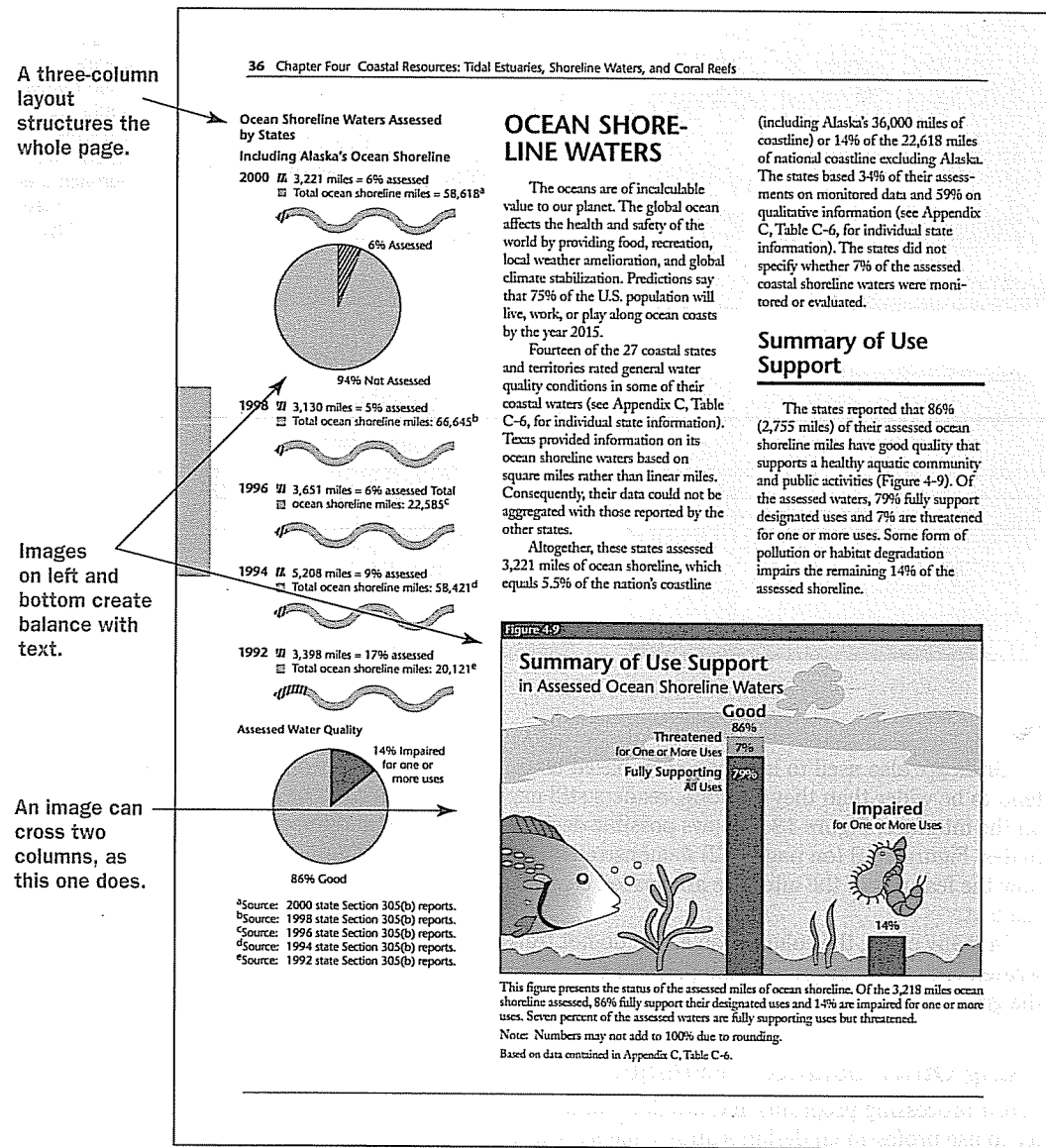
Source: U.S. Environmental Protection Agency, National Water Quality Inventory, 2000 Report, 2000, p. 36.
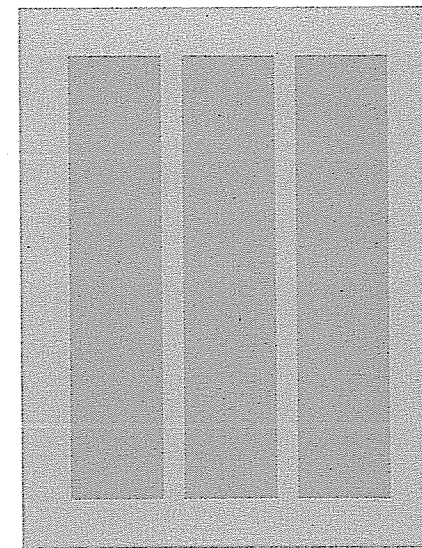
Three-column grid
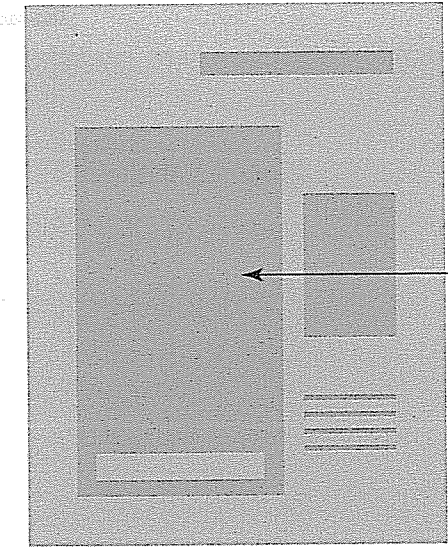
Figure 18.5: (continued)

Notice how the text can go over two columns, leaving a large margin on one side.
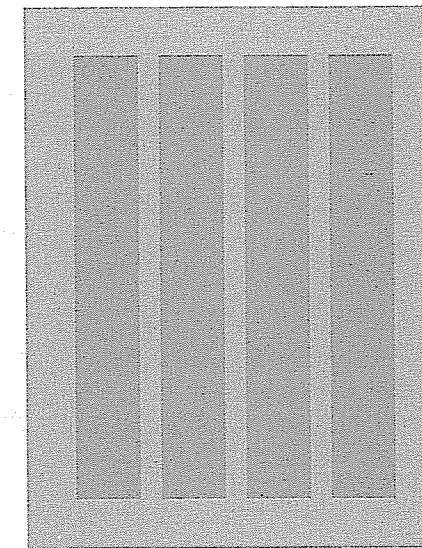
Four-column grid
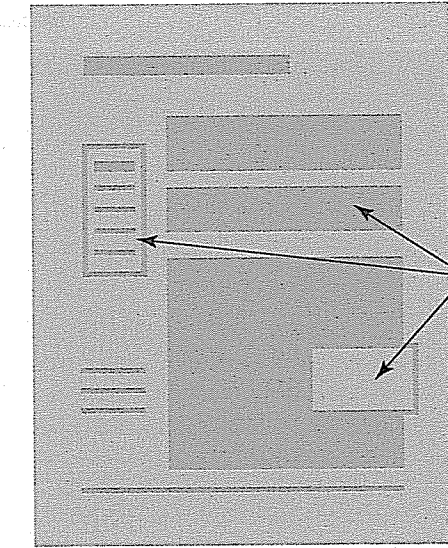
A four-column grid offers plenty of opportunities for creativity.

For downloadable templates, go to
www.pearsonhighered.com/johnsonweb4/18.4
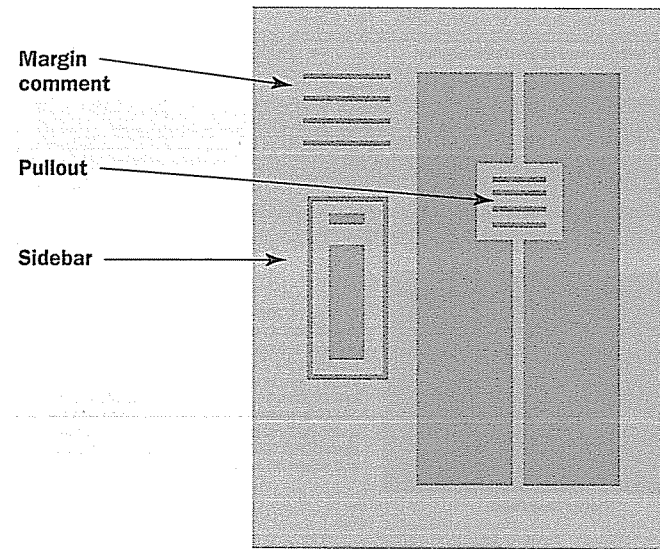
Figure 18.8: Margin comments, pullouts, and sidebars can make a text more accessible.

Labels in figure: Margin comment, Pullout, Sidebar

Balancing the Design of a Page or Screen
- Weight items on the page or screen.
- Use grids to balance the layouts.
- Use design features such as margin comments, sidebars, pullouts, navigation bars, and banners.

AT A GLANCE

the margins often leaves enough room to include an additional list, offer a special quote, or provide a simple illustration (Figure 18.8). Also, the page in Figure 18.6 shows how a whole column can be used to offer supplementary information to the main text.

NAVIGATION BARS   In screen interfaces, navigation bars are used to highlight links, usually as buttons or text (Figure 18.9). Navigation bars are typically placed along the left side of the screen or the top, but they can appear anywhere on the page.

SIDEBARS   Sidebars are used to provide examples and facts that support the main text. Sidebars should never contain essential information that readers must have in order to understand the subject or make a decision. Rather, they should offer supplemental information that enhances the readers' understanding.

PULLOUTS   Pullouts are quotes or paraphrases drawn from the body text and placed in a special text box to catch the readers' attention. A pullout should draw its text from the page on which it appears. Often the pullout is framed with rules (lines) or a box, and the text wraps around it (Figure 18.8).

BANNERS   Banners run along the top of the screen interface. In websites, they may include the name of the organization or an advertiser. In multimedia documents, they may identify the name of the document. Banners often include links, but they don't need to.
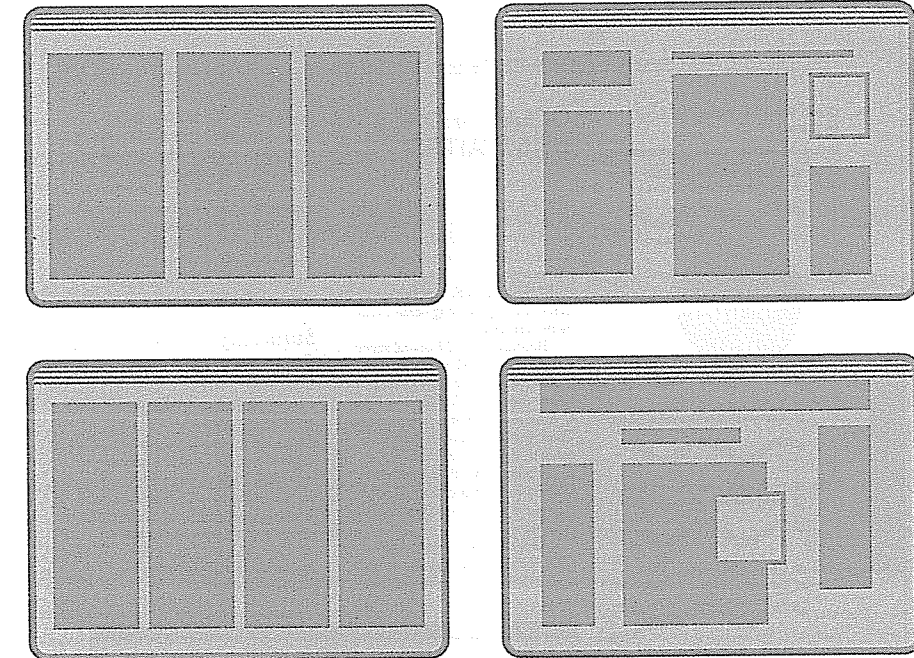
Figure 18.7: Items on screen-based pages should also be evenly placed. This approach creates a sense of stability.

Link
To learn more about designing screen interfaces, go to Chapter 22, page 626.

Grids are also used to lay out screen-based texts. Even though screen-based texts tend to be wider than they are long, readers still expect the material to be balanced on the interface. Figure 18.7 shows possible designs using three- and four-grid templates. Figure 18.9 (on page 492) demonstrates the use of a five-column grid. Notice how the features of the interface are spaced consistently to create an orderly feel to the text.

In many cases, the columns on a grid do not translate directly into columns of written text. Columns of text and pictures can often overlap one or more columns in the grid.

Using Other Balance Techniques

Word-processing programs and desktop publishing software also give you the ability to use professional design features like *margin comments, sidebars,* and *pullouts* (Figure 18.8). In screen-based documents, you can also use *navigation bars* and *banners* to balance the design. These features provide "access points" where people can begin reading the text.

MARGIN COMMENTS   Margin comments summarize key points or highlight quotations in the margin of the document. When a grid is used to design the page, one of

Using Vertical Alignment

Figure 18.10: Alignment allows readers to see the hierarchy of information in a text.

alignment strategy throughout the text, you will design a highly readable and accessible document.

In technical documents, items are usually aligned on the left side. In rare cases, you might try aligning titles and headings on the right side. But you should use centering only for titles, because it causes alignment problems in the text. Figure 18.11 on page 495 shows how centering can create unpredictable vertical lines in the text.

Alignment is also very important in on-screen documents. To create a sense of stability, pay attention to the horizontal and vertical alignments of features on the interface. For example, the screen in Figure 18.12 on page 496 shows how you can align text and graphics to make an interface look stable.

Design Principle 3: Grouping

The principle of grouping means that items on a page that are near each other will be seen as one unit. Grouping allows you to break up the information on a page by dividing the text into scannable blocks.

Humans naturally see items that are placed near each other as a whole unit. So, if two items are placed near each other, like a picture and a caption, readers will assume that they belong together. In Figure 18.12, notice how pictures are put near paragraphs so that they are seen as units. The banner at the top of the page is supposed to be seen as a block unto itself.

Other Balancing Techniques for Interfaces
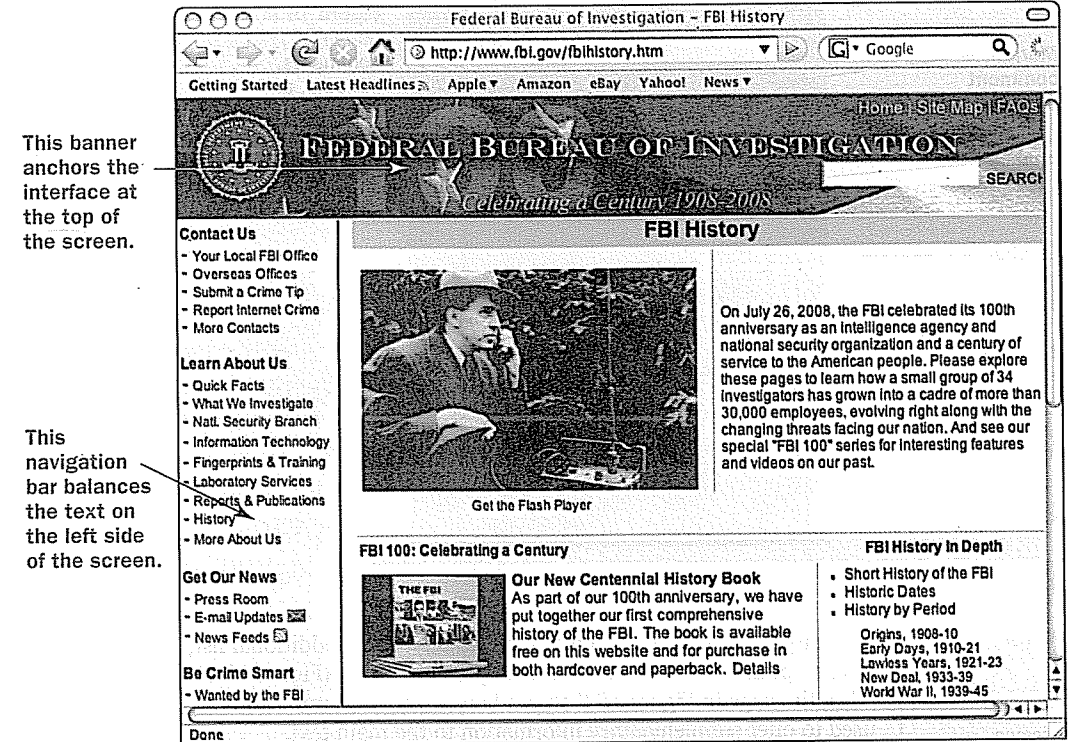
This banner anchors the interface at the top of the screen.

This navigation bar balances the text on the left side of the screen.

Figure 18.9: Usually, what works on paper can work on screen. You can use pull-outs, margin comments, and sidebars on a screen interface. Navigation bars and banners can also be added to screen-based documents for balance.

Source: Federal Bureau of Investigation, http://www.fbi.gov/fbihistory.htm.

Design Principle 2: Alignment

Items on a page or screen can be aligned vertically and horizontally. By aligning items *vertically* on the page, you can help readers identify different levels of information in a document. By aligning items *horizontally*, you can connect them visually so readers view them as a unit.

In Figure 18.10, for example, the page on the left gives no hint about the hierarchy of information, making it difficult for a reader to scan the text. The page on the right, meanwhile, uses alignment to clearly signal the hierarchy of the text.

Alignment takes advantage of readers' natural tendency to search out visual relationships among items on a page. If a picture, for example, is aligned with a block of text on a page, readers will naturally assume that they go together.

In paper-based documents, look for ways you can use margins, indentation, lists, headings, and graphics to create two or three levels in the text. If you use a consistent

To see sample texts that use alignment well and poorly, go to www.pearsonhighered.com/johnsonweb4/18.7

Alignment Problems with Centered Text

> **Proposal for an**
> **Improved**
> **Wireless Network on Campus**
>
> Written to Sally Johnson, Vice President for Electronic Advancement
>
>
> Abstract: In this proposal, we argue that Western State Community College needs to improve its wireless network on campus. Currently, the network only covers specific "hot spots" like the Student Union, the Biotechnology Center, and the Computer Science Center. As a result, a majority of students cannot take advantage of it. We recommend creating a wireless cloud over the campus by establishing a grid of Cisco 350 Series Wireless Access Points (WAPs) with a maximum transmission rate of 11 Mbps. The network could be made secure with IPSec and a Cisco 3030 VPN Concentrator. The cost for this network would likely be about $120,000. The benefits, however, would greatly outstrip the costs, because the university could minimize its hardwired computer classrooms.
>
>
> **The Innovation Team**
>
> Introduction to Technical Communication, Humanities 381

Figure 18.11: Centering is fine for headings, but too much centered material can make the text look chaotic.

Using Headings

One way to group information is to use headings. When used properly, headings will help your readers quickly understand the structure of your document and how to use it.

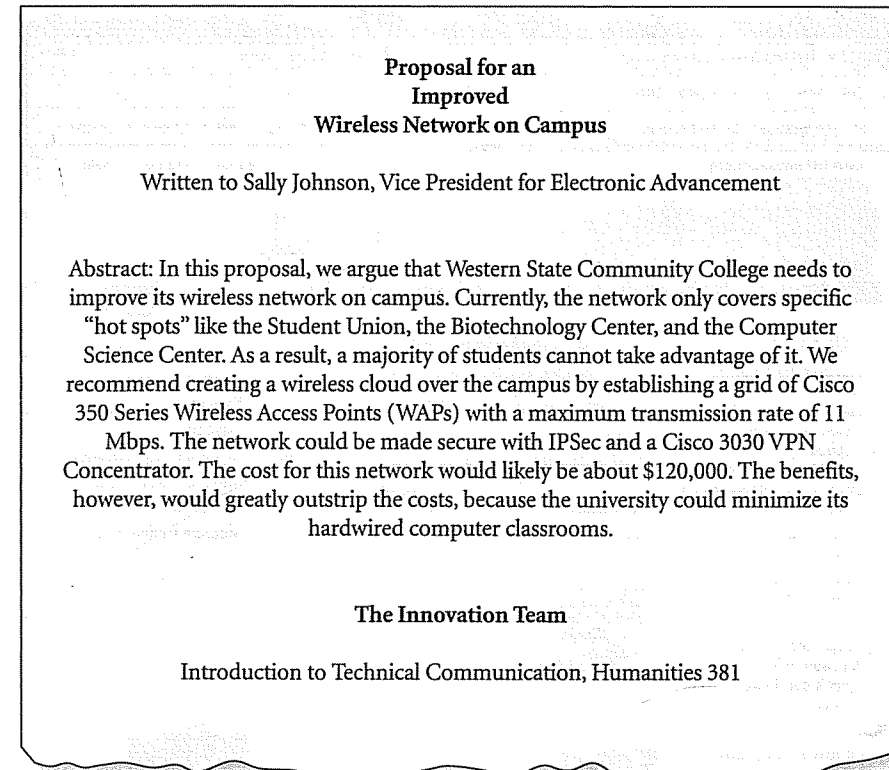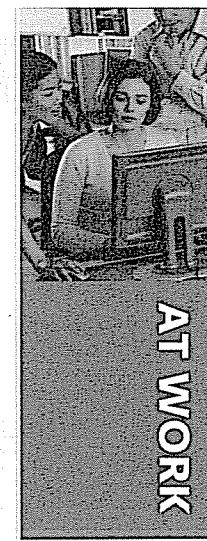Your computer's word-processing program makes it easy for you to use headings by changing fonts and font sizes. Or, you can use your word processor's Style feature to create standard headings for your documents.

Different types of headings should signal the various levels of information in the text.

- **First-level headings** should be sized significantly larger than second-level headings. In some cases, first-level headings might use all capital letters ("all caps") or small capital letters ("small caps") to distinguish them from the font used in the body text.
- **Second-level headings** should be significantly smaller and different from the first-level headings. Whereas the first-level headings might be in all caps, the second-level headings might use bold lettering.
- **Third-level headings** might be italicized and a little larger than the body text.

Jennifer Martin
CREATIVE DIRECTOR, IBM CORPORATION, CHICAGO
The Centers for IBM e-business Innovation help companies use design and technology to solve problems and deliver solutions.

AT WORK

How can design make an interface more accessible for people with disabilities?

Accessibility is one of the most important issues when developing a website. The term "accessibility" refers to improving access for everyone regardless of his or her abilities. These improvements can also benefit users of limited-function devices, older technologies, or slower connection speeds.

There are many simple techniques that you can use to make your website more accessible for people with disabilities:

- Make the page layout easily scannable by breaking content into manageable chunks, while including sufficient white space to help users with special needs.
- Verify that there is sufficient contrast between foreground and background elements to improve legibility for users with color vision deficiencies.
- Ensure that links and buttons are large enough so that users with limited fine motor skills are able to easily target them.
- Include heading tags and intra-page links such as "skip to main content." These tags and links are made invisible to those using traditional browsers and greatly improve navigation when using a screen reader.
- Set the Alt attribute to null (" ") for images that provide no value to visually impaired users, so that they will be ignored by screen readers.
- Use an accessibility checker to validate that your website complies with the World Wide Web Consortiums Content Accessibility Guidelines and any applicable laws.

Designing an accessible website should be thought of as something that is integral to the design process, rather than a separate task or skill.

Grouping is also referred to as "using white space" to frame items on the page. White spaces are places where no text or images appear on the page and include:

- the margins of the document.
- the space around a list.
- the area between an image and the body text.
- the space between two paragraphs.

These spaces create frames around the items on the page so readers can view them as groups. For example, the white space around a vertical list (like the one in Figure 18.12) helps readers see that list as one unit.

Want more information on using headings? Go to **www.pearsonhighered.com/johnsonweb4/18.8** | Design Principle 3: Grouping | 495

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Levels of Headings

DOCUMENT TITLE

FIRST-LEVEL HEADING

This first-level heading is 18-point Avant Garde, boldface with small caps. Notice that it is significantly different from the second-level heading, even though both levels are in the same typeface.

Second-Level Heading

This second-level heading is 14-point Avant Garde with boldface.

Third-Level Heading

This third-level heading is 12-point Avant Garde italics. Often, no extra space appears between a third-level heading and the body text, as shown here.

Fourth-Level Heading. This heading appears on the same line as body text. It is designed to signal a new layer of information without standing out too much.

Inconsistent Headings

Global Warming

What Can We Do about Global Warming?

Alternative Energy Sources

Consistent Headings Using Gerunds

Defining Global Warming

Doing Something about Global Warming

Finding Alternative Energy Sources

Consistent Headings Using Questions

What Is Global Warming?

How Can We Do Something about Global Warming?

Are Alternative Energy Sources Available?

An Interface That Uses Alignment and Grouping Well

Alignment is used well to signal connections and hierarchies in the text.

White space is used to frame parts of the text, making them groups.

Source: The Field Museum, Chicago, Illinois, http://www.fieldmuseum.org.

- **Fourth-level headings** are about as small as you should go. They are usually boldfaced or italicized and placed on the same line as the body text.

Figure 18.13 shows various levels of headings and how they might be used.

In most technical documents, the headings should use the same typeface throughout (e.g., Avante Garde, Times, Helvetica). In other words, the first-level heading should use the same typeface as the second-level and third-level headings. Only the font size and style (bold, italics, small caps) should be changed.

Headings should also follow consistent wording patterns. A consistent wording pattern might use gerunds (*-ing* words) to lead off headings. Or, to be consistent, questions might be used as headings.

Using Rules and Borders to Group Information

Rules →

Sociology Bulletin
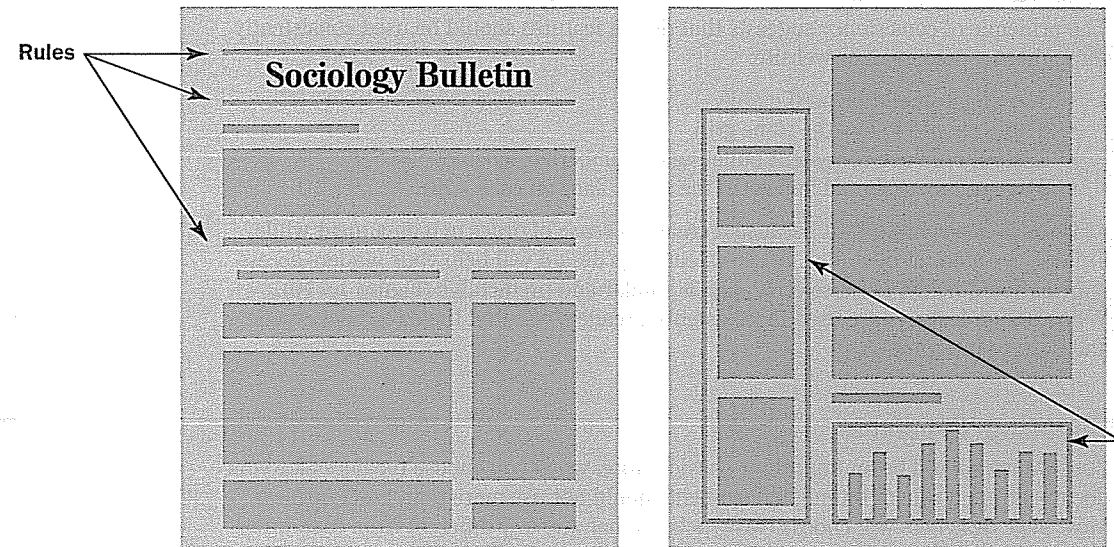
← Borders

Figure 18.14: The use of rules on the left page carves the page into open-ended areas. The use of borders on the right page suggests that the bordered items can stand alone.

Making Borders

Select the kind of border you want to use.

Select the color and width of the border's lines.

Borders | Page Border | Shading

Borders and Shading

Setting:
- None
- Box
- Shadow
- 3-D
- Custom

Style:

Color: Automatic

Width: 1/2 pt

Preview
Click on diagram below or use buttons to apply borders

Apply to: Paragraph

Options...

Show Toolbar | Horizontal Line... | Cancel | OK

Select where you want the borders.

Figure 18.15: The Borders command in your word processor will allow you to put boxes or draw lines around items.

Headings should also be specific, clearly signaling the content of the sections that follow them:

Unspecific Headings

Kinkajous

Habitat

Food

Specific Headings

Kinkajous: Not Rare, But Hard to Find

The Habitat of Kinkajous

The Food and Eating Habits of Kinkajous

Headings serve as *access points* for readers, breaking a large text into smaller groups. If headings are used consistently, readers will be able to quickly access your document to find the information they need. If headings are used inconsistently, readers may have difficulty understanding the structure of the document.

Using Borders and Rules

In document design, *borders* and straight lines called *rules* can be used to carve a page into smaller groups of information. They can also help break the text into more manageable sections for the readers.

> **Borders** completely frame parts of the document (Figure 18.14). Whatever appears within a border should be able to stand alone. For example, a bordered warning statement should include all the information readers need to avoid a dangerous situation. Similarly, a border around several paragraphs (like a sidebar) suggests that they should be read separately from the main text.

> **Rules** are often used to highlight a banner or carve a document into sections. They are helpful for signaling places to pause in the document. But when they are overused, they can make the text look and feel too fragmented.

Borders and rules are usually easy to create with any word processor. To put a border around something, highlight that item and find the Borders command in your word processor (Figure 18.15). In the window that appears, you can specify what kind of border you want to add to the text.

Rules can be a bit more difficult to use, so you might want to use a desktop layout program, like Adobe InDesign or QuarkXPress. However, if your document is small or simple, you can use the Draw function of your word processor to draw horizontal or vertical rules in your text.

More advice about using rules and borders is available at **www.pearsonhighered.com/johnsonweb4/18.9**

Consistent Layout

Thank you

Thank you for purchasing the Jabra BT160 Bluetooth® Headset. We hope you enjoy it!

This instruction manual will get you started and ready to make the most of your headset.

⚠ Remember, driving comes first, not the call!

Using a mobile phone while driving can distract you and increase the likelihood of an accident. If driving conditions demand it (such as bad weather, high traffic density, presence of children in the car, difficult road conditions), pull off the road and park before making or answering calls. Also, try to keep conversations short and do not make notes or read documents.

Always drive safely and follow local laws.

About your Jabra BT160

1 LED light
   Blue indicates mode
   (pairing, active or standby)
   and battery charging
   Red indicates low battery level
2 Volume up (+), volume down (–)
3 Charging socket
4 Answer/end button
   Press and hold to turn headset on
   Press and hold to turn headset off
   Tap to answer or end a call
   Press this, *and* press volume up (+) button at same time, to put headset in pairing mode
5 Earhook – gently flip and rotate 180° to fit left ear. *(See fig. 2)*
6 Plastic cover plate

2

What your headset can do

Your Jabra BT160 lets you do all this:
• Answer calls   • Voice dialing (phone dependent)
• End calls   • Last number redialing
• Reject calls (phone dependent)

Specifications:
• Talk time/standby time up to 8 hours talk time (subject to phone), 110 hours standby
• Rechargeable battery with charging option from AC power supply or car charger (not included)
• Weight 0.56 oz (16 g)
• Operating range up to 33 feet / 10 m
• Headset and hands-free Bluetooth profiles
• Bluetooth® specification *(see glossary)* version 1.2

Changing the design

To insert your preferred design in your Jabra BT160:
1 Gently remove the plastic cover plates and current design.
2 Gently press out your preferred design from the sheets enclosed.
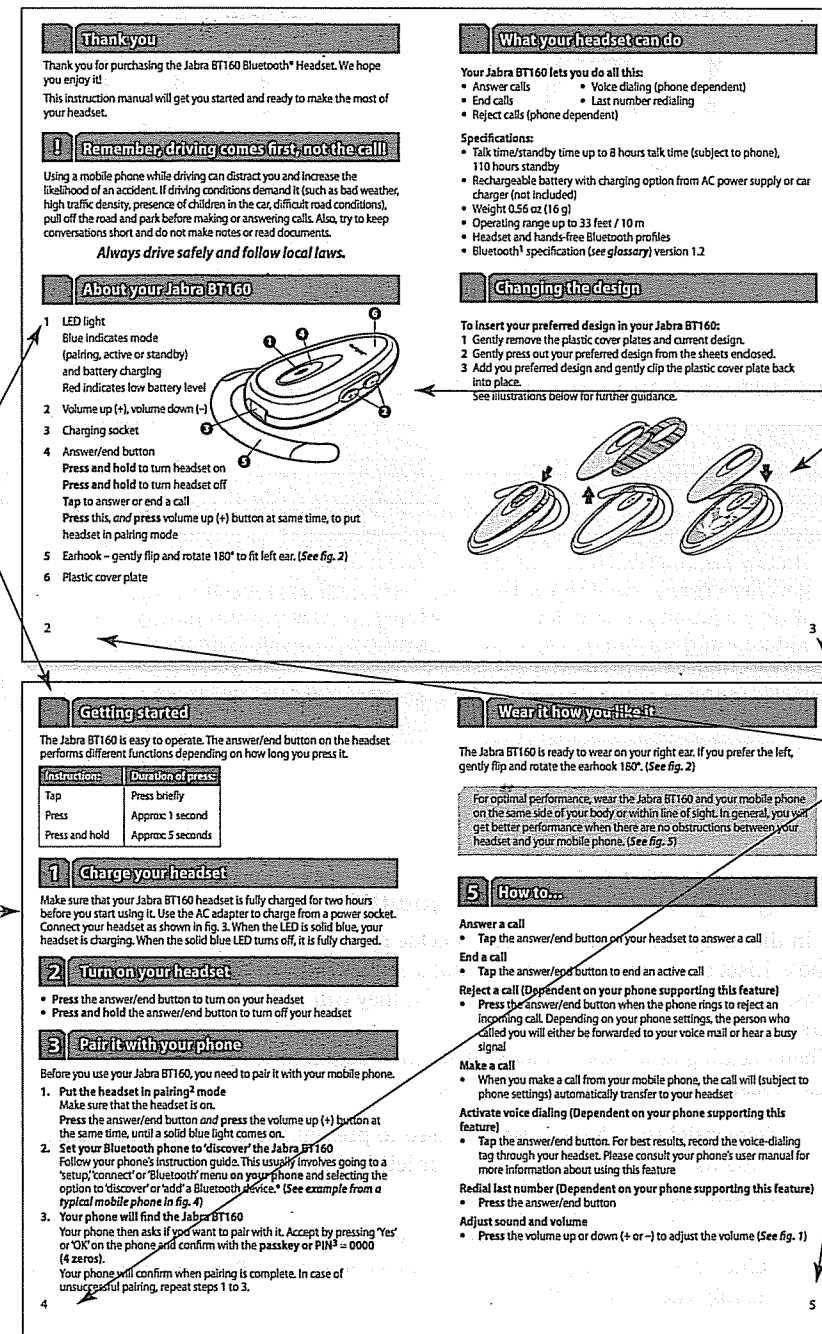3 Add your preferred design and gently clip the plastic cover plate back into place.
See illustrations below for further guidance.

3

Getting started

The Jabra BT160 is easy to operate. The answer/end button on the headset performs different functions depending on how long you press it.

Instruction:	Duration of press:
Tap	Press briefly
Press	Approx. 1 second
Press and hold	Approx. 5 seconds

1 Charge your headset

Make sure that your Jabra BT160 headset is fully charged for two hours before you start using it. Use the AC adapter to charge from a power socket. Connect your headset as shown in fig. 3. When the LED is solid blue, your headset is charging. When the solid blue LED turns off, it is fully charged.

2 Turn on your headset

• Press the answer/end button to turn on your headset
• Press and hold the answer/end button to turn off your headset

3 Pair it with your phone

Before you use your Jabra BT160, you need to pair it with your mobile phone.
1. Put the headset in pairing² mode
    Make sure that the headset is on.
    Press the answer/end button and press the volume up (+) button at the same time, until a solid blue light comes on.
2. Set your Bluetooth phone to 'discover' the Jabra BT160
    Follow your phone's instruction guide. This usually involves going to a 'setup','connect' or 'Bluetooth' menu on your phone and selecting the option to 'discover' or 'add' a Bluetooth device." *(See example from a typical mobile phone in fig. 4)*
3. Your phone will find the Jabra BT160
    Your phone then asks if you want to pair with it. Accept by pressing 'Yes' or 'OK' on the phone and confirm with the passkey or PIN² = 0000 (4 zeros).
    Your phone will confirm when pairing is complete. In case of unsuccessful pairing, repeat steps 1 to 3.

4

Wear it how you like it

The Jabra BT160 is ready to wear on your right ear. If you prefer the left, gently flip and rotate the earhook 180°. *(See fig. 2)*

For optimal performance, wear the Jabra BT160 and your mobile phone on the same side of your body or within line of sight. In general, you will get better performance when there are no obstructions between your headset and your mobile phone. *(See fig. 5)*

5 How to...

Answer a call
• Tap the answer/end button on your headset to answer a call
End a call
• Tap the answer/end button to end an active call
Reject a call (Dependent on your phone supporting this feature)
• Press the answer/end button when the phone rings to reject an incoming call. Depending on your phone settings, the person who called you will either be forwarded to your voice mail or hear a busy signal
Make a call
• When you make a call from your mobile phone, the call will (subject to phone settings) automatically transfer to your headset
Activate voice dialing (Dependent on your phone supporting this feature)
• Tap the answer/end button. For best results, record the voice-dialing tag through your headset. Please consult your phone's user manual for more information about using this feature
Redial last number (Dependent on your phone supporting this feature)
• Press the answer/end button
Adjust sound and volume
• Press the volume up or down (+ or –) to adjust the volume *(See fig. 1)*

5

Callout annotations:
- Consistent use of icons and headings
- Consistent fonts
- Consistent use of images
- Consistent use of page numbers

Figure 18.16: These pages from the same user's manual are consistent in many ways.

Source: Jabra BT160 Bluetooth User Manual, pp. 2–5. GN Netcom, Inc.

Design Principle 4: Consistency

The principle of consistency suggests that design features should be used consistently throughout a document or website:

- Headings should be predictable.
- Pages should follow the same grid.
- Lists should use consistent bulleting or numbering schemes.
- Page numbers should appear in the same place on each page.

Consistency is important because it creates a sense of order in a document while limiting the amount of clutter. A consistent page design will help your readers access information quickly, because each page is similar and predictable (Figure 18.16). When design features are used inconsistently, readers will find the document erratic and hard to interpret.

Choosing Typefaces

Consistency should be an important consideration when you choose typefaces for your document. As a rule of thumb, a document should not use more than two typefaces. Most page designers will choose two typefaces that are very different from each other, usually a *serif* typeface and a *sans serif* typeface.

A serif typeface like Times Roman, New York, or Bookman has small tips (serifs) at the ends of the main strokes in each letter (Figure 18.17). Sans serif typefaces like Arial or Helvetica do not have these small tips.

Serif fonts, like Times, New York, or Bookman, are usually perceived to be more formal and traditional. Sans serif typefaces like Helvetica seem more informal and progressive. So, designers often use serif fonts for the body of their text and sans serif in the headings, footers, captions, and titles (Figure 18.18). Using both kinds of typefaces gives a design a progressive and traditional feel at the same time.

Your choice of typefaces, of course, depends on the needs and expectations of your readers. Use typefaces that fit their needs and values, striking the appropriate balance between progressive and traditional design.

Labeling Graphics

Graphics such as tables, charts, pictures, and graphs should be labeled consistently in your document. In most cases, the label for a graphic will include a number.

Graph 5: Growth of Sales in the Third Quarter of 2004

Table C: Data Set Gathered from Beta Radiation Tests

Figure 10: Diagram of Wastewater Flow in Hinsdale's Treatment Plant

The label can be placed above the graphic or below it. Use the same style for labeling every graphic in the document. Then, locate the labels consistently on each graphic.

Link
For more information on labeling graphics, see Chapter 19, page 527.

For websites that discuss the history of typefaces, go to **www.pearsonhighered.com/johnsonweb4/18.10**

Using Sequential and Nonsequential Lists

Steps for Taking a Digital Picture

Follow these simple steps:

1. Turn on the Digital Camera
2. Adjust Settings
3. Focus the Subject
4. Shoot the Picture
5. Check the Results
6. Turn Off the Camera

This sequential list orders the information into steps.

Items to Bring on This Sierra Club Outing

- Comfortable Hiking Boots
- Wide Brim Hat
- Sunscreen
- Water (at least one liter)
- Healthy Snacks (trailmix, granola bars)
- Map and Compass
- Rain Gear
- Pocket Knife
- Money (10 dollars will be enough for most emergencies)

Do Not Bring the Following Items:

- Guns or Other Weapons
- Electronic Devices (radios, televisions)
- Pets (the mountain lions might eat them)
- Bad Attitudes

These nonsequential lists signal that all the items in the lists are equal in value.

Figure 18.19: The sequential list on the left shows an ordering of the information, so it requires numbers. The nonsequential list on the right uses bullets because there is no particular ordering of these items.

Checking for Consistency

The following items should be used consistently in your document:

- Typefaces (serif and sans serif)
- Labeling of graphics
- Lists (sequential and nonsequential)
  Headers and footers

Lists make information more readable and accessible. So, you should look for opportunities to use them in your documents. If, for example, you are listing steps to describe how to do something, you have an opportunity to use a sequential list. Or, if you are creating a list of four items or more, ask yourself whether a nonsequential list would present the information in a more accessible way.

Just make sure you use lists consistently. Sequential lists should follow the same numbering scheme throughout the document. For example, you might choose a numbering scheme like (1), (2), (3). If so, do not number the next list 1., 2., 3. and others A., B., C., unless you have a good reason for changing the numbering scheme. Similarly, in nonsequential lists, use the same symbols when setting off lists. Do not use bullets (•) with one list, check marks (✓) with another, and boxes

---

Serif and Sans Serif Typefaces

Serifs   No Serifs

Figure 18.17: A serif typeface like Bookman (left) includes the small tips at the ends of letters. A sans serif typeface like Helvetica (right) does not include these tips.

Using Different Typefaces for Different Purposes

Helvetica (sans serif font) →

Bookman (serif font) →

Which Is Better? Serif or Sans Serif?

Serif typefaces are often used in traditional-looking texts, especially for the body text. Studies have suggested inconclusively that serif typefaces like Bookman are more legible, but there is some debate as to why. Some researchers claim that the serifs create horizontal lines in the text that make serif typefaces easier to follow. These studies, however, were mostly conducted in the United States, where serif typefaces are common. In other countries, like Britain, where sans serif typefaces are often used for body text, the results of these studies might be quite different.

Figure 18.18: Often, designers will choose a sans serif typeface for headings and a serif typeface for the main text.

Creating Sequential and Nonsequential Lists

Early in the design process, you should decide how lists will be used and how they will look. Lists are very useful for showing a sequence of tasks or setting off a group of items. But if they are not used consistently, they can create confusion for the readers.

When deciding how lists will look, first make decisions about the design of sequential and nonsequential lists (Figure 18.19).

Sequential (numbered) lists are used to present items in a specific order. In these lists, you can use numbers or letters to show a sequence, chronology, or ranking of items.

Nonsequential (bulleted) lists include items that are essentially equal in value or have no sequence. You can use bullets, dashes, or check boxes to identify each item in the list.

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For advice about using lists, go to
www.pearsonhighered.com/johnsonweb4/18.11

- Balance
- Alignment
- Grouping
- Consistency
- Contrast

AT A GLANCE

Design Principle 5: Contrast

Contrast makes items look distinct and different, adding energy and sharpening boundaries among the features on the page or screen.
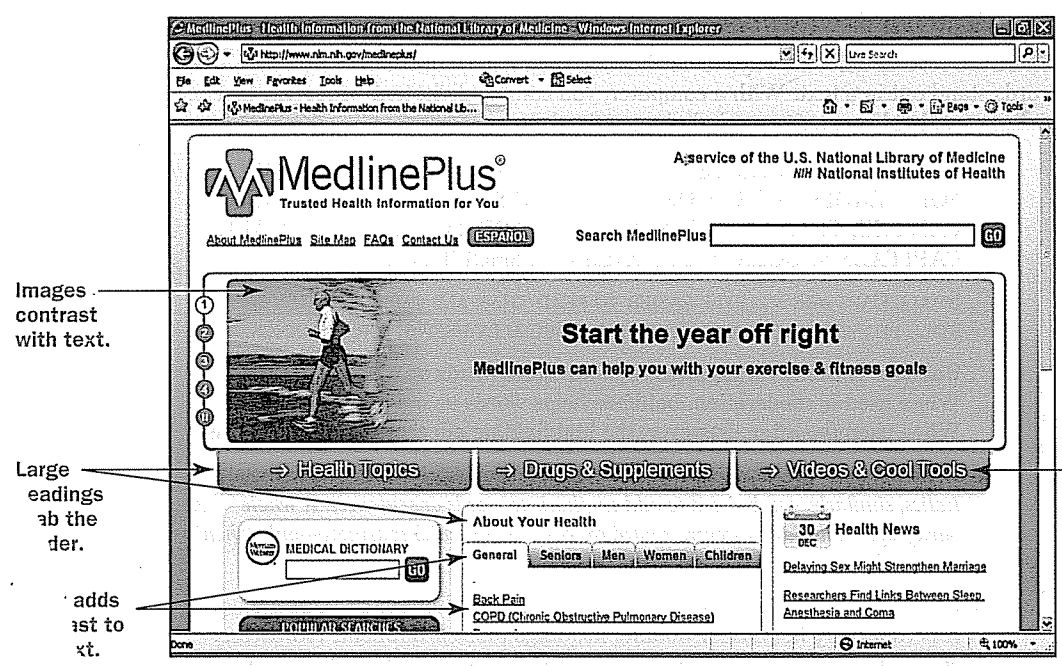
A good guideline is to "make different things on the page look very different." Contrast, as shown in Figure 18.21, makes design elements lively.

When designing a page, consider your use of contrast carefully. Word processors offer many tools for adding contrast in ways that capture readers' attention. Sometimes, though, you can accidentally create contrast problems with different colors or shading in the background—or just too much clutter on the page. In this section are some helpful tips for using contrast in documents and interfaces.

Adding Shading and Background Color

When used properly, shading and background color can help highlight important text in a document. However, these design features can also make texts hard to read. For example, Figure 18.22 shows how a lack of contrast can make text hard to read.

Contrast in a Webpage

Images contrast with text.

Large eadings ab the der.

adds st to xt.

Source: Medline Plus, http://www.medlineplus.gov.

Figure 18.21: In this webpage, contrast is used to catch the reader's eye and make the text easier to read.

Reverse type (white on dark green) draws the eye.

(■) with a third. These inconsistencies only confuse the readers. Of course, there are situations that call for using different kinds of nonsequential lists. If you need lists to serve completely different purposes, then different symbols will work—as long as they are used consistently.

Inserting Headers and Footers

Even the simplest word-processing software can put a header or footer consistently on every page. As their names suggest, a header is text that runs across the top margin of each page in the document, and a footer is text that runs along the bottom of each page (Figure 18.20).

Headers and footers usually include the company's name or the title of the document. In documents of more than a couple of pages, the header or footer (not both) should include the page number. Headers and footers often also include design features like a horizontal rule or a company logo. If these items appear at the top or bottom of each page, the document will tend to look like it is following a consistent design.

Headers and Footers

Header

The headers and footers are "mirrored" on this page.

Page numbers

Foot

Figure 18.20: A header appears consistently across the top of each page, except the first. A footer appears consistently at the bottom. A page number usually appears in either the header or the footer.
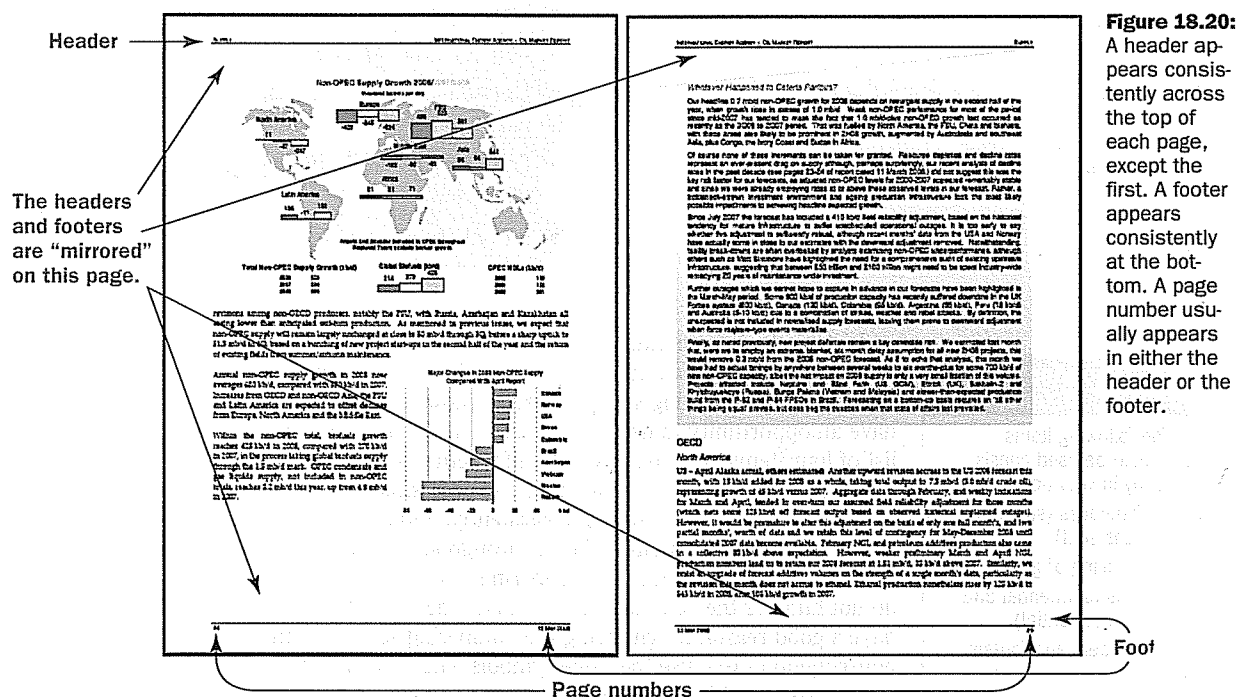
Source: Oil Market Report, May 13, 2008.

To view webpages with contrast problems, go to
www.pearsonhighered.com/johnsonweb4/18.13

Design Principle 5:
Contrast

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Need a template? Go to
www.pearsonhighered.com/johnsonweb4/18.12

| This text is set against a gray background. It is difficult to read because there is not enough contrast between the words and the background against which they are set. | This text is set against a white background. It is easier to read, because the contrast between the words and the white background is sharp and definite. |

Figure 18.22: Shaded versus unshaded text: The shaded text on the left is more difficult to read because the words do not contrast significantly with the background shading.

Background color or images can also make text on computer screens difficult to read. So use them carefully and be sure to check how backgrounds work (or don't work) with the text on the screen.

It is fine to use shading, background color, and background images. However, make sure the words on the page contrast significantly with the background.

Highlighting Text

There are several different ways to use highlighting, a form of contrast, to make words stand out in a text. With a computer, you can highlight text with ALL CAPS, SMALL CAPS, **boldface**, *italics*, underlining, and color.

ALL CAPS SHOULD BE USED IN MODERATION, USUALLY ONLY FOR HEADINGS OR SHORT WARNING STATEMENTS. AS YOU CAN SEE, THESE SENTENCES ARE HARD TO READ. ALSO, ALL CAPITALS SUGGESTS LOUDNESS OR SHOUTING.

SMALL CAPS ARE A LITTLE EASIER TO READ THAN ALL CAPS BUT THEY SHOULD STILL BE USED SPARINGLY. THEY ARE ESPECIALLY USEFUL FOR HEADINGS.

Boldface is useful for highlighting individual words or whole sentences. When used in moderation, boldface helps words or sentences stand out. When used too often, however, the highlighting effect is reduced because readers grow used to the bold text.

Italics, similarly, can be used to add emphasis to words or sentences. A whole paragraph in italics, however, is hard to read, so use italics sparingly—only when you need it.

Color is perhaps the most prominent way to highlight words or sentences. It is especially helpful for making headings more prominent. However, color can be distracting when it is overused. So use it selectively and consistently.

Underlining is rarely used now that we have other ways to highlight text. Underlining was effective when typewriters were widely used, because it was the only way (except for all caps) to highlight information. Computers, however, now give us better options for highlighting like italics, boldface, and color.

Highlighting is an easy way to create contrast in a document. When used selectively, it can make important words or sentences pop off the page. If it is overused, though, readers become immune to it.

Using Font Size and Line Length

Your decisions about font size, line length, and line spacing should depend on the readers of your document.

APPROPRIATE FONT SIZE   The font size you choose for your text depends on how your readers will be using the text.

For most readers, text in 11-point or 12-point font sizes is easy to read.

Fonts smaller than 10 points can be difficult to read, especially when used for a longer stretch of text. When a page length is required for a document, it is often tempting to use a smaller font, so more words can be put on a page. But most people quickly grow tired of straining their eyes to read the text. You are better off using a normal-sized font with fewer words. That way, at least the readers will actually read the text.

Large font sizes (above 14 points) should be used only for special purposes, such as documents written for older readers or situations where the text needs to be read at a distance. When used at length, these larger sizes can make a text look childish. Extra-large font sizes usually suggest that the writer is simply filling a page to hide a lack of content.

PROPER LINE LENGTH   Line length is also an important choice in a document. Readers who scan usually prefer a shorter line length, making columns especially useful for documents that will be read quickly.

However, when lines are short, they force readers to quickly look

back and forth.
Eventually, these short
lines will frustrate
readers because they
require such rapid
movement of the eyes.
They also seem to suggest
fragmented thinking on
the part of the writer,
because the sentences
look fragmented.

Longer line lengths can have the opposite effect. Readers quickly grow tired of following the same line for several inches across the page. The lines seem endless, giving readers the impression that the information is hard to process. More important, though, readers will find it difficult to locate the next line on the left side. A line should never be wider than 6 inches across.

As you consider font size and line length, you should anticipate how your readers will use your document. If they will be scanning, shorter line lengths will help them read quickly. If they will not be scanning, longer lines are fine. Then, choose the font size or line length that suits their needs.

Cross-Cultural Design

As the global economy grows, designing documents for cross-cultural readers may be one of the greatest challenges facing technical communicators. Today, most international readers are adjusting to Western design practices. But, with the global reach of the Internet and the growth of economies around the world, international readers are beginning to expect documents and interfaces to reflect their own cultural design conventions.

When designing cross-culturally, your first consideration is whether your document or interface needs a "culturally deep" or a "culturally shallow" design.

- **Culturally deep** documents and interfaces use the language, symbols, and conventions of the target culture to reflect readers' design preferences and expectations. To develop a culturally deep design, you probably need help from designers or consultants who are familiar with the target culture and understand its design expectations.
- **Culturally shallow** documents and interfaces usually follow Western design conventions, but they adjust to reflect some of the design preferences of the cultures in which they will be used. They also avoid any cultural taboos of the people who are likely to use the text. Culturally shallow designs tend to be used in documents or interfaces that need to work across a variety of cultures.

Unless your company is targeting its products or services to a specific culture (e.g., a nation like Korea or Zimbabwe), most of your documents or interfaces will need to be culturally shallow so that they can work across a variety of cultures.

Culturally shallow designs usually consider four design issues: use of color, use of people, use of symbols, and direction of reading.

Use of color—Choice of colors in a cross-cultural document can influence how readers interpret the message, because colors can have different meanings across cultures. For instance, the use of red in Japan signals anger, while in China red signals happiness. The use of red in Egypt symbolizes death. Meanwhile, the color green in France symbolizes criminality, while in the United States green symbolizes moving forward or environmental consciousness. Figure 18.23 shows how some common colors are perceived across cultures. When designing your document or interface, you should use colors that reflect the expectations of the likely readers (or at least avoid colors that have negative associations).

Images of people—Cross-cultural texts should use images of people carefully. Avoid big smiles, highly emotional expressions, suggestive behavior, and flashy clothing. In pictures, interactions between women and men should avoid sending mixed signals. In some cultures, especially Islamic cultures, images of people are used only when "needed." The definition of "need" varies among Islamic subcultures, but images tend to be used only for purposes of identification.

Colors in Other Cultures

Color	Japan	France	China	Egypt	United States
Red	Anger, danger	Aristocracy	Happiness	Death	Danger, stop
Blue	Villainy	Freedom, peace	Heavens, clouds	Virtue, faith, truth	Masculine, conservative
Green	Future, youth, energy	Criminality	Ming Dynasty, heavens	Fertility, strength	Safe, go, natural
Yellow	Grace, nobility	Temporary	Birth, wealth, power	Happiness, prosperity	Cowardice, temporary
White	Death	Neutrality	Death, purity	Joy	Purity, peace, marriage

Figure 18.23:
Colors can have very different meanings in different cultures. In some cases, the meanings of colors may even be contradictory among cultures.

Source: From Patricia Russo and Stephen Boor, "How Fluent Is Your Interface? Designing for International Users." In S. Ashlund, K. Mullet, A. Henderson, E. Hollnagel, and T. White, eds., Proceedings of the INTERACT '93 and CHI '93 Conference on Human Factors in Computing Systems, pp. 342–347, Table 1. © 1993 ACM, Inc. Reprinted by permission. http://doi.acm .org/10.1145/169059.169274.

Using the Principles of Design

Balance, alignment, grouping, consistency, contrast: These five basic design principles should help you create easy-to-read page layouts and screen interfaces that highlight important information and attract your readers.

In many ways, designing documents is like drafting the written text in your documents. You should go through a process—in this case, a *design process*.

Analyze your readers and the document's context of use.

Use thumbnails to sketch out the design.

Design the document.

Revise and edit the design.

As with drafting, each stage in the process takes you closer to a finished document.

Analyze Your Readers and the Document's Context of Use

You should begin designing a document by first looking back at your analyses of your readers and the contexts in which they will use your document. Different kinds of readers will have different expectations and preferences for the design of your document. A more traditional reader, for example, might prefer a conservative layout with simple headings and a one-column or two-column layout. A more progressive reader might prefer a bolder layout with more color and contrast.

As you consider your readers, try to match your design to the tone you are setting in the written part of the document. Positive, exciting themes in the written text should be reflected in the color and boldness of the design. Serious or somber themes should be reflected with subdued color schemes and a plainer design.

The context in which your document will be used should also play an important role in helping you decide on the appropriate design. Pay special attention to the *physical context* in which the readers will be using your document. Will they be in a meeting? At a worksite? In their living rooms?

Each of these contexts might shape how you will design the document. For example, if you know your readers will be discussing your document in a meeting, you might use margin notes and lists to highlight information that will be discussed at the meeting. That way, your readers will be able to quickly find "talking points" in your document that they can share with others in the meeting.

Use Thumbnails to Sketch Out the Design

Next, start sketching out how you think the design will look. Professional graphic designers often use *thumbnails* to sketch out possible layouts for their documents or screen interfaces. Thumbnails can be sketched by hand, usually with pencil, or with a computer drawing program (Figure 18.25). They are miniature versions of the pages.

Thumbnailing is especially helpful when you are working with a team. With little effort, you can quickly sketch out sample pages or screen interfaces. When the group agrees, you can then use these sketches to help you lay out the page. The simplest way to thumbnail pages is to fold a regular sheet of paper into four parts (i.e., fold it once lengthwise and once horizontally). The folds will then give you four separate

Use of symbols—Common symbols can have very different meanings in different cultures. For example, in many cultures, the "OK" hand signal is highly offensive. Uses of crescent symbols (i.e., moons) or crosses can have a variety of religious meanings. White flowers or a white dress can signify death in many Asian cultures. To avoid offending readers with symbols, a good approach is to use only simple shapes (e.g., circles, squares, triangles) in cross-cultural documents.

Direction of reading—Many cultures in the Middle East and Asia read right to left instead of left to right. As a result, some of the guidelines for balancing a page design discussed earlier in this chapter should be reversed. For example, a document or interface that reads right to left tends to be anchored on the right side. Otherwise, the text will look unbalanced to a right-to-left reader. Figure 18.24, for example, shows a website that is designed right to left for Middle Eastern readers.

Cross-cultural design can be very challenging. The secret is to consult with people from the target culture and/or use consultants to help you design your documents and interfaces. Then, be ready to learn from your mistakes.
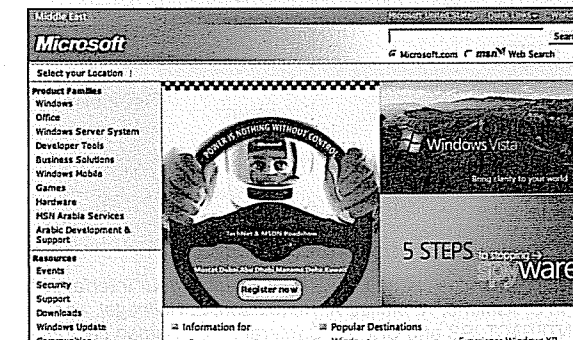
A Right-to-Left Interface Design

Figure 18.24: These interfaces demonstrate a right-to-left versus left-to-right design of the same webpage. Note how the Middle Eastern webpage (top) is anchored on the right, mirroring the design in the Western webpage (bottom).

Source: Microsoft, http://www.microsoft.com.

For more advice on thumbnailing, go to
www.pearsonhighered.com/johnsonweb4/18.14

Using the Principles of Design

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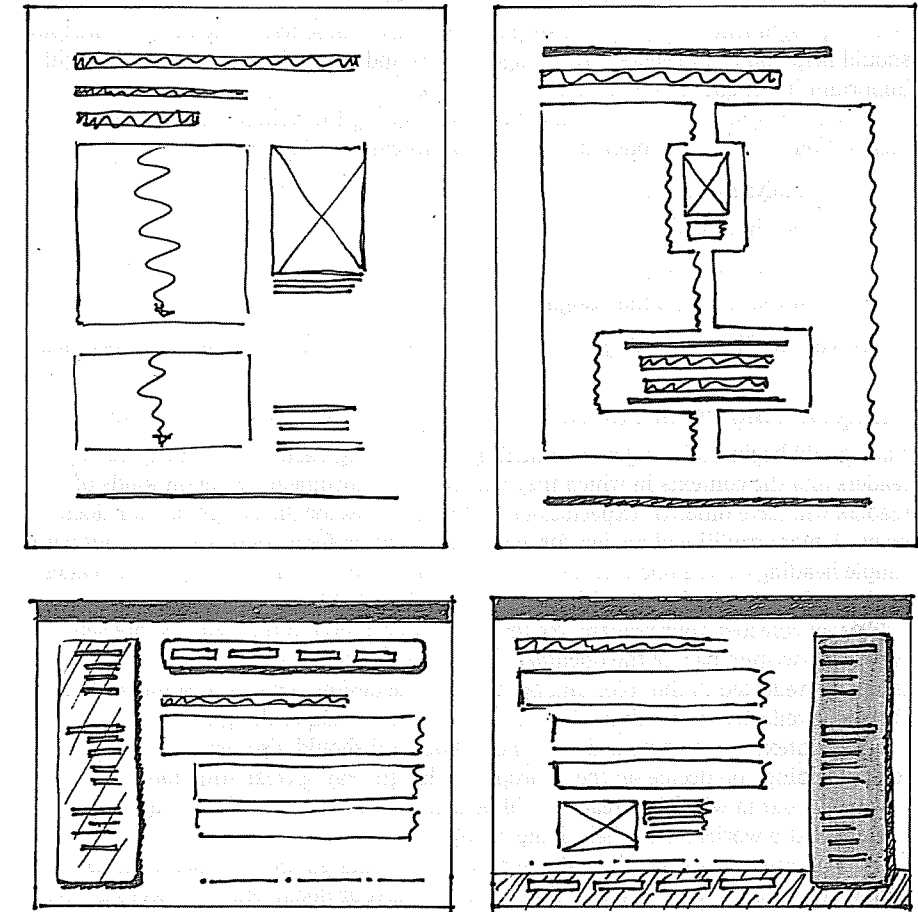Designing
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Figure 18.25: Thumbnails are miniature sketches of possible page or screen layouts. They help you find a good design with a minimum amount of effort.

"pages" to practice on. For computer interfaces, simply turn the sheet sideways. You will have four rectangles that are each about the shape of a screen.

One nice thing about designing with thumbnails is how easy they are to use. It takes only seconds to sketch out a few layouts. If you or other people on your team don't like the sketches, you can toss them in the recycling bin and start again. Thumbnails require much less effort than an attempt to develop a full layout of a page or document. As a result, you will have more freedom to be creative and to try out a few different designs for the document.

Design the Document

Usually, the design is developed as the document is drafted. You don't need to wait until the entire document is written before you start laying out some of its pages. In fact, it is better to begin designing *before* the whole document is drafted. That way, the design might help you (1) identify gaps in the content; (2) find places where visuals, like graphs and charts, are needed; and (3) locate places in the document where supplemental text, like sidebars or margin notes, might be added to enhance the readability.

When you or your team have drafted a few pages of written text, you should try turning your thumbnails into page designs. Of course, the text will change as the drafting continues. But the actual written words will help you see how the document is going to look on paper or on the screen. Then, you can start using templates and/or grids to lay out information on the page. Make sure you create a flexible enough design for your document, leaving plenty of room for graphics and other visual elements.

As the drafting of the document nears completion, use your sample pages to guide the design of the rest of the pages.

Revise and Edit the Design

Revising and editing a document's design is similar to revising and editing the written text. Start looking over the document globally, paying attention to issues of balance, alignment, grouping, consistency, and contrast. Then, examine the document page by page to see if the visuals are consistent and appropriate.

Finally, proofread the design. While proofreading, you are going to find places where smaller alterations and corrections are needed. You should take the time to iron out these little wrinkles. After all, small inconsistencies and errors in the design will draw readers' attention away from the written text.

A Primer on Binding and Paper

In the technical workplace, most documents are printed on standard-sized paper—the kind you use in your copier or printer. There will be times, though, when you will need to make decisions about how your document will be bound, as well as decisions about the size, weight, and color of the paper. As copiers become more sophisticated, you may find yourself making these decisions with more frequency.

Here is a quick primer to help you choose binding and paper.

Binding

In most cases, technical documents are bound with a paper clip, a staple, or perhaps a three-ring binder. But if you are interested in a more permanent type of binding, here are a few of your options.

PERFECT BINDING   In this method, glue is applied to the back edge of the pages, and the pages are then inserted into a cover (Figure 18.26). Perfect binding is a relatively inexpensive option for binding larger documents. The downside is that, with time, the binding will eventually come loose. When the binding begins to fail, pages will fall out of the document.

Selecting the Paper

Your choice of paper depends on the needs of your readers and the contexts in which the document will be used.

SIZE A standard sheet of paper in North America is 8.5 × 11 inches, while most other countries use a metric sheet of paper called A4, which is slightly larger at 21.0 centimeters × 29.7 centimeters. You can fold standard-sized sheets in half lengthwise or widthwise to make a nice booklet. You can fold a standard-sized sheet into three panels to make a brochure. Meanwhile, a double sheet (11 × 17 inches or 42 centimeters × 29.7 centimeters) is available in many copiers. You can fold one of these sheets in half to make two standard sheets.

Other sizes can also be used. You should talk to a printer or copy shop about what sizes are available. If you want an irregular size of paper, the cost of printing will go up significantly.

WEIGHT Paper comes in a variety of weights. The paper that you use in your printer or a copier is probably *20-pound bond,* which is a relatively lightweight paper. You can choose heavier paper if you want to add firmness to the document. For a cover, you might even choose a 60-pound or heavier card stock to make the document stiffer.

COLOR Paper comes in a variety of colors. When choosing a color, you should keep two things in mind. First, you want the words and images to *contrast* significantly with the page. Black words printed on a gray-colored sheet of paper, for instance, will often be difficult to read. Second, you do not want the color to interfere with any duplicating that the readers might need to do. A mauve-colored document, for example, is not going to duplicate well on a copy machine. To avoid problems with contrast and duplication, in most cases, your best choices for paper colors are white or off-white.

GLOSSY OR MATTE Increasingly, people are able to choose whether the paper is glossy or matte. Glossy paper is smooth and shiny and is often used in magazines or annual reports. Matte paper has a rougher texture and is not shiny, like the paper in your printer or copier. Most professional printers can offer you glossy paper for important documents (but at a higher expense).

Desktop publishing systems are giving us more options for binding and paper choices. As copiers grow more sophisticated, you might find yourself making these kinds of choices about the binding and paper used in your documents.

Different Kinds of Bindings

Perfect Binding

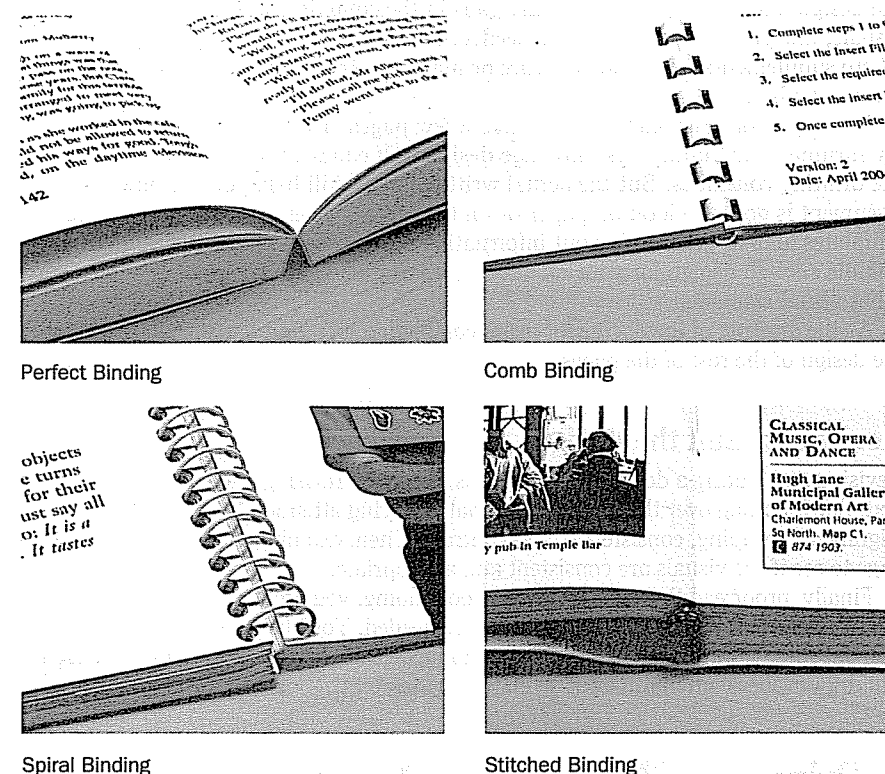Comb Binding

Spiral Binding

Stitched Binding

Figure 18.26: The four most common kinds of bindings include perfect binding, comb binding, spiral binding, and sewn or stitched binding. All four have their advantages and disadvantages.

COMB BINDING For comb binding, slots are punched along the back edge of the pages. Then, a machine is used to insert a plastic comb binder. This kind of binding is usually the least expensive, especially for smaller documents. However, comb binding often comes loose with heavy usage. Also, over time, the plastic combs become brittle and break.

SPIRAL BINDING This method is similar to comb binding, except holes are drilled or punched into the pages and a wire spiral is threaded through the holes. Compared to comb binding, spiral binding is much more secure but is also more expensive. This binding is great for documents that need to lay flat when open.

SEWN OR STITCHED BINDING Here, sheets of paper are sewn or stapled together down the middle fold. Many hardback books are made with one of these two methods. Expensive hardbacks that are meant to last will be sewn with thread. Less expensive hardbacks will have two or three staples down the middle fold. In large books, sections of the book (called *signatures*) are sewn or stitched together. Then, these signatures are placed side by side and bound into the cover.

Interested in learning more about paper? Go to
www.pearsonhighered.com/johnsonweb4/18.16

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Chapter 18
Designing
Documents and
Interfaces

altered rhetorical situation. For example, you might redesign a user's manual to accommodate the needs of 8-year-old children. You might turn a normal-sized document into a poster that can be read from a distance. In a memo to your instructor, discuss the changes you made to the document. Show how the changes in the rhetorical situation led to alterations in the design of the document. Explain why you think the changes you made were effective.

4. On the Internet, find an international company's website that is intended to work cross-culturally. In a presentation to your class, explain why you believe the site is culturally shallow or culturally deep. How have the designers of the website made adjustments to suit the expectations of people from a different culture? How might they improve the design to make it more effective for the target readers?

Collaborative Project

With other members of your class, choose a provider of a common product or service (for example, a car manufacturer; mobile phone, computer, clothing, or music store; museum; or theater). Then, find the websites of three or four competitors for this product or service.

Using the design principles you learned in this chapter, critique these websites by comparing and contrasting their designs. Considering its target audience, which website design seems the most effective? Which is the least effective? Explain your positive and negative criticisms in some depth.

Then, using thumbnails, redesign the weakest site so that it better appeals to its target audience. How can you use balance, alignment, grouping, consistency, and contrast to improve the design of the site?
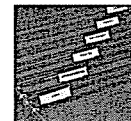
In a presentation to your class, discuss why the design of one site is stronger and others are weaker from a design perspective. Then, using an overhead projector, use your thumbnails to show how you might improve the design of the weakest site you found.

For additional technical writing resources, including interactive sample documents, document design tutorials and guidelines, and more, go to www.mytechcommlab.com.
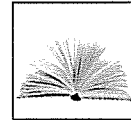
- Good design allows readers to (1) easily scan a document, (2) access the document to find the information they need, (3) understand the content more readily, and (4) appreciate the appearance of the document.

- The five principles of document design are balance, alignment, grouping, consistency, and contrast.

- On a balanced page, elements offset each other to create a stable feeling in the text. Unbalanced pages add tension to the reading process.

- Alignment creates relationships among items in a text and helps readers determine the hierarchical levels in the text.

- Grouping divides text into "scannable" blocks by using headings, rules, and borders to make words and images easier to comprehend.

- Consistency makes documents more accessible by making features predictable; inconsistent documents are harder to read and interpret.

- Contrast can cause text features or elements to stand out, but contrast should be used with restraint so that text elements work together rather than compete against each other.

- Documents and interfaces that need to work cross-culturally can use a culturally shallow design or a culturally deep design.

- Use a design process that includes (1) analyzing your readers and your document's context of use, (2) using thumbnails to rough out the design, (3) designing the document, and (4) revising and editing the design.

- You can choose from a variety of bindings and paper sizes, weights, and colors.

Individual or Team Projects

1. On campus or at your workplace, find a poorly or minimally designed document. If you look on any bulletin board, you will find several good documents you can use. In a memo to your instructor, critique this document using the five design principles discussed in this chapter. Explain how the document fails to follow the principles.

2. Read the Case Study at the end of this chapter. Using the design principles discussed in this chapter, sketch out some thumbnails of a better design for this document. Then, using your word processor, develop an improved design. In a memo to your instructor, compare and contrast the old design with the new one, showing why the new design is superior.

3. Find a document that illustrates good design. Then, change some aspect of its rhetorical situation (purpose, readers, context). Redesign the document to fit that

Figure A:
This document's design is rather minimal and perhaps less than effective for the readers who might use it. How could the design be improved?

CHAPTER 13

IPM FOR SCORPIONS IN SCHOOLS

INTRODUCTION

Scorpions live in a wide variety of habitats from tropical to temperate climates and from deserts to rain forests. In the United States they are most common in the southern states from the Atlantic to the Pacific. All scorpions are beneficial because they are predators of insects.

The sting of most scorpions is less painful than a bee sting. There is only one scorpion of medical importance in the United States: the sculptured or bark scorpion, Centruroides exilicauda (=sculpturatus). The danger from its sting has been exaggerated, and its venom is probably not life-threatening. This species occurs in Texas, western New Mexico, Arizona, northern Mexico, and sometimes along the west bank of the Colorado River in California.

IDENTIFICATION AND BIOLOGY

Scorpions range from 3/8 to 8 1/2 inches in length, but all scorpions are similar in general appearance.

Scorpions do not lay eggs; they are viviparous, which means they give birth to live young. As embryos, the young receive nourishment through a kind of "placental" connection to the mother's body. When the young are born, they climb onto the mother's back where they remain from two days to two weeks until they molt (shed their skin) for the first time. After the first molt, the young disperse to lead independent lives. Some scorpions mature in as little as six months while others take almost seven years.

All scorpions are predators, feeding on a variety of insects and spiders. Large scorpions also feed on small animals including snakes, lizards, and rodents. Some scorpions sit and wait for their meal to come to them while others actively hunt their prey. Scorpions have a very low metabolism and some can exist for 6 to 12 months without food. Most are active at night. They are shy creatures, aggressive only toward their prey. Scorpions will not sting humans unless handled, stepped on, or otherwise disturbed.

It is rare for scorpions to enter a building since there is little food and temperatures are too cool for their comfort. There are some exceptions to this rule. Buildings in new developments (less than three years old) can experience an influx of scorpions because the construction work has destroyed the animals' habitat. In older neighborhoods, the heavy bark on old trees provide good habitat for scorpions, and they may enter through the more numerous cracks and holes in buildings in search of water, mates, and prey. Also, buildings near washes and arroyos that are normally dry may become refuges for scorpions during summer rains.

Scorpions do not enter buildings in winter because cold weather makes them sluggish or immobile. They are not active until nighttime low temperatures exceed 70°F. Buildings heated to 65½ or 70°F provide enough warmth to allow scorpions to move about. Scorpions found inside buildings in cold weather are probably summer visitors that never left. Although scorpions prefer to live outdoors, they can remain in buildings without food for long periods of time.

STINGS

A scorpion sting produces considerable pain around the site of the sting, but little swelling. For four to six hours, sensations of numbness and tingling develop in the region of the sting, then symptoms start to go away. In the vast majority of cases, the symptoms will subside within a few days without any treatment.

If the sting is from a bark scorpion, symptoms can sometimes travel along nerves, and tingling from a sting on a finger may be felt up to the elbow, or even the shoulder. Severe symptoms can include roving eyes, blurry vision, excessive salivation, tingling around the mouth and nose, and the feeling of having a lump in the throat. Respiratory distress may occur. Tapping the sting can produce extreme pain. Symptoms in children also include extreme restlessness, excessive muscle activity, rubbing at the face, and sometimes vomiting. Most vulnerable to the sting of the bark scorpion are children under five years and elderly persons who have
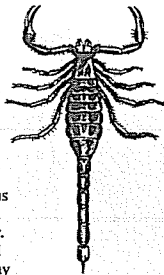
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Source: U.S. Environmental Protection Agency, http://www.epa.gov/pesticides/ipm/schoolipm.

(continued)

Scorpions Invade

Lois Alder is a U.S. Environmental Protection Agency biologist in western Texas who specializes in integrated pest management (IPM). The aim of IPM is to use the least toxic methods possible for controlling insects, rodents, and other pests. Lois's job is to help companies, schools, and government organizations develop IPM strategies to minimize their use of pesticides, especially where people live, work, and play.

Recently, a rural school district outside El Paso, Texas, was experiencing an infestation of scorpions. Scorpions were finding their way into classrooms, and they were regularly found in the schoolyards around the buildings. Teachers and children were scared, though no one had been stung yet. Parents were demanding that the school district do something immediately.
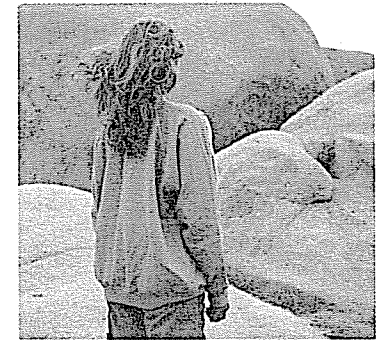
In a conference call, Lois talked to the principals and custodians of the schools. The custodians said they just wanted to "nuke" the scorpions by spraying large amounts of pesticides in and around the buildings. But this solution would expose the children, teachers, and staff at the schools to high levels of toxins. Lois convinced them that they should first try an IPM approach to the problem. She said she would quickly set up a training program to help them. Lois knew, though, that she needed to send these school officials some information right away.

From the EPA website, Lois downloaded a well-written chapter, "IPM for Scorpions in Schools" (Figure A) (http://www.epa.gov/pesticides/ipm/schoolipm/). The design of the document, however, was a bit bland, and Lois was concerned that school officials, especially the custodians, would not read it carefully. Moreover, she knew that some of the custodians had poor reading skills.

So, she decided she would need to redesign the document to make it more accessible. She wanted to highlight the need-to-know information while stripping out any information that the school officials would not need. If you were Lois, how would you use the principles of design discussed in this chapter to redesign this document? How could you make this document more accessible to the people who need to use it? How could you make it more attractive and interesting to its likely readers?