

## Graphics, Images, and Multimedia

### **Graphics are used on many, if not most, Web**

pages. When used appropriately, graphics can facilitate learning. An important image to show on most pages of a site is the organization's logo. When used appropriately, images, animation, video, and audio can add tremendous value to a Web site. When animation is used appropriately, it is a good idea to introduce the animation before it begins.

Many images require a large number of bytes that can take a long time to download, especially at slower connection speeds. When images must be used, designers should ensure that the graphics do not substantially slow page download times. Thumbnail versions of larger images allow users to preview images without having to download them.

Sometimes it is necessary to label images to help users understand them. Usability testing should be used to help ensure that Web site images convey the intended message. In many cases, the actual data should be included with charts and graphs to facilitate fast and accurate understanding.

It is usually not a good idea to use images as the entire background of a page. Complex background images tend to slow down page loading, and can interfere with reading the foreground text.

Experienced users tend to ignore graphics that they consider to be advertising. Designers should ensure that they do not create images that look like banner ads. Also, they should be careful about placing images in locations that are generally used for advertisements.

## 14:1 Use Simple Background Images

Relative Importance:

12340

Strength of Evidence:

12345

**Guideline:** Use background images sparingly and make sure they are simple, especially if they are used behind text.

**Comments:** Background images can make it difficult for users to read foreground text. A single, large, complex background image (including a picture) can substantially slow page download rates. If background images must be employed, use small, simple images with 'tiling,' and/or keep the image resolution as low as possible.

**Sources:** Boyntoin and Bush, 1956; Cole and Jenkins, 1984; Detweiler and Omanson, 1996; Hackman and Tinker, 1957; Jenkins and Cole, 1982; Levine, 1996; Levy, et al., 1996; Spencer, Reynolds and Coe, 1977a; Spencer, Reynolds and Coe, 1977b; Tinker and Paterson, 1931; Tinker, 1963.

**Example:** Complex graphics can obscure text, making it very difficult for users to read the site's content.

**U.S. Department of the Interior**  
**Indian Arts and Crafts Board**  
 Mission and Activities

**Indian Arts and Crafts Act of 1990** The Indian Arts and Crafts Board, a separate agency located in the U.S. Department of the Interior, was created by Congress to promote the economic development of American Indians and Alaska Natives through the expansion of the Indian arts and crafts market. A top priority of the Board is the implementation and enforcement of the Indian Arts and Crafts Act of 1990, a truth-in-advertising law that provides criminal and civil penalties for marketing products as "Indian-made" when such products are not made by Indians, as defined by the Act.

**Indian Arts and Crafts Board Commissioners**

**Indian Arts and Crafts Board Museums**

**Museum Exhibitions** The Board's other activities include providing professional business advice, information on the Act and related marketing issues, fundraising assistance, and promotional opportunities to Native American artists, craftspeople, and cultural organizations. As an integral part of its mission to promote contemporary Indian arts and crafts, the Board operates three regional museums, the Sioux Indian Museum, the Museum of the Plains Indian, and the Southern Plains Indian Museum. The Board also produces a consumer directory of approximately 190 Native American owned and operated arts and crafts businesses.

**Source Directory of Arts and Crafts Businesses**

**Link to DOI Home Page**

**Email the Indian Arts and Crafts Board**

**Contact the Indian Arts and Crafts Board** These activities are not duplicated in either the federal or private sector. The Indian Arts and Crafts Board is the only federal agency that is consistently and exclusively concerned with the economic benefits of Native American cultural development. The Board's policies are determined by five commissioners who are appointed by the Secretary of the Interior, and serve without compensation. The Board's activities and programs are carried out by a professional, experienced staff.

*You are our 25638th visitor.*

An independent agency of the United States Government charged with monitoring and encouraging compliance with the Helsinki Final Act and other commitments of the 55 countries participating in the Organization for Security and Cooperation in Europe (OSCE).

## 14:2 Label Clickable Images

Relative Importance:

1 2 3 4 ○

Strength of Evidence:

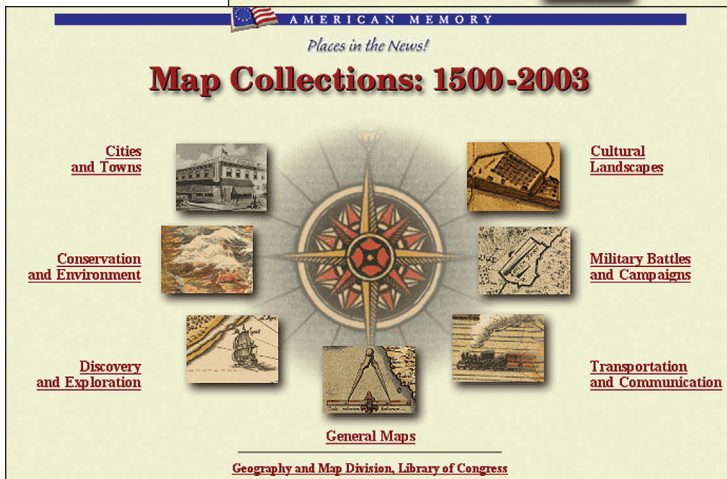
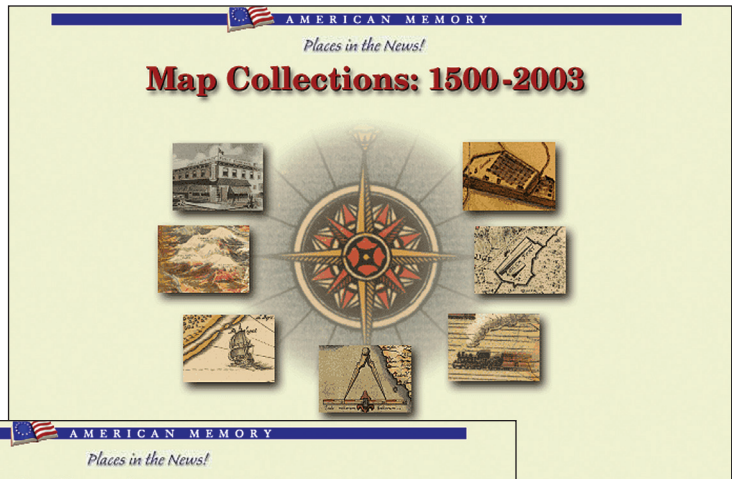
1 2 3 4 ○

**Guideline:** Ensure that all clickable images are either labeled or readily understood by typical users.

**Comments:** Occasional or infrequent users may not use an image enough to understand or remember its meaning. Ensure that images and their associated text are close together so that users can integrate and effectively use them together. Additionally, alt text should accompany every clickable image.

**Sources:** Booher, 1975; Evans, 1998; Hackman and Tinker, 1957; Spool, et al., 1997; Tinker and Paterson, 1931; Vaughan, 1998; Williams, 2000.

**Example:**



The addition of labels is essential for a user to understand the clickable image links.

# 14:3 Ensure that Images Do Not Slow Downloads

**Guideline:** Take steps to ensure that images on the Web site do not slow page download times unnecessarily.

Relative Importance:



Strength of Evidence:



**Comments:** User frustration increases as the length of time spent interacting with a system increases. Users tolerate less delay if they believe the task should be easy for the computer. One study reported that users rated latencies of up to five seconds as 'good.' Delays over ten seconds were rated as 'poor.' Users rate pages with long delays as being less interesting and more difficult to scan. One study reported no relationship between slow page download times and users giving up.

To speed download times, use several small images rather than a single large image on a page; use interlacing or progressive images; and use several of the same images. Designers should also minimize the number of different colors used in an image and put HEIGHT and WIDTH pixel dimension tags in an image reference. To achieve faster response time for users with dial-up modems, limit page size to less than 30,000 bytes.

**Sources:** Bouch, Kuchinsky and Bhatti, 2000; Farkas and Farkas, 2000; Marchionini, 1995; Martin and Corl, 1986; Nielsen, 1996a; Nielsen, 1997a; Nielsen, 1999c; Nielsen, 2000; Perfetti, 2001; Ramsay, Barbesi and Preece, 1998; Schroeder, 2003; Sears, Jacko and Borella, 1997; Selvidge, Chaparro and Bender, 2001; Shneiderman, 1984; Tullis, 2001.

**Example:**

The entire main content area - the background, text and photo is one large image. The page would load much quicker if normal html had been used here.



## 14:4 Use Video, Animation, and Audio Meaningfully

**Guideline:** Use video, animation, and audio only when they help to convey, or are supportive of, the Web site's message or other content.

**Relative Importance:**

1 2 3 4 5

**Strength of Evidence:**

1 2 3 4 5

**Comments:** Multimedia elements (such as video, animation, and audio) can easily capture the attention of users; therefore, it is important to have clear and useful reasons for using multimedia to avoid unnecessarily distracting users. Some multimedia elements may take a long time to download, so it is important that they be worth the wait.

Used productively, multimedia can add great value to a site's content and help direct users' attention to the most important information and in the order that it is most useful.

**Sources:** Campbell and Maglio, 1999; Chen and Yu, 2000; Faraday and Sutcliffe, 1997; Faraday, 2000; Faraday, 2001; Harrison, 1995; Nielsen, 2000; Park and Hannafin, 1993; Reeves and Rickenberg, 2000; Spinillo and Dyson, 2000/2001; Sundar, Edgar and Mayer, 2000.

## 14:5 Include Logos

**Guideline:** Place your organization's logo in a consistent place on every page.

**Relative Importance:**

1 2 3 4 5

**Strength of Evidence:**

1 2 3 4 5

**Comments:** Users are frequently unaware when they click through to a different Web site. Having a logo on each page provides a frame of reference throughout a Web site so that users can easily confirm that they have not left the site. Ideally, the logo should be in the same location on each page: many designers place the logo in the top left corner.

**Sources:** Adkisson, 2002; Farkas and Farkas, 2000; Marchionini, 1995; Nall, Koyani and Lafond, 2001; Nielsen, 1999d; Omanson, Cline and Nordhielm, 2001; Omanson, et al., 1998; Osborn and Elliott, 2002; Spool, et al., 1997.

**Example:**



## 14:6 Graphics Should Not Look like Banner Ads

**Guideline:** Do not make important images look like banner advertisements or gratuitous decorations.

**Relative Importance:**

1 2 3 4 ○

**Strength of Evidence:**

1 2 3 4 ○

**Comments:** In a recent study, a graphic developed to inform users about access to live help was not clicked because many users thought it was an advertisement. Even though the graphic was larger than most other graphics on the page, some users missed the item completely because the graphic looked too much like a decoration or a banner advertisement.

**Sources:** Ahmadi, 2000; Badre, 2002; Bayles, 2002; Benway, 1998; Ellis and Kurniawan, 2000.

**Example:** This graphic, which contains three major, linked headers, looks like a banner advertisement. Consequently, users may skip over this design element, thus missing the headers.

The President's Council on Physical Fitness and Sports

**Get Up. Get Out.**

About PCPFS    President's Challenge    Presidential Sports Award

**NEWS!**

[PCPFS Mourns Longtime Physical Activity Advocate](#)

['COUNCIL CHAIRMAN TESTIFIES "It's Never Too Late to Move for Health"](#)

[REMARKS OF CHAIRMAN LYNN SWANN AT THE NATIONAL PRESS CLUB](#)

[COUNCIL ANNOUNCES NEW FITNESS AWARD TO ENCOURAGE PHYSICAL ACTIVITY](#)

[COUNCIL MEMBERS SHARE FITNESS TIPS](#)

**FAST FACTS ABOUT THE PRESIDENT'S COUNCIL**

Click on the links below for more information:

- [New Executive Order for the President's Council.](#)
- [Biographies of the Council members.](#)
- [President's Council Fact Sheet.](#)
- [Physical Activity Fact Sheet.](#)
- [History of the President's Council.](#)
- [Report "Physical Activity Fundamental to Preventing Disease" available online.](#)
- [Diversity Still On The Rise. New Data Show](#)

*If you're interested in adding life to your years, and years to your life...*

See page xxii  
for detailed descriptions  
of the rating scales

1 2 3 4 ○

## 14:7 Limit Large Images Above the Fold

Relative Importance:

1234○

Strength of Evidence:

123○○

**Guideline:** Do not fill the entire first screenful with one image if there are screenfuls of text information below the fold.

**Comments:** Large graphics that cover most of the screen at the top of the page suggest to users that there is no more information below the graphic. In one study, because a graphic filled the screen, some users did not use the scrollbar to scroll down to more content. In fact, some users did not even suspect that more information might be located below the fold.

**Sources:** Bailey, Koyani and Nall, 2000; Chen and Yu, 2000; Golovchinsky and Chignell, 1993; Nielsen and Tahir, 2002.

**Example:** As the scroll bar shows, there are several additional screenfuls of information below this large navigation graphic. Users may not look at the scroll bar, thus missing that information.



**Guideline:** Ensure that Web site images convey the intended message to users, not just to designers.

**Relative Importance:**

12340

**Strength of Evidence:**

12300

**Comments:** Users and designers tend to differ in what they think is appropriate to convey a message. When attempting to select the best graphic from a set of graphics, users tend to select those that most other users would have selected (i.e., those that look familiar), while most developers favor graphics that look more artistic. One study found that seventy-five percent of users are able to find information on a content and link-rich site, whereas only seventeen percent could find the same information on a graphic-intensive site.

**Sources:** Ahmadi, 2000; Evans, 1998; Nielsen and Tahir, 2002; Spool, et al., 1997.

**Example:**

The new IRS site (left) is content and link-rich, allowing users to find information much faster than the old, graphic-heavy IRS site (right).



See page xxii for detailed descriptions of the rating scales  
12340



# 14:9 Limit the Use of Images

**Guideline:** Use images only when they are critical to the success of a Web site.

Relative Importance:



Strength of Evidence:



**Comments:** Ensure that a Web site's graphics add value and increase the clarity of the information on the site. Certain graphics can make some Web sites much more interesting for users, and users may be willing to wait a few extra seconds for them to load. Users tend to be most frustrated if they wait several seconds for a graphic to download, and then find that the image does not add any value. Some decorative graphics are acceptable when they do not distract the user.

**Sources:** Badre, 2002; Evans, 1998; Nielsen, 1997e; Nielsen, 1999b; Nielsen, 2000; Nielsen, 2003; Spool, et al., 1997; Wen and Beaton, 1996; Williams, 2000.

**Example:** The placement of this image disrupts the left justification of the other page elements and it is visually distracting, drawing the user's attention from the site's content.

**U.S. Department of Health & Human Services**  
**Administration for Children & Families**

Home | Citizens | Working with ACF | Research/Planning | About ACF | ACF News Search

**OFFICE OF CHILD SUPPORT ENFORCEMENT**  
 OCSE Home . Program Information . News . Publications . Policy . State Links . OCSE Search . Help

**Welcome to the Federal Office of Child Support Enforcement Home Page**

Questions? What's New

**Facts & Descriptions** View basic program information including:

- Handbooks and Fact Sheets
- FPS / Employer Info / New Hire / Qrtly Wage & Unemp. Ins.
- State Systems
- National Electronic Child Support
- Financial Institution Data Match
- OCSE Tribal Resources
- Online Interstate Roster and Referral

**News & Announcements**  
 View recent newsletters and announcements  
[Reservists, National Guard - are you here?](#)

**Forms, Reports & Other Resources**  
 Access forms, reports, publications, and more.

**Policy Documents**  
 View recent policy documents, including:

**Commissioner Bill Tondelke**, and his staff provide overall policy and management direction to the department. The commissioner's office oversees the training programs that are provided to departmental employees and other local and Federal agencies. The Office is responsible for the Public Safety Academy, which trains law officers, and for the Alaska Police Standards Council, which establishes minimum educational and training standards for police officers. The Council under the Office for the purpose of administrative support, but their activities are autonomous.

**The Council on Domestic Violence and Sexual Assault** awards and monitors grants; provides technical assistance to nonprofit corporations dealing with domestic violence, sexual assault, incest, and crisis intervention; recommends legislation, and coordinates the domestic violence and sexual assault activities of the Departments of Law, Education, Health and Social Services, and Public Safety.

**The Violent Crimes Compensation Board** works to reduce the financial hardships caused by crime-related medical expenses or loss of income sustained by innocent victims of violent crimes in Alaska. It also provides financial payments to dependents of deceased victims.

The **State Crime Lab** responds to requests by law enforcement agencies for various services, including analysis of controlled substances, serology, firearms/tool marks, trace evidence, arson, wildlife, fingerprint searches, and photographs of crime-related data.

**Department of Public Safety Annual Report for 1995.** The 1995 Annual Report provides an overview of the activities of the Department of Public Safety during 1995 and includes program summaries provided by Administrative Services, State Troopers, Fire Prevention, Fish and Wildlife Protection, Motor Vehicles, the Public Safety Training Academy, the Crime Lab, and the Highway Safety Planning Agency. Also included in this report are the Missing Persons Clearinghouse Annual Report, and the FY 1995 Drug and Alcohol Report. It is the hope of the Department that the publication of these reports in one volume will be helpful and informative to the readers regarding the activities of the Department of Public Safety.

**Notice Of Proposed Changes In The Regulations Of The Department Of Public Safety**

Photo Taken by Faith Taylor

This image is unrelated to the accompanying content.

# 14:10 Include Actual Data with Data Graphics

**Guideline:** Include actual data values with graphical displays of data when precise reading of the data is required.

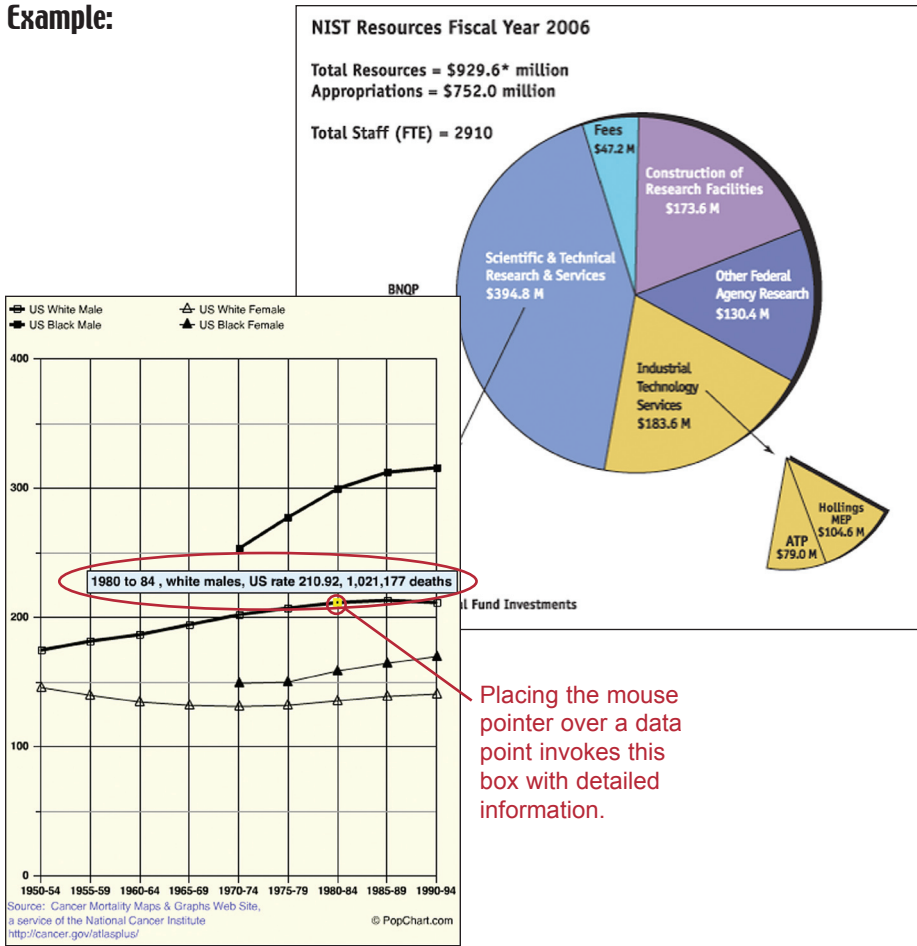
**Relative Importance:**  
1 2 3 4 5

**Strength of Evidence:**  
1 2 3 4 5

**Comments:** Adjacent numeric annotation might be added to the ends of displayed bars on a bar graph, or to mark the points of a plotted curve. Some displays may require complete data annotation while others may require annotation only for selected data elements.

**Sources:** Pagulayan and Stoffregen, 2000; Powers, et al., 1961; Smith and Mosier, 1986; Spool, et al., 1997; Tufte, 1983.

**Example:**



Placing the mouse pointer over a data point invokes this box with detailed information.

# 14:11 Display Monitoring Information Graphically

**Guideline:** Use a graphic format to display data when users must monitor changing data.

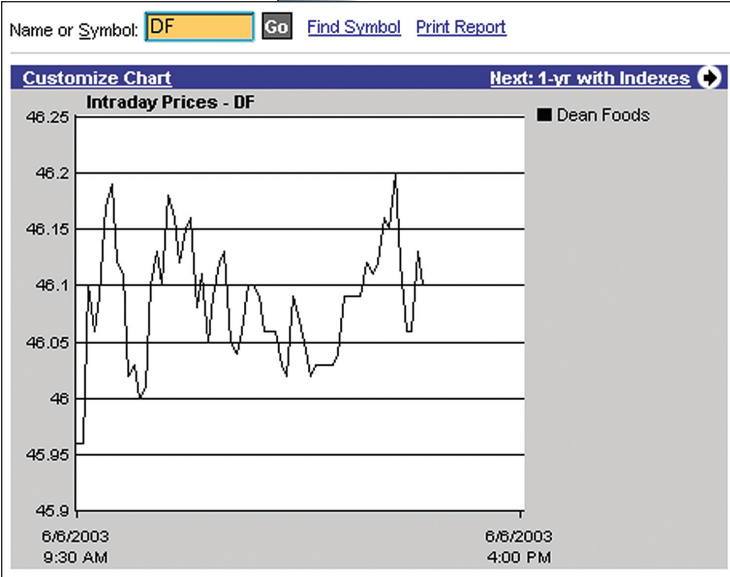
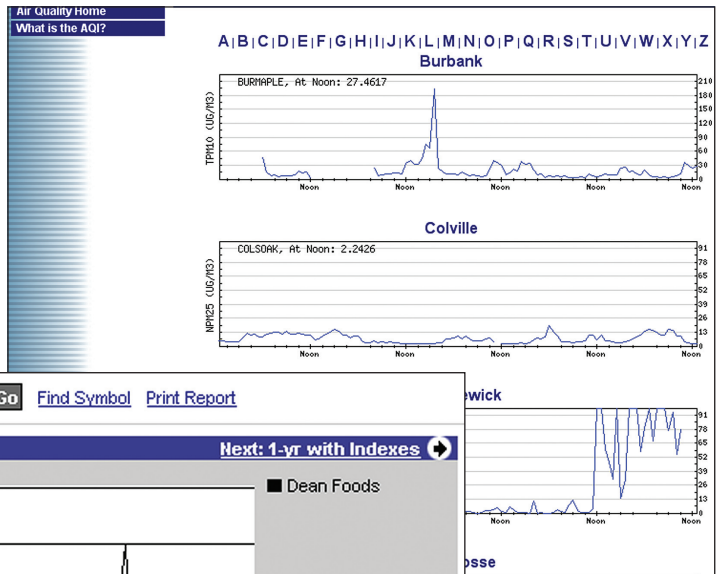
**Comments:** Whenever possible, the computer should handle data monitoring and should call abnormalities to the users' attention. When that is not possible, and a user must monitor data changes, graphic displays will make it easier for users to detect critical changes and/or values outside the normal range.

**Relative Importance:**  
12345678910

**Strength of Evidence:**  
12345678910

**Sources:** Hanson, et al., 1981; Kosslyn, 1994; Powers, et al., 1961; Smith and Mosier, 1986; Tullis, 1981.

**Example:**



## 14:12 Introduce Animation

Relative Importance:

1 2 0 0 0

Strength of Evidence:

1 2 3 0 0

**Guideline:** Provide an introductory explanation for animation prior to it being viewed.

**Comments:** Providing an explanation of animation before it begins will help users better integrate the animation and associated content. In other words, briefly explain to users what they are about to see before they see it. Also, allow animation to be user-controlled. The user should be able to pause, stop, replay, or ignore animation or other multimedia elements.

**Sources:** Evans, 1998; Faraday and Sutcliffe, 1999.

**Example:**

Each video clip is accompanied by text that explains to the user what they are about to view. In addition, this Web site allows the user to control when to start the video clip.

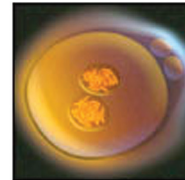
### A Life Unfolds Inside the Womb

During the first 26 weeks of pregnancy, when the mother may only be beginning to appear to others to be pregnant, the sperm and egg cells have developed into a recognizable human fetus that can hear the sound of its mother's voice. Watch the videos below to follow the astonishing process of development.

#### When Two Cells Become One

What happens at the moment of conception? Embryologist Ian Gallicano, M.D., describes the delicate cellular choreography that creates a new life.

[Watch the video animation.](#)



#### At Four Weeks

At four weeks from gestation, the human embryo could easily be mistaken for that of another animal, but its bond with its mother is already complex, and becoming more so with each passing day. [Watch the video animation.](#)



#### At Five Weeks

Barely more than a month old, the embryo's heart is beating and, as in a perfectly timed orchestral composition, the other organs develop in turn. [Watch the video animation.](#)



## 14:13 Emulate Real-World Objects

Relative Importance:

1 2 3 4

Strength of Evidence:

1 2 3 4

**Guideline:** Use images that look like real-world items when appropriate.

**Comments:** Images (e.g., pushbuttons and navigation tabs) are likely to be considered as links when they are designed to emulate their real-world analogues. If a designer cannot make such images emulate real-world objects, the image may require at least one additional clickability cue, such as a descriptive label (like 'Home' or 'Next') or placement on the page. A text label can help inform users about a link's destination, but in one study some users missed this type of image link, even those that contained words, because the words were not underlined.

**Sources:** Ahmadi, 2000; Bailey, 2000b; Galitz, 2002; Nolan, 1989.

**Example:**

These control items are designed to look like real-world items. The buttons below, for example, look like the buttons you might find on an Automated Teller Machine. The control item image to the right controls video on a Web site, and thus is designed to look like a control on a VCR or DVD player.



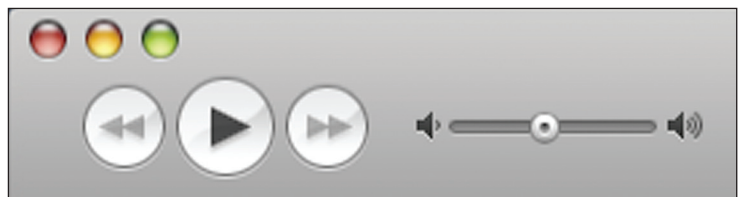
[Condition Centers](#)

[Message Boards](#)

[Free Newsletters!](#)

[TRANSLATE](#)

[CLICK HERE TO ENTER](#)



**Guideline:** When viewing full-size images is not critical, first provide a thumbnail of the image.

**Comments:** By providing thumbnails of larger images, users can decide whether they want to wait for the full image to load. By using thumbnails, those who do not need or want to see the full image are not slowed down by large image downloads. Link the thumbnail image to the full-size copy.

**Sources:** Levine, 1996; Nielsen and Tahir, 2002.

**Example:** When one of the thumbnail images is clicked on the left, a new window pops up with a larger image and a brief description. This also offers a high resolution jpg file of the same image.

**Relative Importance:**



**Strength of Evidence:**



### Moon Thumbnails

**Image of astronaut footprint on the Moon**

Apollo 11 astronaut Edwin Aldrin placed his boot in the lunar soil as part of an experiment to see how the soil would compact and the effects of pressure on the surface. The boot compacted easily under the weight of the astronaut, but left a clear impression of the boot's tread pattern in the material. The footprint image has also become a symbol of the first visit to the Moon.

[Larger image: 419K](#)

[High resolution jpg file \(7.1 Mb\)](#)

**Location & Time Information**  
Date/Time (UT): 1969-07-21

See page xxii for detailed descriptions of the rating scales



# 14:15 Use Images to Facilitate Learning

Relative Importance:



Strength of Evidence:



**Guideline:** To facilitate learning, use images rather than text whenever possible.

**Comments:** The superiority of pictures over text in a learning situation appears to be strong. For example, pictures of common objects are recognized and recalled better than their textual names. Exceptions seem to occur when the items are conceptually very similar (e.g., all animals or tools), or when items are presented so quickly that learners cannot create verbal labels.


**Sources:** Golovchinsky and Chignell, 1993; Krull and Watson, 2002; Levy, et al., 1996; Lieberman and Culpepper, 1965; Nelson, Reed and Walling, 1976; Paivio and Csapo, 1969; Paivio, Rogers and Smythe, 1968; Rodden, et al., 2001; Williams, 1993.

**Example:**


These illustrations facilitate faster learning of key concepts.

**If There Is Fire**


[« previous | next »](#) [Download PDF](#)



1. Exit the building as quickly as possible.



2. Crawl low in smoke.

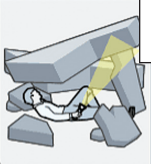


3. Use a wet cloth to cover your nose and mouth.


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**If You Are Trapped**


[« previous | next »](#)



1. If possible, use a flashlight to signal



2. Avoid unnecessary movement so that




3. Cover your mouth and nose with


---

**If There Is An Explosion**


[« previous | next »](#) [Download PDF](#)



1. Take shelter against your desk or a sturdy table.



2. Exit the building as quickly as possible.



3. Do not use elevators.

anything you have on hand. Dense material can create good filter. Try to breathe through the material.

## 14:16 Using Photographs of People

**Guideline:** Photographs of people may or may not help build trust in Web sites.

Relative Importance:



Strength of Evidence:



**Comments:** In one e-commerce study, having a labeled photograph on the Web site was perceived as more trustworthy than having a photograph with no label. Further, having a photograph with no label was perceived as more trustworthy than having no photograph at all. Highly experienced users showed the same degree of trust as users that were moderately experienced or inexperienced.

However, another study recommended that photos not be used to increase the trustworthiness of a Web site. They found that the presence of a photo did not affect the trust of a site, or user preferences for a site.

**Sources:** Riegelsberger, Sasse and McCarthy, 2003; Steinbrück, et al., 2002.

### Example:

Photographs of people are used widely and very differently throughout the Federal government.

**THE PRESIDENT'S CHALLENGE**

To get started, select a group that fits you best:

- TEACHERS**  
Everything schools & communities need to take the challenge
  - FITNESS FILE
  - GET MORE INFO
- GROUPS**
  - ADVOCATES
  - COMMUNITY
  - CORPORATE
  - GROUP ADMIN

**KIDS**

**TEENS**

**U.S. Department of Labor**  
**Bureau of International Labor Affairs**

Francia | Español

CONTACT US | SITE MAP | TELL A FRIEND

PEACE CORPS HQ: Jobs Contracts Policies Online Library

**Peace Corps**  
Celebrate the 45<sup>th</sup> Anniversary ▶

**About the Peace Corps**

- What Is the Peace Corps?
- What Do Volunteers Do?
- Where Do Volunteers Go?
- What's It Like to Volunteer?
- How Do I Become a Volunteer?
- Who Volunteers?
- What Are the Benefits?
- What About Safety?

**Life is calling.**  
How far will you go?

Helen's served in China. And Morocco. And Uzbekistan. Makes for an interesting "retirement."

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