22
Instructions and Procedures

Instructions spell out the steps required for completing a task or series of tasks (say, installing printer software on your hard drive or operating an electron microscope). The audience for a set of instructions might be someone who doesn't know how to perform the task or someone who wants to perform it better. In either case, effective instructions enable users to get the job done safely and efficiently.

Procedures, a special type of instruction, serve as official guidelines for people who typically are already familiar with a given task (say, evacuating a high-rise building). Procedures ensure that all members of a group (say, employers or employees) coordinate their activities in performing the task.

PURPOSE OF INSTRUCTIONAL DOCUMENTS

In this technological age, almost anyone with a responsible job writes and reads instructions. For example, you might instruct a new employee in activating his or her voice mail system or a customer in shipping radioactive waste. The employee going on vacation writes instructions for the person filling in. Computer users routinely consult hard copy or online manuals (or *documentation*) for all sorts of tasks.

- *Why am I doing this?*
- *How do I do it?*
- *What materials and equipment will I need?*
- *Where do I begin?*
- *What do I do next?*
- *What could go wrong?*

Because they focus squarely on the *user*—the person who will "read" and then "do"—instructions must meet the highest standards of excellence.

FORMATS FOR INSTRUCTIONAL DOCUMENTS

Instructional documents take various formats, in hard copy or electronic versions. Here are some of the most commonly used:

- *Brief reference cards* (Figure 22.1) typically fit on a single page or less. The instructions usually focus on the basic steps for users who want only enough information to start on a task and to keep moving through it.

- *Instructional brochures* (Figure 22.2) can be displayed, handed out, mailed, or otherwise distributed to a broad audience. They are especially useful for advocating procedures that increase health and safety.
- *Manuals* (Figure 22.3) contain instructions for all sorts of tasks. A manual also may contain descriptions and specifications for the product, warnings, maintenance and troubleshooting advice, and any other information the user is likely to need. For complex products (say, a word-processing program) or procedures (say, cleaning up a hazardous-waste site), the manual can be a sizable book. In a recent trend, briefer manuals contain the basic operating tips and the more lengthy information is provided as online help.
- *Online documentation* (Figure 22.4) provides the entire contents of a hard copy manual at the click of a key or mouse button. Whereas less experienced users tend to prefer paper documentation, online help is especially popular among more experienced users.
- *Hyperlinked instructions* (Figure 22.5) enable users to explore various levels and layers of information and to choose the layer that matches their needs.

Regardless of its format, any set of instructions must meet the strict legal and usability requirements discussed on the following pages.

FAULTY INSTRUCTIONS AND LEGAL LIABILITY

As many as 10 percent of workers are injured each year on the job (Clement 149). Certain medications produce depression that can lead to suicide (Caher 5). Countless injuries also result from misuse of consumer products such as power tools, car jacks, or household cleaners—misuse often caused by defective instructions.

A user injured because of unclear, inaccurate, or incomplete instructions can sue the writer. Courts have ruled that a defect in product support literature carries the same type of liability as a defect in the product itself (Girill, “Technical Communication and Law” 37).

Those who prepare instructions are potentially liable for damage or injury resulting from omissions such as these (Caher 5–7; Manning 13; Nordenberg 7):

- *Failure to instruct users in the proper use of a product:* for example, a medication’s proper dosage or possible interaction with other drugs.

- *Failure to warn against hazards from proper use of a product:* for example, the risk of repetitive stress injury resulting from extended use of a computer keyboard.
- *Failure to warn against the possible misuses of a product:* for example, the childhood danger of suffocation posed by plastic bags.
- *Failure to explain a product's benefits and risks in language that average consumers can understand.*
- *Failure to convey the extent of risk with forceful language.*
- *Failure to display warnings prominently.*

Some legal experts argue that defects in the instructions carry even greater liability than defects in the product because they are more easily demonstrated to a nontechnical jury (Bedford and Stearns 128).

NOTE *Among all technical documents, instructions have the strictest requirements for giving users precisely what they need precisely when they need it. To design usable instructions, you must have a clear sense of (a) the specific tasks you want users to accomplish, (b) the users' abilities and limitations, and (c) the setting/circumstances in which users will be referring to this document. For advice on analyzing the tasks, users, and setting, see pages 366–68.*

ELEMENTS OF USABLE INSTRUCTION

Clear and Limiting Title

The title "Instructions for Cleaning the Drive Head of a Laptop Computer" tells users what to expect: instructions for a specific task involving a selected part. But the title "The Laptop Computer" gives no forecast; a document with this title might contain a history of the laptop, a description of each part, or a wide range of related information.

Informed Content

Make sure you know exactly what you're talking about. Ignorance on your part makes you no less liable for faulty or inaccurate instructions:

> If the author of [a car repair] manual had no experience with cars, yet provided faulty instructions on the repair of the car's brakes, the home mechanic who was injured when the brakes failed may recover [damages] from the author. (Walter and Marsteller 165)

Unless you have performed the task often, do not try to write instructions for it.

Visuals

Instructions often include a persuasive dimension: to promote interest, commitment, or action. In addition to showing what to do, visuals attract the user's attention and help keep words to a minimum.

Types of visuals especially suited to instructions include icons, representational and schematic diagrams, flowcharts, photographs, and prose tables.

Visuals generated by computers are especially useful for instructions. Other sources for instructional graphics include clip art, electronic scanning, and downloading from the Internet. (Page 329 describes useful Web sites and discusses legal issues in the use of computer graphics.)

To use visuals effectively, consider these suggestions:

- Illustrate any step that might be hard for users to visualize. The less specialized your users, the more visuals they are likely to need.
- Parallel the user's angle of vision in performing the activity or operating the equipment. Name the angle (side view, top view) if you think people will have trouble figuring it out for themselves.
- Avoid illustrating any action simple enough for users to visualize on their own, such as "PRESS RETURN" for anyone familiar with a keyboard.

Figure 22.6 presents an array of visuals and their specific instructional functions. Each of these visuals is easily constructed and some could be further enhanced, depending on your production budget and graphics capability. Writers and editors often provide an *art brief* (page 318) and a rough sketch describing the visual and its purpose for the graphic designer or art department.

Appropriate Level of Detail and Technicality

Unless you know your users have the relevant background and skills, write for laypersons, and do three things:

1. Give them enough background to understand why they need your instructions.
2. Give them enough detail to understand what to do.
3. Give them enough examples to visualize the steps clearly.

These next examples show how you might adapt instructions titled “How to Create a Floppy Disk Backup to a Hard Disk” for novice Macintosh users.

PROVIDE BACKGROUND. Begin by explaining the purpose of the task.

> You might easily lose information stored on a hard disk if:
>
> - the disk is damaged by repeated use, jarring, moisture, or extreme temperature;
> - the disk is erased by a power surge, a computer malfunction, or a user error; or
> - the stored information is scrambled by a nearby magnet (telephone, computer terminal, or the like).
>
> Always make a backup copy of any disk that contains important material.

Also, state your assumptions about the user’s level of technical understanding.

> To follow these instructions, you should be able to identify these parts of a Macintosh system: computer, monitor, keyboard, mouse, floppy disk drive, and 3.5-inch floppy disk.

Define any specialized terms that appear in your instructions.

> *Initialize:* Before you can store or retrieve information on a disk, you must initialize the blank disk. Initializing creates a format the computer can understand—a directory of specific memory spaces (like post office boxes) on the disk where you can store information and retrieve it as needed.

When the user understands *what* and *why*, you are ready to explain *how* to carry out the task.

PROVIDE ADEQUATE DETAIL. Include enough detail for users to understand and perform the task successfully, but omit general information that users probably know.

> **FIRST AID FOR ELECTRICAL SHOCK**
>
> 1. Check vital signs.
> 2. Establish an airway.
> 3. Administer CPR as needed.
> 4. Treat for shock.

Not only are the above details inadequate, but terms such as “vital signs” and “CPR” are too technical for laypersons. Such

instructions posted for workers in a high-voltage area would be useless. Illustrations and explanations are needed, as in the instructions on the following page for item 3 above, administering CPR.

METHODS OF CARDIOPULMONARY RESUSCITATION (CPR)

Mouth-to-Mouth Breathing

Step 1: If there are no signs of breathing or there is no significant pulse, place one hand under the victim's neck and gently lift. At the same time, push with the other hand on the victim's forehead. This will move the tongue away from the back of the throat to open the airway. If available, a plastic "stoma," or oropharyngeal airway device, should be inserted now.

Step 2: While maintaining the backward head tilt position, place your cheek and ear close to the victim's mouth and nose. Look for the chest to rise and fall while you listen and feel for breathing. Check for about 5 seconds.

Step 3: Next, while maintaining the backward head tilt, pinch the victim's nose with the hand that is on the victim's forehead to prevent leakage of air, open your mouth wide, take a deep breath, seal your mouth around the victim's mouth, and blow into the victim's mouth with four quick but full breaths. For an infant, give gentle puffs and blow through the mouth and nose *and* do not tilt the head back as far as for an adult.

If you do not get an air exchange when you blow, it may help to reposition the head and try again.

If there is still no breathing, give one breath every 5 seconds for an adult and one gentle puff every 3 seconds for an infant until breathing resumes.

If the victim's chest fails to expand, the problem may be an airway obstruction. Mouth-to-mouth respiration should be interrupted briefly to apply first aid for choking.

Don't assume that people know more than they really do, especially when you can perform the task almost automatically. (Think about when someone taught you to drive a car—or perhaps you have tried to teach someone else.) Always assume that the user knows less than you. A colleague

will know at least a little less; a layperson will know a good deal less—maybe nothing—about this procedure.

Exactly how much information is enough? Consider these suggestions:

- Give everything users need, so the instructions can stand alone.
- Give only what users need. Don't tell them how to build a computer when they only need to know how to copy a disk.
- Instead of focusing on the *product* ("How does it work?"), focus on the *task* ("How do I use it?" or "How do I do it?") (Grice, "Focus" 132).
- Omit steps (*Seat yourself at the computer*) that are obvious to users.
- Divide the task into simple steps and substeps. Allow users to focus on one step at a time.
- Adjust the *information rate* ("the amount of information presented in a given page," Meyer 17) to the user's background and the difficulty of the task. For complex or sensitive steps, slow the information rate. Don't make users do too much too fast.
- Reinforce the prose with visuals. Don't be afraid to repeat information if it saves users from flipping pages.
- When writing instructions for consumer products, assume "a barely literate reader" (Clement 151). Simplify.
- Recognize the persuasive dimension of the instructions. Users may need persuading that this procedure is necessary or beneficial, or that they can complete this procedure easily and competently.

OFFER EXAMPLES. Instructions require specific examples (how to load a program, how to order a part):

> To load your program, type this command:
>
> Load "Style Editor"
>
> Then press RETURN.

Like visuals, examples *show* users what to do.

INCLUDE TROUBLESHOOTING ADVICE. Anticipate things that commonly go wrong when this task is performed--the paper jams in the printer, the tray of the CD-ROM drive won't open, or some other malfunction.

```
Explain the probable cause(s) and offer
solutions.
```

Note: IF *X* doesn't work, first check *Y* and then do *Z.*

In the instructions that follow, careful use of background, detailed explanation, visual examples, and troubleshooting advice create a user-friendly level of technicality for computer novices.

FIRST STEP: HOW TO INITIALIZE YOUR FLOPPY DISK

Before you can copy or store information on a blank disk, you must initialize the disk. Follow this procedure:

1. Switch on the computer.
2. Insert your floppy disk in the floppy disk drive. Unable to recognize this new disk, the computer will ask if you wish to initialize the disk (Figure 1).
3. Using your mouse, place the on-screen pointer (small arrow) inside the "Initialize" box.
4. Press and quickly release the mouse button. Within 15–20 seconds, the initializing will be completed, and a message will appear, asking you to name your disk (Figure 2).

NOTE: If your disk is rejected, it might be improperly seated in the drive or damaged, or the drive itself might be damaged.

a. *Eject and reinsert the disk, and repeat steps 2–4.*

b. *If (a) fails, insert a different disk. If this doesn't work, have your disk drive checked.*

In the previous sample, visuals and prose are *redundant* (Weiss 100). Chapter 13 warns against *style redundancy* (extra words that give no extra information). Effective instructions, however, often exhibit *content redundancy*, giving the same information in verbal and visual form. When you can't be sure how much is enough, risk overexplaining rather than underexplaining.

Logically Ordered Steps

Instructions are almost always arranged in chronological order, with warnings and precautions inserted for specific steps.

You can't splice two wires to make an electrical connection until you have removed the insulation. To remove the insulation, you will need ....

Notes and Hazard Notices

Here are the only items that should interrupt the steps in a set of instructions (Van Pelt 3):

- A *note* clarifies a point, emphasizes vital information, or describes options or alternatives.

  NOTE: If you don't name a newly initialized disk, the computer automatically names it "Untitled."

While a note is designed to enhance performance and prevent error, the following hazard notices—ranked in order of severity—are designed to prevent damage, injury, or death.

- A *caution* prevents possible mistakes that could result in injury or equipment damage:

  CAUTION: A momentary electrical surge or power failure will erase the contents of internal memory. To avoid losing your work, every few minutes save on disk what you have just typed into the computer.

- A *warning* alerts users to potential hazards to life or limb:

  WARNING: To prevent electrical shock, always disconnect your printer from its power source before cleaning internal parts.

- A *danger* notice identifies an immediate hazard to life or limb:

  DANGER: The red canister contains DEADLY radioactive material. **Do not break the safety seal** under any circumstances.

Inadequate notices of warning, caution, or danger are a common cause of lawsuits (page 536). Each hazard notice is legally required to (1) describe the specific hazard, (2) spell out the consequences of ignoring the hazard, and (3) offer instruction for avoiding the hazard (Manning 15).

Even the most emphatic verbal notice might be overlooked by an impatient or inattentive user. Direct the user's attention with symbols, or icons, as a visual signal (Bedford and Stearns 128):

Keep the hazards prominent in the user's awareness: Preview the hazards in your introduction and place each notice, clearly highlighted (by a ruled box, a distinct typeface, larger typesize, or color), immediately before the related step.

NOTE *Use hazard notices only when needed; overuse will dull their effect, and readers may overlook their importance.*

Readability

Instructions must be understood on the first reading because users usually take *immediate* action.

Like descriptions (page 507), instructions name parts, use location and position words, and state exact measurements, weights, and dimensions. Instructions also require strict attention to phrasing, sentence structure, and paragraph structure.

USE DIRECT ADDRESS, ACTIVE VOICE, AND IMPERATIVE MOOD. To emphasize the user's role, write instructions in the second person, as direct address.

In general, begin all steps and substeps with action verbs, using the *active voice* and *imperative mood* ("Insert the disk" instead of "The disk should be inserted" or "You should insert the disk").

- The user types in his or her access code.
- You should type in your access code.
- It is important to type in the access code.
- The access code is typed in.

In this next version, the opening verb announces the specific action required.

Type in your access code.

In certain cases, you may want to provide a clarifying word or phrase that precedes the verb (*Read Me* 130):

- [To log on,] **type in** your access code.

- [If your screen displays an error message,] **restart** the computer.
- [Slowly] **scan** the seal for gamma ray leakage.
- [In the Edit menu,] **click** on Paste.

NOTE *Certain cultures consider the direct imperative bossy and offensive. For cross-cultural audiences, you might rephrase an instruction as a declarative statement: from "Type in your access code" to "The access code should be typed in." Or you might use an indirect imperative such as "Be sure to type in your access code" (Coe, "Writing" 18).*

USE SHORT AND LOGICALLY SHAPED SENTENCES. Use shorter sentences than usual, but don't ''telegraph'' your message by omitting articles (*a, an, the*), as on page 246. Use one sentence for one step, so users can perform one step at a time.

If a single step covers two related actions, describe these actions in their required sequence:

Before switching on the computer, insert the disk in the drive.

Insert the disk in the drive; then switch on the computer.

Simplify explanations by using a familiar-to-unfamiliar sequence:

You must initialize a blank disk before you can store information on it.

Before you can store information on a blank disk, you must initialize the disk.

USE PARALLEL PHRASING. Parallelism is important in all writing but especially in instructions, because repeating grammatical forms emphasizes the step-by-step organization.

To log on to the VAX 20, follow these steps:

1. Switch the terminal to “on.”
2. The CONTROL key and C key are pressed simultaneously.
3. Typing LOGON, and pressing the ESCAPE key.
4. Type your user number, and then press the ESCAPE key.

All steps should be in identical grammatical form:

To log on to the VAX 20, follow these steps:

1. Switch the terminal to “on.”
2. Press the CONTROL key and C key simultaneously.
3. Type LOGON, and then press the ESCAPE key.
4. Type your user number, and then press the ESCAPE key.

PHRASE INSTRUCTIONS AFFIRMATIVELY. Research shows that users respond more quickly and efficiently to instructions phrased affirmatively rather than negatively (Spyridakis and Wenger 205).

Verify that your disk is not contaminated with dust.

Examine your disk for dust contamination.

USE TRANSITIONS TO MARK TIME AND SEQUENCE. Transitional expressions bridge related ideas. Some transitions (‘‘in addition,’’ ‘‘next,’’ ‘‘meanwhile,’’ ‘‘finally,’’ ‘‘ten minutes later,’’ ‘‘the next day,’’ ‘‘before’’) mark time and sequence. They help users understand the step-by-step process:

PREPARING THE GROUND FOR A TENT

Begin by clearing and smoothing the area that will be under the tent. This step will prevent damage to the tent floor and eliminate the discomfort of sleeping on uneven ground. **First,** remove all large stones, branches, or other debris within a level 10 3 13-foot area. Use your camping shovel to remove half-buried rocks that cannot easily be moved by hand. **Next,** fill in any large holes with soil or leaves. **Finally,** make several light surface passes with the shovel or a large, leafy branch to smooth the area.

Effective Design

An effective instructional design conveys the sense that the task is within a qualified user's range of abilities.

To help users find, recognize, and remember what they need, follow these suggestions:

- *Provide informative headings.* A heading such as "How to Initialize Your Blank Disk" is more informative than "Disk Initializing."
- *Arrange steps in a numbered list.* Unless the procedure consists of simple steps (as in "Preparing the Ground for a Tent," above), list and number each step. Numbered steps not only announce the sequence of steps, but also help users remember where they left off.
- *Separate each step visually.* Single-space within steps and double-space between.
- *Make warning, caution, and danger notices highly visible.* Use ruled boxes or highlighting, and plenty of white space.
- *Keep the visual and the step close together.* If room allows, place the visual right beside the step; if not, right after it. Set off the visual with plenty of white space.
- *Consider a multicolumn design.* If steps are brief and straightforward and require back-and-forth reference from prose to visuals, consider multiple columns. Figure 22.7 shows how to connect peripheral devices (scanners, extra drives, and so on) to the computer using SCSI (Small Computer System Interface) cables.
- *Keep it simple.* Users can be overwhelmed by a page with excessive or inconsistent designs.
- *For lengthy instructions, consider a layered approach.* In preparing a complex manual, for instance, you might add a brief reference card or a guide for getting started or for easy reference, as in Figure 22.8.

Consult Chapter 15 for additional design considerations.

NOTE *Like any material displayed on a computer screen, online instructions have their own design requirements, which are discussed in Chapters 15 and 19. Also, despite online documentation's increasing popularity, many users continue*

to find printed manuals more convenient and easier to navigate (Foster 10).

AN OUTLINE AND MODEL FOR INSTRUCTIONS

You can adapt the following outline to any instructions. Here are the possible sections to include:

I. Introduction
- A. Definition, Benefits, and Purpose of the Procedure
- B. Intended Audience (usually omitted for workplace audiences)
- C. Prior Knowledge and Skills Needed by the Audience
- D. Brief Overall Description of the Procedure
- E. Principle of Operation
- F. Materials, Equipment (in order of use), and Special Conditions
- G. Working Definitions (always in the introduction)
- H. Warnings, Cautions, Dangers (previewed here and spelled out at steps)
- I. List of Major Steps

II. Required Steps
- A. First Major Step
  1. Definition and purpose
  2. Materials, equipment, and special conditions for this step
  3. Substeps (if applicable)
     a.
     b.
- B. Second Major Step (and so on)

III. Conclusion
- A. Review of Major Steps (for a complex procedure only)
- B. Interrelation of Steps
- C. Troubleshooting or Follow-up Advice (as needed)

This outline is only tentative; you might modify, delete, or combine some elements, depending on your subject, purpose, and audience.

Introduction

The introduction should help users to begin "doing" as soon as they are able to proceed safely, effectively, and confidently (van der Meij and Carroll 245–46). Most users are interested primarily in "how to use it or fix it," and will require only a general understanding of "how it works." You don't want to bury users in a long introduction, nor do you want to set them loose on the procedure without adequate preparation. Know your audience—what they need and don't need.

Following is an introduction from instructions for people using a college library. Some users will be computer experts; some will be novices—but all will

require a detailed introduction to computerized literature searches before they conduct a search on their own.

How to Use the OCLC Terminal to Search for a Book

Introduction

Our library's OCLC (Online Computer Library Center) terminal offers an efficient way to search for books, journals, government publications, and other printed materials. This terminal is connected to the OCLC database in Columbus, Ohio.

The Ohio database contains more than 8 million records of books and other published materials in libraries nationwide. Each record lists the information found on a catalog card, and identifies the libraries holding the work.

These instructions will enable you to determine whether a book you seek can be found in our library or in other libraries throughout the country.

Any library patron can use the OCLC terminal to search for a book. To operate the terminal, you only need to be familiar with the keyboard (Figure 1) and to have an operator's manual handy for general reference.

After logging on the system, you can search for a book by TITLE, AUTHOR, or AUTHOR and TITLE. Once you have viewed the catalog entry for the book you seek, you can use the terminal to determine the libraries from which you might borrow the book. These instructions show a search by TITLE only.

The only additional equipment you need is a copy of the *Manual of OCLC Participating Institutions*, to find a listing of library names according to their OCLC symbol displayed on your terminal screen.

Specialized terms that appear in these instructions are defined here:

Cursor: a small, blinking rectangle that indicates the screen position of the next character you will type.

HOME Position: the cursor location at the extreme top left of your screen.

HOME position is where you will type most of your messages to the computer, and where the computer will display its messages to you.

Pay close attention to the NOTES that accompany the logging-on step and to the CAUTION preceding the logging-off step.

The major steps in using OCLC to search for a book by its TITLE are (1) logging on the system, (2) initiating the search, (3) viewing the information on your title, (4) locating the book, and (5) logging off.

Body: Required Steps

In the body section (labeled Required Steps), give each step and substep in order. Insert warnings, cautions, and notes as needed. Begin each step with its definition or purpose or both. Users who understand the reasons for a step will do a better job. A numbered list (like the following) is an excellent way to segment the steps.

Required Steps

1. *Logging on the OCLC System*
   To activate the system, you must first log on.

   a. Flick the red power switch (right edge of keyboard).

   NOTE: *Press HOME before typing, to place the cursor at HOME position.*

   b. Type the authorization number (07–34–6991).

   NOTE: *If you make a typing error, place the cursor over the error and retype. Move the cursor by using the arrow keys.*

   c. Press SEND and wait for the HELLO response.

2. *Initiating the Search*
   To initiate a computer search, enter your title's exact code name.

   a. Type in the code for your desired title, excluding articles (*a, an, the*) when they are the first word of the title. Type your entry exactly like this:

   Suppose your title is *The Logic of Failure;* you would type **log, of, fai**

   b. Press DISPLAY/RECD and then SEND.
   The computer will display a title that matches the code you have entered (Figure 2).

3. *Viewing the Information on Your Title*
   [Steps for viewing detailed information on the title, locating the book, and logging off continue.]

Conclusion

The conclusion of a set of instructions has several possible functions:

- You might summarize the major steps in a long and complex procedure, to help users review their performance.
- You might describe the results of the procedure.
- You might offer follow-up advice about what could be done next or refer the user to further sources of documentation.
- You might give troubleshooting advice about what to do if anything goes wrong.

You might do all these things—or none of them. If your procedural section has given users all they need, omit the conclusion altogether.

In the case of the OCLC instructions, these concluding remarks are useful and appropriate:

> **Conclusion**
> Once you locate the title you seek, ask a reference librarian for help requesting the book via Interlibrary Loan. (Books usually arrive within two days.)
>
> In case the first library is unable to supply the book requested, you should initially choose several libraries from your printout. The Interlibrary Loan system will automatically forward your request to each lender you have specified, until one lender indicates it can supply the book.

A SITUATION REQUIRING INSTRUCTIONS

The instructions for felling a tree in Figure 22.9 are patterned after the general outline, shown earlier. They will appear as part of a manual for forestry students who are about to begin summer jobs with the Idaho Forestry Service.

Instructions for a Semitechnical Audience

> **Audience and Use Profile.** These instructions are aimed at a partially informed audience who knows how to use chainsaws, axes, and wedges but who is approaching this dangerous procedure for the first time. Therefore, no visuals of cutting equipment (chainsaws and so on) are included because the audience knows what these items look like. Basic information (such as what happens when a tree binds a chainsaw) is omitted because the audience has this knowledge also. Likewise, these users need no definition of general forestry terms such as *culling* and *thinning,* but they *do* need definitions of terms that relate specifically to tree felling (*undercut, holding wood,* and so on).
>
> For clarity, visuals illustrate the final three steps. The conclusion, for these users, will be short and to the point—a simple summary of major steps with emphasis on safety. ⌐

PROCEDURES

Instructions show an uninitiated user how to perform a task. *Procedures,* on the other hand, provide rules and guidance for people who usually know how to perform the task but who are required to follow accepted practice. To ensure that everyone does something in exactly the same way, procedures typically

are aimed at groups of people who need to coordinate their activities so that everyone's performance meets a certain standard. Consider, for example, police procedures for properly gathering evidence from a crime scene: strict rules stipulate how evidence should be collected and labeled and how it should be preserved, transported, and stored. Evidence shown to have been improperly handled is routinely discredited in a courtroom.

Procedures are useful in situations in which certain tasks need to be standardized. For example, if different people in your organization perform the same task at different times (say, monitoring groundwater pollution) with different equipment, or under different circumstances, this procedure may need to be standardized to ensure that all work is done with the same accuracy and precision. A document known as a *Standard Operating Procedure (SOP)* becomes the official guideline for that task (Gurak and Lannon, 2nd ed. 229), as shown in Figure 22.10.

Organizations also need to follow strict safety procedures, say, as defined by the U.S. Occupational Safety and Health Administration (OSHA). As laws and policies change, such procedures are often updated. The written procedures must be posted for employees to read (229). Figure 22.11 shows one page outlining OSHA regulations for evacuating high-rise buildings.

The steps in a procedure may or may not be numbered, depending on whether they must be performed in strict sequence, as in Figure 22.10 versus Figure 22.11.

EXERCISES

1. Improve readability by revising the diction, voice, and design of these instructions.

   What to Do Before Jacking Up Your Car
   Whenever the misfortune of a flat tire occurs, some basic procedures should be followed before the car is jacked up. If possible, your car should be positioned on as firm and level a surface as is available. The engine has to be turned off; the parking brake should be set; and the automatic transmission shift lever must be placed in "park" or the manual transmission lever in "reverse." The wheel diagonally opposite the one to be removed should have a piece of wood placed beneath it to prevent the wheel from rolling. The spare wheel, jack, and lug wrench should be removed from the luggage compartment.

2. Select part of a technical manual in your field or instructions for a general audience and make a copy of the material. Using the checklist on page 561, evaluate the sample's usability. In a memo to your instructor, discuss the strong and weak points of the instructions. Or be prepared to explain in class why the sample is effective or ineffective.
3. Assume that colleagues or classmates will be serving six months as volunteers in agriculture, education, or a similar capacity in a developing country. Do the research and create a set of procedures that will prepare users for avoiding diseases and dealing with medical issues in that specific country. Topics might include safe food

and water, insect protection, vaccinations, medical emergencies, and the like. Be sure to provide background on the specific health risks travelers will face. Design your instructions as a two-sided brief reference card, as a chapter to be included in a longer manual, or in some other format suggested by your instructor.

Hint: Begin your research for this project by checking out the National Center for Disease Control's Web site at <www.cdc.gov/travel/>.

4. Choose a topic from this list, your major, or an area of interest. Using the general outline in this chapter as a model, outline instructions for a task that requires at least three major steps. Address a general audience, and begin by completing an audience and use profile. Include (a) all necessary visuals or (b) an "art brief" (page 318) and a rough diagram for each visual or (c) a "reference visual" (a copy of a visual published elsewhere) with instructions for adapting your visual from that one. (If you borrow visuals from other sources, provide full documentation.)

planting a tree hitting a golf ball

hot-waxing skis removing the rear
hanging wallpaper wheel of a bicycle
filleting a fish avoiding hypothermia

5. Assume that you are assistant to the communications manager for a manufacturer of outdoor products. Among the company's best-selling items are its various models of gas grills. Because of fire and explosion hazards, all grills must be accompanied by detailed instructions for safe assembly, use, and maintenance.

   One of the first procedures in the manual is the "leak test," to ensure that the gas supply-and-transport apparatus is leak free. One of the engineers has prepared the instructions in Figure 22.12. Before being published in the manual, they must be approved by communications management. Your boss directs you to evaluate the instructions for accuracy, completeness, clarity, and appropriateness, and to report your findings in a memo. Because of the legal implications, your evaluation must spell out all positive and negative details of content, organization, style, and design. (Use the checklist on page 561 as a guide.) The boss is busy and impatient, and expects your report to be no longer than two pages. Do the evaluation and write the memo.
6. Select any one of the instructional visuals in Figure 22.6 and write a prose version of those instructions—without using visual illustrations or special page design. Bring your version to class and be prepared to discuss the conclusions you've derived from this exercise.
7. Locate examples of five or more visuals from the following list.

   A visual that shows:
   - how to locate something
   - how to operate something
   - how to handle something
   - how to assemble something
   - how to position something
   - how to avoid damage or injury
   - how to diagnose and solve a problem
   - how to identify safe or acceptable limits
   - how to proceed systematically
   - how to make the right decision
   - why an action or procedure is important

   Bring your examples to class for discussion, evaluation, and comparison.

8. Find a manual and create a one-page set of layered instructions for a new user, using Figure 22.8 as a guide.

COLLABORATIVE PROJECTS

1. Draw a map of the route from your classroom to your dorm, apartment, or home—whichever is closest. Be sure to include identifying landmarks. When your map is completed, write instructions for a classmate who will try to duplicate your map from the information given in your written instructions. Be sure your classmate does not see your map! Exchange your instructions and try to duplicate your classmate's map. Compare your results with the original map. Discuss your conclusions about the usability of these instructions.
2. Divide into small groups and visit your computer center, library, or any place on campus or at work where you can find operating manuals for computers, lab or office equipment, or the like. (Or look through the documentation for your own computer hardware or software.) Locate fairly brief instructions that could use revision for improved content, organization, style, or format. Choose instructions for a procedure you are able to carry out. Make a copy of the instructions, test them for usability, and revise as needed. Submit all materials to your instructor, along with a memo explaining the improvements. Or be prepared to discuss your revision in class.
3. Visit your computer center and ask to borrow a software package that arrived without documentation or with very limited instructions. (Or perhaps you've received such programs as a member of a software club.) Run the program, and then prepare instructions for the next users. Test the usability of your instructions by having a classmate use them to run the program. Revise as needed. Remember, you are writing for a user with no experience.
4. Using word-processing or desktop publishing software, design a form to be used for advisee course scheduling, course evaluations, or some other school function. Conduct a usability study for this document and redesign it as needed. Then write a report analyzing and evaluating the form before and after the usability study.
5. Working in small groups, revise Figure 22.13 for improved usability. Appoint one member to present your group's version to the class, explaining the specific criteria used for revision.

SERVICE-LEARNING PROJECT

Do the research and prepare a set of instructions that will show general readers how to become more environmentally informed consumers and how to find, identify, evaluate, and compare environmentally friendly consumer goods such as appliances, building materials, household products, and the like. Design your instructions as a foldout brochure or a one-page (double-sided) handout, or in some other format requested by your instructor. *Hint:* Begin your research for this project by checking out the following Web sites:

- *The Gallery of Environmentally Preferable Goods* at <http://tbe.mit.edu/gallery/>
- The U.S. Environmental Protection Agency's *Energy Star* site at <www.epa.gov/energystar/>
- *The Ethical Shopper* site at <www.ethicalshopper.com>
- *Green Marketplac*e at <www.greenmarketplace.com>

The role of instructions on the job
What users expect to learn from a set of instructions
Common formats for instructional documents

FIGURE 22.1 A Brief Reference Card This card lists the basic steps required to install *Microsoft Office 2001*™ on a Macintosh computer.

Source: From "Installation Documentation of Microsoft® Office 2001™ for Mac," *trademark owned by Microsoft Corporation. Reprinted with permission from Microsoft Corporation.*

FIGURE 22.2 A Foldout Instructional Brochure The three inside panels of this *Fight BAC!* brochure offer "Four Simple Steps to Food Safety."

Source: Reprinted courtesy of Partnership for Food Safety Education <www.fightbac.org>.

22.1

For more on liability and public relations visit <www.ablongman.com/ lannonweb>

FIGURE 22.3 Table of Contents from the *Sharp Compact Copier Operation Manual*

Source: Reprinted courtesy of Sharp Electronics Corporation. Reproduced by permission.

Examples of faulty instructions that create legal liability

FIGURE 22.4 An Online Help Screen

This electronic index offers instant access to any of the topics in the entire online manual.

Source: Reprinted courtesy of Microsoft Corporation. Reprinted with permission.

FIGURE 22.5 A Set of Web-Based Instructions

These instructions provide links to more specific parts of the procedure.

SOURCE: U.S. ENVIRONMENTAL PROTECTION AGENCY<HTTP:// YOSEMITE1.EPA.GOV/ ESTAR/BUSINESS.NSF/ CONTENT/PM>.

GIVE AN IMMEDIATE FORECAST

KNOW THE PROCEDURE

IGNORANCE PROVIDES NO LEGAL EXCUSE

HOW TO USE INSTRUCTIONAL VISUALS

22.2

What level of technicality is culturally appropriate? Learn more at

<www.ablongman.com/
lannonweb>
Provide exactly and only what users need
how to locate something
how to operate something
Source: © Apple Computer, Inc.*
Source: Superstock
how to handle something
how to assemble something
how to avoid damage or injury
how to position something
FIGURE 22.6 Common Types of Instructional Visuals and Their Functions
**Illustrations © Apple Computer, Inc. 1993. Used with permission. Apple, the Apple logo, and Power Macintosh are registered trademarks™ of Apple Computer, Inc. All rights reserved.*
how to diagnose and solve problems
how to identify safe or acceptable limits
how to proceed systematically
why action is important
how to make the right decisions
FIGURE 22.6 Common Types of Instructional Visuals and Their Functions *(continued)*
Tell users why they are doing this
Spell out what users should already know
Tell users what each key term means
Make instructions complete but not excessive
Inadequate detail for laypersons
Adequate detail for laypersons
Source: Reprinted with permission from New York Public Library Desk Reference, *3rd ed., copyright © 1998, 1993, 1989 by The New York Public Library and the Stonesong Press, Inc.*
How to provide the right amount of detail
Give plenty of examples
Explain what to do when things go wrong
Background
Instructional details
Visual example reinforces the verbal message
Visual appears close to the related step
Troubleshooting tips
Make verbal and visual information redundant
Organize for
the user's understanding
Show how the steps are connected
Alert users
to special considerations
and hazards
The least forceful notice
A moderately forceful notice
The most forceful notice
Content requirements for hazard notices
Visual requirements for hazard notices
Use hazard symbols
Visibility requirements for hazard notices
Make instructions immediately readable
Indirect or confusing
Clear and direct
Information that might precede the verb
Confusing
Logical

Hard
Easier
Not parallel
Parallel
Negative
Affirmative
Transitions enhance continuity
How to design instructions

FIGURE 22.7 A Multicolumn Design

Source: Reprinted by permission of Apple Computer, Inc.

FIGURE 22.8 Layered Instructions. Notice how this Quick Use Guide for a videocassette recorder presents concise, user-friendly instructions and cross-references to pages containing more detailed and technical information.

Source: Panasonic Omnivision VHS Operating Instructions. Panasonic Consumer Electronics. Used by permission.

22.3
For more sample instructions visit <www.ablongman.com/lannonweb>
Clear and limiting title
Definition of the procedure
Definition (continued)
Purpose
Audience and required skills
General description of the procedure
Materials and equipment
Working definitions
Cautions and notes
List of major steps
Heading previews the step
Capitals and spacing set off note
Headings 1–5 offer an overview of the process
Example shows what to do
Visual reinforces the prose
Follow-up advice
Troubleshooting advice

FIGURE 22.9 A Set of Instructions
FIGURE 22.9 A Set of Instructions *(continued)*
FIGURE 22.9 A Set of Instructions *(continued)*
FIGURE 22.9 A Set of Instructions *(continued)*

The difference between instructions and procedures
Procedures help ensure safety

FIGURE 22.10 A Standard Operating Procedure. Part of a manual for dealing with leaking underground fuel tanks, this SOP is aimed at technicians already familiar with techniques such as "steam cleaning" and "containerizing." However, to prevent contamination of testing equipment, each technician needs to follow this strict sequence of steps.

Source: Ventura County LUFT Guidance Manual. *Ventura, CA. April 2001.*

Procedures help keep everyone "on the same page."

CHECKLIST for Usability of Instructions

Use this checklist to evaluate the usability of instructions. (Numbers in parentheses refer to the first page of discussion.)

Content

- Does the title promise exactly what the instructions deliver? (538)
- Is the background adequate for the intended audience? (542)

- Do explanations enable users to understand what to do? (542)
- Do examples enable users to see how to do it correctly? (544)
- Are the definition and purpose of each step given as needed? (542)
- Is all needless information omitted? (544)
- Are all obvious steps omitted? (544)
- Do notes, cautions, or warnings appear whenever needed, before or with the step? (546)
- Is the information rate appropriate for the user's abilities and the difficulty of this procedure? (544)
- Are visuals adequate for clarifying the steps? (539)
- Do visuals repeat prose information whenever necessary? (545)
- Is everything accurate? (539)

Organization

- Is the introduction adequate without being excessive? (552)
- Do the instructions follow the exact sequence of steps? (546)
- Is each step numbered, if appropriate? (549)
- Is all the information for a particular step close together? (549)
- For a complex step, does each sentence begin on a new line? (544)
- For lengthy instructions, is a layered approach, with a brief reference card, more appropriate? (550)
- Is the conclusion necessary and, if necessary, adequate? (544)

Style

- Do introductory sentences have enough variety to maintain interest? (548)
- Does the familiar material appear *first* in each sentence? (548)
- Do steps generally have short sentences? (548)
- Does each step begin with an action verb? (547)
- Are all steps in the active voice and imperative mood? (547)
- Do all steps have parallel phrasing? (548)
- Are transitions adequate for marking time and sequence? (549)

Page Design

- Does each heading clearly tell users what to expect? (549)
- On a typed page, are steps single-spaced within, and double-spaced between? (549)
- Do white space and highlights set off discussion from steps? (549)
- Are notes, cautions, or warnings set off or highlighted? (549)
- Are visuals beside or near the step, and set off by white space? (549)

FIGURE 22.11 A Safety Procedure. This page defines general safety and evacu-ation procedures to be followed by employers and employees. Each building in turn is required to

have its own, specific procedures, based on such variables as location, design, and state law.

Source: U.S. Occupational Safety and Health Administration, 2003 <www.osha.gov>.

For more exercises, visit
<www.ablongman.com/lannon.>

FIGURE 22.12 Instructions for Leak Testing a Grill

Source: Instructions reprinted by permission of Thermos® Division.

FIGURE 22.13 Procedure for Caring for Contact Lenses

Sources: Farley, Dixie. "Keeping an Eye on Contact Lenses." FDA Consumer *Mar.-Apr. 1998: 17–21.*