

5. Make sure the visual looks exactly like the object the user must assemble, run, maintain, or repair. Using a photo of a different model might confuse readers.
6. Always inform readers if a part is missing or is reduced in your visual.
7. Where necessary, label or number parts of the visual, as in Figure 12.2.

Refer to Chapter 10 for further guidelines on numbering visuals (see “Identify Your Visuals,” pages 407–408) and inserting them in your document (see “Introduce Your Visuals,” page 409).

THE SIX PARTS OF INSTRUCTIONS

Except for very short instructions, such as those illustrated in Figures 12.1 through 12.6, a set of instructions generally contains six main parts: (1) an introduction; (2) a list of equipment and materials; (3) the actual steps to perform the process; (4) warnings, cautions, and notes; (5) a conclusion (when necessary); and (6) a troubleshooting guide. The long set of instructions on installing a printer in Figure 12.9 contains most of these.

Introduction

The function of your introduction is to provide readers with enough *necessary* background information to understand why and how your instructions work. An introduction must make readers feel comfortable and well prepared before they turn to the actual steps.

What to Include in an Introduction

Not every introduction to a set of instructions will contain all six categories of information listed here. Some instructions will require less detail. You will have to judge how much background information to give your readers for the specific instructions you write.

1. **State why the instructions are useful for a specific audience.** Many instructions begin with introductions that stress safety, educational, or occupational benefits. Here is an introduction from a set of safety instructions describing protective lockout of equipment.

The purpose of these instructions is to provide plant electrical technicians with a uniform method of locking out machinery or equipment. This will prevent the possibility of setting moving parts in motion, energizing electrical lines; or opening valves while repair, setup, or cleaning work is in progress.

Note how Figure 12.7 (page 495) highlights the safety and convenience of using an infusion pump, helping the nursing staff meet their patients' needs.

2. **Indicate how a particular piece of equipment or process works.** An introduction can briefly discuss the “theory of operation” to help readers understand why something works the way your instructions say it should. Such a discussion sometimes describes a scientific law or principle. An introduction to instructions on

how to run an autoclave begins by explaining the function of the machine: “These instructions will teach you how to operate an autoclave, which is used to sterilize surgical instruments through the live additive-free stream.”

The introduction in Figure 12.7 describes the function and features of the LifeCare Provider 5500 System and pump.

3. Point out any safety measures or precautions a reader may need to be aware of. By alerting readers early in your instructions, you help them perform the process much more safely and efficiently. The introduction in Figure 12.7 cautions the nursing staff about an audible alarm signal in the event of a malfunction.

4. Stress any advantages or benefits the reader will gain by performing the instructions. Make the reader feel good about buying or using the product by explaining how it will make a job easier to perform, save the reader time and money, or allow the reader to accomplish a job with fewer mistakes or false starts. Again, the introduction in Figure 12.7 informs nurses that the infusion pump can be quickly programmed.

5. Provide hyperlinks. When readers will be following your instructions online (as in parts of Figure 12.9), provide hyperlinks to any sites or materials they need to know about. Similarly, provide relevant cross-references in printed instructions.

List of Equipment and Materials

Clearly, some instructions, as in Figure 12.2, do not need to list all of the materials readers will need. But when you do, make your list complete and clear. Do not wait until the readers are actually performing one of the steps to tell them that a certain type of drill or a specific kind of chemical is required. They may have to stop what they are doing to find the equipment or material; moreover, the procedure may fail or present hazards if users do not have the right equipment at the right time. For example, if a Phillips screwdriver is essential to complete one step, specify that type of screwdriver under the heading “Equipment and Materials”; do not list just “screwdriver.” See Figure 12.8 (page 496), which shows images of the types of tools and screws necessary to remove a refrigerator door.

Steps for Your Instructions

The heart of your instructions will consist of clearly distinguished steps that readers must follow to achieve the desired results. Figure 12.9 (pages 500–509) contains a model set of steps on how to set up an all-in-one printer. Note how each step is precisely keyed to the visual, further helping readers perform the procedure. Refer to Figure 12.9 as you study this section.

Guidelines for Writing Steps

To help your readers understand your steps, observe the following rules.

1. Put the steps in their correct order, and number them. If a step is out of order or is missing, the entire set of instructions can be wrong or, worse yet, dangerous.

FIGURE 12.7 Introduction to a Guide for Using an Infusion Pump

1 Overview Orientation

The LifeCare PROVIDER 5500 System is a portable infusion pump, specially designed to deliver analgesic drugs, antibiotics, and chemotherapeutics.

The pump can be programmed in either milligrams or cubic centimeters, and in four different delivery configurations for greater nursing convenience and to tailor precisely the most effective regimen for each patient.

Bolus Mode allows your patient to self-administer analgesia within programmed limits.

This is the traditional PCA delivery, “analgesia-on-demand,” based on the patient’s need.

Continuous Mode delivers a continuous “background” infusion with no additional PCA doses permitted.

Continuous-plus-Bolus Mode allows the patient to self-administer a Bolus dose in addition to receiving a simultaneous Continuous dose infusion.

Intermittent Mode delivers a specific dose (in cc or mg) at intermittent intervals over 24 hours.

You can also establish the “lockout” interval, the frequency with which a patient may receive a Bolus dose of analgesic drug.

The PROVIDER 5500 System records all settings in memory and can be quickly re-programmed to save nursing time when repeating established protocols or changing fluid reservoirs.

The portable system operates on battery power.

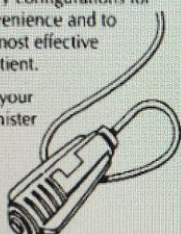
To minimize tampering and discourage theft, there is an optional locking security lockbox that also secures the system to an IV pole.

The audible alarm signals in the event of a malfunction, and the digital readout describes the malfunction.

- Compact and lightweight.
- Delivery rates between 0.1 cc and 250 cc per hour, in 0.1-cc increments.

Display Panel

- Individual display indicators appear only during programming and operation.
- Only on a *selective* basis.
- Tone sounds when activated.
- Runs on BATTERY POWER ONLY.
- Disposable Primary IV set with integral infusion cartridge.



Gives function of equipment

Points out time-saving features

Explains security option

Describes different modes or options

Calls attention to convenience features

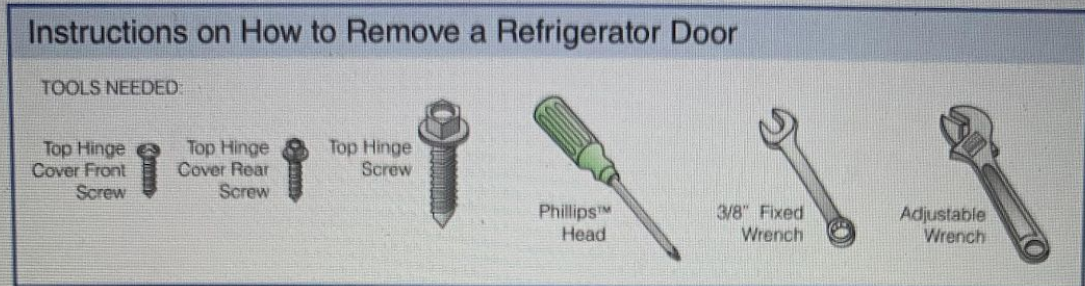
Emphasizes safety features

Use of color to distinguish parts, various modes

Source: Reprinted by permission of Abbott Laboratories Hospital Products Division.

Double-check every step, and number each one to indicate its correct place in the sequence of tasks you are describing (see Figure 12.9, pages 500–509).

2. Include the right amount of information in each step. Make each step short and simple. Giving readers too much information can be as risky as giving them

FIGURE 12.8 List of Tools Needed for Instructions on How to Remove a Refrigerator Door

too little. Keep in mind that each step should ask readers to perform a single task in the entire process. In the following example showing how to access voice mail, note how the first version combines too many steps, while the revision corrects the problem:

- Incorrect:**
1. To access your voice mail, make sure you've listened to old messages and then press "1" to obtain your new messages.
 2. When each new message is finished, press "7" to delete the message or "8" to store it in the archives. Press "2" to replay the message.
 3. To review your saved messages, press "9." To end the call, press "#."

- Correct:**
1. To access your voice mail, press "1" to obtain your new messages.
 2. When each new message is finished, press "7" to delete the message or "8" to store it in the archives. Press "2" to replay the message.
 3. To review your saved messages, press "9."
 4. To end the call, press "#."

3. Group closely related activities into one step. Sometimes closely related actions do belong in one step to help the reader coordinate activities and to emphasize their being done at the same time, in the same place, or with the same equipment.

Don't divide an action into two steps if it has to be done in one. For example, instructions showing how to light a gas furnace would not list as two steps actions that must be performed simultaneously to avoid a possible explosion:

- Incorrect:**
1. Depress the lighting valve.
 2. Hold a match to the pilot light.

- Correct:**
1. Depress the lighting valve while holding a match to the pilot light.

Similarly, do not separate two steps of a computer command that must be performed simultaneously.

- Incorrect:**
1. Press the CONTROL key.
 2. Press the ALT key.

- Correct:**
1. While holding down the CONTROL key, press the ALT key.

4. Give the reader hints on how best to accomplish the procedure. Obviously, you cannot do that for every step, but if there is a chance that the reader might run into difficulties, provide some helpful advice to make the step easier to perform: “If there is blood on the transducer diaphragm, dip the transducer in blood solvent, such as hydrogen peroxide or Hemosol.” You can also tell readers if they have a choice of materials and techniques or how they might obtain the best results: “Several thin coats of paint will give a better finish than one heavy coat.”

5. State whether one step directly influences (or jeopardizes) the outcome of another. Because all steps in a set of instructions are interrelated, you do not have to tell readers how every step affects every other. But stating specific relationships is particularly helpful when dangerous or highly intricate operations are involved. You will save the reader time, and you will stress the need for care. Forewarned is forearmed. Here is an example:

Step 2: Tighten the fan belt. Failure to tighten the fan belt now will cause it to loosen and come off when the lever is turned on in Step 5.

Do not wait until Step 5 to tell readers that you hope they did a good job tightening the fan belt in Step 2. Information that comes after the fact is not helpful and could potentially be dangerous.

6. Where necessary, insert graphics to assist readers in carrying out the step. Almost every step in the set of long instructions in Figure 12.9 (pages 500–009) is illustrated with a drawing of the printer, an enlargement of a part, or a screenshot.

7. Your instructions might be translated into an international reader’s language, as you can see in the warning statements in the next section.

Warnings, Cautions, and Notes

At appropriate places in the steps of your instructions, you may have to stop the reader to issue a warning, a caution, or a note. Warnings and cautions are mandatory texts that you must provide to protect the user of the equipment from injury, or to protect hardware or software from costly damage to your company. A note usually provides related information, such as an explanation, a tip, a comment, or other useful, but not life-threatening or equipment-damaging information. Study the following examples as well as those in Figure 12.9, especially for Step 4, pages 504–505, “Install ink cartridges.”

Warnings

A warning ensures a reader’s safety. It tells readers that a step, if not prepared for or performed properly, could seriously injure them, as the following warning does, or even endanger their lives.



WARNING: UNPLUG MACHINE BEFORE REMOVING PLATEN GLASS.
 ADVERTENCIA: DESENCHUFE LA MAQUINA ANTES DE QUITAR
 EL VIDRIO.

Spanish
 translation

Cautions

A caution tells readers how to avoid a mistake that could damage equipment or cause the process to fail—for instance, “Do not force the plug.”

Chinese
translation



Caution: Formatting erases all data on the disk

小心：格式化会删除磁盘的所有资料

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Even diligent readers sometimes only skim or glance at a document. But some icons, like those below, universally convey “warning” or “caution” without requiring any text or explanation.



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Notes

A note does not comment on the safety of the user or the equipment but does provide clarification, options, or a helpful hint on how to do the step quicker or more efficiently.

Turkish
translation



At 20 degrees F, a battery uses about 68 percent of its power.

Eksi 7 derecede, bir pil enerjisinin yaklaşık yüzde 68 ini kullanır.

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Guidelines for Using Warnings, Cautions, and Notes

1. **Do not regard warnings and cautions as optional.** They are vital for legal and safety reasons to protect lives and property. In fact, you and your company can be sued if you fail to notify the users of your product or service of dangerous conditions that could result in injury or death.
2. **Put warnings and cautions as close as possible to the step to which they pertain.** (The exact placement may vary depending on the context and nature of the warning.) If you insert a warning or caution statement too early, readers may forget it by the time they come to the step to which it applies. Putting the notification too late exposes the reader, and possibly equipment as well, to risk.
3. **Graphically set warnings and cautions apart from the rest of the instructions.** Use icons such as those shown earlier. Print such statements in capital letters,

boldface, or different colors. Red is especially effective for warnings and cautions if your readers are native speakers of English. But remember that colors have different meanings in other countries (see “Guidelines for Using Visuals for International Artists,” pages 439–441). If you expect your product to be used globally, you might consider rendering cautions using a different (but distinct) color, such as in Figure 12.9, where green is used to set cautions apart from the rest of the text.

4. **Include relevant explanations to help readers know what to watch out for and what precautions to take.** Do not just insert the word **WARNING** or **CAUTION**. Explain what the dangerous condition is and how to avoid it. Look at the examples of cautions in Figure 12.9.

5. **Do not include a warning or a caution just to emphasize a point.** Putting too many warnings or cautions in your instructions will decrease their impact on readers. Use them sparingly—only when absolutely necessary—so readers will not be tempted to ignore them.

6. **Use notes only when the procedure calls for them and when they help readers.** See how functional the notes are in Figure 12.9.

Conclusion

Not every set of instructions requires a conclusion. For short instructions containing only a few simple steps, such as those in Figures 12.1 through 12.6, no conclusion is necessary. For longer, more involved jobs, a conclusion can provide a succinct wrap-up of what the reader has done, end with a single sentence of congratulations, or reassure readers. A conclusion might also tell readers what to expect once a job is finished, describe the results of a test, or explain how a piece of equipment is supposed to look or operate. Figure 12.9 ends with an “Any questions?” section that supplies a comprehensive list of ways readers can receive further help and guidance. Always supply contact information and hyperlinks, should a reader need further information.

Troubleshooting Guide

Instructions can also come with a section on troubleshooting to help readers when they encounter a problem. Often formatted as a table or chart, troubleshooting guides describe the problems that are most likely to occur and explain the easiest ways to correct them. Troubleshooting tips can also be found within various steps of a set of instructions, or online, as shown on the last page of Figure 12.9. Troubleshooting guides and tips help consumers avoid frustration and the expense of a service call.

MODEL OF FULL SET OF INSTRUCTIONS

Study Figure 12.9, which is a full set of instructions for setting up an Epson all-in-one printer. It includes most of the parts discussed in this chapter: an introduction; a list of materials; numbered steps; cautions and notes; and a conclusion.