CHAPTER 11

Technical Communication

11.1 Writing to Instruct

11.2 Writing to Describe
Ramon Ruiz works in the Shipping Department of a large publisher. When customers return damaged books, the damage often is not obvious to the clerks who unpack them. Therefore, they sometimes place these books on the warehouse shelves. The damaged books are then shipped out again to the next customer who orders the books. That customer finds the damage, returns the damaged books, and usually complains about the inconvenience.

Ramon thinks the company could avoid shipping out damaged books by creating labels that identify the books as damaged. The company could send the new labels to customers who want to return damaged books. When the damaged books arrive back at the warehouse with the new labels stuck to them, the clerks would know to give the customer credit for the return and then destroy the damaged books.

Ramon’s supervisor, Ms. Simpson, likes the idea and has had the new labels made. She asks Ramon to write a letter to customers explaining how to use the labels. She also decides that he should write a complete set of instructions for returning books. These instructions would prevent customers from shipping by the wrong method, sending the books to the wrong address, and so on. She also asks Ramon to write a description of the return process for the staff in other departments because they often ask questions about it.

Ramon has read many sets of instructions and assumes that a description of the return process would be very similar. He thinks he probably could just give other staff members a copy of the instructions he writes for the customers. He often talks with staff members on the phone. He knows they are very busy and tend to be impatient. They may not read the instructions. Some may be annoyed at even receiving them.

Questions

1. What questions should Ramon ask himself before he begins writing the customer instructions for returning books?

2. How can Ramon make the instructions look easy to follow?

3. Should Ramon give the customer instructions to the staff instead of writing a process description for them? Why or why not?
The Purpose of Instructions and Manuals

Do you always read the instructions before tackling a task? Do you find most instructions to be confusing, incomplete, or tedious? Instead of reading the instructions, many people use a trial-and-error approach in trying to program a DVD player, use jumper cables to start a car, or complete some other task. They may glance through the instructions, looking for information that can help them complete the task quickly. As a result, they may complete steps in the wrong order or skip some steps entirely. Only after other approaches fail will they resort to reading the instructions.

Instructions tell readers how to do something. Manuals are sets of instructions combined with explanations, descriptions, definitions, and other related information. Both instructions and manuals should provide all of the guidance readers need to carry out tasks. The writer’s challenge is to create instructions and manuals that are so well organized that people can find instructions they want quickly and understand them easily.

Parts of Effective Instructions

Instructions should be clear, well organized, and geared to the intended receivers. They must include the information that receivers need—not too much and not too little. Instructions should use words that receivers understand. In addition, instructions should look inviting to read.

Effective instructions include the following parts:

1. A clear and specific title
2. An introduction and a list of any needed tools, equipment, and materials
3. Numbered steps in logical order
4. A conclusion

Figure 11-1 on page 395 shows a set of instructions with the parts labeled.
How to Use a Respirator

All employees are required to wear a respirator when working in the shop area. For a respirator to protect you, you must put it on properly and test the fit each time you use it.

Put on the Respirator

1. Place the respirator over your nose and mouth.

2. Place the headband on top of your head.

3. Fasten the two bottom straps together behind your neck.

4. Adjust the faceplate and straps to achieve a comfortable, secure fit.
   - The faceplate should rest on the bridge of your nose and against your chin.
   - To adjust the straps, use the metal slides.

Check the Fit

5. Cover the exhalation valve loosely with the palm of your hand.

6. Exhale. The faceplate should bulge slightly. If you feel air on your face, there is a leak. Readjust the faceplate and straps and test again.

7. Place your hands gently over the cartridges.

8. Inhale. The faceplate should collapse slightly. If you feel air on your face, there is a leak. Readjust the faceplate and straps and test again.

When you have successfully completed the checks in Steps 5-8, you may enter the shop area.

WARNING

If you cannot get the respirator to fit correctly, do not enter the shop area. Go to your supervisor.
Clear and Specific Title

The title for a set of instructions should name the topic. It may also imply what the reader will do with the topic. The title should be specific enough for readers to know what it does and does not cover. Compare these titles:

- Unclear and too broad: Hoses
- Clear and specific: How to Load a Hose Bed
  How to Deploy Hoses

Introduction and Needed Items

Readers need a brief orientation—two or three sentences—before they begin following a set of instructions. Writers tend to skimp on introductions because they want to get started writing the steps of the instructions. However, readers need to know when and why they should follow instructions. The introduction should explain what the instructions should accomplish (if that is not obvious). It should state who should follow the instructions and perhaps when and why to follow them. For example, suppose instructions tell how to order replacement parts. The introduction should explain who is responsible for ordering the parts and when the parts should be ordered.
List any needed items, such as tools, equipment, and materials, so readers can gather them before beginning the steps. Include any of the following sections that are needed.

- **Special skills or knowledge required.** If you expect readers to have special skills or knowledge, point that out. Otherwise, readers may attempt to follow the instructions without the necessary background knowledge. Refer readers to an appropriate source for any additional information they may need.

- **Time frame.** Tell readers how long the entire task or individual steps should take if that information would be helpful to them.

- **Cautions.** Warn readers about possible injury or other hazards. If necessary, repeat the warnings in the steps.

- **Definitions.** Define any terms that might not be familiar to readers, such as *initialize* and *airway*. Try to avoid using unfamiliar terms. They may discourage people from reading the instructions.

### Numbered Steps

Detailed guidelines for writing numbered steps appear on page 399. To begin, think carefully about what your intended readers need to know in order to accomplish the task. What do they already know about the procedure? Have they completed similar tasks? How is this task different?

Your goal in writing steps is to provide everything readers need without overwhelming them with details or unneeded information. One way to streamline your instructions is to avoid including obvious steps, such as “Seat yourself in front of the computer.”

### Conclusion

In the last section of your instructions, describe the expected results. The conclusion will help readers determine whether they have successfully completed the procedure. If your instructions are lengthy, you might summarize the major steps. You might tell readers where to find more help if they need it. The conclusion may simply be a sentence or two that follows the steps and has no separate heading of its own.

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1. **What is the purpose of instructions and manuals?**
2. **What parts do effective instructions include?**

Check your answers in Appendix C.
Writing and Editing Guidelines

**Key Point**

Technical writing should be specific, precise, and objective and should use language readers can understand.

Writing specific, detailed instructions and descriptions is called **technical writing**. The following guidelines apply to all types of technical writing.

- **Be specific and precise. Avoid vague or general terms.**
  
  Instead of **beside the strut**
  Write **next to the right side of the strut**

  Instead of **wash thoroughly**
  Write **wash for at least 20 seconds**

  Instead of **near the top of the page**
  Write **1 inch from the top edge of the page**

- **Use language the readers will understand.**

  Instead of **radiotherapy**
  Write **X-ray treatment**

  Instead of **remanded**
  Write **sent back to the trial court**

  Instead of **ARM’s**
  Write **adjustable rate mortgages**

When choosing what terms to use, consider your audience. General readers might not understand the term **radiotherapy**. However, if you were writing for medical personnel, the term would be appropriate.
Be objective. A description for a brochure might require subjective terms, such as practical, attractive, good, poor, awkward, difficult, or impressive. However, in most technical writing, writers avoid subjective terms that reflect opinions, not facts.

**Writing Steps**

The following guidelines will help you write clear, easy-to-follow steps for instructions.

- Number each step and start it with a verb. The verb should name an action the reader will complete.
  
  Instead of 1. Menu and Select are pressed at the same time.
  
  Write 1. Press Menu and Select at the same time.

- Put the steps in sequential order—the order in which they should be completed.
  
  Instead of 1. Open the drain valve after turning off the power.
  
  Write 1. Turn off the power.
  
  2. Open the drain valve.

- Describe each step separately so readers will not overlook a step.
  
  Instead of 1. Draw blood samples at 60 minutes, 120 minutes, and 180 minutes.
  
  Write 1. Draw the first blood sample at 60 minutes.
  
  2. Draw a second blood sample at 120 minutes.
  
  3. Draw a third blood sample at 180 minutes.

- Indent any explanations under the appropriate step. Do not number explanations because the reader may think they are steps. You may also put the explanations in italics or enclose them in parentheses. Do not confuse explanations with warnings. Explanations are comments that help the reader understand the steps. Warnings are cautions that alert the reader to possible dangers or serious problems.
  
  Instead of 1. After you click Login, the Partner Home Page will be displayed.
  
  Write 1. Click Login.
  
  (The Partner Home Page will be displayed.)

- If a step should be carried out only under certain conditions, describe the conditions first. If you do not immediately alert readers to a special...
condition, they might complete the step before they realize it should be done only at certain times.

Instead of 1. Enter the order number in Field 6 if the order will be filled by our warehouse.

Write 1. If the order will be filled by our warehouse, enter the number in Field 6.

■ If you have many steps or several procedures, group them under subheadings, such as those used in Figure 11-1 on page 395.

■ Use single spacing (1 or 1.15) for the information within a step. Leave a blank line (10 or 12 pts.) between steps.

■ Include diagrams or other graphics whenever they will clarify the instructions. Place the figures as close to the relevant steps as possible. Add arrows, numbers, or letters to link the steps to the areas of the figures that you are discussing.

■ Create a clear, inviting format by using numbers, letters, indentation, bold, and a large amount of white space. White space is a blank area that does not contain text or images. Make each step stand out.

■ Highlight warnings so readers do not overlook them. For example, you might print a warning in a different color, in a box, or in a large font. Place the warning in a position where the reader will see the warning in time to avoid the danger or problem to which the warning relates.

Editing Instructions

Editing is an important step in preparing instructions. During the editing phase, make sure that the steps are clear, complete, concise, correct, and courteous. Ask the questions listed in Figure 11-2 to help you evaluate the steps.

Figure 11-2 Evaluate instructions to be sure they are correct and complete.

<table>
<thead>
<tr>
<th>EVALUATING INSTRUCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Are the steps worded clearly?</td>
</tr>
<tr>
<td>• Do the steps include everything the reader needs to know?</td>
</tr>
<tr>
<td>• Is any unnecessary information included that should be deleted?</td>
</tr>
<tr>
<td>• Are the steps in the correct order?</td>
</tr>
<tr>
<td>• Are the illustrations appropriate?</td>
</tr>
<tr>
<td>• Are the warnings highlighted so that the reader will not overlook them?</td>
</tr>
<tr>
<td>• Are figures placed as close to the relevant steps as possible?</td>
</tr>
</tbody>
</table>
To check the accuracy of the steps, work through the instructions. Be careful not to follow the steps from memory, but to carry them out exactly as written. Have a printed copy of the steps before you on which to note any corrections you need to make. Write corrections immediately to make sure you will not forget them. Check the figures to be sure that they are in the right place to illustrate steps correctly.

As a further check for accuracy and completeness, ask another person to work through the steps. Ask the tester to write down problems and to suggest ways to improve the steps. If you are present during the testing, the tester can ask questions and give you comments directly. Be prepared to take notes.

1. What are three guidelines that apply to all types of technical writing?
2. When writing instructions, in what order should the steps be placed?
Check your answers in Appendix C.

**Parts of Effective Manuals**

A manual, as shown in Figure 11-3 on page 402, provides guidance in completing several related processes. For example, a manual might include entering a customer order, setting up shipping, and verifying that the order was packed and shipped. A manual might explain how a machine works and how to use, maintain, and repair it. Manuals often combine sets of instructions for completing various tasks with statements of policies or procedures. They may be written for experienced or inexperienced readers—or for both.

An effective manual should have the following parts:

1. A clear and specific title
2. A detailed table of contents
3. An introduction
4. Logical divisions of material, such as sections or chapters
5. Clear and complete steps in correct order in each section or chapter
6. Figures and illustrations, as needed
7. A glossary of terms, if needed
8. An appendix for supplementary material, if needed
9. An index (usually needed only for long manuals)
The intake interview is your first personal contact with a client. The goals of an intake interview are as follows:

➢ Determine whether the client is eligible for the program
➢ Provide an overview of the program and the client's rights and responsibilities
➢ Acquaint the client and case manager
➢ Assess the client’s needs
➢ Obtain data required to register the client for the program and appropriate services
➢ Have the client complete preliminary paperwork for registration

The interview generally lasts 90 minutes. During that time, you will use the Eligibility Checklist (Figure 2) to determine whether the client is eligible for the program. If the client is eligible, you will gather the data required to complete the intake form (Figure 3). You may enter data in the form on your laptop or fill out a paper copy and enter the data later, as you prefer.

Scheduling an Intake Interview

An intake interview may be scheduled by phone or letter. A letter template, intake.doc, is available in the Client Correspondence folder on the network. If you schedule by phone, tell the client to bring the following information and documents to the interview:

➢ Two documents showing current address (e.g., rent receipt and bill)
➢ List of employers for the past three years, addresses, and dates
➢ List of doctors, addresses, dates, and treatment
➢ Proof of income, such as last year’s tax return or recent pay stub

Note: An intake interview may not be conducted by phone. The client must visit the office in person.

Enter the interview appointment in the scheduling software as follows:

1. Choose Set Up from the Appointments menu.
**Title, Table of Contents, and Introduction**

Like a set of instructions, a manual should have a clear and specific title. The title should state the topic and imply reasons for using the manual.

Few people read manuals from the first page to the last. Instead, many readers use manuals as a reference when they complete a procedure for the first time. Readers might turn to a manual when they have problems with a procedure they know how to perform. For those reasons, information in a manual must be easy to locate. A table of contents allows users to find topics and figures easily.

The table of contents should include all of the headings and subheadings in the manual. Page numbers should be included to make it easy for readers to locate specific topics. The table of contents should also list by title related items in the manual, such as figures, tables, and diagrams. If the manual contains many figures or diagrams, they can be placed in a separate list.

The introduction to a manual may be longer than the introduction for a set of instructions, but it should include the same kinds of information. It should explain how the manual is organized, how it can be used and by whom, and what processes or procedures it covers. Each section of a manual might also have its own short introduction.

**Sections, Steps, and Figures**

The manual should be well organized. Manuals are typically divided into sections or chapters, one for each main procedure or process. A tab on the first page of each section can make the sections easy to locate. Colored tabs are used in the manual shown in Figure 11-3 on page 402. Colored pages that serve as dividers also help readers find the section they want.

Begin each section with a short introduction and follow with the steps needed. Follow the guidelines presented earlier to write clear, complete, correct, concise, and courteous steps. Edit the steps by working through them or having a tester work through them as described earlier.

Use illustrations wherever they would be helpful to readers. For example, a drawing could show how machine parts should be attached. A flowchart could trace the path of an order through a system. An organization chart might show how the company staff is organized. Tables might provide codes, contact numbers, temperatures and pressures, or other information that readers will need.

**Glossary, Appendix, and Index**

A manual may have a **glossary**, which is a list of terms and abbreviations with definitions. The glossary might be placed at the end of the introduction or at the end of the manual. The glossary should be listed in the table of contents so readers can find it easily.
Creating Manuals Efficiently

Working efficiently contributes to occupational success. You can use several features of word processing software to help you create manuals efficiently.

Heading styles can be used to format headings and subheadings in the manual. Using heading styles ensures that each heading of the same level will be formatted in the same way.

When you use heading styles to format headings, you can have the program generate a table of contents automatically. Creating the table of contents this way is much faster than keying and formatting it manually. The table of contents can be updated easily if you add, delete, or move sections or figures in the document.

Create different sections in the document by inserting section breaks. Each section can have its own header and footer. For example, you might include the section or chapter name and the page number in a footer in each section. This footer would aid readers in locating specific sections of the manual.

When the manual includes illustrations, you can use the caption feature to add captions, such as Figure 1 or Table 1, to the illustrations. The captions can be added as you insert images or later after all images are in place.

When you use the captions feature to insert figure captions, you can generate a table of figures, which is similar to a table of contents. The table of figures can be updated easily if you move figures within the document.

Refer to the Help entries in your word processing software if you are unfamiliar with how to use any of these features.

A manual might also include an appendix with supplemental material at the end of the manual. An appendix might contain forms, floor plans, district maps, company branch locations, suppliers, guides, or specifications.

Each appendix should have a descriptive title and should be listed separately in the table of contents. For example:

Appendix A: Examples of Order Forms................ 34
Appendix B: Addresses of Branch Offices......... 36
A manual might include special instructions for readers with little experience related to the topic. Basic step-by-step instructions for certain procedures might be placed in an appendix. A note in the instructions might say, “For more information on completing this process, see Appendix C.”

Long manuals often include an index at the end of a manual. An index is a detailed listing of the topics and subtopics the manual covers and the pages on which the topics can be found. An index can help readers locate specific information quickly.

Use the checklist below to help you write effective instructions and manuals.

### Checklist for Instructions and Manuals

- Have I considered what my readers need to know in order to perform this process?
- Is the title clear and specific?
- Does the introduction explain who should follow these instructions, when, and why? Does it list needed tools, materials, skills, and knowledge?
- Have I worked through the instructions while editing them?
- Are the steps organized logically, numbered, and clearly written?
- Do the steps start with a verb? Are explanations indented below steps and not numbered?
- For a manual, have I made it easy for readers to locate specific information and included a detailed table of contents?
- Have I adapted the manual for readers with different experience levels?

**Check your answers in Appendix C.**
Section 11.1 Applications

A. Revise Instructions
Rewrite the instructions so that they are clear and easy to follow. Replace each vague word or phrase with a more precise one. Place any explanations below the related steps. Make up details, as needed.

1. A small amount of gel should be applied to the electrode, and it should be placed above the left collarbone.
2. View the tape after removing the recording tab.
3. Enter the customer’s name. After you enter the customer’s name, the screen will display the customer’s purchase history.
4. Turn the screw that is located near the panel.
5. When the mixture is cool, add it to the dry ingredients.
6. Clean the area with some bleach and water.
7. Turn the screw a few times to the right.
8. Move the lever up a little bit.
9. Sand the area with fine sandpaper.

B. Evaluate Instructions

1. Bring to class a set of instructions for some task or process. The instructions might be for assembling a toy, programming a cell phone, or some other process. If you do not have a printed set of instructions, search the Internet to find a set of instructions and print them. The instructions should be no longer than two pages.
2. Working with a classmate, review the instructions. Do the instructions include the parts listed in this chapter? If not, what parts are missing?
3. Do the instructions follow the guidelines given in this chapter for writing instructions? If not, which guidelines should have been followed and were not?
4. If there are figures in the instructions, are they helpful to the reader? Why or why not?
5. How could the instructions or figures be improved?
Types of Description Writing

A **description** is a verbal and/or visual picture of something. You might be asked to write a description of an object or a mechanism, usually as part of a report or a manual. An **object** is something inanimate that is natural or synthetic and can be seen or touched, such as an apple, a coffee cup, or a pencil.

A **mechanism** is a type of object that consists of parts working together to perform one or more tasks. A mechanism can be as simple as a pencil sharpener or as complex as a computer.

You might also be asked to write a process description. A **process** is a series of events that take place over time and results in a change or a product. A process description explains how something works. Figure 11-4 is a process description for how a coal-fired power plant produces electricity.

**Figure 11-4  A Verbal and Visual Description of a Process**


**Key Point**

A process is a series of events that take place over time and result in a change or a product. A process description explains how something works.
A process may be controlled by humans, or it may be a natural event, such as the eruption of a volcano. While a set of instructions explains how to perform a task, a process description explains how something happens. A process description might include a description of a related object. Many descriptions have photos, diagrams, or other figures. Together the verbal and visual pictures help readers visualize an object and understand how it looks and/or works. Descriptions are used in product brochures, proposals, and instructions.

**check point 4**

1. How does a process description differ from instructions?
2. What is a mechanism?
   Check your answers in Appendix C.

**Object Descriptions**

A description can range from an informal one-paragraph explanation to a formal report. Consider the needs and backgrounds of your readers as you plan a description. Consider what your readers already know about the object or process. Determine how they will use the description. For example, will they use it to assemble a car seat or to evaluate its safety? These questions will help you determine how much detail is needed and the terms you need to define.

**Parts of an Object Description**

Object descriptions usually include the following parts:

- Title
- Introduction and overview
- Part-by part description (body)
- Conclusion

**Title and Introduction**

Like instructions, descriptions should begin with a clear, specific title. An informative title tells what the description covers.

In the introduction, begin with the definition and purpose of the object to orient readers, as shown in Figure 11-5 on page 410. Follow with other basic information. For example, you may describe what the object looks like,
give a general idea of how it works, and list its principal parts. Do not state the obvious, such as telling readers that a copier makes copies. Include a labeled illustration in the introduction or in the part-by-part description.

**Part-by-Part Description**

In the body, describe each part of the object separately, as shown in Figure 11-5 on page 410. Explain each part’s appearance and function. Describe any subparts (parts of parts) as necessary. List the parts in a logical sequence. For example, you might start with the most important or most obvious part. You might begin at the top and progress to the bottom. You might begin with the main parts and move to the peripheral parts. You might move from the outside to the inside. Label the parts on one large illustration or include an illustration of each part. You might include a cutaway or a cross-sectional diagram of internal parts.

For a mechanism, you might describe how it looks when it is not functioning, what each part looks like and how the parts work together, and/or how the parts fit together.

**Conclusion**

Longer object descriptions require a brief conclusion to summarize what the main parts are and how they work together. The conclusion of a mechanism description might describe one operating cycle. The conclusion of a short description may be a brief paragraph without a separate heading.
The Hand Drill

The hand drill is the most basic type of drill used in woodworking. It is most often used when fine carpentry work is required or when a power drill is not available. Hand drills are suitable for drilling holes up to 1/4 inch in diameter in light metal or up to 1/2 inch in diameter in wood.

Hand drills are generally 15 inches long or less. A hand drill consists of a frame, a handle, a pinion gear, a chuck, a detachable drill bit, a wheel gear, and a crank.

- **The frame** is the main shaft of the drill. It holds the handle, pinion gear, and chuck. The frame is made of metal.

- **The handle** is used to position the drill and hold it steady. It is made of wood or plastic and is contoured to fit the user's hand. The handle sometimes doubles as a storage place for drill bits.

- **The pinion gear** is a small gear on the main shaft of the drill. It is made of metal.

- Below the pinion gear is the **chuck**, a metal device with jaws that holds the drill bit. Twisting the chuck or turning a key loosens or tightens the jaws. Chucks come in 1/4-inch, 3/8-inch, and 1/2-inch sizes.

- **The drill bit** is made of steel. It consists of a central core with a thread wrapped around it. Drill bits come in many sizes. A hand drill might come with five different drill bits, ranging in size from 1/8 inch to 1/4 inch.

- **The wheel gear** is made of metal. It is attached to the frame of the drill.

- **The crank** is made of wood or plastic and is attached to the wheel gear.

The user positions the drill vertically so the drill tip touches the place where he or she wants to bore a hole. The user holds the handle in one hand and turns the crank clockwise with the other hand, applying light pressure. Turning the crank turns the wheel gear. The turning force of the wheel gear is transferred to the pinion gear. As the pinion gear turns, the chuck and drill bit do, too. The end of the drill bit is a wedge that forces its way into the material. Each time the user turns the crank, the thread on the screw cuts deeper. The corkscrew shape of the drill bit helps carry away the drilled material.
Writing Object Descriptions

When writing an object description, use specific, precise language. Use words that readers will understand, and be objective in your writing style. Describe the object or part by its shape, dimensions, size, color, texture, position, and/or material. To describe an object’s shape, you might use words such as \emph{L-shaped}, \emph{threadlike}, or \emph{concave}. In describing its size, you might include the height, width, depth, area, and weight. Measure accurately. Your readers might use the data to determine whether certain parts will fit together. Compare the unfamiliar to the familiar. For example, you might compare the compound eye of an insect to the mirror of a telescope. Both objects have many facets.

Edit the description to be sure it is clear, complete, correct, concise, and courteous. If possible, have a coworker read the description and provide feedback. Proofread carefully and correct all errors.

Ethics

When writing an object description for a product ad, be objective and give accurate information. Do not overstate the value or features of the product.

Reading Manuals and Instructions

Reading a manual or instructions is required for many work tasks. You can use skills you learned earlier, skimming and careful reading, to use manuals effectively. Usually, you will not read a manual from beginning to end, as you would read a letter or a report. Instead, you will read the part of the manual that provides help or information for a certain task or policy.

To locate information you need quickly, skim the table of contents or the index of the manual to find the pages that relate to the topic. Go to the page in the first reference. Skim the page to see if it contains the material you need. If it does, read the material carefully. If it does not, go to the page in the next reference. Repeat the process until you find the information you need.

When you read instructions for a task, read all the steps before beginning the task. Instructions should be written with clear steps in logical order. However, not all instructions are written this way. Reading all the instructions first will acquaint you with the entire process and help you spot steps that may be out of order or incomplete.

Open the Word file CH11 Reading from the student data files. Follow the directions to practice finding and reading material in a manual.
A process description explains how something works. It does not explain how to perform a process; that is the function of instructions. For example, it might describe a department or business process, such as requesting copies or explaining how a reporting process works. The description might be a separate document or part of a larger document, such as a repair manual or a sales brochure.

Often, a writer prepares a process description and then a set of instructions for the same process. For example, the writer might explain how blood test orders are processed and then how to order blood tests.

**Parts of a Process Description**

Most process descriptions include these parts:

- Title
- Introduction and overview
- Part-by-part description (body)
- Conclusion

**Title and Introduction**

A process description should have a clear and specific title. The title should tell readers what the process description covers. Contrast the specific title “Telephone Order Process Description” in Figure 11-6 on page 413 with a more general title, such as “Orders.” The title also may suggest the technical level of the process description.

The introduction should define the process and give an overview of its use. It also might explain why or how the process is used, who or what performs it, and where or when it takes place. If the process can be divided into steps, they might be listed in the introduction. The brief introduction in Figure 11-6 tells what a telephone order is, who handles telephone orders, and when the orders are processed.
Telephone Order Process Description

Introduction
A telephone order is a sale made when a customer calls with a request to purchase items. Telephone orders are processed by sales associates who answer customer calls. Telephone orders are processed during regular business hours (from 8 a.m. to 6 p.m.) Monday through Saturday. Telephone orders are not taken on Sundays and on some holidays when the business is closed.

Steps in the Telephone Order Process
The following steps occur in processing a telephone order.

1. The telephone order process begins when a customer call is answered by a sales associate.
2. The sales associate inputs the customer’s contact information and a shipping address, if needed.
3. The sales associate inputs the customer’s payment information (credit card data).
4. The customer’s payment information is verified. If the payment is accepted, the process continues. If the payment is not accepted, the customer is informed and given the opportunity to use another payment method or abandon the order.
5. If shipping is needed, a shipping label is printed.
6. The package is assembled and shipped. (For some items, such as clip art or music files, no shipping is needed. The customer downloads the items from the company Web site.)
7. An e-mail is sent to the customer confirming the order and giving shipping information, if needed.

Conclusion
Telephone orders are an important part of the company’s business. About 25 percent of the company’s orders are telephone orders. A flowchart showing the telephone order process is shown on the next page. Detailed instructions for completing each phase of the telephone order process are provided in this manual, beginning on page 98.
Figure 11-6 Process Description Continued

Figure 12 Telephone Order Process
Step-by-Step Description

Describe the process in order, much as you would describe the steps in a set of instructions. If the process occurs in a continuous cycle, begin with a major step. In a process description, the steps may be numbered as they are in a set of instructions if the steps are short. However, if the process is lengthy, each step might have its own subheading. Make sure you explain the relationships between the steps: how one step leads to or causes another.

Include illustrations that would be helpful to the reader. For example, the telephone order process description on pages 413 and 414 includes a flowchart of the process.

Use the present tense to describe a process that is ongoing or repeated. Use the past tense to describe a process that was completed in the past.

Present Tense  The printer is copying and collating pages.
Past Tense  The harvesting machine cut and thrashed the wheat.

Conclusion

As with object descriptions, a long process description may require a paragraph summarizing the process and perhaps discussing its uses or advantages. The conclusion in a short process description might simply be the final paragraph.

Writing Process Descriptions

The first step in writing a process description is determining your readers’ needs and levels of experience and knowledge. You must also find out how your description will be used so you know what details to include and how to present them.

When writing process descriptions, use specific, precise language. Choose words that readers will understand. Be objective and factual in your writing style. Describe the process completely from beginning to end. Include

Key Point

Include illustrations in the body of a process description to help readers understand the process.
Include enough details in the body of a process description for readers to get a complete picture of the process.

**Key Point**

Include enough details in the body of a process description for readers to get a complete picture of the process. Compare the unfamiliar to the familiar. For example, you might compare the process of converting sunlight into electricity with a solar panel to a green plant converting sunlight into energy through photosynthesis.

Edit the description to be sure it is clear, complete, correct, concise, and courteous. If possible, have a coworker read the description and provide feedback. Proofread carefully and correct all errors.

Use the checklist below to help you write effective object and process descriptions.

**CHECKLIST FOR OBJECT AND PROCESS DESCRIPTIONS**

- Have I considered what my readers need to know, their level of expertise, and how they will use this description?
- Is the title clear and specific?
- Does the introduction give an overview of the object or process, including its purpose or function and the principal parts?
- Are the parts of the object or the steps of the process clearly described in a logical order?
- Is the conclusion appropriate?
- Have I edited the description to be sure it is clear, complete, correct, concise, and courteous?

1. What parts are usually included in a process description?
2. What information should be included in the body of a process description?

Check your answers in Appendix C.
Section 11.2 Applications

A. Object Description for an Adult Audience

Identify an object with at least two moving parts. Suppose you were going to write a description of the object for an adult who had never seen it and did not know what it was used for.

1. What would be a logical way to describe the parts of the object? For example, would it be best to start with the most important part or to start at the top and progress to the bottom?

2. What parts does the object have that you would need to describe? List the parts you can see and any internal parts you know of.

3. What words could you use to describe the object? List at least six words that describe its color, size, dimensions, texture, position, composition (what it is made of), or other features.

4. Using your answers to help you, write a description of the object. Include a title, introduction, body, and conclusion.

5. Ask a classmate to read your description and give feedback on how to improve it.

6. Make changes, as needed. Proofread and correct all errors.

B. Map and Directions

1. Work with a classmate to complete this application. Draw a map of the route from your school to your home.

2. Write a set of directions someone could follow from the school to your home.

3. Put your map out of sight and exchange directions with a partner.

4. Use your partner’s directions to draw a map from the school to his or her home while your partner does the same with your directions.

5. Compare maps with your partner. Are the maps from each home to the school similar? If not, was the problem in the written directions?

6. Make any changes to the directions that would have helped your partner draw a more accurate map.
Chapter Summary

11.1 Writing to Instruct

- Instructions tell readers how to do something.
- Manuals are sets of instructions combined with explanations, descriptions, definitions, and other related information.
- Effective instructions include a clear and specific title, an introduction, a list of items needed, numbered steps in logical order, and a conclusion.
- Technical writing should be specific, precise, and objective and should use language readers can understand.
- Editing is an important step in preparing instructions. To check the accuracy of the steps, work through the instructions.
- A manual provides guidance in completing several related processes.
- A manual may include a glossary of terms, an appendix with supplementary information, and an index to aid in locating topics.

11.2 Writing to Describe

- A description is a verbal and/or visual picture of something.
- An object is something natural or synthetic that can be seen or touched, such as an apple, a coffee cup, or a pencil.
- A mechanism is a type of object that consists of parts working together to perform one or more tasks.
- Descriptions are often written for mechanisms and other objects to place in instructions or manuals.
- A process is a series of events that take place over time and results in a change or a product. A process description explains how something works.
Vocabulary

Open the Word file CH11 Vocabulary from the student data files. Complete the exercise to review the vocabulary terms from this chapter.

- description
- glossary
- index
- instructions
- manuals
- mechanism
- object
- process
- technical writing
- white space

Critical Thinking Questions

1. Suppose someone follows instructions you have written and makes a mistake. The person says, “But I thought you meant…” What might the problem be?

2. Is it easier to describe an object or a process? Why?

3. Think of a set of instructions you have read within the past week. Were the instructions effective? Why or why not.

4. The manual for your new cell phone discusses eight different procedures, such as downloading ring tones and using voice mail. All the procedures are listed under one heading, Phone Operations. Is this an effective way to organize the manual? Why or why not?
A. Illustration

1. Create a figure to illustrate a set of instructions, a manual, a mechanism description, or a process description. You may draw by hand, take a photograph, use clip art, or create the image using software tools.

2. Key a title for the figure in a word processing file.

3. Insert the image in the word processing file. Key a sentence that tells what the figure illustrates.

B. Instructions for a Task

1. Choose a simple task that you know how to perform well, such as how to make a music CD, lift a patient, change the oil in a car, make lasagna, or cut drywall.

2. Write a set of instructions for performing the task. Your audience is your classmates.

3. The instructions should follow the guidelines given in the chapter. Make sure your instructions include:
   - A title
   - An introduction with a list of any needed tools, equipment, and materials
   - Numbered steps in logical order
   - A conclusion

C. Object Description for a Child

1. Choose an object, such as an apple, a ladder, a coat, or a crayon.

2. Write a description of the object. Include a title, introduction, body, and conclusion. Use simple words, large type, an illustration, and any other features you think would be helpful to your audience.

3. Ask a classmate to read your description and give feedback on how to improve it.

4. Make changes, as needed. Proofread and correct all errors.
D. Mechanism Description

1. Choose a simple mechanism, such as a nutcracker, an eggbeater, a doorknob, a faucet, or a mechanism used in work that interests you. The mechanism can be one part of a machine.

2. Write a description of the mechanism for a teenager. Include a title, an introduction and overview, a part-by-part description, and a conclusion. Include an image of the mechanism, if possible.

3. Ask a classmate to read your description and give feedback on how to improve it.

4. Make changes, as needed. Proofread and correct all errors.

E. Process Description

1. Select a process that you understand well but that is unfamiliar to some people. You might select a process such as one of the following
   - Creating personalized letters using your software’s mail merge feature
   - Taking a patient’s blood pressure
   - Changing the oil in a car

2. Write a description of the process you selected. Your audience is the general public. Make sure your description includes the four parts of a process description and follows the guidelines given in the chapter.

Editing Activity

Open the Word file CH11 Editing from the student data files. Edit the set of instructions as directed below.

1. The title is not clear and specific. Edit to enter a better title.

2. The introduction does not include a list of needed tools, equipment, and materials. Add such a list.

3. Revise the numbered steps so that they all begin with a verb.

4. One step includes an explanation that should appear in an earlier step and should be indented under the step. Make that correction.

5. One step should be separated into two steps. Make that correction.

6. Identify the warning statement and place it where it should appear. Format the warning statement in a way that will make it stand out.

7. Identify and correct a misspelled word.
Case Study

**Contacting a Customer**

Maggie Ryder has been hired as a consultant at a local company. For the past two years, the company sales have declined. Talented employees have been leaving the company. The president, Lu Kim, reviewed customer comments and employee exit interviews. He identified communications as a major problem area. Ms. Ryder examined the organization’s employee procedures and customer publications. She quickly understood Mr. Kim’s concerns.

For many tasks that employees must perform, there are no written procedures. As a result, those tasks are performed in a variety of ways or not at all. For other tasks, the guidelines are written so poorly that Ms. Ryder had trouble understanding them. Documents that go outside the company are not much better. Guides for customers on using the company’s products and services are difficult to follow. They are so technical that they seem to be written for experts.

1. What suggestions could Ms. Ryder give for improving employee procedures?

2. What suggestions could Ms. Ryder give for improving product guides that are written for customers?
Communication for Science, Technology, Engineering, and Mathematics

Mr. Thomas is a chemistry teacher at Valley High School in south Texas. He loves chemistry and teaching. His students appreciate the way he brings real-world examples into the classroom to make lessons interesting. Because of his expertise in crop growth in arid climates, a national company employs him to do experiments at a local research site.

Today, besides teaching his classes, Mr. Thomas has two objectives to achieve. First, he must write a lab assignment for one of his advanced classes. He must write this assignment thoughtfully. If students mix the chemicals improperly, there could be a “foul smelling” result. His second objective is to write a report on one of his experiments at the research site. This report will be sent to fellow scientists at the head research facility in Kansas City.

1. When writing an assignment for the students, what type of writing will Mr. Thomas do? What writing techniques could Mr. Thomas use to write a successful lab assignment?

2. When writing the report on his experiment, what type of writing will Mr. Thomas do? What writing techniques could Mr. Thomas use to write the report on his experiment?

3. Should the recipients of Mr. Thomas’ lab assignment and the recipients of the report on his experiment affect his writing? If so, how?
Chapter 11 Answers

Checkpoint 1
1. The purpose of both instructions and manuals is to provide the guidance readers need to carry out tasks.
2. Effective instructions include the following parts:
   a. A clear and specific title
   b. An introduction and a list of any needed tools, equipment, and materials
   c. Numbered steps in sequential order
   d. A conclusion

Checkpoint 2
1. The following guidelines apply to all types of technical writing.
   • Be specific and precise.
   • Use language the readers will understand.
   • Be objective.
2. When writing instructions, put the steps in sequential order—the order in which they should be completed.

Checkpoint 3
1. An effective manual should have the following parts:
   a. A clear and specific title
   b. A detailed table of contents
   c. An introduction
   d. Logical divisions of material, such as sections or chapters
   e. Clear and complete steps in correct order in each section or chapter
   f. Figures and illustrations, as needed
   g. A glossary of terms, if needed
   h. An appendix for supplementary material, if needed
   i. An index (usually needed only for long manuals)
2. A glossary is a list of terms and abbreviations with definitions. An index is a detailed listing of the topics and subtopics the manual covers.

Checkpoint 4
1. A set of instructions explains how to perform a task. A process description explains how something happens.
2. A mechanism is a type of object that consists of parts working together to perform one or more tasks. A mechanism can be as simple as a pencil sharpener or as complex as a computer.

Checkpoint 5
1. Formal descriptions usually include the following parts:
   • Title
   • Introduction and overview
   • Part-by-part description (body)
   • Conclusion
2. In the body, describe each part of the object separately. Explain each part’s appearance and function. Describe any subparts as necessary. List the parts in a logical sequence.

Checkpoint 6
1. Most process descriptions include these parts:
   • Title
   • Introduction and overview
   • Part-by-part description (body)
   • Conclusion
2. In the body, describe the process in order. If the process occurs in a continuous cycle, begin with a major step. If the process is lengthy, each step might have its own subheading. Relationships between the steps should be explained. Illustrations that would be helpful to the reader should be included.