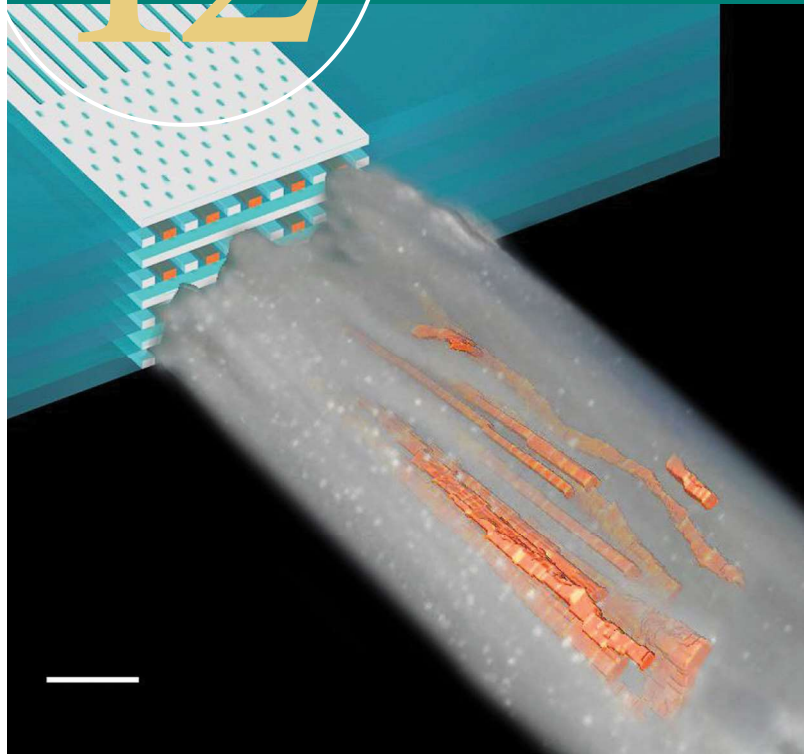


12

Descriptions



LEARNING OBJECTIVES FOR THIS CHAPTER

- Understand the importance of descriptions in workplace communication
- Maintain objectivity in descriptions
- Differentiate between product descriptions and process descriptions
- Write a long product or process description
- Differentiate product or process descriptions from specifications
- Compose a set of specifications

CHAPTER OUTLINE

LET'S GET STARTED:
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LET'S GET STARTED

Descriptions

MyWritingLab™

Suppose your company has invented a useful gadget—such as a staple remover or paper punch (or some other ordinary but somewhat complex item with multiple parts). Choose such an item—one that you can get your hands on and study, weigh, measure, and possibly take apart. Begin describing this object by assigning descriptive details to it, recording every detail on a piece of paper or in a word-processed document. Weed out the subjective details (such as “pretty” or “ugly”) from the objective details (such as—for a staple remover—“prongs,” “finger grips,” and “spring mechanism”). Then decide on the most logical sequence for describing this item: bottom to top, exterior to interior, and so on (such as—for the staple remover—“plastic finger grips” to “hollow metal prongs with pointed tips” to “coil-spring extensor mechanism,” and so on). Finally, compose a full description of the product, using visuals as needed.

Questions to ask about the description you wrote as you review the material in this chapter:

- ▶ Were you able to maintain objectivity when writing your description?
- ▶ Does your description contain all of the typical elements?
- ▶ Did you include appropriate visuals?
- ▶ Did you follow the appropriate descriptive sequence(s) for your purpose and audience?

At the end of this chapter, review your initial Let's Get Started description with your instructor or with a group of students to see how much you might change or modify the description based on what you have learned from the chapter.

Descriptions are essential in workplace writing because, like definitions, they help ensure that readers understand the full meaning of any technical document. Descriptions and definitions often go hand in hand. For example, to return to the *myocardial infarction* example in the previous chapter (page 207), a medical student reading a document about myocardial infarctions would need to know not only that

Meaning and
importance of
descriptions

a myocardial infarction is a form of heart attack (definition) but also what causes such a heart attack (description).

This chapter will explore how to write technical descriptions from a variety of angles and for a variety of purposes.

AUDIENCE AND PURPOSE OF DESCRIPTIONS

As with any technical document, consider your audience and your document's purpose carefully before writing a description.

Audience considerations

While definitions answer the questions “What is it?” or “What does it entail?” descriptions often include definitions first and then must answer the additional questions “What does it look like?” “What are its parts?” “What does it do?” “How does it work?” or “How does it happen?”

Assume that most readers won't be familiar with the product or process you are describing and write your description at the appropriate level of technicality. An audience of medical technicians will easily understand jargon related to that field, but nonexperts will need language with which they are familiar. For example, the sentence “A tumor is a neoplasm” would make sense to most medical professionals; however, for an audience outside that field, you would need to use more accessible language, such as “A tumor is a growth of cells that occurs independently of surrounding tissue and serves no useful function.”

Purpose considerations

Consider exactly what you want readers to know and why they need to know it. You may want to write out a purpose statement before you start writing your description, such as: “The purpose of this description is to help plumbing apprentices understand the parts of the Heatwave home water heater and how those parts work together to produce hot water.”

OBJECTIVITY IN DESCRIPTIONS

Subjective versus objective descriptions

A description can be mainly *subjective* (based on feeling) or *objective* (based on fact). Subjective descriptions do more than simply convey factual information; subjective descriptions use sensory and judgmental ideas such as “The weather was miserable” or “The room was terribly messy.” In contrast, objective descriptions present an impartial view, filtering out personal impressions and focusing on details any viewer could observe (“All day, we had freezing rain and gale-force winds”).

Why descriptions should be objective

Except in cases of promotional writing, descriptions should be objective. Pure objectivity is, of course, humanly impossible. Each writer filters the facts and their meaning through his or her own perspective and therefore chooses what to include and what to omit. Nonetheless, when writing descriptions, you should communicate the facts as we know and understand them. Even positive claims made in promotional writing (for example, “reliable,” “rugged”) should be based on objective and verifiable evidence.

Being objective does not, however, mean forsaking personal evaluation in cases in which a product or process may be unsafe or unsound. An ethical communicator, in the words of one expert, “is obligated to express her or his opinions of products, as long as these opinions are based on objective and responsible research and observation” (MacKenzie 3).

Descriptions have ethical implications

One way to maintain objectivity when writing descriptions is to always provide details that are visual, not emotional. Ask yourself what any observer would recognize or what a camera would record. For example, instead of saying, “His office has a depressing atmosphere” (not everyone would agree), say “His office has broken windows looking out on a brick wall, missing floorboards, broken chairs, and a ceiling with chunks of plaster missing.”

How to be objective

A second way to maintain objectivity is to use precise and informative language. For instance, specify location and position, exact measurements, weights, and dimensions instead of using inexact and subjective words like *large*, *long*, and *near*. Be careful, though, not to confuse precise language with overly complicated technical terms or needless jargon. For example, don’t say *phlebotomy specimen* instead of *blood*, *thermal attenuation* instead of *insulation*, or *proactive neutralization* instead of *damage control*. General readers prefer nontechnical language—as long as the simpler words do the job.

ELEMENTS OF DESCRIPTIONS

All descriptions should include a forecasting title, an orienting introduction, a logical sequence of topics, clarifying visuals, and a summarizing conclusion.

Title

Promise exactly what the document will deliver—no more nor less. For example, assume you are describing the braking mechanism of a particular brand and type of bicycle: Be clear in your title by referring to the exact brand and type of bicycle, and be limited in your title by indicating that you will only describe the braking mechanism. The title “A Description of a Bicycle” is neither clear nor limited. A better title would be “A Description of the Velo Racing Bicycle’s Center-Pull Caliper Braking Mechanism.”

Provide a clear and limiting title

Introduction

Descriptions rarely call for a standard topic or thesis statement because the goal of these documents is to catalog details to help readers visualize the product or process. Any description, however, should begin by telling readers what to look for. If you have written a purpose statement to help you orient yourself prior to writing the description, simply reuse it here. For example, you might say in your

Provide an introduction that orients readers

introduction, “The goal of this description is to introduce apprentice road construction workers to the parts and function of a standard jackhammer.” You may also simply want to start with a brief definition of what you will describe.

Sequence of Topics

Provide a logical and appropriate sequence of topics

Spatial sequence:
How something looks

Functional sequence:
How something works

Chronological sequence: How something is assembled or occurs

Combine sequencing when appropriate

For longer descriptions, choose the sequence, or organizational pattern that is most logically consistent with your purpose.

To describe how something looks, including its parts, use a *spatial* sequence. Follow the same spatial patterns readers would follow when viewing the item. Do you want to move from top to bottom, inside to outside, or right to left or follow some other pattern? For example, when describing a laptop keyboard, you might follow an outside to inside spatial sequence, first describing the “on/off” and mouse keys, then moving inward to the “page up,” “page down,” “shift,” “tab,” “caps lock,” and function keys, and finally moving to the interior number, letter, and punctuation keys.

To describe how something works, use a *functional* sequence. Describe the workings (functions) of the device in the order in which the parts function. For example, if you want to describe how a solar home heating system works, proceed from source to outlet: from the heat collectors on the roof through intermediate components to the heating vents.

To describe how something is assembled, use a *chronological* sequence. Parallel the order in which parts are assembled or stages occur. For example, if you want to describe how to put together a small desk, describe how to put together the main parts first and the smaller, more decorative parts last.

Spatial, functional, and chronological sequencing are not mutually exclusive; you can combine these sequences as needed. For example, in describing the appearance, use, and assembly of an atomic alarm clock, you would employ a spatial sequence to help readers recognize this item, a functional sequence to show how it works, and a chronological sequence to help readers assemble it correctly.

Visuals

Provide visuals to enhance and clarify prose descriptions

You can explain a product or process as clearly as you like in words, but a clear diagram or other visual can show your readers the actual look and feel of the product or process. The diagram (top view) in Figure 12.1 adds much-needed visual impact to what would be a complicated prose description. In addition to the picture, labels help readers interpret what they are seeing.

Conclusion

Provide a concise conclusion to give readers a sense of finality

A conclusion should be short and to the point and not introduce any new material. It should provide readers with a brief summary of what the description

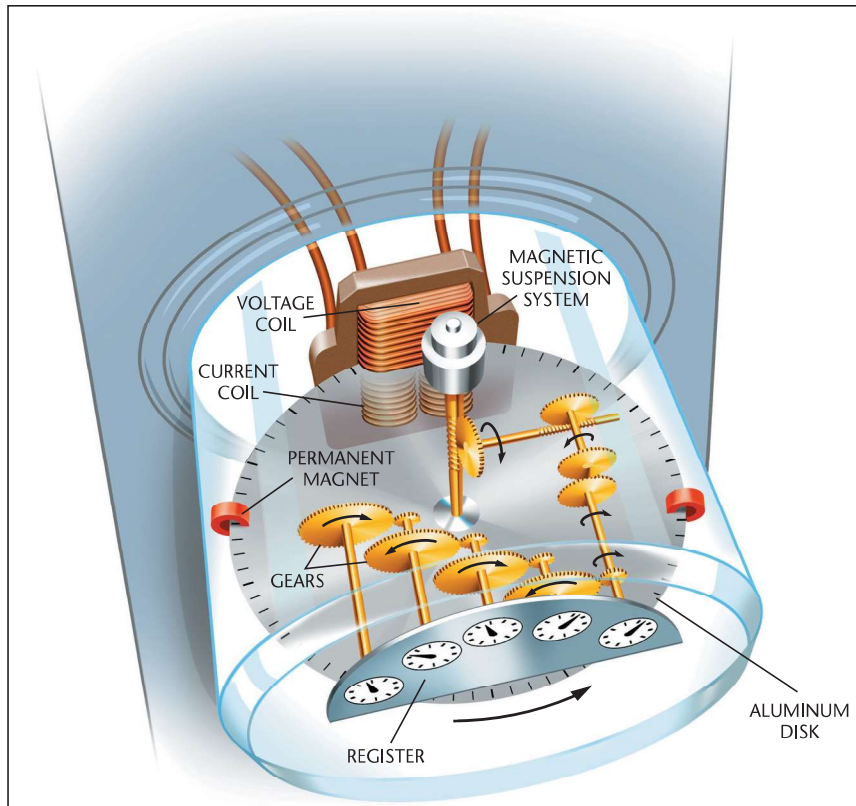


FIGURE 12.1
A descriptive
visual

Source: "Description of an Electricity Meter" illustration by George Retseck, from "Electricity Meters" by Les Rosenau, from *Scientific American*, March 2000, Volume 108. Reprinted with permission.

has attempted to accomplish. It also should give readers a sense that they now understand everything they need to know about the product or process.

PRODUCT AND PROCESS DESCRIPTIONS

Descriptions generally divide into two broad categories: *product descriptions* and *process descriptions*. Anyone learning the parts of a particular device (say, a standard microscope) relies on a product description. Anyone wanting to understand the steps or stages in a complex event (say, how lightning is produced) relies on a process description.

For example, the product description in Figure 12.2 gives beginning paramedical or nursing students a clear image of the overall device (a stethoscope) and its parts. The process description in Figure 12.3, on the other hand, helps surveyors or environmentalists understand the steps or stages by which contaminants may be removed from the soil using the "lasagna process."

Product and process
descriptions

FIGURE 12.2
A product
description

A Description of the Standard Stethoscope

The stethoscope is a listening device that amplifies and transmits body sounds to aid in detecting physical abnormalities.

This instrument has evolved from the original wooden, funnel-shaped instrument invented by French physician R. T. Lennaec in 1819. Because of his female patients' modesty, he found it necessary to develop a device, other than his ear, for auscultation (listening to body sounds).

This description explains to the beginning paramedical or nursing student the structure, assembly, and operating principle of the stethoscope.

The standard stethoscope is roughly 24 inches long and weighs about 5 ounces. The instrument consists of a sensitive sound-detecting and amplifying device whose flat surface is pressed against a bodily area. This amplifying device is attached to rubber and metal tubing that transmits the body sound to a listening device inserted in the ear.

The stethoscope's Y-shaped structure contains seven interlocking pieces: (1) diaphragm contact piece, (2) lower tubing, (3) Y-shaped metal piece, (4) upper tubing, (5) U-shaped metal strip, (6) curved metal tubing, and (7) hollow ear plugs. These parts form a continuous unit (Figure 1).

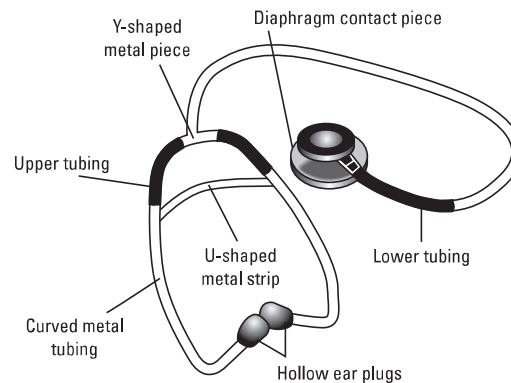


FIGURE 1 Stethoscope with Diaphragm Contact Piece (Front View)

The seven major parts of the stethoscope provide support for the instrument, flexibility of movement for the operator, and ease in use.

In an operating cycle, the diaphragm contact piece, placed against the skin, picks up sound impulses from the body's surface. These impulses cause the plastic diaphragm to vibrate. The amplified vibrations, in turn, are carried through a tube to a dividing point. From here, the amplified sound is carried through two separate but identical series of tubes to hollow ear plugs.

The Lasagna Process

Dubbed the “lasagna” process because of its layers, this technology cleans up liquid-borne organic and inorganic contaminants in dense, claylike soils. Initial work is focused on removing chlorinated solvents.

Because clay is not very permeable, it holds groundwater and other liquids well. Traditional remediation for this type of site requires that the liquid in the soil (usually groundwater) be pumped out. The water brings many of the contaminants with it, then is chemically treated and replaced—a time-consuming and expensive solution.

The lasagna process, on the other hand, allows the soil to be remediated *in situ* (on site) by using low-voltage electric current to move contaminated groundwater through treatment zones in the soil. Depending on the characteristics of the individual site, the process can be done in either a vertical or horizontal configuration. (See figure below.)

The first step in the lasagna process is to “fracture” the soil, creating a series of zones. In a vertical configuration, a vertical borehole is drilled and a nozzle inserted; a highly pressurized

mixture of water and sand (or another water/solid mix) is injected into the ground at various depths. The result: a stack of pancake-shaped, permeable zones in the denser, contaminated soil. The top and bottom zones are filled with carbon or graphite so they can conduct electricity. The zones between them are filled with treatment chemicals or microorganisms that will remediate the contaminants.

When electricity is applied to the carbon and graphite zones, they act as electrodes, creating an electric field. Within the field, the materials in the soil migrate toward either the positive or negative electrode. Along with the migrating materials, pollutants are carried into the treatment zones, where they are neutralized or destroyed.

The horizontal configuration works in much the same way, differing only in installation. Because the electrodes and treatment zones extend down from the surface, this configuration does not require the sophisticated hydraulic fracturing techniques that are used in the vertical configuration.

Schematic Diagram of the Lasagna Process

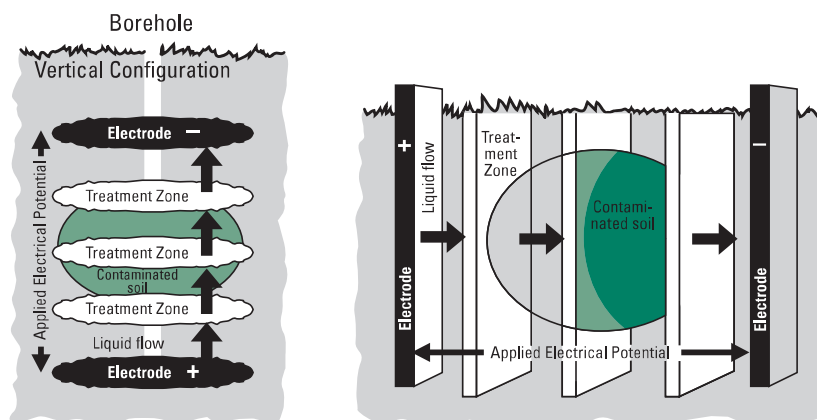


FIGURE 12.3
A process
description

Source: Adapted from Japikse, Catharina. “Lasagna in the making.” *EPA Journal*, 20.3.

A COMPLEX PRODUCT DESCRIPTION

Figure 12.4 is a complex product description. The audience for the standard bumper jack description would be car and truck owners and other general readers. This audience needs to know only the basics—what it is, what it looks like, what its parts are, and how, generally, it works—before actually using the jack safely and effectively.

To plan this description, the writer has created an outline for what details to include and how to organize the material. Also, the writer has determined what *not* to include: for example, basic dimensions and measurements are included, but they are not the precise and detailed dimensions and measurements an engineering audience might require. Finally, the writer has kept the language simple and free of jargon that this audience might not understand.

Writer's outline
for planning the
complex description

I. Introduction: General Description

- A. Definition, Function, and Background of the Item
- B. Purpose (and Audience—for classroom only)
- C. Overall Description (with general visuals, if applicable)
- D. Principle of Operation (if applicable)
- E. List of Major Parts

II. Description and Function of Parts

- A. Part One in the Descriptive Sequence
 - 1. Definition
 - 2. Shape, dimensions, material (with specific visuals)
 - 3. Subparts (if applicable)
 - 4. Function
 - 5. Relation to adjoining parts
 - 6. Mode of attachment (if applicable)
- B. Part Two in the Descriptive Sequence (and so on)

III. Summary and Operating Description

- A. Summary (used only in a long, complex description)
- B. Interrelation of Parts
- C. One Complete Operating Cycle

FIGURE 12.4 A complex product description

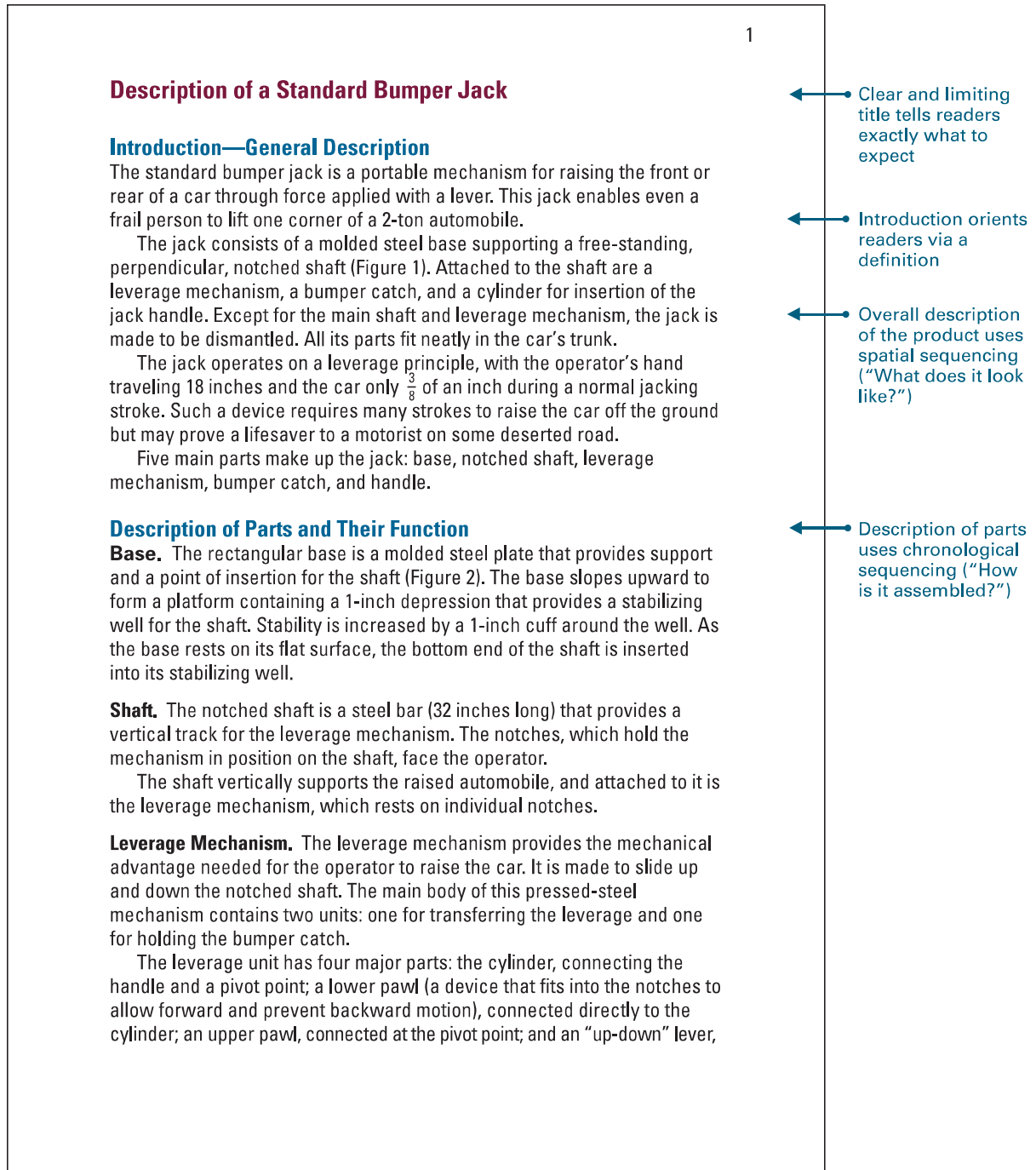
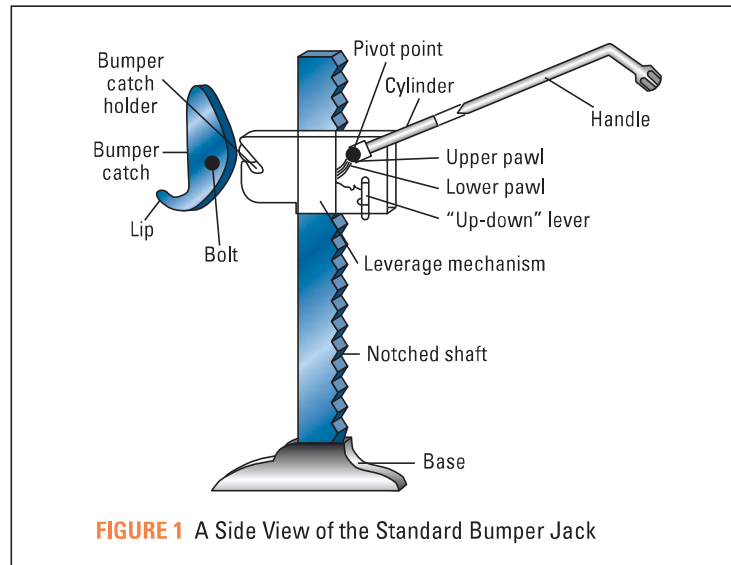


FIGURE 12.4 (Continued)

Clearly labeled
visual enhances
prose descriptions
of parts



which applies or releases pressure on the upper pawl by means of a spring (Figure 1). Moving the cylinder up and down with the handle causes the alternate release of the pawls and, thus, movement up or down the shaft—depending on the setting of the “up-down” lever. The movement is transferred by the metal body of the unit to the bumper catch holder.

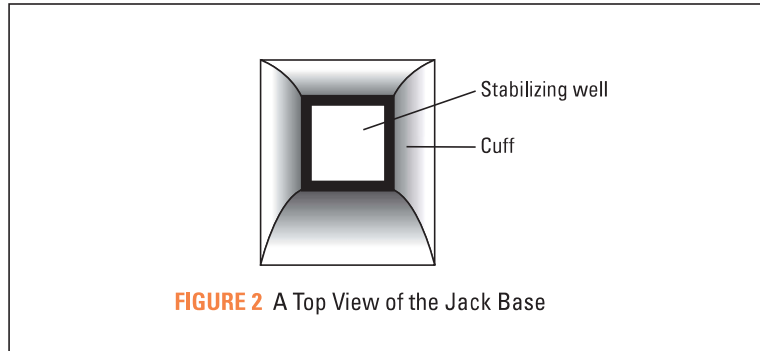
The holder consists of a downsloping groove, partially blocked by a wire spring (Figure 1). The spring is mounted in such a way as to keep the bumper catch in place during operation.

Bumper Catch. The bumper catch is a 9-inch molded plate that attaches the leverage mechanism to the bumper and is bent to fit the shape of the bumper. Its outer $\frac{1}{2}$ inch is bent up to form a lip (Figure 1), which hooks behind the bumper to hold the catch in place. The two sides of the plate are bent back 90 degrees to leave a 2-inch bumper contact surface, and a bolt is riveted between them. This bolt slips into the groove in the leverage mechanism and provides the attachment between the leverage unit and the car.

Jack Handle. The jack handle is a steel bar that serves both as lever and lug bolt (or lugnut) remover. This round bar is 22 inches long, $\frac{5}{8}$ inch in diameter, and bent 135 degrees roughly 5 inches from its outer end. Its outer

FIGURE 12.4 (Continued)

3



← Second labeled visual offers a different view of an individual part

end is a socket wrench made to fit the wheel's lug bolts. Its inner end is beveled to form a bladelike point for prying the wheel covers and for insertion into the cylinder on the leverage mechanism.

Conclusion and Operating Description

One quickly assembles the jack by inserting the bottom of the notched shaft into the stabilizing well in the base, the bumper catch into the groove on the leverage mechanism, and the beveled end of the jack handle into the cylinder. The bumper catch is then attached to the bumper, with the lever set in the "up" position.

As the operator exerts an up-down pumping motion on the jack handle, the leverage mechanism gradually climbs the vertical notched shaft until the car's wheel is raised above the ground. When the lever is in the "down" position, the same pumping motion causes the leverage mechanism to descend the shaft.

← Conclusion uses functional sequencing ("How does it work?")

FIGURE 12.4 (Continued)

A COMPLEX PROCESS DESCRIPTION

Figure 12.5 is an example of a complex process description. The writer has determined that the audience for the description of the acid rain process will be a nontechnical group of readers. The purpose of the document is to explain the threat posed by acid rain. To plan how to describe a scientific process to a nonscientific audience, the writer has created an outline and has used simple, jargon-free language.

Writer's outline
for planning the
complex description

I. Introduction

- A. Definition, Background, and Purpose of the Process
- B. Intended Audience (usually omitted for workplace audiences)
- C. Prior Knowledge Needed to Understand the Process
- D. Brief Description of the Process
- E. Principle of Operation
- F. Special Conditions Needed for the Process to Occur
- G. Definitions of Special Terms
- H. Preview of Stages

II. Stages in the Process

- A. First Major Stage
 - 1. Definition and purpose
 - 2. Special conditions needed for the specific stage
 - 3. Substages (if applicable)
 - a.
 - b.
- B. Second Stage (and so on)

III. Conclusion

- A. Summary of Major Stages
- B. One Complete Process Cycle

FIGURE 12.5 A complex process description

1

HOW ACID RAIN DEVELOPS, SPREADS, AND DESTROYS

Introduction

Acid rain is environmentally damaging rainfall that occurs after fossil fuels burn, releasing nitrogen and sulfur oxides into the atmosphere. Acid rain increases the acidity level of waterways because these nitrogen and sulfur oxides combine with the air's normal moisture. The resulting rainfall is far more acidic than normal rainfall. Acid rain is a silent threat because its effects, although slow, are cumulative.

Power plants burning oil or coal are primary causes of acid rain. The burnt fuel is not completely expended, and residue enters the atmosphere. Although this residue contains several potentially toxic elements, sulfur oxide and, to a lesser extent, nitrogen oxide are the major problems: These chemical culprits combine with moisture to form sulfur dioxide and nitric acid, which then rain down to earth.

The Process

HOW ACID RAIN DEVELOPS. Once fossil fuels have been burned, their usefulness ends. It is here that the acid rain problem begins (Figure 1).

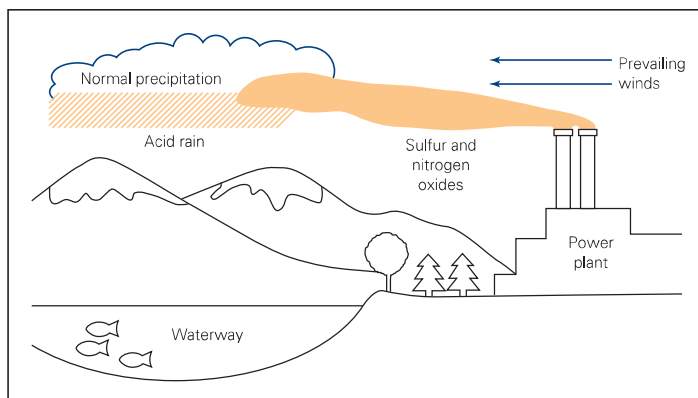


Figure 1 How Acid Rain Develops and Spreads

Acid level is measured by pH readings. The pH scale runs from 0 through 14—a pH of 7 is neutral. (Distilled water has a pH of 7.) Numbers above 7 indicate increasing alkalinity. (Household ammonia has a pH of 11.) Numbers below 7 indicate increasing acidity. Movement in either direction on the scale means multiplying by 10. Lemon juice, with a pH value of 2, is 10 times more acidic than apples, with a pH of 3, and 1,000 times more acidic than carrots, with a pH of 5.

Clear title tells readers what to expect and also promotes awareness of the issue

Introduction orients readers via a definition

Initial description of the process uses functional sequencing ("How does it work?"), as does the remainder of the description

Headers in "The Process" section mirror and follow through on the description's title

Clearly labeled visual enhances prose description of process

Additional definition introduces a new concept ("pH")

FIGURE 12.5
(Continued)

2

Because of carbon dioxide (an acid substance) normally present in air, unaffected rainfall has a pH of 5.6. At this time, the pH of precipitation in the northeastern United States and Canada is between 4.5 and 4. In Massachusetts, rain and snowfall have an average pH reading of 4.1. A pH reading below 5 is considered abnormally acidic and therefore a threat to aquatic populations.

How ACID RAIN SPREADS. Although we might expect areas containing power plants to be most severely affected, acid rain can in fact travel thousands of miles from its source. Stack gases escape and drift with the wind currents, traveling great distances before they return to earth as acid rain (Figure 1).

For roughly two to five days after emission, the gases follow the prevailing winds far from the point of origin. About 50 percent of the acid rain that affects Canada originates in the United States; conversely, 15 to 25 percent of U.S. acid rain originates in Canada.

The tendency of stack gases to drift makes acid rain a widespread menace. More than 200 lakes in the Adirondacks, hundreds of miles from any industrial center, cannot support life because their water has become so acidic.

How ACID RAIN DESTROYS. Acid rain causes damage wherever it falls. It erodes various types of building rock such as limestone, marble, and mortar. Damage to buildings, houses, monuments, statues, and cars is widespread. Many priceless monuments have already been destroyed, and even trees of some varieties are dying.

More crucial is damage to waterways (Figure 2). Acid rain gradually lowers the pH in lakes and streams, eventually making a waterway so acidic that it dies. In areas with natural acid-buffering elements such as limestone, the dilute acid has less effect. The northeastern United States and Canada, however, lack this natural protection and so are most vulnerable.

Second labeled visual provides graphic illustration of the process

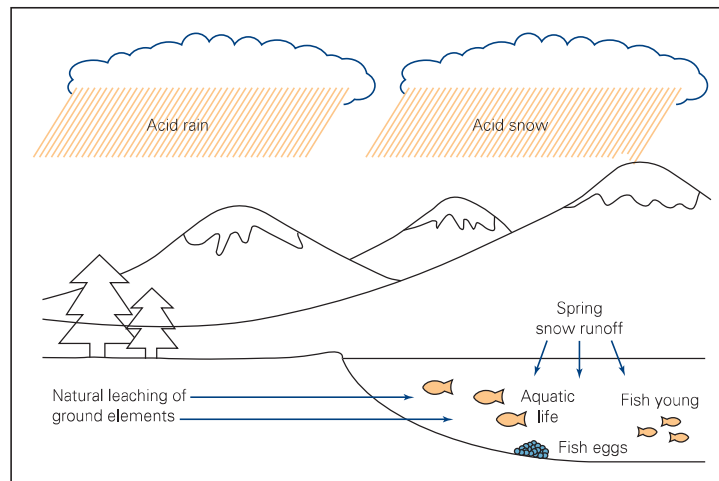


Figure 2 How Acid Rain Infiltrates Waterways

3

The pH level in an affected waterway drops so low that some species cease to reproduce. A pH of 5.1 to 5.4 means that entire fisheries are threatened: Once a waterway reaches a pH of 4.5, fish reproduction ceases.

In the northeastern United States and Canada, the acidity problem is compounded by the runoff from acid snow. During winter, acid snow sits with little melting, so that by spring thaw, the acid released is greatly concentrated. Aluminum and other heavy metals normally present in soil are also released by acid rain and runoff. These concentrated toxins leach into waterways, affecting fish in all stages of development.

Summary

Acid rain develops from nitrogen and sulfur oxides emitted by the burning of fossil fuels. In the atmosphere, these oxides combine with ozone and water to form precipitation with a low pH. This acid precipitation returns to earth miles from its source, damaging waterways that lack natural buffering agents. The northeastern United States and Canada are the most severely affected areas in North America.

FIGURE 12.5

(Continued)

← Conclusion summarizes the process and implicitly solicits audience support



STRATEGIES for Descriptions

- ▶ **Take a look at the product or process.** Study your subject. For a product description, get your hands on the item if you can; weigh it, measure it, take it apart. For a process description, observe the process yourself, if possible.
- ▶ **Analyze your audience.** Determine your primary and secondary audiences. Then ask yourself exactly what your audience needs to know: “What does it look like?” “What are its parts?” “What does it do?” “How does it work?” or “How does it happen?” Decide upon the appropriate level of technicality for your audience.
- ▶ **Analyze your purpose.** Ask yourself why your audience needs your description.
- ▶ **Maintain objectivity.** Think in terms of visual (not emotional) details and specific language when describing location, measurements, weights, and dimensions.
- ▶ **Be concise.** Provide only what your audience needs.
- ▶ **Include all necessary parts.** Include a clear and limiting title, an orienting introduction, the appropriate sequence of topics (spatial, functional, chronological—or a combination), and a conclusion that brings readers full circle.
- ▶ **Incorporate visuals.** Enhance your verbal description using visuals, particularly if the product or process is too complicated to describe only in words.

SPECIFICATIONS

Definition and
importance of
specifications

Specifications (or “specs”) are a type of description used by professionals. Specifications build on definitions and descriptions by asking the question “How is this process or procedure performed according to regulations?” Airplanes, bridges, computer software, medical procedures, and nearly all modern products and processes are produced according to specifications. The minimum standards are identified; then the specific methods or materials for meeting those standards are proposed, reviewed, and revised until they are approved. Specifications are vital because they prescribe standards for consistency, quality, and safety.

Specifications help
ensure consistency

Specifications are important when everyone in your audience needs to understand and agree on what is to be done and how it is to be done. In other words, specifications ensure consistency, helping prevent misunderstandings that may lead to errors, slowdowns, or even lawsuits. For example, Figure 12.6 shows partial specifications drawn up by an architect designing a medical clinic (these specs are for the exterior of the building only; additional specs would be written for the interior). These specifications help ensure that contractors, architects, landscapers, and others have a consistent master plan regarding parts, materials, and designs that everyone can interpret identically.

Specifications help
ensure quality

Specifications describe features such as methods for manufacturing, building, or installing a product; materials and equipment used; and size, shape, and weight. Professionals must therefore carefully consider the quality of the product they produce. They must ask themselves “Does this product exceed or at the very least meet governmental standards?” “How do the standards compare with those of others in the field?” and “How will our standards be perceived by our customers?” In the medical clinic specifications (Figure 12.6), for example, the quality of materials must meet not only government regulations but also the medical profession’s requirements for quality. As a result, those specifications call for a reinforced foundation, exterior, and roof; high-quality insulated windows; and a relaxing landscape that will appeal to both highly stressed medical staff and patients.

Specifications help
ensure safety

Perhaps most important, specifications are always written with public safety in mind. For example, the U.S. Department of Energy (DOE) issues specifications that prescribe minimum design requirements for the shipping containers (or casks) used to transport (via rail or road) spent nuclear fuel to permanent storage facilities. In the private sector, any product that fails to meet federal or industry specifications may provide grounds for a lawsuit.

When injury or death results (as in a bridge collapse or an airline accident), a product will be inspected to be sure it was designed and maintained according to the appropriate specifications. If not, the contractor, manufacturer, or supplier may be liable. The architectural specifications in Figure 12.6, for instance, must meet government standards for building safety as well as the medical profession’s standards for a building in which patient safety is paramount.

**Ruger, Filstone, and Grant
Architects**

SPECIFICATIONS FOR THE POWNAL CLINIC BUILDING

Foundation

footings: 8" x 16" concrete (load-bearing capacity: 3,000 lbs. per sq. in.)
frost walls: 8" x 4' @ 3,000 psi
slab: 4" @ 3,000 psi, reinforced with wire mesh over vapor barrier

Exterior Walls

frame: eastern pine #2 timber frame with exterior partitions set inside posts
exterior partitions: 2" x 4" kiln-dried spruce set at 16" on center
sheathing: 1/4" exterior-grade plywood
siding: #1 red cedar with a 1/2" x 6' bevel
trim: finished pine boards ranging from 1" x 4" to 1" x 10"
painting: 2 coats of Clear Wood Finish on siding; trim primed and finished
with one coat of bone white, oil base paint

Roof System

framing: 2" x 12" kiln-dried spruce set at 24" on center
sheathing: 5/8" exterior-grade plywood
finish: 240 Celotex 20-year fiberglass shingles over #15 impregnated felt
roofing paper
flashing: copper

Windows

Anderson casement and fixed-over-awning models, with white exterior
cladding, insulating glass and screens, and wood interior frames

Landscape

driveway: gravel base, with 3" traprock surface
walks: timber defined, with traprock surface
cleared areas: to be rough graded and covered with wood chips
plantings: 10 assorted lawn plants along the road side of the building

FIGURE 12.6
Specifications
to ensure
consistency,
quality, and
safety

Audience for specifications

Specifications may be written for a wide range of readers, including customers, designers, contractors, suppliers, engineers, programmers, and inspectors. If your audience consists primarily of technical experts (such as architects) you can use specialized language and brief explanations. But if your audience is mixed, you may need to include more detail or refer readers to other sources of information, such as a glossary, appendix (see page 316), or Web site.



STRATEGIES for Specifications

- ▶ **Analyze your audience.** Determine who will be reading the specs.
- ▶ **Know the minimum governmental and industry standards.** If your product is for specific customers, also consider the standards they will expect you to meet.
- ▶ **Keep consistency, quality, and safety at the forefront.** Specifications fulfill all three purposes. Everyone who reads the document needs to be “on the same page” (consistency); the product you describe must meet minimal quality requirements; and it must also meet safety requirements.
- ▶ **Use a standard format when applicable.** If your organization uses a standard format for specifications, follow that format.
- ▶ **Include a brief introduction or descriptive title.** Include some kind of overview, be it a one- or two-sentence introduction, a brief summary, or an abstract (see Chapter 14 for more on summaries and abstracts). For an audience completely familiar with the material, a clear and descriptive title will suffice.
- ▶ **List component parts or materials.** List all the parts or materials your readers will need to know about. Group items into categories if needed.
- ▶ **Refer to other documents or specs, as needed.** Often one set of specifications will refer to another set or to government or industry standards. If your specifications are online, link to other specifications you refer to.
- ▶ **Use a consistent terminology.** Use the same terms for the same parts or materials throughout your specifications. If you refer to an “ergonomic adapter” in one section, do not substitute “iMac mouse adapter” in a later section.
- ▶ **Include retrieval aids.** Especially in longer specifications, some readers may be interested in only one portion. For example, someone working on a subset of a larger project may want to look up technical details for his or her part of the project only. Use clear headings and a table of contents.
- ▶ **Keep it simple.** People look at specifications because they want quick access to items, parts, technical protocols, and so on. If you can, limit your specs to short lists, using longer prose passages only as necessary.
- ▶ **Check your use of technical terms.** Use terms that are standard for the field.



CHECKLIST for Descriptions and Specifications

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PRODUCT OR PROCESS DESCRIPTIONS

- ☐ Have I studied the product or process to get a clear view of how it looks or what it does?
- ☐ Have I recorded the details of the product or process objectively?
- ☐ Have I written a clear purpose statement upon which to base my description?
- ☐ Does the title promise exactly what the description delivers?
- ☐ Have I provided an introduction based on my purpose statement (and a definition, if necessary)?
- ☐ Have I written the description using a spatial, functional, or chronological sequence or a combination of sequences?
- ☐ Are relationships among parts or stages clearly explained?
- ☐ Do visuals appear whenever they can provide clarification?
- ☐ Have I provided a conclusion to bring readers full circle?
- ☐ Is the use of technical terminology appropriate for this audience?

SPECIFICATIONS

- ☐ Are the specifications appropriately detailed for the audience?
- ☐ Do the specifications meet the requirements for consistency, quality, and safety?
- ☐ Do the specifications adhere to prescribed standards?
- ☐ Do the specifications follow a standard format, if applicable?
- ☐ Have I included a brief introduction or descriptive title?
- ☐ Have I listed the component parts or materials?
- ☐ Are other specifications or documents referred to, if needed?
- ☐ Is my terminology consistent?
- ☐ Are the specifications easy to navigate, with clear headings and other retrieval aids?
- ☐ Do I provide short lists instead of long prose passages wherever possible?
- ☐ Are technical terms standard for the field?



APPLICATIONS

GENERAL APPLICATIONS

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1. Choose a product requiring a description. Identify the audience and purpose, and prepare a description for this audience's level of technical understanding. As you prepare your description, refer to the Strategies on page 235. Be sure to include a clear and limiting title; an orienting introduction; a spatial, functional, or chronological sequence of topics; at least one visual; and a conclusion. Also remain as objective as possible.
2. Select a specialized process that you understand well and that has several distinct steps. Begin by analyzing your audience and purpose. Using the process description on page 233 as a model, explain this process to classmates who are unfamiliar with it.
3. The bumper jack description in this chapter is aimed toward a general audience. Evaluate its effectiveness for this audience. In one or two paragraphs, discuss your evaluation and suggest revisions.
4. How do specifications function in your workplace or home? Find one example of specifications used in your home or workplace and analyze it in terms of its usability. Are the specifications written for consistency, quality, and safety? How? What could the writers have done to improve the usability of this document?

TEAM APPLICATIONS

1. Divide into groups. Assume your group works in the product development division of a diversified manufacturing company. Your division has just thought of an idea for an inexpensive consumer item with a potentially vast market (choose a simple mechanism, such as nail clippers or a stapler). Your group's assignment is to prepare three descriptions of this invention:
 - a. one for company executives who will decide whether to produce and market the item
 - b. one for the engineers, machinists, and so on, who will design and manufacture the item
 - c. one for the customers who might purchase and use the item

Before writing for each audience, complete an Audience and Purpose Profile (page 46). Appoint a group manager, who will assign tasks to members (visuals, typing, etc.). When the descriptions are prepared, the group manager will appoint one member to present the documents and explain their differences in class.

2. Select a specialized process you understand well or that you can learn about quickly by searching the Web (e.g., how gum disease develops, how an earthquake occurs, how steel is made, how a computer compiles and executes a program). Write a brief description of the process, incorporating at least one visual. Exchange your description with a classmate. Study your classmate's description for 15 minutes and then write the description in your own words. Now, evaluate your classmate's version of your original description. Does it show that your description was understood? If not, why not? Discuss your conclusions in a memo to your instructor, submitted with all samples. Be sure to document your information sources.
3. Assume your group is an architectural firm designing buildings at your college. Develop a set of specifications for duplicating the interior of the classroom in which this course is held. Focus only on materials, dimensions, and equipment (whiteboard, desk, etc.), and use visuals as appropriate. Your audience includes the firm that will construct the classroom, teachers, and school administrators. Use the same format as in Figure 12.6, or design a better one. Appoint one member to present the completed specifications in class. Compare versions from each group for accuracy and clarity.

GLOBAL APPLICATION

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Descriptions, especially those for nonspecialized or nontechnical audiences, are often written by comparing the item being described to an item that is already familiar to readers. For instance, the human heart is often described as a pump and compared to a pump people already know about (the pump on a swimming pool or a car's water pump). While descriptions based on these types of comparisons can be useful, they can also be problematic if your readers are from different countries and cultures. For instance, if you describe the human heart in relation to the pump on a swimming pool, people from countries or parts of the United States that don't have pools would not be able to understand the comparison. Working with two to three other students, pick an item for which you'd like to write a description that will be distributed both within the United States and to at least one other country. Discuss whether to use a comparison and how you would decide which comparisons to use.

DIGITAL AND SOCIAL MEDIA APPLICATION

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Go online and search for a description of a product or process that is related to your field of study. Look for places where the description might be confusing for general readers, and rewrite the description for their understanding.

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Visit Chapter 12, *Descriptions*, in MyWritingLab to complete this chapter's applications, to explore this chapter's overview, checklist, and flashcards, and to test your understanding of the chapter objectives.