Standards Focus

Objectives

Students will
- understand technical directions
- understand and analyze features of an instruction manual
- understand graphics

Motivate

What Do You Think?/QuickWrite

Have students reflect on times when they failed to follow complex directions to perform a task. What happened? Ask students to write for 5–10 minutes in their **Reader/Writer Notebooks**.

Academic Vocabulary

Look for opportunities to use the Academic Vocabulary words in this collection.

- **purpose, *n.:*** aim
- **sequence, *n.:*** order
- **specify, *v.:*** give as a condition

Analyzing Visuals

Activity Ask students to describe what a person in this situation needs to do. ***Possible responses:*** *He should look at the instruction manual, compare the ends of the cables to the ports on the back of the computer, untangle the wires and unplug them, and start over.*

SKILLS FOCUS **pp. 638–647**

Informational Skills
- Understand and analyze technical directions.
- Follow technical directions and steps in a process.
- Analyze instruction manuals.

Reading Skills
- Understand graphics.

Writing Skills
- Write instructions.

INFORMATIONAL TEXT FOCUS

Following Technical Directions



CONTENTS

TECHNICAL DIRECTIONS
Guide to Computers
page 639

What Do You Think? How can following instructions help us in our daily life?

QuickWrite
List some tasks that instructions helped you complete. Which directions did you follow exactly? Which did you follow more loosely?

TECHNICAL DIRECTIONS

Preparing to Read

Guide to Computers

Informational Text Focus

Technical Directions Many products come with instruction manuals that explain how the product works. The manuals also outline basic parts and functions and specify the steps you must follow to assemble or operate the product. When the product is a scientific, electronic, or mechanical device, these instructions are called **technical directions.** If you skip steps or perform them out of order, the device may not work. Technical directions usually contain

- a parts list or glossary of key terms that you'll need to know
- illustrations, diagrams, and photos that show key steps
- clearly labeled instructions that appear in a logical sequence

Reading Focus

Understanding Graphics Instruction manuals may include illustrations, diagrams, and photos. These visual elements—often called *figures*—can help you understand what is being described.

Into Action As you read the following texts, note what types of figures are provided and what type of information they convey.

	What the Figures Tell Me
Photos	
Diagrams	
Illustrations	

Writing Focus

Preparing for **Constructed Response**

As you read, notice how the steps in the technical directions follow a logical progression. In your *Reader/Writer Notebook,* write any questions you have about steps that are unclear or steps that seem to be missing or out of sequence.

Reader/Writer Notebook

Use your **RWN** to complete the activities for this selection.

Vocabulary

functions (FUHNGK shuhnz) *n.*: uses; purposes. *A computer's many functions include calculating data and storing information.*

corresponding (kawr uh SPAHN dihng) *adj.*: matching; equivalent. *Be careful to plug the cable into the corresponding outlet.*

secure (sih KYUR) *v.*: fix firmly in place. *Be sure to secure the cord firmly in the port on the back of the computer.*

Language Coach

Multiple-Meaning Words Some words look familiar but when used in technical documents have meanings that differ from their familiar meanings. For example, *functions* can be a noun meaning "events" and a verb meaning "works." What is another meaning of *functions*? How about the Vocabulary word *secure*? What other meanings does this word have?

Learn It Online

Do pictures help you learn? Try the *PowerNotes* lesson at:

go.hrw.com L8-639 Go

Selection Resources

Collection 6 Resources, on-level practice and assessment, p. 18

Teacher One Stop™, on-level lesson plans and all print resources

Holt Audio Library: Selections and Summaries in Spanish

Supporting Instruction in Six Languages, selection summary

ThinkCentral Online Assessment, Selection Test

ThinkCentral Online Remediation

Preteach

Introducing Vocabulary

Guide students in completing each sentence with a Vocabulary word.

1. Each item in the model airplane kit has a _____ picture in the directions. [*corresponding*]
2. After we _____ the wings on the plane, we can paint it. [*secure*]
3. The remote control has many _____, including starting and steering the plane. [*functions*]

Language Coach

Read aloud the following sentences to model the uses of the word functions.

- The President must attend several leadership **functions**.
- The old computer still **functions**.

After explaining that *secure* can mean "fastened" or "safe", have students create their own sentences to model the definitions.

Informational Text Focus

As students read, point out elements of the directions, including a parts list or glossary, graphics, and sequential instructions.

Reading Focus

Give students a copy of the Reading Focus graphic organizer before they read. Tell them to use their responses to answer the questions on the Applying Your Skills page.

Writing Focus

When students read a particular step that is unclear to them, have them note it in their **Reader/Writer Notebooks**. Tell students that this is a common problem. It can take multiple readings to understand directions.

Learn It Online

For a multimedia version of the instruction on this page, use the **PowerNotes** introduction to the selection. Preview at **go.hrw.com**.

go.hrw.com L8-639 Go

Direct Teach

Guided Practice

Model and Apply

- Provide students with copies of the Reading Focus graphic organizer for "Following Technical Directions." (See **Collection 6 Resources**.)
- Model how to add information about **understanding graphics** to the graphic organizer. Point out the image of the MP3 player in the graphics chart next to Illustrations. What does this graphic illustrate? Explain that it shows what one type of MP3 player looks like from the outside, what buttons and screens are provided, and how the music is conveyed to the person—via earphones.
- Have students add this information to their graphic organizer.

	What the Figures Tell Me
Illustrations	• the outside of an MP3 player • what buttons and screens are provided • how music reaches the listener via earphones

- **Turn-and-Talk** Have student pairs describe Figure 2 on the next page. Students should recognize that it is a diagram that explains the relationship between input, processing, output, and storage. Students should note the meaning of the arrows in the diagram.

GUIDE TO COMPUTERS



Figure 1 *Believe it or not, this MP3 player contains a computer!*

Read with a Purpose

Read to figure out the purpose of this set of technical directions.

WHAT IS A COMPUTER?

Did a computer help you wake up this morning? You might think of a computer as something you use to send e-mails or surf the Internet, but computers are around you all of the time. Computers are in alarm clocks, cars, phones, and even MP3 players. An MP3 player, like the one in **Figure 1,** allows you to build your own music lists and carry thousands of songs with you wherever you go.

A **computer** is an electronic device that performs tasks by processing and storing information. A computer performs a task when it is given a command and has the instructions necessary to carry out that command. Computers do not operate by themselves, or "think."

Basic Functions

The basic functions a computer performs are shown in **Figure 2.** The information you give to a computer is called *input.* Downloading songs onto your MP3 player or setting your alarm clock is a type of input. To perform a task, a computer processes the input, changing it to a desired form. Processing could mean adding a list of numbers, executing a drawing, or even moving a piece of equipment. Input doesn't have to be processed immediately; it can be stored until it is needed. Computers store information in their *memory.* For example, your MP3 player stores the songs you have chosen to input. It can then process this stored information by playing the songs you request. *Output* is the final result of the task performed by the computer. The output of an MP3 player is the music you hear when you put on your headphones! A

A **Read and Discuss** What point is the author trying to make here?

Vocabulary **functions** (FUHNGK shuhnz) *n.:* uses; purposes.

Selection Readability	
Easily Accessible **Accessible** Challenging	technical terms are explained; directions are accompanied by graphics
Lexile	**930**

Selection Summary

These technical directions walk students through the basics of computer functioning and end with sequential steps explaining how to set up a desktop computer.

Differentiating Instruction

English-Language Learners

Give students the following information to help them understand the different types of figures they may see in instructional directions, and the purpose of each one.

- Photographs show what a product looks like.
- Diagrams can be used to show steps in a process.
- Illustrations may combine features of both photos and diagrams.

Readers Gaining Proficiency

Explain how to connect text to graphics. Tell students the computer's basic functions are shown in Figure 2 because the

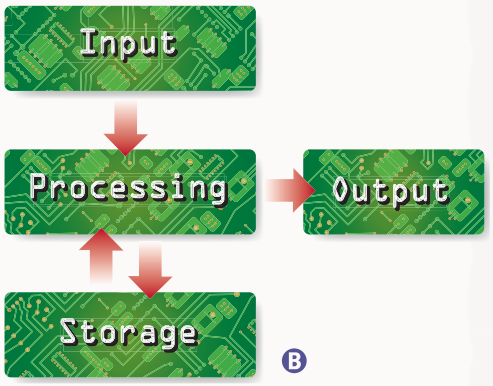


Figure 2 *The Functions of a Computer*

Ⓑ

COMPUTER HARDWARE

For each function of a computer, there is a corresponding part of the computer where that function occurs. *Hardware* refers to the parts, or equipment, that make up a computer. As you read about each piece of hardware, refer to **Figure 3.**

Input Devices

An *input device* is a piece of hardware that feeds information to the computer. You can enter information into a computer by using a keyboard, mouse, scanner, digitizing pad and pen, or digitizing camera—or even your own voice!

Central Processing Unit

A computer performs tasks within an area called the *central processing unit,* or CPU. In a personal computer, the CPU is a microprocessor. Input goes through the CPU for immediate processing or for storage in memory. The CPU is where the computer does calculations, solves problems, and executes the instructions given to it. Some computers now come with two—or more—CPUs to process information more effectively.

Ⓑ **Reading Focus** **Graphics** What do the arrows in this diagram indicate?

Vocabulary **corresponding** (kawr uh SPAHN dihng) *adj.:* matching; equivalent.

Think About/Talk About

Read with a Purpose Have students read the Read with a Purpose statement. Ask students why an MP3 player should come with instructions. What information should the directions contain?

Comprehension

Ⓐ Read and Discuss

Possible response: *Output can take different forms, such as a song on an MP3 player or words on a computer monitor.*

Ⓑ Reading Focus

Possible response: *The arrows show how information is processed.*

? Extend the Discussion

Finding Details What is the purpose of an input device? An output device? ***Possible response:*** *An input device allows information to be put into the computer. An output device correctly processes that information.*

Evaluating Do computers "think"? ***Possible response:*** *No; they do not make decisions or evaluate their functions independently. Computers require commands.*

figure shows boxes labeled input, processing, output, and storage. Remind students that input is the supplying of information and storage is where the information is kept. Explain that processing means changing or working with the input information.

Advanced Learners

Acceleration Challenge students to apply the four basic steps shown in Figure 2 to a recent process they performed. Their diagram may need several internal steps. Encourage them to express their ideas within the context of a chart like the one shown.

Learners with Diverse Needs

Provide self-stick notes, and give students access to a classroom or library computer. Have them work in pairs or small groups to label the parts of the computer with the correct description from Figure 2.

Guided Practice

Model and Apply

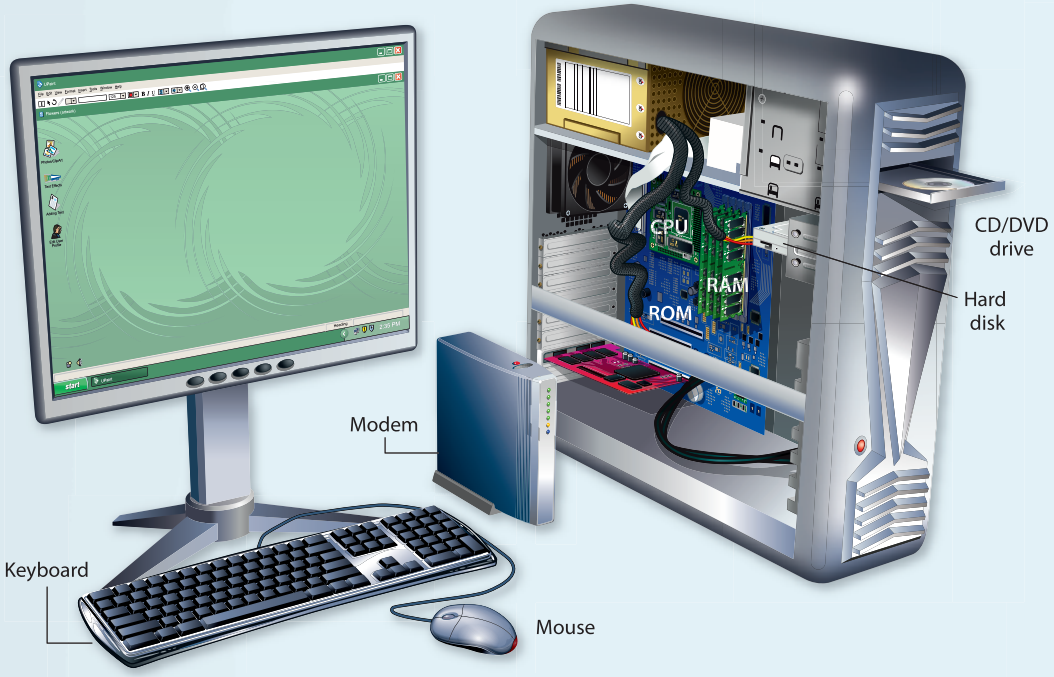
- Remind students that many words have multiple meanings.
- Write the word *store* on the board and direct students' attention to its use in the first sentence on this page. Model how to determine the use of this word in the sentence. Remind students that the word *store* is both a noun, meaning "a place to shop", and a verb, meaning "the action of holding for future use." Explain that *store* is being used as a verb in the sentence, meaning that hard disks can store, or hold, information.
- **Think-Pair-Share** Have students read through the selection, listing words with multiple meanings. Have students pair up to discuss the words they found and how each student used context to determine the correct meaning. Have each pair list any steps or tips necessary to determining the correct definition of a word (determining part of speech, using dictionaries, and so on). Have volunteers share their work with the class. (See p. T28.)

Memory

Information can be stored in the computer's memory until it is needed. CD-ROMs, DVDs, and flash drives inserted into a computer and hard disks inside a computer have memory to store information. Two other types of memory are *ROM* (read-only memory) and *RAM* (random-access memory).

ROM is permanent. It handles functions such as computer start-up, maintenance, and hardware management. ROM normally cannot be added to or changed, and it cannot be lost when the computer is turned off. On the other hand, RAM is temporary. It stores information only while that information is being used. RAM is sometimes called working memory. The more RAM a computer has, the more information can be input and the more powerful the computer is.

Figure 3 *Computer Hardware* C



C **Reading Focus** **Graphics** How does this graphic help you understand the functions of a computer?

Differentiating Instruction

Readers Gaining Proficiency

Not all of the figures' labels are explained in the text. Have students use a dictionary to find definitions for each term. (Hint: the dictionary that is installed with many computers' operating systems is likely to contain these terms.)

Have students work in small groups to create a short technical glossary explaining the terms on Figure 3. (They can later add the terms from Figures 4 and 5, if desired.) Remind students to place the terms in alphabetical order.

Learners with Diverse Needs

Students may have difficulty understanding the interaction between the various computer parts. Organize students into groups of five and assign each student the role of a hard disk, ROM, RAM, an output device, or a modem.

Have each group write a one-page skit titled "A Day in the Life of a Computer." Students' skits should portray scenarios like the start-up process, writing a document, printing that document, and accessing the Internet. Have groups perform their skits for the class.

Output Devices

Once a computer performs a task, it shows the results of the task on an *output device.* Monitors, printers, and speaker systems are all examples of output devices.

Modems

One piece of computer hardware that serves as an input device as well as an output device is a *modem.* Modems allow computers to communicate. One computer can input information into another computer over a telephone or cable line as long as each computer has its own network connection. In this way, modems permit computers to "talk" with other computers. Ⓓ



Ⓓ **Read and Discuss** What does this part say about the computer's hardware?

Developing Oral Fluency

Use the text on these pages to give students practice in reading common computing terms, including acronyms.

Students may need to familiarize themselves with acronyms that are read as words (e.g., RAM, ROM, LAN) and those that are read as individual letters (DVD, CD, CPU, USB, ISP). Read aloud the names of each item shown in Figure 3, and point out how each one is pronounced.

Paired activity After students have read through the information on these pages, have them look back and confirm the correct pronunciations of all the terms, including the acronyms. They should check with their partner or, if necessary, consult an online dictionary to be sure.

Student pairs should take turns reading aloud the paragraphs on these pages several times. Invite confident pairs to read for the class.

Think About/Talk About

Comprehension

Ⓒ Reading Focus

Possible response: *It labels all the hardware parts of the computer. The functions are described by the corresponding text.*

Ⓓ Read and Discuss

Possible response: *The modem is a piece of hardware that provides both input and output capabilities.*

? Extend the Discussion

Identifying Cause and Effect Why is RAM memory lost when you turn off the computer? ***Possible response:*** *RAM memory is temporary. It stores information only while you are using it. When you turn off the computer, you lose the memory.*

Speculating Why do you think computers need to have two types of memory, RAM and ROM? ***Possible response:*** *ROM protects the information that is most important for the computer's function. If all information was held permanently, the memory would be filled up very quickly, so most memory should be temporary.*

Guided Practice

Model and Apply

- Help students analyze the **technical directions** on the next page. Tell students that "Step 1" is the first step. The words in dark type would probably appear in the glossary and are key concepts to correctly setting up the computer. The first step has a diagram to reinforce the text's directions. Therefore, it must be important to both read the text and to study the diagram. The diagram shows the monitor interface cable and how it connects to the video port at the back of the computer. The diagram helps readers understand the text, especially readers who have a hard time visualizing directions. Without the diagram, some consumers would have trouble understanding the technical terms and instructions.
- As students continue looking for and identifying the elements of technical directions in this selection, have them answer the following questions: Why does each step have a diagram? How do the diagrams help you understand the text?

THE INTERNET—A GLOBAL NETWORK

Thanks to high-speed connections and computer software, it is possible to connect many computers and allow them to communicate with one another. That's what the **Internet** is—a huge computer network consisting of millions of computers that can all share information with one another. E

How the Internet Works

Computers can connect to one another on the Internet by using a modem to dial into an Internet service provider, or ISP. A home computer connects to an ISP over a phone or cable line. A school, business, or other group can connect all of its computers to form a local area network (LAN). Then, a single network connection can be used to connect the LAN to an ISP. As depicted in **Figure 4,** ISPs are connected globally by satellite. And that's how computers go global!

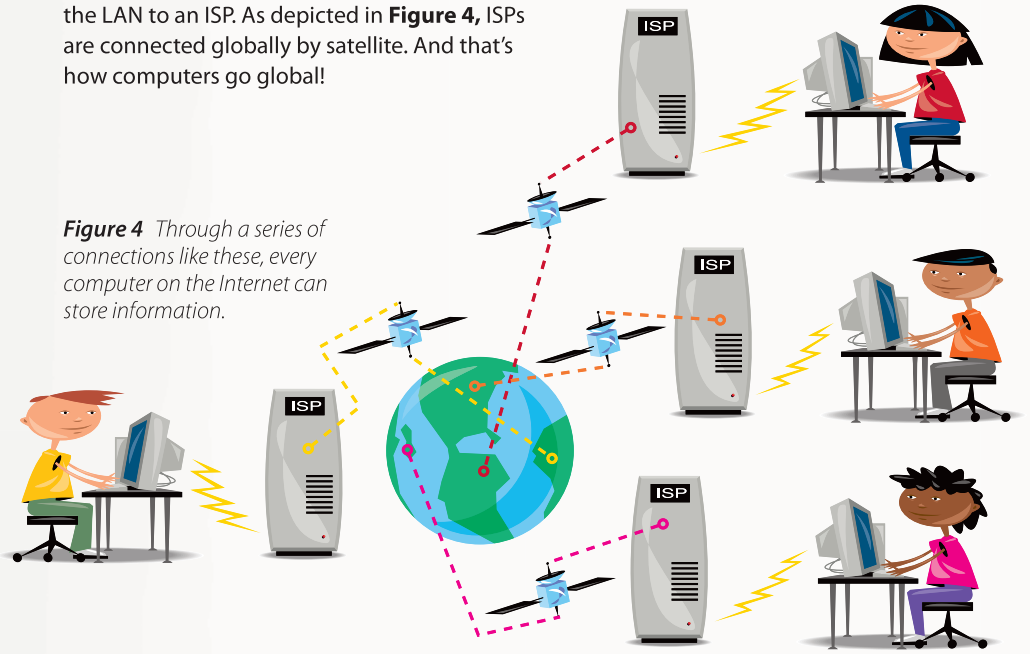


Figure 4 *Through a series of connections like these, every computer on the Internet can store information.*

E **Read and Discuss** What is the purpose of the Internet?

Collaborative Learning

1. Have students work in small groups to decide on a process with which they are all familiar (baking cookies, using a combination lock, uploading tracks to an MP3 player, and so on).
2. Tell students to discuss how many steps are involved in the process. Then, have each group randomly assign each of its members a step in the procedure.
3. Have the first student, without consulting the others, write what he or she thinks is the first step in completing the process. If desired, the student may include a simple diagram or illustration.
4. In numerical order, have each remaining student takes turns writing what he or she believes should be the next step in the process.
5. Have students continue to pass the instructions through the group, in order, until the final group member has written the last step in the sequence. Then, have the rest of the group confirm that no steps are missing or incomplete.

HOW TO SET UP A DESKTOP COMPUTER

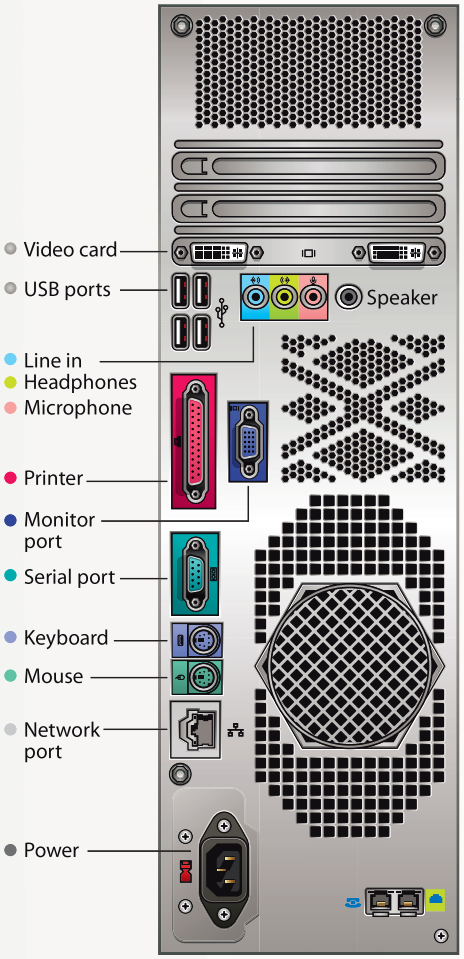
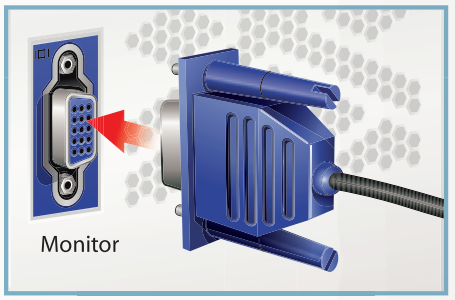


Figure 5 Computer Connections



STEP 1 Connect the monitor to the computer.

The monitor has two cords. One cord, the **monitor interface cable,** lets the computer communicate with the monitor. The monitor cable connects to the video port (the port designated for monitors) at the back of the computer. The connector on this cord is a plug with pins in it; the pins correspond to holes in the video port on the computer. This cable probably has screws to secure the connection. The other cord is the **monitor's power cord,** which plugs into the wall outlet or **surge protector,** a plug-in device that protects electronic equipment from high-voltage electrical surges (see Step 5).

F Reading Focus Graphics How are the two graphics on this page different? What is the purpose of each?

Vocabulary secure (sih KYUR) *v.*: fix firmly in place.

6. Tell one student in the group to rewrite the complete instructions precisely and in the correct order. Another student may wish to recreate, as neatly and clearly as possible, any diagrams or illustrations that were created.
7. Have each group conclude the project by presenting its instructions to the class. If possible, depending on the task, students should perform the task per the instructions.

Think About/Talk About

Comprehension

E Read and Discuss

Possible response: *The Internet allows computers around the world to communicate with one another.*

F Reading Focus

Possible response: *The diagram on the left shows where each port is located on a computer; the one on the right is a three-dimensional close-up of how the monitor connects to the computer.*

Extend the Discussion

Summarizing What do you need to connect to the Internet at home?
Possible response: *You need a computer, a modem, and an Internet service provider (ISP).*

Evaluating Why do you think schools and businesses connect to a Local Area Network (LAN) before connecting to an Internet service provider (ISP), instead of connecting directly to the ISP? ***Possible response:*** *The LAN allows the school or business to connect to the ISP via a single connection, instead of having to separately connect each computer used by the school or business to the ISP, which would be complicated and more expensive.*

Think About/Talk About

Analysis

Informational Focus

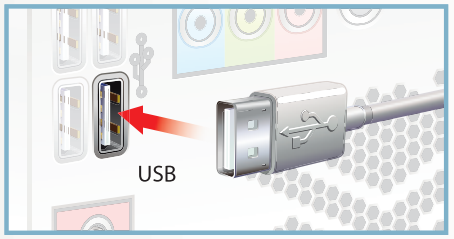
Possible response: *The text provides detailed information. The diagrams support the text by providing a visual explanation of how to complete each step.*

Extend the Discussion

Speculating Why might power cords be connected last? ***Possible response:*** *It is dangerous to work with devices when they are receiving an electrical current; the power cord should only be added after setup is completed.*

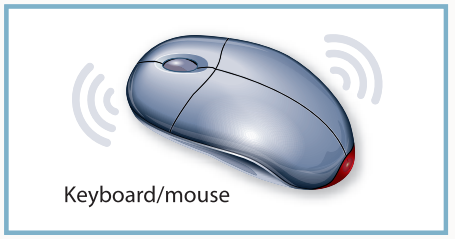
Check for Understanding

Monitor Students' Progress Use the Read with a Purpose follow-up question to assess students' understanding. ***Possible response:*** *This document explains how computers work, how networks work, and how to set up a computer.*



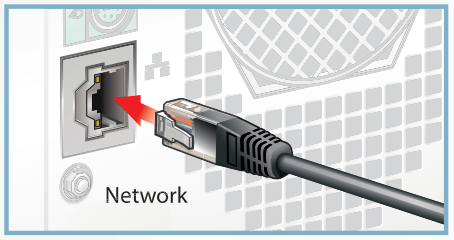
STEP 2 **Connect the printer to the computer.**

The connector on the cable that is attached to your printer is most likely a USB cable. USB ports (USB stands for Universal Serial Bus) can accept any device with a USB connector. Connect one end to the back of your printer. Then connect the other end to an available USB port on the back of your computer where you see a **printer** or **peripherals icon.**



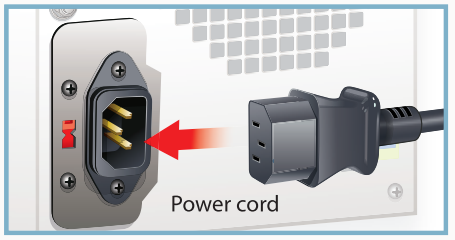
STEP 3 **Connect the keyboard and mouse.**

Look at the **connector** on the cord that is attached to the keyboard or mouse. If this connector is round, plug the cord into a matching port on the back of the computer. (See Figure 5 illustration on page 645.) If the connector on the cord is flat, plug it into any available USB port. (See Step 2 illustration.) If you are using a cordless keyboard or mouse, connect it to the computer using the manufacturer's technical directions.



STEP 4 **Connect the modem to the computer by using a network cable.**

Connect the **network cable** to the network port on the back of your computer. Connect the other end of the network cable to your modem. As long as you have an active Internet connection, the software should automatically detect that you are connected to the Internet when your computer starts.



STEP 5 **Connect the power cords.**

The **power cord** is a three-pronged, grounded cord that you attach to your computer. First, attach one end of the power cord to the computer; then, plug the other end of the cord into a **surge protector**. Plug the surge protector into a grounded wall outlet. Turn on the monitor and then the computer, and you are ready to go!

Informational Focus **Technical Directions**

Why are diagrams and text both included in these directions?

Read with a Purpose What is the purpose of this document?

SKILLS FOCUS p. 647

Informational Skills
- Analyze technical directions.
- Follow technical directions and steps in a process.
- Analyze instructional manuals.

Reading Skills
- Understand graphics.

Writing Skills
- Write instructions.

Compare and Contrast

After students have read the documents and answered the Applying Your Skills questions, have them compare "technical directions and consumer documents. Use the following discussion questions:

- What is similar about all the documents in the three selections?
- What is different about the documents?
- What is the purpose of each document? How does it achieve its purpose?
- What elements and features do the documents have in common?
- Which is more helpful: written instructions, photos, diagrams, or illustrations?
- What type of document is the most informative?
- What type of document is more persuasive?

Ask students to focus on two documents in particular and create a chart to compare and contrast the various elements and features. Have students share their comparisons with a partner.

Guide to Computers

Practicing the Standards

Informational Text and Vocabulary

1. The purpose of these **technical directions** is to —
   - **A** convince you to buy a new computer
   - **B** establish legal responsibility for a computer
   - **C** describe how to install a computer
   - **D** explain the possible uses of a computer

2. Figure 3 gives information about —
   - **A** MP3 setups
   - **B** a computer's hardware
   - **C** steps to avoid
   - **D** output devices

3. According to these directions, when should you connect the **modem** to your computer?
   - **A** Before you connect anything else
   - **B** After you hook up the monitor
   - **C** Before you connect the power cords
   - **D** After you connect the keyboard and mouse

4. Another word for *functions* is —
   - **A** breakdowns
   - **B** circuits
   - **C** purposes
   - **D** reasons

5. What are *corresponding* parts?
   - **A** Parts that match or fit together
   - **B** Parts that use electrical current
   - **C** Parts that are connected to the Internet
   - **D** Parts that are broken or not working

6. If a plug is *secure,* it is —
   - **A** connected to the Internet
   - **B** firmly attached
   - **C** waterproof
   - **D** very powerful

Writing Focus Constructed Response

7. Think of something you know how to do well. Write a list of instructions that explain how to do it. The task could be that of operating a familiar technical device, such as a DVD or MP3 player, or it could be a nontechnical task, such as playing a game or cooking according to a recipe you enjoy. Make sure to include all of the steps in the correct sequence.

What Do You Think Now?

What new ideas do you have about the role of directions in daily life?

Review

Independent Practice

Answers and Explanations

1. **C** *Directions explain "how to." A describes an advertisement; B refers to a service agreement or warranty; and D does not cover the range of purpose behind a set of directions.*
2. **B** *Figure 3 is titled Computer Hardware.*
3. **C** *The modem should be connected before connecting the power cords.*
4. **C** *Functions are the things a device is used for, or purposes. A breakdown (A) is the opposite; a circuit (B) is an actual object; and reasons (D) are justifications, not actions.*
5. **A** *Things that correspond match.*
6. **B** *A secure plug refers to a firm connection.*

Writing Focus

7. ***Possible response:*** *Students' directions should be clear and in the correct sequence.*

What Do You Think Now?

Point out that not following directions *exactly* is different from not following the directions *completely*. Ask students to speculate about what can happen if directions are not followed exactly.

Assess

Collection 6 Resources, Selection Test, p. 21

ThinkCentral Online Assessment, Selection Test

Teacher One Stop™, editable Selection Test

Reteach

ThinkCentral Online Remediation