

UNIT 4

Technology Today and Tomorrow

A *Robobee* sits on top of a flower. Robobees are tiny flying robots. Robert Wood is leading the development of Robobees at Harvard University's Microrobotics Lab. In the future, Robobees could help with search and rescue missions and gathering scientific data.

Non-saleable

1. What are some ways technology can help us in our everyday lives?
2. How can doctors use technology to help people?



An ASIMO robot in Tokyo

Prereading

Discuss these questions with a partner.

1. Look at the photo. This is a robot called ASIMO. What do you think it can do? Make a list.

_____	_____
_____	_____

2. ASIMO looks like a person. Do you think all robots look like people? _____
3. Where do people use robots? Circle your answers. You can choose more than one answer.
 - a. At home
 - b. At work
 - c. At school
4. Did you ever see a robot? Where did you see it? What did it do?
5. Imagine you have a robot. What do you want the robot to do for you? Make a list.

Reading



Read the following passage carefully. Then complete the exercises that follow.

CD 1
TR 14

Robots: The Face of the Future

- 1 ASIMO traveled to Edinburgh, Scotland, for the annual Edinburgh International
- 2 Science Festival. The festival takes place in February every year. Thousands of people
- 3 came to visit the festival, but most of them came to see ASIMO. ASIMO is very
- 4 famous because ASIMO is a robot. It is designed to run, climb stairs, and kick a soccer
- 5 ball. It can even conduct an orchestra. In fact, when Yo Yo Ma, the famous cellist,
- 6 performed at a concert in Detroit, Michigan, ASIMO was the conductor. Everyone at
- 7 the concert was amazed not only by Yo Yo Ma, but also by ASIMO.
- 8 A robot is not a new idea. Scientists developed robots more than 60 years ago.
- 9 For many years, robots have worked in factories. They do uninteresting jobs, such
- 10 as packaging food or assembling cars. They are often used to do dangerous work as
- 11 well. Most of these robots are shaped like machines; they do not look like people.
- 12 However, ASIMO looks like a person. In addition, it is equipped with the ability to
- 13 recognize and remember people.

14 While many countries are developing robots, Japan has the most robots of all.
15 It is also developing more robots very quickly. In Japan, 20 percent of the people are
16 over 65 years old. This means that a lot of Japanese people are senior citizens who no
17 longer work. When people retire, robots can do their work. They can take care of the
18 senior citizens, too. Japan hopes to have one million robots working in the country by
19 the year 2025. A single robot can replace, or do the work of, ten people!

20 In the future, robots will become more useful and popular. Right now you can't buy
21 a robot to do all your work, but you can buy one to help you around the house. A few
22 years ago, iRobot, an American company, announced that it has robots that can wash,
23 sweep, or vacuum your floors. Although these robots do not look like people, they
24 can work just as hard!



A robot helps a woman in a grocery store.

Fact Finding

Read the passage again. Then read the following statements. Check (✓) whether each statement is True or False. If a statement is false, rewrite it so that it is true. Then go back to the passage and find the line that supports your answer.

1. ____ True ____ False ASIMO can play the cello.

2. ____ True ____ False Some robots do uninteresting and dangerous jobs.

3. ____ True ____ False Most robots look like people.

4. ____ True ____ False ASIMO has the ability to recognize people.

5. ____ True ____ False Most people in Japan cannot work.

6. ____ True ____ False One robot can do the work of ten people.

7. ____ True ____ False Now you can buy a robot to clean your floors.

Reading Analysis

Read each question carefully. Circle the letter or the number of the correct answer.

1. ASIMO traveled to Edinburgh, Scotland, for the **annual** Edinburgh International Science Festival. The festival takes place in February every year.
Annual means
- scientific.
 - international.
 - every year.

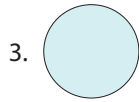
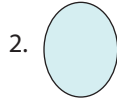
2. ASIMO is **designed** to run, climb stairs, and kick a soccer ball. It can even **conduct** an orchestra.
- Designed** means
 - made.
 - performed.
 - climbed.
 - Conduct** means
 - play.
 - lead.
 - perform.
3. Everyone at the concert was **amazed not only** by Yo Yo Ma, **but also** by ASIMO.
- Amazed** means
 - confused.
 - surprised.
 - interested.
 - Not only . . . but also** means
 - however.
 - except.
 - and.
 - Why were the people amazed by ASIMO?
 - It's a good conductor.
 - It can play the cello.
 - It's a robot.
4. Scientists **developed** robots more than 60 years ago. For many years, robots have worked in factories. They do **uninteresting** jobs such as **packaging** food or **assembling** cars.
- Developed** means
 - learned about.
 - thought about.
 - made.
 - Something **uninteresting** is
 - dangerous.
 - boring.
 - difficult.
 - Packaging** food is
 - making food for a company.
 - carrying food to a truck.
 - putting food into boxes.
 - Assembling** means
 - putting together.
 - driving.
 - checking.

5. Most of these robots are **shaped like** machines; they do not look like people. However, ASIMO looks like a person. In addition, it is **equipped with** the ability to recognize and remember people.

a. **Shaped like** means

1. to have the same form.
2. to be the same size.

b. Which one of these is shaped like an egg? Circle your answer.



c. **Equipped with** means

1. needs.
2. makes.
3. has.

6. In Japan, 20 percent of the people are over 65 years old. This means that a lot of Japanese people are **senior citizens** who no longer work.

Senior citizens are people who

- a. do not work.
- b. are 65 years old or older.
- c. have important jobs.

7. Japan hopes to have one million robots working in the country by the year 2025.

Does Japan have one million robots now?

- a. Yes
- b. No

8. A **single** robot can **replace**, or do the work of, ten people!

a. In this sentence, **single** means

1. not married.
2. only one.
3. new.

b. In this sentence, **replace** means

1. one robot equals ten people at work.
2. ten robots equal one person at work.
3. one robot equals one person at work.

9. In the future, robots will become more useful and **popular**.

Popular means

- a. many people like it.
- b. many people make it.
- c. many people need it.

10. A few years ago, iRobot, an American company, **announced** that it has robots that can wash, sweep, or vacuum your floors.
Announced means
- discovered.
 - said.
 - promised.
11. These robots do not look like people, but they can work **just as hard!**
This sentence means
- robots can work harder than people.
 - people can work harder than robots.
 - robots can do the same work as people.
12. What is the main idea of this reading?
- In the future, robots will do a lot of work for people.
 - Twenty percent of the people in Japan are senior citizens.
 - ASIMO can teach students and conduct an orchestra.

Vocabulary Skills

PART 1

Recognizing Word Forms

In English, some verbs become nouns by adding the suffix *-ment*, for example, *govern* (v.), *government* (n.).

Complete each sentence with the correct word form on the left. Write all of the verbs in the past. The verbs may be affirmative or negative. The nouns may be singular or plural.

- | | |
|-------------------------|---|
| amaze (v.) | 1. The people watched in _____ when ASIMO conducted |
| amazement (n.) | the orchestra. ASIMO _____ the audience because the |
| | robot was the conductor! |
| develop (v.) | 2. Many other companies _____ new robot technology last |
| development (n.) | year. These technological _____ are happening more |
| | and more quickly. |

- equip (v.)** 3. Factories need heavy _____ to assemble cars. Many car
equipment (n.) companies _____ their factories with robots to do the
heavy work years ago.
- replace (v.)** 4. Fifty years ago, robots _____ people at home, but they
replacement (n.) did in factories. Today, the _____ of people by robots at
home for housework is becoming more common.
- announce (v.)** 5. iRobot made an important _____ a few years ago.
announcement (n.) The company _____ the development of Roomba,
the robot that can clean floors.

PART 2

Recognizing Connecting Words

And, too, as well, also, and **in addition** all have the same meaning. They connect ideas, but they are used differently in sentences.

a. Look back at the passage. Put the correct adverb in each sentence.

- ASIMO looks like a person. _____, it is equipped with the ability to recognize and remember people.
- Robots will become more useful _____ popular in the future.
- Japan has the most robots of all. It is _____ developing more robots very quickly.
- Robots can do their work and help take care of the senior citizens, _____.
- Robots do boring work. They are often used to do dangerous work _____.

b. Answer the questions below. Write the correct adverb(s).

- Which two adverbs are at the end of a sentence? _____
- Which adverb is between two adjectives? _____
- Which adverb comes before a verb? _____
- Which adverb comes at the beginning of a sentence? _____

Vocabulary in Context

Read the following sentences. Complete each sentence with the correct word or phrase from the box. Use each word or phrase only once.

amazed (<i>adj.</i>)	assemble (<i>v.</i>)	equipped (<i>adj.</i>)	replace (<i>v.</i>)
announced (<i>v.</i>)	design (<i>v.</i>)	recognize (<i>v.</i>)	senior citizens (<i>n.</i>)

1. The teacher _____ that we are going to have a grammar test next week. I am going to begin studying this weekend.
2. My cell phone is broken. I'm going to return it to the store, and the store will _____ it. I hope the new cell phone works better than this one!
3. Ann's new computer is _____ with a DVD player, speakers, and a camera.
4. Mickey bought a new bookcase. He needs to _____ it before he can use it.
5. My brother has a new haircut and looks very different. I almost didn't _____ him!
6. Clara is learning English very quickly. She is _____ at her fast progress.
7. Maryann really likes fashion, especially new clothes and shoes. She hopes to learn to _____ clothing in college.
8. Many _____ don't have to work any longer, so they have more time to spend with their grandchildren.

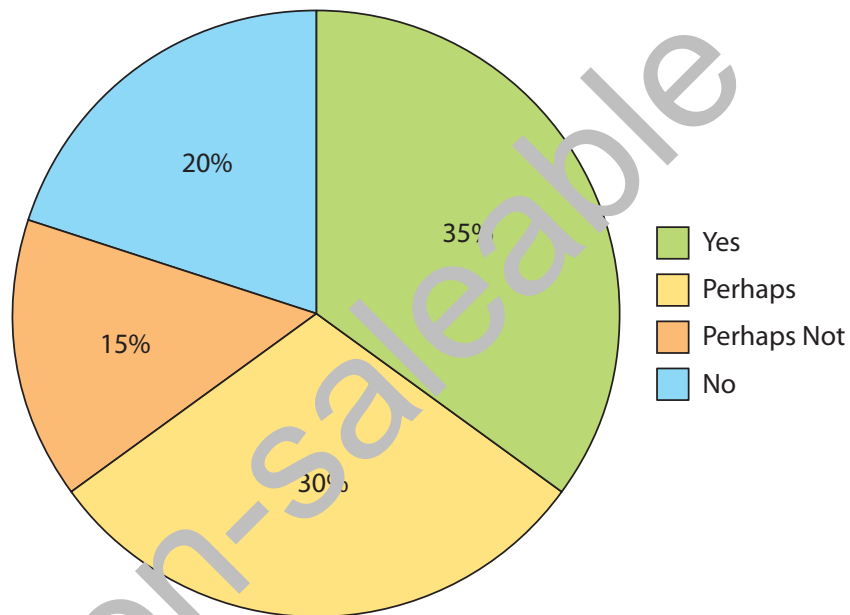
Reading Skill

Understanding a Pie Chart

Pie charts show percentages or parts of a whole. They show important information about a topic. Learning to read a pie chart can help you understand ideas from a reading passage.

- a. Look at the pie chart and read the sentences below. Put a check (✓) next to the sentences that are true.

Would you want a robot to take care of you?

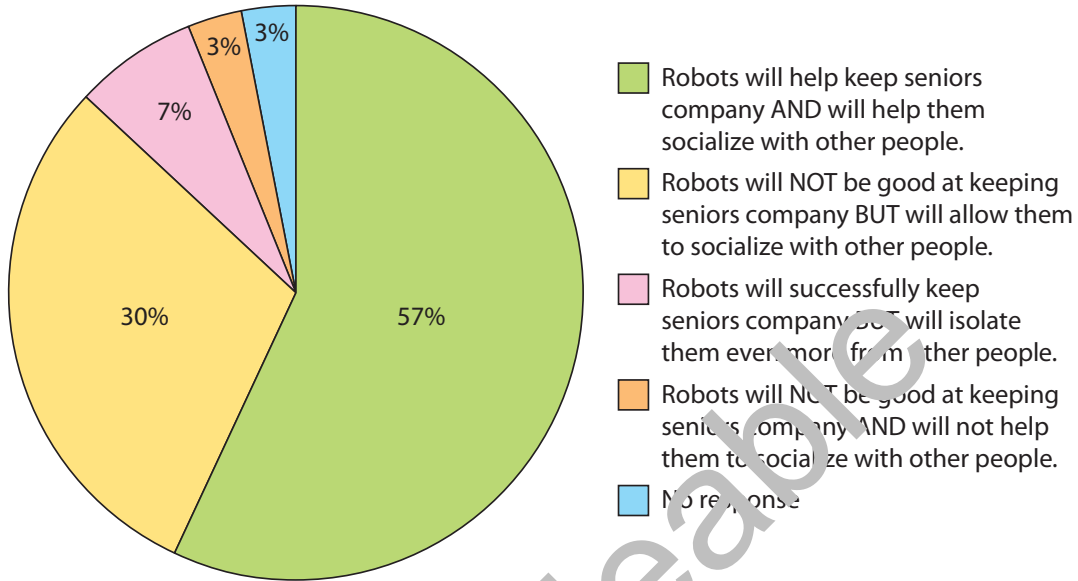


Source: <http://whatjapanthink.com/tag/robot/>

1. _____ Everyone wants a robot to take care of them.
2. _____ Many people want a robot to take care of them.
3. _____ Most people don't want a robot to take care of them.
4. _____ Some people are not sure if they want a robot to take care of them.

b. Look at the pie chart below. Put a check (✓) in the correct boxes.

**Will personal care robots isolate seniors even more?
Or will they help seniors to socialize better?**



Source: <http://www.openroboethics.org/results-robots-will-enable-seniors-to-socialize-more-says-readers/>

	Robots will help keep seniors company.		Robots will allow seniors to socialize with other people.	
	Yes	No	Yes	No
57% of people believe ...				
30% of people believe ...				
7% of people believe ...				
3% of people believe ...				

Another Look



Read the following passage about a new teacher in Japan. Then answer the questions that follow.

An Unusual Teacher

1 Yuki Ishito's new sixth-grade teacher, Sava, is like most teachers in Japan. This
2 morning, she is calling the attendance list and asking the students in the back of the
3 room to please be quiet. Sava smiles at the students and looks happy. "Thank you,"
4 she says. Sometimes she looks sad or angry. Other times, she can look surprised or
5 scared. Sava doesn't really look different from Yuki's other teachers, but she is. Sava is
6 a robot.

7 Hiroshi Kobayashi is a professor at the Tokyo University of Science. He developed
8 Sava. "Robots that look like people are a big hit with young children," he said. Of
9 course, Sava cannot really teach the students. She is remote controlled by a person
10 through a camera inside the robot.

11 Japan and other countries hope that in the future robots will do a lot of the work
12 that people do today. However, some scientists don't believe that a robot can replace
13 a teacher. Professor Kobayashi says, "Sava is just meant to help people. The robot has
14 no intelligence. It has no ability to learn. It's just a tool." Although Sava is not ready to
15 be a real teacher, the children enjoy her visits.



A robot named Sava speaks to elementary school students in Tokyo.

QUESTIONS FOR ANOTHER LOOK

1. What can Sava do? Write three things.

2. "Robots that look like people are **a big hit** with young children."

A big hit is an idiom. What does it mean?

- a. Famous
- b. Popular
- c. Effective

3. Do you think robots can replace teachers in the future? Why or why not?

Topics for Discussion and Writing

1. Robots can do many different jobs. What jobs do you think robots cannot do? Why not? Discuss your ideas with your classmates.
2. Robots do many dangerous and boring jobs. Robots also do interesting jobs. For example, ASIMO can conduct an orchestra. Will people be happy if robots do interesting jobs for them? Why or why not?
3. What are some of the advantages of having robots work in factories and other places, such as hospitals and homes for senior citizens? What are some of the disadvantages?
4. Write in your journal. Imagine that you have a robot teacher. Write a letter to a friend, and describe your robot teacher. Tell your friend about your class. Do you enjoy your robot teacher? Why or why not?

Critical Thinking

1. Work with a partner and design a new robot. What will it look like? What can it do?
2. Work in a small group. Pretend that you are the parents of children in a school. The school wants to replace a real teacher with a robot. You do not want your children to have a robot for a teacher. Give reasons why you think having a robot teacher is a bad idea.
3. Work in a small group. Pretend that you are the parents of children in a school. The school wants to replace a real teacher with a robot. You agree with this plan. Give reasons why you think having a robot teacher is a good idea.
4. Work in a small group. You manufacture robots that can teach children. Design an advertisement for your robot.
5. Discuss these questions with a partner. Most robots look like machines. They do not look like people. Is it important for robots to look like people? What do you think?
6. There are many senior citizens in Japan. In the future, robots will do their work and take care of them, too. How can robots take care of senior citizens? Talk about your ideas with your classmates.
7. In many countries, including Japan, people must retire, or stop working, by a certain age, usually when they are 60 or 65 years old. This is a law. What is the reason for this law? Discuss this with your class.
8. iRobot has robots that can wash, sweep, and vacuum. What else do you want a robot to do for you in your home? Make a list and then compare your list with your classmates' lists.



A robot helps an elderly man get out of bed.

Crossword Puzzle

Review the words in the box. Then read the clues on the next page. Write the words in the correct spaces in the puzzle.

amazed	conduct	packaging	shape
announce	designed	popular	single
annual	develop	replace	uninteresting
assemble	equip	senior	

The crossword puzzle grid consists of 15 numbered starting points for words:

- 1: Down, 10 letters
- 2: Across, 6 letters
- 3: Across, 5 letters
- 4: Across, 6 letters
- 5: Across, 5 letters
- 6: Down, 6 letters
- 7: Across, 10 letters
- 9: Across, 4 letters
- 10: Across, 6 letters
- 11: Down, 4 letters
- 12: Across, 6 letters
- 13: Across, 8 letters
- 14: Across, 6 letters
- 15: Across, 8 letters

Crossword Puzzle Clues

ACROSS CLUES

2. It takes a lot of experience to _____ an orchestra.
4. _____ means very surprised.
5. Will you _____ this robot with the ability to speak?
8. We need to _____ technology to help older people be independent.
9. One day, robots will have a more human _____. Now they look like machines.
10. A robot can never _____ a person in every way.
12. A 65-year-old person is a _____ citizen.
13. Automobile factories _____ thousands of cars every year.
14. A person's birthday is an _____ event.
15. The company will _____ the name of the new type of robot tomorrow.

DOWN CLUES


1. My car is _____ to save on gasoline.
3. I have a very _____ job. It is very boring.
6. People like the _____ on products to be colorful and easy to read.
7. ASIMO is a _____ robot. Many people like it.
11. A _____ robot can do the work of ten people!

CHAPTER 8 A blind man sees again!



Prereading

1. Look at the photo. Where is this man?
 - a. In a movie theater
 - b. In an eye doctor's office
 - c. In a dentist's office
2. Look at the title of this chapter. Which sentence below best describes this man?
 - a. He has problems with his eyes and needs to wear glasses.
 - b. He was always blind, but now he can see.
 - c. He became blind a long time ago, but now he can see again.



Larry Hester tries his new bionic eye device.

Reading



Read the following passage carefully. Then complete the exercises that follow.

CD 2
TR 3

A blind man sees again!

1 When Larry Hester was a young man, he started to have a problem with his eyes.
2 He went to see many doctors. The doctors told him that he had a serious eye disease.
3 The part of his eyes that sees light, the retina, was very weak. The doctors could
4 not help Larry. His retina slowly became weaker. Eventually, Larry became blind.
5 Although he lived in darkness for a very long time, Larry's life didn't stop. He used
6 his memory to help him get around at home and at work, but it was not easy. Now,
7 after 30 years, Larry can see again. How did this happen?

8 One day, Jenny, Larry's wife, read a story about a new device that might help her
9 husband. Researchers at the Duke Eye Center in North Carolina developed a bionic,
10 or robotic, eye. This device is a replacement for the retina, the part of the eye that
11 responds to light. The weakness of the retina in Larry's eyes caused his blindness.
12 The Hesters met with Dr. Paul Hahn, an eye surgeon from the Duke Eye Center.

13 He believed that he could help Larry. Dr. Hahn placed one of these devices in each
14 of Larry's eyes. Then Dr. Hahn gave Larry a special pair of glasses. The glasses
15 are connected to the device. At that moment, Larry saw light for the first time in
16 30 years. Larry took a deep breath. He was unable to describe his feelings, but he
17 was very excited.

18 Larry is not the first person to receive this special device. There are other people
19 who are blind for the same reason as Larry. But even with the device, these people
20 cannot see objects clearly. The bionic eye is very simple. Larry's special glasses contain
21 a tiny camera. The bionic eye picks up light signals from the camera. Larry, and others
22 who have the same device, can only see light and shapes. However, this is amazing
23 to people who could only see darkness. Perhaps in the future the technology will
24 improve even more. Then people like Larry will be able to see much more. For Larry
25 and other people like him, that will truly be an amazing day.

Fact Finding

Read the passage again. Then read the following statements. Check (✓) whether each statement is True or False. If a statement is false, rewrite it so that it is true. Then go back to the passage and find the line that supports your answer.

1. True False Larry was blind when he was born.

2. True False Larry's doctors helped him when he was a young man.

3. True False Jenny found information to help her husband.

4. True False Doctors put a special device inside each of Larry's eyes.

5. True False The bionic eye helps Larry see again, but not as a normal person can see.

Reading Analysis

Read each question carefully. Circle the letter or the number of the correct answer.

1. Larry had a **serious eye disease**.
 - a. **Serious** means
 1. unusual.
 2. very bad.
 3. new.
 - b. His **eye disease**
 1. can make him blind.
 2. can easily improve.
 3. might make him wear glasses.
2. The part of Larry's eyes that sees light, the **retina**, was very weak. The **retina** can
 - a. see different colors.
 - b. see light and dark.
 - c. see close and far away.
3. **Eventually**, Larry became blind. **Eventually** means
 - a. slowly, over time.
 - b. quickly, in a short time.
 - c. unfortunately.
4. Jenny read a story about a new **device** that might help Larry. A **device** is
 - a. a story or article.
 - b. an instrument or tool.
 - c. a doctor or surgeon.
5. Researchers developed a **bionic**, or robotic, eye. **Bionic** means
 - a. an eye from another person.
 - b. an eye made of electronic parts.
 - c. an eye from an animal.
6. This device is a **replacement** for the retina. This device
 - a. fixes the weak retina.
 - b. takes the place of the weak retina.
 - c. is better than the weak retina.

7. The retina is the part of the eye that **responds to** light.
Responds to means
- reacts to.
 - takes in.
 - understands.
8. The Hesters met with Dr. Paul Hahn, an eye **surgeon** from the Duke Eye Center.
A **surgeon**
- studies eye diseases.
 - performs operations.
 - studies blind people.
9. Dr. Hahn **placed** one of these devices in each of Larry's eyes.
Placed means
- planned.
 - attached.
 - put.
10. Special glasses are **connected** to the device.
Connected means
- controlled.
 - surrounded.
 - attached.
11. **At that moment**, Larry saw light for the first time in 30 years.
At that moment means
- in a moment.
 - immediately.
 - slowly.
12. Larry was unable to **describe** his feelings, but he was very happy.
Describe means
- talk about.
 - be happy about.
 - be excited about.
13. **The bionic eye picks up light signals from the camera.**
- A **signal** is
 - a type of message.
 - a kind of light.
 - a photograph.

- b. This sentence means
1. the bionic eye sends light signals to the camera.
 2. the bionic eye moves like a camera.
 3. the bionic eye gets light signals from the camera.
- 14.** But even with the device, these people cannot see **objects** clearly.
Objects are
- a. things you can see and touch.
 - b. light and dark.
 - c. different colors.
- 15.** Being able to see light and shapes is **amazing** to people who could only see darkness.
Amazing means
- a. new.
 - b. terrible.
 - c. wonderful.
- 16.** What is the main idea of this passage?
- a. For people who were born blind, a bionic eye can help them see for the first time.
 - b. For some people who became blind, a bionic eye can help them see light and shapes.
 - c. A bionic eye is a very good replacement for everyone.

Vocabulary Skills

PART 1

Recognizing Word Forms

In English, some adjectives become nouns by adding the suffix *-ness*, for example, *sad* (*adj.*), *sadness* (*n.*).

Complete each sentence with the correct word form on the left. The nouns are all singular.

- bright** (*adj.*) 1. Larry saw a _____ light for the first time in over 30 years.
- brightness** (*n.*) The _____ was very exciting to him.
- weak** (*adj.*) 2. The retinas in both of Larry's eyes were very _____. As
- weakness** (*n.*) the _____ of his retinas became worse, Larry slowly became blind.

- dark (adj.)** 3. Larry's world was completely _____ for 30 years. The
darkness (n.) _____ disappeared when he received the new device.
- blind (adj.)** 4. Larry was _____ for over 30 years. Now, with the bionic
blindness (n.) eye, Larry's complete _____ is gone. He can see light
and shapes.
- happy (adj.)** 5. Larry and his wife, Jenny, are very _____. Their
happiness (n.) _____ is even greater because Larry's life is so much
better today.

PART 2

Understanding Antonyms

Antonyms are words with opposite meanings, for example, *hot* and *cold*.

Match each word with its antonym. Write the letter of the correct answer and the word in the space provided.

- | | | |
|-----------------------|------------|----------------|
| <u>g. worse</u> _____ | 1. better | a. complicated |
| _____ | 2. easy | b. dark |
| _____ | 3. light | c. difficult |
| _____ | 4. serious | d. strong |
| _____ | 5. simple | e. not bad |
| _____ | 6. special | f. usual |
| _____ | 7. weak | g. worse |

Vocabulary in Context

Read the following sentences. Complete each sentence with the correct word from the box. Use each word only once.

amazing (*adj.*)
clearly (*adv.*)

connected (*v.*)
device (*n.*)

eventually (*adv.*)
replacement (*n.*)

serious (*adj.*)
weak (*adj.*)

1. I _____ my laptop to the Internet a few hours ago. Now I can write and send email.
2. Olivia studied hard in her language classes. _____, she learned to speak English very well.
3. Linda carried her little son's heavy backpack. He was too _____ to carry it by himself.
4. I think I need new glasses. I can't see _____ with these.
5. My new watch is _____. I can use it to go online!
6. My car's GPS is a _____ that helps me find directions quickly.
7. Jeff had a _____ accident. He fell down the stairs and broke his leg.
8. Anna is buying a _____ for her old backpack. Her old backpack is torn and the zipper is broken.

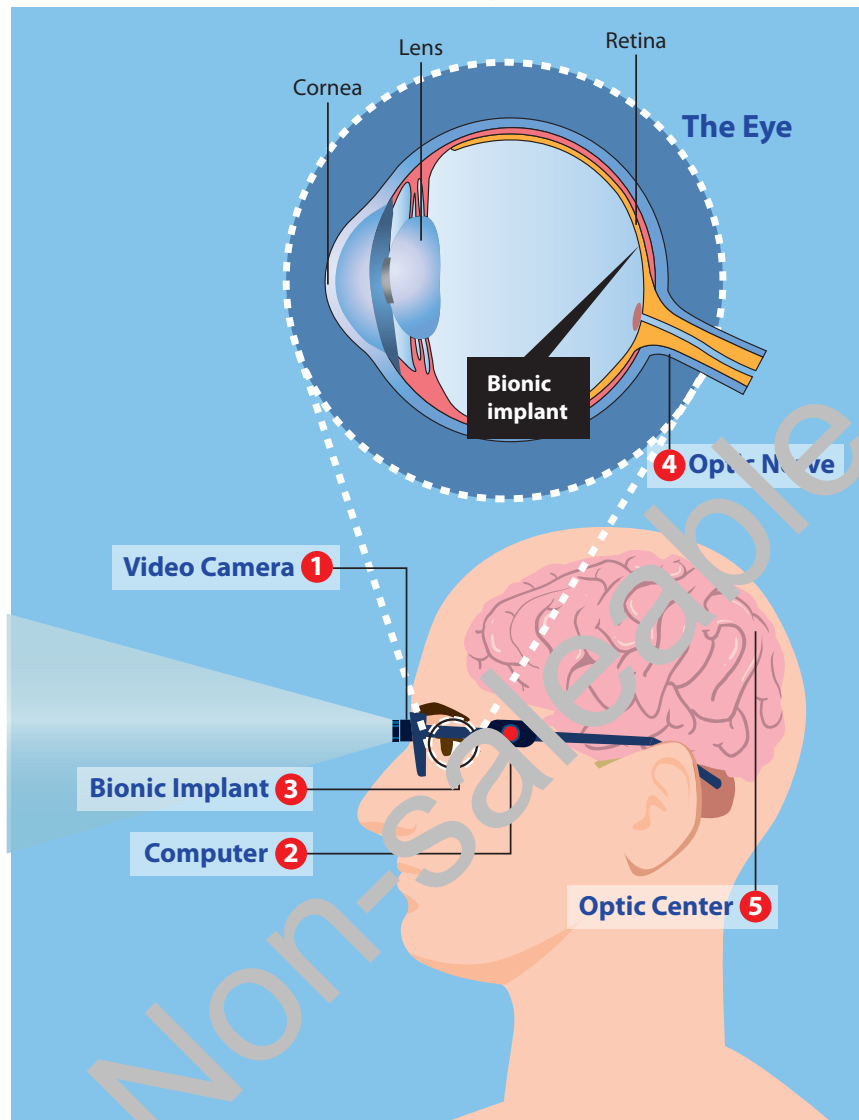
Reading Skill

Understanding a Graphic

Graphics often accompany a reading. They often illustrate information in the reading. Understanding this type of illustration increases your understanding of a reading.

Look at the graphic below. Match each statement to a number on the graphic.

How the Bionic Eye Works



Source: <http://photographics.com/Article.aspx?AID=35657>

- _____ 2 A computer changes the image into signals. The computer sends the signals to the bionic implant.
- _____ The optic center in the brain changes the signals into the images we see.
- _____ A video camera is attached to a pair of glasses. The video camera films an image.
- _____ The optic nerve carries the signals to the optic center in the brain.
- _____ The bionic implant is attached to the damaged retina. The implant uses the signals to stimulate the optic nerve.



Amanda Kitts ties a student's shoelaces.

Another Look



Read the following passage about a teacher with a bionic arm. Then answer the questions that follow.

A Bionic Hug

- 1 Amanda Kitts is the owner of three day care centers in Knoxville, Tennessee. She
2 loves to take care of the children, dry their tears, and hug them. She also loves to hug
3 her son, Casey. "These kids are my life," she said. "They fill my heart with love."
4 However, Amanda had a terrible car accident several years ago. She was hurt very
5 badly in the accident. Amanda lost her left arm as a result of the accident. "It hurt me
6 to think that I may never be able to hug Casey and the children again," she said.
7 Amanda's husband searched the Internet for information to help Amanda. One
8 day, he found some news about the Rehabilitation Institute of Chicago. There, doctors
9 developed a new kind of artificial limb. He believed it could help his wife. This
10 artificial arm uses Amanda's nerve signals in her brain to control it. "I don't really
11 think about it. I just move it," says Amanda. "I'm just excited all the time because they
12 keep improving the arm. One day, I'll be able to feel things with it and clap my hands
13 together to the songs my kids are singing."

14 Amanda is not the only person who is excited. The children at the day care centers
15 are excited, too. "Hey kids! How are my babies today?" she asks. "The robot arm!"
16 several children say happily. "Make it do something silly!" one girl says. "Silly?
17 Remember how I can shake your hand?" Amanda asks. A boy reaches out and shakes
18 her hand. But it wasn't always easy for Amanda to do this.

19 Amanda had to learn how to use her new arm. "It was difficult at first," she says.
20 "I would try to move it, and it wouldn't always go where I wanted." However, she
21 worked hard. Slowly, she was able to use it more and more. "It was wonderful," she
22 says. "My new arm made me feel like I could do anything again." Most importantly
23 to Amanda, her new arm is perfect for hugging!

QUESTIONS FOR ANOTHER LOOK

1. How does Amanda Kitts feel about the children in her day care centers? What does Amanda especially like to do with them and her son, too?

2. What happened to Amanda?

3. What does Amanda have now? What can she do with it?

4. How do the children feel about Amanda's artificial arm?

Topics for Discussion and Writing

1. What are some other kinds of medical technology that help people? How do these kinds of technology help?
2. Is technology important in your everyday life? Why or why not? Explain your answer.
4. Write in your journal. Larry Hester and Amanda Kitts had big changes in their lives. Write about a big change in your life. When did it occur? What happened?

Critical Thinking

1. Medical technology improves every day. Go online. What are some new kinds of medical technology? Who can the new technology help?
2. Work with a partner. Make a list of the technology you use every day. How does it help you? Compare your list with your classmates' lists and make a class list.
3. Medical technology helped Larry Hester, who was blind, and Amanda Kitts, who lost her arm in an accident. Medical technology helps many other people with disabilities. Go online. Find someone with a different disability. How did medical technology help him or her?
4. Larry used his memory to help him get around at home and at work. How did his memory help him? Discuss this with a partner.
5. Larry and others with bionic eyes can only see light and shapes. Do you think these bionic eyes are really helpful to blind people, or are they a waste of time? Discuss your ideas with your classmates.



Amanda Kitts and her bionic arm

Crossword Puzzle

Review the words in the box. Then read the clues on the next page. Write the words in the correct spaces in the puzzle.

amazing	darkness	eventually	retina
bionic	describe	light	serious
blind	device	replacement	signal
connect	disease	respond	technology

The crossword puzzle grid consists of 15 numbered starting points for words:

- 1: Down, 1st row, 3rd column
- 2: Down, 1st row, 7th column
- 3: Across, 2nd row, 3rd column
- 4: Across, 2nd row, 4th column
- 5: Across, 3rd row, 2nd column
- 6: Across, 4th row, 1st column
- 7: Across, 4th row, 5th column
- 8: Down, 5th row, 6th column
- 9: Across, 5th row, 2nd column
- 10: Across, 6th row, 3rd column
- 11: Down, 6th row, 3rd column
- 12: Down, 7th row, 5th column
- 13: Across, 7th row, 1st column
- 14: Across, 8th row, 5th column
- 15: Across, 9th row, 2nd column

Crossword Puzzle Clues

ACROSS CLUES

3. There is a part of the eye that can _____, or react, to light.
5. There are several _____ conditions that can cause people to lose their sight.
6. A camera sends an electronic _____ to the robotic eye.
7. A _____ person is unable to see.
9. Could you _____ the apartment to me? How many rooms does it have?
10. _____ is improving every day. One day, Larry may be able to see normally.
13. The robotic eye is a _____ for a specific part of the eye.
14. The robotic eye allows Larry to see _____ and shapes.
15. A _____ eye is made up of electronic parts.

DOWN CLUES

1. Before Larry had his eye surgery, he lived in a world of _____.
2. You need to _____, or attach, a special pair of glasses to a camera.
4. _____, researchers may be able to develop a robotic eye that will allow people to see normally.
8. Larry had an eye _____ that caused him to lose his sight.
9. A robotic eye is a special _____ that enables people to see light and shapes.
11. Wonderful
12. The _____ is the part of the eye that reacts to light.