

# Growth and Development

## Chapter Preview

<b>Lesson 1</b> The Beginning of Life .....450	<b>Building Health Skills</b> .....470
<b>Lesson 2</b> Heredity and Environment .....455	<b>TIME health news</b> .....472
<b>Lesson 3</b> From Childhood to Adolescence .....460	<b>Chapter Reading Review</b> .....473
<b>Lesson 4</b> Adulthood and Aging .....466	<b>Chapter Assessment</b> .....474

### ▲ Working with the Photo

Your teen years are just one of several life stages you will go through. **Can you think of three other stages of life?**

# Start-Up Activities

## Before You Read

What do you already know about growth and development? Take the short Health Quiz on this page. Keep a record of your answers.

**HEALTH QUIZ** Answer *true* or *false* to each of the following statements:

1. All human life begins as a single cell.
2. Your eye color is inherited from your parents.
3. Physical changes are not common in adolescence.
4. Late adulthood is the time most people start families.

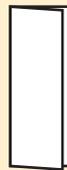
ANSWERS: 1. true; 2. true; 3. false; 4. false

## FOLDABLES® Study Organizer

### As You Read

Make this Foldable® to help you organize what you learn in Lesson 1 about the beginnings of life. Begin with a plain sheet of 8½" × 11" paper.

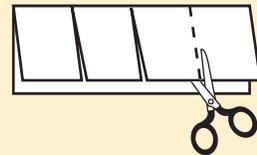
**1** Fold the sheet of paper along the long axis, leaving a half-inch tab along the side.



**2** Turn the paper, fold it in half, and then fold it in half again.



**3** Unfold and cut the top layer along the three fold lines. This makes four tabs.



**4** Turn the paper vertically and label the tabs as shown.



Under the appropriate tab, write down major concepts related to cells, tissues, organs, and body systems.

Go Online

Visit [glencoe.com](http://glencoe.com) and use the eFlashcards to preview Chapter 17 vocabulary terms.

## Lesson 1

## The Beginning of Life

## Guide to Reading

**Building Vocabulary**

Write the terms below in your notebook. As you read the lesson, write down their definitions.

- fertilization (p. 450)
- egg cell (p. 450)
- sperm cell (p. 450)
- uterus (p. 452)
- embryo (p. 452)
- fetus (p. 452)
- placenta (p. 453)
- umbilical cord (p. 453)
- cervix (p. 454)

**Focusing on the Main Ideas**

In this lesson, you will learn to

- **identify** the building blocks of life.
- **explain** how a single cell develops into a baby.
- **describe** the stages of birth.
- **access** information on the physical and emotional changes a pregnant female experiences.

**Reading Strategy**

**Analyzing a Graphic** Using Figure 17.2 on page 452, summarize the process that a fetus goes through during the months before its birth.

**FOLDABLES Study Organizer** Use the Foldable® on p. 449 as you read this lesson.

**Quick Write**

Write a short paragraph explaining why you think some twins are identical and others are not.

**Building Blocks of Life**

The cell is the basic unit of life. The human body is composed of trillions of cells, each with its own job to do. Cells that do similar jobs come together to form tissues. Tissues combine to form organs, and organs group together to form body systems. **Figure 17.1** illustrates how cells organize themselves into body systems.

**Fertilization**

Your body started as a single fertilized cell. **Fertilization** is the joining together of a male sperm cell and a female egg cell, to form one cell. The reproductive cell from the female that joins with a sperm cell to make a new life is called an **egg cell**. The cell from the male that enters the egg cell during fertilization is called a **sperm cell**.

Fertilization takes place in the mother's reproductive system. The egg cell is fertilized in one of her two fallopian tubes. As soon as a sperm cell meets the egg cell, a film is produced around the egg. This prevents any additional sperm cells from entering the egg cell. Once fertilization takes place, a new life begins to grow.

▼ **FIGURE 17.1**

## FROM CELL TO SYSTEM

Cells work together in the body to create tissues, organs, and systems.

**Can you name some of the body's organs?**

### 1. Cells

Cells are the basic building blocks of life. There are many different kinds of cells. Some cells come from the stomach where they play a role in digestion. Other kinds of cells in the body include heart, skin, and nerve cells.

### 2. Tissues

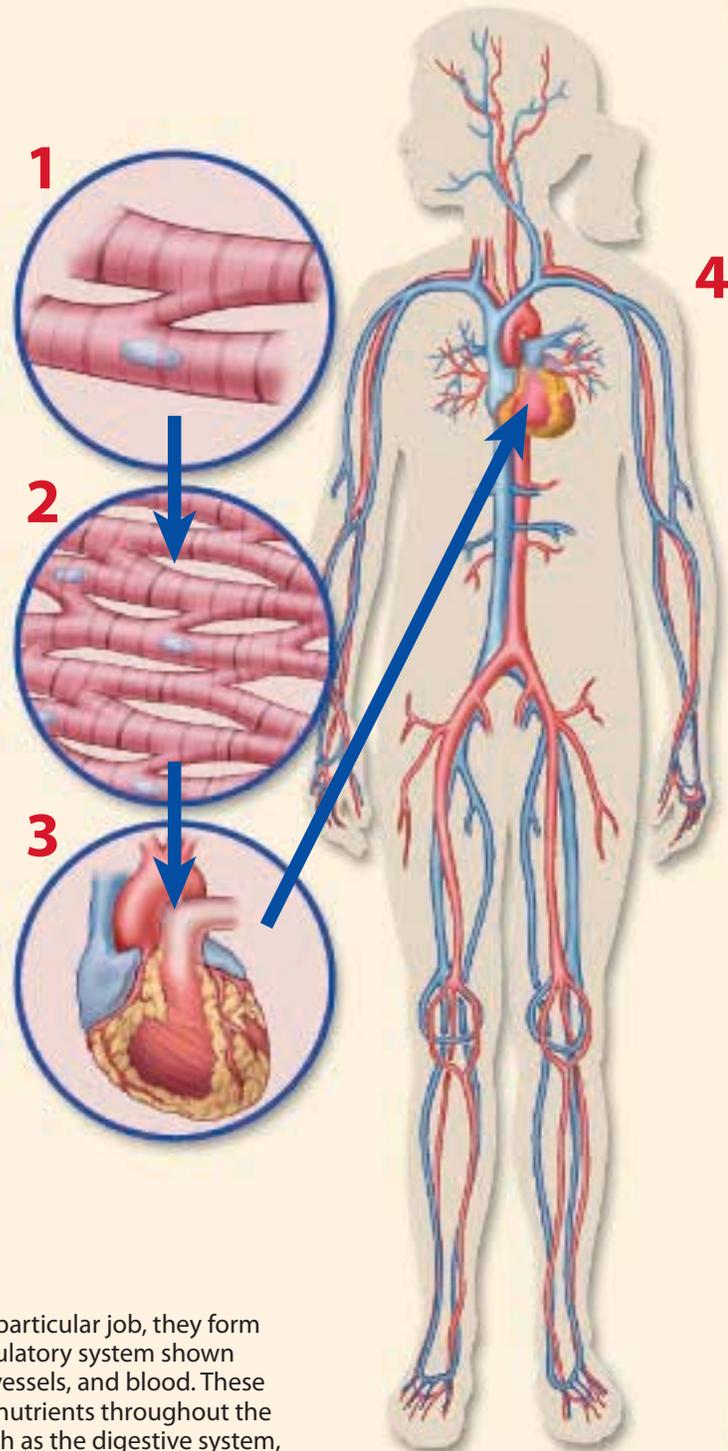
When cells get together to do similar jobs, tissues are created. There are many kinds of tissues in the body, including muscle tissue and brain tissue.

### 3. Organ

When tissues combine to form a structure designed to do a particular job, an organ is created. Examples of organs in your body include the heart, kidneys, lungs, and brain.

### 4. Body System

When organs work together to do a particular job, they form a body system. For example, the circulatory system shown here is made up of the heart, blood vessels, and blood. These components work together to carry nutrients throughout the body. Other systems in the body, such as the digestive system, have their own jobs. Systems cooperate with one another to keep your body balanced and running smoothly.





## Growth During Pregnancy

Once an egg cell is fertilized, it travels from the fallopian tube to the uterus. The **uterus** (YOO-tuh·ruhs) is a *pear-shaped organ inside a female's body where the embryo is protected and nourished*. The egg cell begins to divide during a process known as *mitosis*. After three weeks, an embryo is formed. An **embryo** is *the developing organism from fertilization to about the eighth week of its development*. The embryo attaches itself to the wall of the mother's uterus. The cells then continue to divide into cells that do specific jobs.

Over time, cells combine to form tissues. Tissues that do similar jobs combine to form organs, and organs combine to form body systems. By the end of the eighth week, the embryo's organs have started to develop. The embryo is now called a **fetus**—*the developing organism from the end of the eighth week until birth*. The fetus will continue to grow and develop for about nine months. **Figure 17.2** shows how the embryo and fetus develop during those months.

▼ **FIGURE 17.2**

### NINE MONTHS OF DEVELOPMENT

In just nine months, a single cell develops into a full-grown baby. **How big is the fetus at the end of the fifth month?**

#### End of First Month

The heart, digestive system, backbone, and spinal cord begin to form. The embryo is .25 of an inch long.

#### End of Second Month

The heart of the fetus begins to beat. The eyes, nose, lips, tongue, ears, and teeth are forming. The fetus is now up to 1 and one-eighth inches long.



#### End of Third Month

Most of the organs and tissues are developed. Arms, hands, fingers, legs, feet, and toes are fully formed. The heartbeat can be heard. The fetus can weigh up to 1 ounce and can be up to 3 inches in length.

#### End of Fourth Month

The reflexes are developing. The fetus can suck and swallow. The gender can be determined. The fetus can weigh up to 7 ounces and can be up to 7 inches long.

#### End of Fifth Month

Hair begins to grow on the head. The mother begins to feel the fetus move. Eyebrows, eyelashes, and eyelids appear. The fetus can weigh up to 1 pound and can be up to 10 inches long.



## Growth Inside the Uterus

In order for a fetus to develop, it must get food from its mother. The fetus receives nourishment through the placenta. The **placenta** (plu·SEN·tuh) is *a thick, rich tissue that lines the walls of the uterus during pregnancy and that nourishes the fetus*. The fetus gets food and oxygen through a blood vessel in the **umbilical cord** (uhm·BIL·i·kuhl) **cord**, *a tube that connects the mother's placenta to the fetus*. The umbilical cord also carries away the wastes produced by the growing fetus.

Substances such as tobacco, alcohol, and other drugs can do harm to a fetus. For that reason, females should avoid using harmful substances when they are pregnant.



### Reading Check

**Compare** What is the difference between an embryo and a fetus?



Visit [glencoe.com](http://glencoe.com) and complete the Interactive Study Guide for Lesson 1.

### End of Sixth Month

The fetus can open its eyes for short periods of time. The fetus can weigh up to 2 pounds and can be up to 14 inches long.

### End of Seventh Month

The fetus has red and wrinkled skin. The organs are maturing. The fetus can weigh up to 3.5 pounds and can be up to 16 inches long.

### End of Eighth Month

The fetus is growing quickly. There is tremendous brain development. Movement is strong enough to be seen from the outside. The fetus can weigh up to 6 pounds and can be up to 18 inches long.

### End of Ninth Month

The fetus is now fully developed and can survive outside the mother's body. The fetus changes positions to prepare for birth. The baby weighs at least 7 pounds and at least 19 inches long.





## Stages of Birth

After growing and developing for about nine months inside its mother's body, a fetus is ready to be born. Birth occurs in three stages:

- **Stage One.** The muscles in the uterus begin to squeeze and release gently. These muscle movements, called contractions, mean that birth is starting. At this point, *the entry to the uterus*, called the **cervix**, begins to *dilate*, or open.

▲ Nine months after becoming pregnant, a woman gives birth to her baby. **In which stage of birth are contractions the strongest?**

- **Stage Two.** The cervix continues to dilate, preparing for the baby to pass through. Contractions become very strong, helping to push the baby through the cervix, down the birth canal, and out of the mother's body.
- **Stage Three.** Once the baby is born, the placenta is no longer needed. The muscles of the uterus keep contracting until the placenta is pushed out of the mother's body.



**Recall** What happens during stage two of birth?



## Lesson 1 Review



**Review this lesson for new terms, major headings, and Reading Checks.**

### What I Learned

1. **Vocabulary** Define *fertilization*.
2. **Identify** What structure carries food and oxygen from the mother's body to her developing fetus?
3. **Recall** How is an organ different from a body system?

### Thinking Critically

4. **Analyze** How does a woman know that her baby is ready to be born?

5. **Apply** Janice is thinking about having a baby, but she likes to smoke cigarettes. Based on what you learned in this lesson, what advice would you give her?

### Applying Health Skills

6. **Accessing Information** A pregnant woman experiences many physical and emotional changes. Use reliable sources to learn more about these changes. Make a list of some of the physical and emotional changes that occur during pregnancy.

## Lesson 2

# Heredity and Environment

## Guide to Reading

### Building Vocabulary

Review the terms below. See if you can determine which terms are related to heredity and which terms are related to environment.

- heredity (p. 455)
- chromosomes (p. 456)
- genes (p. 456)
- genetic disorder (p. 456)
- environment (p. 456)
- prenatal care (p. 457)
- birth defects (p. 458)

### Focusing on the Main Ideas

In this lesson, you will learn to

- **explain** how characteristics are passed from parent to child.
- **identify** factors that could cause birth defects.
- **explain** the importance of prenatal care.
- **access** information on your family's health history.

### Reading Strategy

**Finding the Main Idea** Read the main headings in this lesson. For each heading, write one sentence that describes the main idea.

### Quick Write

What steps should a pregnant woman take to care for herself and her developing baby?

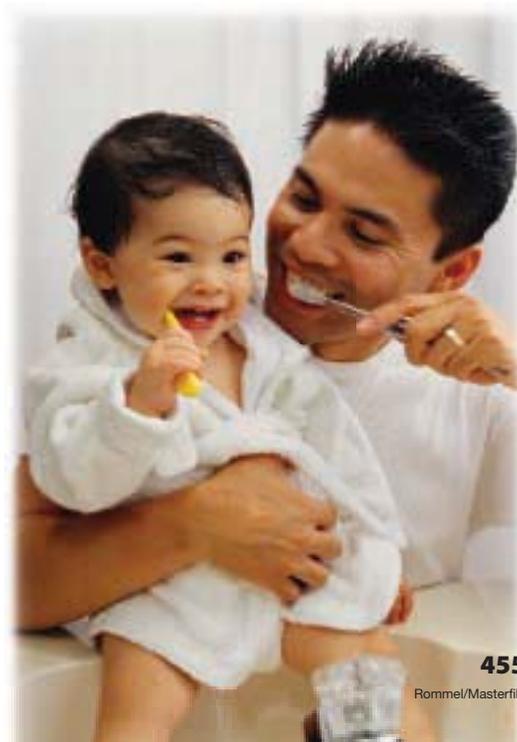
## The One and Only You

Each and every person is different. This means that no two people share exactly the same looks, personality, or abilities. Many factors influence the way a person develops. Some factors are related to heredity, and others are environmental factors.

## Heredity

**Heredity** is the passing of traits from parents to their children. Traits include characteristics such as eye color, hair color, and body shape. Inherited traits can also include talents and abilities. Children can also inherit a tendency to develop certain diseases and other health problems from their parents.

- ▶ The genetic information passed from parent to child can mean that they look a lot alike. **What are some of the physical traits that this parent and child share?**





Traits are passed on through chromosomes and genes. **Chromosomes** are *threadlike structures found within the nucleus of a cell that carry the codes for inherited traits*. All but two kinds of cells in the human body have 46 chromosomes positioned in pairs. Sperm and egg cells contain only 23 chromosomes. When a sperm and egg cell combine, the newly formed cell will have 46 chromosomes—23 from the sperm cell and 23 from the egg cell.

The tiny bits of information carried in chromosomes are called **genes**—*the basic units of heredity*. Genes carry codes

for traits such as eye color and height. Each child inherits different combinations of chromosomes and genes from his or her parent. This means that even children with the same parents do not look exactly the same, or have the same personality.

- ▲ A fetus needs nourishment to grow. **How does a fetus receive the food and oxygen it needs?**



## Genetic Disorders

When the genes from one or both parents are abnormal or changed in some way a baby can be born with a **genetic** (juh-NE·tik) **disorder**. This is *a disorder caused partly or completely by a defect in genes*. A defect is a flaw or the absence of something needed.

Genetic disorders can occur when a fertilized egg has more or fewer than 46 chromosomes. For example, people with Down syndrome have an extra chromosome that causes them to have certain facial **features** and learning disabilities.

Other genetic disorders are caused by abnormal or defective genes. Sickle-cell anemia is a blood disorder caused by an abnormal gene. People with this disorder have abnormally shaped red blood cells that can block blood vessels and cause pain in the bones and joints.

### Academic Vocabulary

**features** (FEE churs) (*noun*) characteristics, traits. *Juan and his twin sister, Juanita, have the same physical features.*



**Explain** What role do genes play in heredity.



## Environment

As a fetus develops, its health is affected by its environment. **Environment** is *the sum total of a person's surroundings*. A fetus's environment is its mother's uterus. If the mother is unhealthy or engages in risky behaviors, the fetus can be affected. A healthy mother is more likely to have a healthy baby.



# Health Skills Activity

## Accessing Information

### Your Family's Health History

Researching your family's health history will let you know if you are at risk for developing certain diseases. It will also help you make healthy decisions that can prevent or lower your risk of disease. One way to learn about the health histories of family members is to create a questionnaire and ask them to fill it out. You will want to know what diseases or other health problems your family members have now or have had in the past.

### On Your Own

Brainstorm a list of questions to include on a health history questionnaire. Create the questionnaire and give it to your parents, their siblings, and—if possible—your grandparents. Also ask your grandparents about diseases or other health problems their parents may have had.

## Prenatal Care

When a female learns that she is pregnant, it is important that she begin prenatal care right away. **Prenatal** (pree-NAY-tuhl) **care** includes *steps taken to provide for the health of a pregnant female and her baby*. Prenatal care includes regular visits to an obstetrician (ahb-stuh-TRI-shuhn). This is a doctor whose specialty is the care of a pregnant female and her unborn child. During a regular visit, the obstetrician may look at the baby using ultrasound. This technology uses sound waves to form a picture of the fetus in its mother's uterus. Doctors use these pictures to check the growth of the fetus and to detect any problems that might exist. A good prenatal program also includes the following positive health behaviors:

- Eating healthful foods
- Participating in moderate exercise
- Getting plenty of rest
- Avoiding alcohol, tobacco, and other drugs
- Talking to a doctor or other health care provider before taking any medicines



### Reading Check

**List** Name two health behaviors that are part of a good prenatal program.



## Genetic Counselor



Genetic counselors help people who are dealing with a genetic disorder. Genetic counselors will always be in demand because people with genetic disorders, and their families, need specialized support that other counselors are not qualified to provide. If you are interested in becoming a genetic counselor, you should study human growth and development, and genetic disorders.

**What kind of skills does a genetic counselor need? Go to Career Corner at [glencoe.com](http://glencoe.com) to find out.**

- ▼ Using alcohol during pregnancy can result in premature birth and low birth weight. **What factors help determine whether or not a baby will be born healthy?**

## Birth Defects

**Birth defects** are abnormalities present at birth that cause physical or mental disability or death. Good prenatal care can help prevent birth defects. Some birth defects, however, are caused by genetic disorders or problems with the fetus's environment. For example, certain infections during pregnancy can cause birth defects.

The following are six kinds of environmental factors that can contribute to a birth defect:

### Poor Nutrition

One way a mother can make sure she has a healthy baby is to eat well while she is pregnant. While in the uterus, the fetus relies on its mother for all of its needs. If a mother has an unhealthy diet, her baby could be born prematurely, or too soon. The baby may also have a low birth weight and is at risk of developing physical and mental problems.

### Alcohol Use



Everything a pregnant woman drinks is carried in her blood to the fetus. Alcohol makes it difficult for the baby to get the oxygen and nourishment it needs for cell development. If a woman drinks during pregnancy, her baby may develop fetal alcohol syndrome (FAS). Children born with FAS may have physical problems and learning disabilities. Women who are pregnant, or want to become pregnant, should avoid using alcohol.

### Medicine and Other Drugs

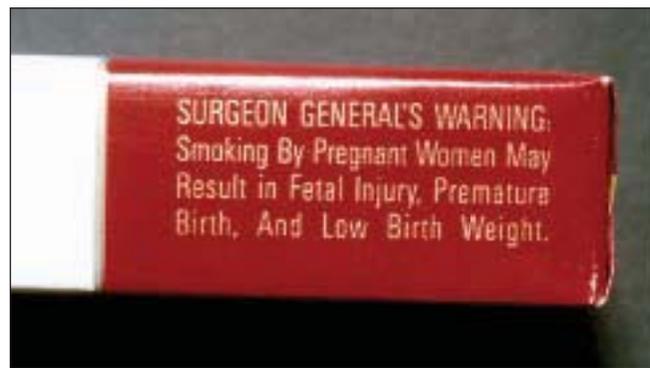
Medicines and other drugs affect both the mother and her baby. Pregnant women should take only medicines that are approved by a doctor or other health care provider. If a pregnant woman takes certain illegal drugs or prescription drugs, her baby may be born with a drug addiction.

### Infections

When a pregnant woman develops an infection, it can sometimes cause serious harm to the fetus. For example, if a woman develops Rubella (German measles) during pregnancy, her baby might be born deaf or suffer from other health problems. To avoid serious problems, women should be vaccinated against certain diseases before they become pregnant.



- ▶ Smoking during pregnancy can negatively affect a fetus's health. **What other behaviors during pregnancy affect the health of the unborn child?**



Robert Bremner/Photo Edit

## Tobacco

When a pregnant woman smokes or spends time around smokers, she risks damaging the health of her unborn child. Tobacco can have a negative effect on a fetus's growth and cause it to be born prematurely. Babies whose mothers smoke while pregnant are also at risk of having a low birth weight.

## STDs

Certain sexually transmitted diseases (STDs) can be passed from a mother to her fetus, causing serious health problems. Herpes and syphilis are two examples. A mother infected with herpes or syphilis may not even know it because there may be no visible symptoms. STDs can cause brain damage, blindness, and even death. A pregnant woman who thinks she might have an STD should talk to her doctor immediately.

**Go Online**

Visit [glencoe.com](http://glencoe.com) and complete the Interactive Study Guide for Lesson 2.

# Lesson 2 Review

## After You Read

Review this lesson for new terms, major headings, and Reading Checks.

### What I Learned

1. **Vocabulary** Define *prenatal care*.
2. **Identify** What are the structures in the nucleus of every cell that carry genetic information?
3. **Give Examples** List two substances that could harm a fetus if its mother uses them while she is pregnant.
5. **Apply** Cynthia's aunt just learned that she is pregnant. Cynthia knows that her aunt wants to do everything she can to have a healthy baby. What could Cynthia do to help her aunt stay healthy?

### Thinking Critically

4. **Analyze** Why should a pregnant female be concerned if she gets sick before she has her baby?

### Applying Health Skills

6. **Advocacy** Create a brochure that will encourage pregnant women to practice positive health behaviors during their pregnancies. Include actions they can take to stay healthy as well as behaviors they should avoid.



# Lesson 3

## From Childhood to Adolescence

### Guide to Reading

#### ● Building Vocabulary

In your own words, write the definition of each of the following terms. Check to see if you are correct as you read the lesson.

- developmental tasks (p. 460)
- infancy (p. 462)
- toddlers (p. 462)
- preschoolers (p. 462)
- puberty (p. 463)

#### ● Focusing on the Main Ideas

In this lesson, you will learn to

- **explain** Erikson's stages of life.
- **identify** some developmental tasks facing adolescents.
- **describe** the stages of childhood.
- **practice** stress management to help you cope with mood swings.

#### ● Reading Strategy

**Predicting** Look over the headings in this lesson. Write a question that you think the lesson will answer. When you are finished reading the lesson, see if your question has been answered.

### Quick Write

Make a list of all the ways you think adolescence is different from childhood.



### Stages of Development

From the day a baby is born, he or she begins to develop in all three areas of the health triangle. The process of developing from a baby to an adult is often explained in stages or steps. According to developmental psychologist Erik Erikson, there are eight stages in the human life cycle. Each stage has its own

**developmental tasks.** These are *events that need to happen in order for you to grow toward becoming a healthy, mature adult.* The eight stages of life and their developmental tasks are illustrated in **Figure 17.3.**

When people master the developmental tasks in one stage and move on to the next stage, they improve their emotional and social health. They build confidence and are able to relate to others.

- ◀ One developmental task of adolescence is to find and express your unique self. **What makes you unique?**



▼ FIGURE 17.3

## ERIKSON'S STAGES OF LIFE

In each stage, there is a developmental task that involves relating to other people. **What is the developmental task for late childhood?**



### 1 Infancy

Birth to 1 year

**Characteristic of stage:** child must depend on others to meet every need

**Developmental task:** learn to trust

### 2 Early Childhood

1 to 3 years

**Characteristic of stage:** child is learning to do things on his or her own

**Developmental task:** to develop the ability to do things for oneself

### 3 Middle Childhood

3 to 5 years

**Characteristic of stage:** child begins to make decisions and to think of and carry out tasks

**Developmental task:** to develop initiative—the ability to create one's own play

### 4 Late Childhood

6 to 12 years

**Characteristic of stage:** child explores surroundings and masters more difficult skills

**Developmental task:** to develop interest in performing activities

### 5 Adolescence

12 to 18 years

**Characteristic of stage:** adolescent searches for his or her own identity

**Developmental task:** to develop a sense of who one is



### 6 Early Adulthood (Young Adulthood)

18 to 40 years

**Characteristic of stage:** young adult tries to establish close personal relationships

**Developmental task:** to develop intimacy—a strong relationship with another person

### 7 Middle Adulthood

40 to 65 years

**Characteristic of stage:** adult focuses on accomplishment in workplace and is concerned with the well-being of others

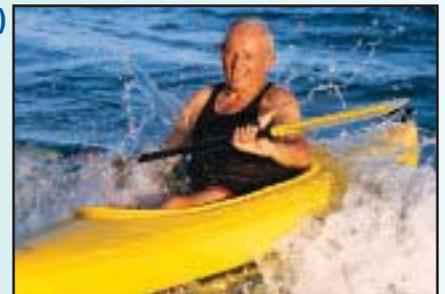
**Developmental task:** to develop the sense of having contributed to society

### 8 Late Adulthood (Maturity)

65 years to death

**Characteristic of stage:** person reflects on and tries to understand meaning of own life

**Developmental task:** to develop a sense of satisfaction with one's life



## Stages of Childhood

The physical and mental/emotional growth that occurs during childhood can be grouped into four stages. These stages are called infancy, early childhood, middle childhood, and late childhood.



**What Teens THINK**



**How have your friendships changed from elementary to middle school?**

Your friendships change in many ways. You begin to start new friendships with new people from different schools. You also lose friendships, but in the end you get some benefits and some losses from elementary to middle school.

Cambrielle H.  
Monument, CO



## Infancy

The first year of life is called **infancy**. During infancy, a child doubles in height and triples in weight. An infant begins to move around, explore, and observe the world. They do this by watching, listening, tasting, and touching. When an infant's needs are met in a loving and consistent way, he or she learns to trust people and feel safe.

## Early Childhood

**Toddlers** are children between the ages of one and three who are learning to walk and talk. Toddlers learn to do things on their own like feeding themselves and using the toilet. They can also walk, run, and climb on their own. As children explore and test their abilities, they learn a lot from their failures as well as their successes.



## Middle Childhood

Children between the ages of three and five are often called **preschoolers**. This age is a time of curiosity when children ask a lot of questions and use their imaginations. They often enjoy pretending to be adults, so how adults behave around them is important. Preschoolers need lots of encouragement and praise for trying new things. This praise helps them feel good about themselves and builds positive self-esteem. As preschoolers grow, they develop better physical coordination.

## Late Childhood

Between the ages of six and eleven, school becomes an important part of most children's lives. At this stage, children become stronger and more coordinated. This is a creative time, and many children put a lot of energy into artistic projects such as drawing and building.

## Adolescence

Adolescence is a time when you are no longer a young child, but are not yet an adult. It is the period between the ages of 12 and 18. During adolescence, you will experience many physical, mental/emotional, and social changes. These changes will help prepare you for adulthood.



## Physical Development

The second-fastest period of physical growth is adolescence. These physical changes are the result of puberty. **Puberty** is the time when you start developing physical characteristics of adults of your gender. Puberty usually starts between the ages of 8 and 14. Girls typically begin puberty earlier than boys do. However, each individual grows and develops at his or her own rate. So, it is important to respect your peers during this time of change. Many of the physical changes that males and females go through during puberty are listed in **Figure 17.4**. These changes are the result of hormones produced by the body's endocrine system.

**FIGURE 17.4**

### PHYSICAL CHANGES DURING PUBERTY

Males and females go through a variety of changes. **How are they similar and how are they different?**



Female	Both	Male
<ul style="list-style-type: none"> <li>• Female hormone production increases.</li> <li>• Breasts develop.</li> <li>• Hips get wider.</li> <li>• Uterus and ovaries enlarge.</li> <li>• Ovulation occurs.</li> <li>• Menstruation begins.</li> <li>• Body fat increases.</li> </ul>	<ul style="list-style-type: none"> <li>• Growth spurt occurs.</li> <li>• Acne may appear.</li> <li>• Perspiration increases.</li> <li>• Body hair appears.</li> <li>• Most permanent teeth have come in.</li> </ul>	<ul style="list-style-type: none"> <li>• Male hormone production increases.</li> <li>• Facial hair appears.</li> <li>• The voice gets deeper.</li> <li>• Shoulders broaden.</li> <li>• Muscles develop.</li> <li>• Sperm production begins.</li> <li>• Breasts can become tender and enlarged temporarily.</li> <li>• External genitals enlarge.</li> </ul>



# Health Skills Activity

## Stress Management

### Coping with Mood Swings

The mood swings you experience during your teen years can feel like you are on an emotional roller coaster. Below are some tips for dealing with mood swings in healthful ways.

- **Do something nice for yourself.** For example, listen to your favorite music or get together with a friend.
- **Be creative.** Write about what you are feeling or express your emotions through painting or another form of artwork.
- **Get moving.** Physical activities help the body stay in balance. They will also help take your mind off whatever is bothering you.
- **Get some help.** When you are sad or angry it is easy to feel alone. Talk to friends, family, or other trusted adults about what you are feeling.
- **Get some rest.** With all the changes going on in your body, extra rest can really help. Try taking a nap or just relaxing with a book or magazine.
- **Eat well.** Help your body through its many changes by eating nutritious foods.

### On Your Own

Create a poster for teens listing healthful ways to cope with mood swings. Include the tips described above and other suggestions you can think of. With permission, hang your posters where other students can see them.

## Emotional Development

Emotional changes are a normal part of adolescence. The hormones that control your physical growth and development can also affect your thoughts and feelings. You begin to think and act more independently. You are aware of how your opinions and actions affect others. You might have mood swings, where you are happy one minute and sad the next. Mood swings can be confusing and unpleasant, but they are a normal part of adolescence.

You cannot control your hormones or the emotional changes they cause. You can, however, control your response to these changes. Express your emotions in healthy ways. Talk about your feelings with others. Do activities that help you relax. Listen to music, play sports, take a walk, or spend time with family and friends. Managing your emotions in a healthy way will help you build strong emotional health.

## Social Development

As you make the transition from child to adult, you face developmental tasks. These tasks help you develop your self-concept, or the view you have of yourself. They also help you grow socially, by helping you relate to others in a positive way. As you master these developmental tasks, you are preparing for a successful transition to adulthood. Here are some of those tasks:

- Establish independence from your parents and other adults.
- Spend time alone and learn more about yourself.
- Consider what is important to you in life.
- Approach life like an adult, using your intelligence and reason to solve problems.
- Accept your body and its characteristics.
- Form mature relationships with people of both genders.
- Become interested in your community and show that you care about it.



### Reading Check

**Identify** What are two developmental tasks associated with adolescence?



Visit [glencoe.com](http://glencoe.com) and complete the Interactive Study Guide for Lesson 3.

## Lesson 3 Review



**Review this lesson for new terms, major headings, and Reading Checks.**

### What I Learned

1. **Vocabulary** Define *puberty*.
2. **Identify** What are the four main stages of childhood?
3. **Give Examples** List three physical changes that females experience during puberty, and three that males experience.

### Thinking Critically

4. **Analyze** Why is it important for adults to support and encourage children?
5. **Apply** Kottiya seems to be on an emotional roller coaster every day. She was

cheerful and talkative this morning, but she felt sad and grumpy at lunchtime. All of these emotions leave her feeling confused and worried. What advice would you give Kottiya to help her understand and cope with her mood swings?

### Applying Health Skills

6. **Analyzing Influences** Look at several teen magazines. In what ways do the articles, advertisements, and photos try to influence teens? Give an example of a positive influence and an example of a negative influence.



For more Lesson Review Activities, go to [glencoe.com](http://glencoe.com).

## Lesson 4

# Adulthood and Aging

## Guide to Reading

### Building Vocabulary

Chrono is the Greek word for “time.” Choose the term from the list below that you think describes a person’s age by the number of years lived. Write down what you think the definitions are for the other two terms. Check your definitions as you read.

- chronological age (p. 468)
- biological age (p. 468)
- social age (p. 468)

### Focusing on the Main Ideas

In this lesson, you will learn to

- **identify** the three stages of adulthood.
- **explain** the difference between chronological, biological, and social age.
- **describe** how to keep your health triangle in balance during your later years.

### Reading Strategy

**Organizing Information** Create a chart that is divided into three parts. Describe one of the stages of adulthood in each of the three parts.

## Quick Write

Pretend that you are an older person. Write a letter to the person you are now. What kinds of stories or advice would the older you want to share with the younger you?

## Stages of Adulthood

Like childhood, adulthood can be divided into stages. These stages are early, middle, and late adulthood. Each stage is marked by certain milestones such as starting a career, raising children, retiring, and so on. While many people go through these stages in a predictable way, some do not. For example, some adults choose to marry later in life or not at all. Some adults retire early, while others continue working as long as they can.

- For many people, establishing a career is an important part of early adulthood. **What do you think your goals will be when you reach early adulthood?**





## Early Adulthood

In early adulthood, many people are busy pursuing an education or training for a job or career. They may try several different jobs before they find something they enjoy doing. People form new interests and friendships during this stage. This is also the time when many people choose to get married and start a family. Some people, however, wait until middle adulthood to marry or have children.

## Middle Adulthood

At the beginning of this stage, many people are focused on advancing in their jobs. This could mean developing new skills or taking on more responsibility at work. This stage is also a time when many people are raising children. People in middle adulthood are often interested in contributing to their communities. They may volunteer to help young people or raise money for their favorite charity. As people move through middle adulthood, they may begin planning for retirement. Some people may even choose to retire early during this stage.

## Late Adulthood

This stage begins around age 65 when many people look forward to retiring from their jobs. When people retire, they often pursue interests they did not have time for while they were working or raising children. Some people continue to work during late adulthood and some pursue new careers. People at this stage may also choose to stay active by doing volunteer work or spending time with their grandchildren. Maintaining good health will help you stay active during late adulthood. Develop good eating and exercise habits now during your teen years. People who develop good habits early are more likely to stick with them later in life.



### Reading Check

**Compare** What is the difference between early and middle adulthood?

- ▶ Staying active and being involved with people of all ages is fun for everyone.  
**Can you think of other sports or activities that older and younger people can enjoy together?**



DEVELOPING

Good Character

### Respect

Older adults have a lot of wisdom and experience to share, even though their bodies may not move as fast as yours. You can show respect for older adults by listening and speaking in a polite manner. Make a list of topics you think would be interesting to discuss with older adults.

**What are some other ways to show respect to older adults?**





## Go Online

### Topic: Finding Common Ground

Visit [glencoe.com](http://glencoe.com) for Student Web Activities to learn more about how communities across the country are bringing seniors and teens together.

**Activity:** Using the information provided at the link above, create a proposal for a teen-senior program that brings teens and seniors together to benefit your community.

- ▼ When you stay active, biological age may be younger than chronological age. **How can actions as a teen affect your biological age as you reach late adulthood?**



## Measuring Age

Many older people will tell you they feel much younger than their years. As you get older, good health and a positive attitude can help you feel younger than you are. Age can be measured in three different ways:

- **Chronological** (krah·nuh·LAH·ji·kuhl) **age.** You learned earlier that *chrono* is the Greek word for “time.” Therefore, your **chronological age** is your *age measured in years*. It is the amount of time you have been living since you were born. You have no control over this number.
- **Biological age.** *Age determined by how well various body parts are working* is your **biological age**. It is affected by diet, exercise, and heredity, among other factors. If you make healthy choices throughout your life, your body will stay healthier longer. However, physical changes will occur naturally as your body ages—no matter how healthy you are.
- **Social age.** *Age measured by your lifestyle and the connections you have with others* is your **social age**. Social age has to do with the activities that society expects you to participate in at certain stages of life. For example, as a young child you were expected to grow, learn, and play. As an adult, you will be expected to work and perhaps contribute to your community. Some adults choose to delay entering the workforce or accepting other responsibilities. These people may have a younger social age than other adults of similar age.



### Reading Check

**Recall** What is social age?

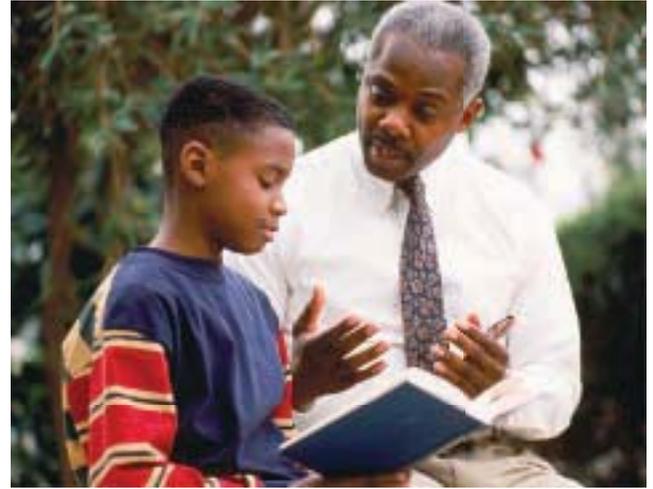
## Aging: A Positive Experience

Good health is an important part of the aging process. That is why older people need to pay attention to the health triangle, just as teens do. When adults are careful to keep all sides of their triangle in balance, they help to make their later years rewarding and productive. Here are some tips for keeping your health triangle balanced during late adulthood:

- **Physical health.** Older adults who take care of their physical health usually have a biological age that is younger than their chronological age. They may face fewer illnesses and disabilities that could prevent them from enjoying themselves.



- ▶ This adult is volunteering to help this child become a skilled reader. **How do they both benefit from this relationship?**



- **Mental and emotional health.** Staying mentally active is just as important as being physically active. Older adults who read, take classes, work, or volunteer are more likely to maintain good mental/emotional health.
- **Social health.** Being involved with other people is important to good social health. When older people stay in contact with family and friends, they are better able to cope with the challenges of aging.



### Reading Check

**Identify** Why is it important for older adults to keep their health triangles balanced?



Visit [glencoe.com](http://glencoe.com) and complete the Interactive Study Guide for Lesson 4.



## Lesson 4 Review



**Review this lesson for new terms, major headings, and Reading Checks.**

### What I Learned

1. **Vocabulary** Define *social age*.
2. **Compare and Contrast** How is chronological age different from biological age?
3. **Give Examples** List three things that adults are usually focused on during early adulthood.

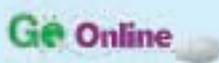
### Thinking Critically

4. **Analyze** How can developing good health habits as a teen affect your adult years?
5. **Apply** Stan thought he would spend all his time working in his garden when

he retired. After only a few months, however, he began to feel that gardening was not enough. He missed his friends at work, and he felt lonely. What would you suggest that Stan do to bring his health triangle into balance?

### Applying Health Skills

6. **Setting Goals** Choose a goal you would like to accomplish during your adulthood. Using the goal-setting process, develop a plan to achieve your goal. List the steps you can take now as a teen to help you reach this goal.



For more Lesson Review Activities, go to [glencoe.com](http://glencoe.com).

# Building Health Skills

Accessing Information

**Practicing Healthful Behaviors**

Stress Management

Analyzing Influences

Communication Skills

Refusal Skills

Conflict Resolution

Decision Making

Goal Setting

Advocacy

## Why Is It Important to Practice Healthful Behaviors?

When you practice healthful behaviors you take specific actions to stay healthy and avoid risky behaviors. This will help you prevent injury, illness, disease, and other health problems.

One way you can practice healthful behaviors is to learn to deal with the emotional ups and downs during puberty. You can deal with these changes by:

- recognizing what you are feeling and why.
- expressing your feelings in a healthful way.
- finding ways to relax.
- asking for help when you need it.

## Coping with the Highs and Lows of Puberty

Follow the Model, Practice, and Apply steps to help you master this important health skill.

### 1 Model

*Read how Theresa got some practical tips for coping with her changing emotions.*

Theresa has been experiencing a lot of highs and lows lately. One morning she woke up in a great mood. At school she felt tired and irritable. By early afternoon, she was feeling happy again. Her good mood lasted until after dinner.

The next day, Theresa talked to the counselor at school. She gave Theresa these practical tips for coping with her changing emotions:

1. Ask yourself what you are feeling and why. For example, I'm feeling irritable because I am sleepy and hungry.
2. Express what you are feeling. Try talking to someone, writing, painting, or dancing.
3. Find a way to relax. Try exercising, listening to music, or deep breathing.
4. Ask for help if you need it. Friends, family, and trusted adults are good resources.

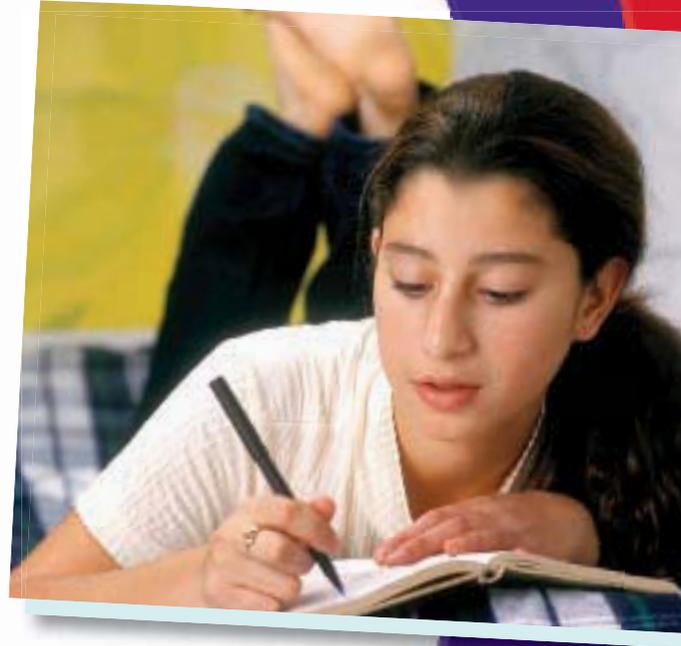


## 2 Practice

*Help Shiloh practice healthful behaviors so that she can cope with her emotions.*

Shiloh was having another roller-coaster day. She was feeling pretty good until she got to school and discovered that she had gotten a low grade on her English paper. This made her so upset that she ran to the bathroom and cried. She felt like her whole life was a mess.

1. What was Shiloh feeling, and why?
2. What steps can Shiloh take to cope with her changing emotions?
3. What are some healthful ways that Shiloh could express her feelings?
4. Where can Shiloh get help if she needs it?



## 3 Apply

*Apply what you have learned about practicing healthful behaviors when completing the activity below.*

Think of a day when your emotions seemed to change. Divide a piece of paper into four parts. Label the parts: morning, afternoon, early evening, and night.

1. Write the emotions you felt and their causes under each part.
2. Tell how you could express each emotion in a positive way.
3. On the back of your paper, list one way that would help you relax.
4. Write the name of someone who can help you when you need it.
5. Explain what mood changes are common during adolescence.

### Self-Check

- Did I identify what I was feeling and why?
- Did I tell how to express my emotions in a positive way?
- Did I list one way to relax?
- Did I name someone who can help?
- Did I explain why mood changes are common during adolescence?

# Secrets of a LONG LIFE

**Why do some people live long? One woman may have had the answer.**

**W**hat do you eat? Are you a non-smoker? Are you physically active? Do you have a healthy attitude? Do you keep stress under control? How about your genes—have your relatives lived long lives?

Scientists say responses to these questions can indicate how long a person will live. Here is the story of one woman who may have had all the right answers.

## **A Sharp Mind**

Verona Johnston was 114 when she died in December 2004. Until her death, she was the oldest documented person in the United States. *TIME* spoke with her a few months before she died about her secret of longevity.

“I can remember names pretty well,” said Johnston. She lived on her own until age 98 but then moved in with her daughter, Julie Johnston, 81. In fact, Verona Johnston’s mind was so sharp until her death, that she solved word jumbles in her head and remembered joke punch lines.

At 114, her vision was nearly gone, and she relied on a cane to take steps, but Johnston could still hear fairly well. Did she dwell on what age had taken away from her? “No. She was never a complainer,” says daughter Julie. That attitude may have had



Verona Johnston

much to do with Verona’s long life. Not to mention good genes and a whopping dose of good luck.

## **Small Portions Mean Big Paybacks**

Verona had always been big on moderation. At 114, her daily snack consisted of orange juice and exactly one cracker, one cinnamon-drop candy, and one cashew. “That’s enough,” she insisted.

Johnston never smoked. As for exercise, it was always part of her active lifestyle. Well into her 90s, she climbed up and down seven flights of stairs to her old apartment.

Verona knew how to roll with changes. “Electricity was the most important thing that happened to us,” she reflected. The computer was intimidating, but she gave it a whirl. For Verona, every day brought exciting surprises. That curiosity may have been just one more reason for her long and healthy life.

## Reading Review



Visit [glencoe.com](http://glencoe.com) to download quizzes and eFlashcards for Chapter 17.

**FOLDABLES® Study Organizer**

**Foldables® and Other Study Aids** Take out the Foldable® that you created for Lesson 1 and any graphic organizers that you created for Lessons 1–4. Find a partner and quiz each other using these study aids.

**Lesson 1 The Beginning of Life**

**Main Idea** The cell is the basic unit of life.

- Cells combine to form tissues, tissues combine to form organs, and organs work together to form body systems.
- Two sex cells, one female and one male, combine to create a fertilized cell that will develop into a baby.
- It takes about nine months for a fetus to develop into a full-grown baby inside the mother's uterus.
- Birth occurs in three stages. Contractions start and grow stronger as the cervix dilates until is large enough for the baby to be pushed out.

**Lesson 2 Heredity and Environment**

**Main Idea** Your growth and development are dependent upon heredity and environment.

- Chromosomes and genes carry the information that parents pass on to their children.
- A fetus's environment is its mother's uterus.
- Genetic disorders are problems caused when the genetic material is damaged or changed in some way.
- Birth defects can occur for several reasons, including: poor nutrition, alcohol

use, medicines or other drugs, infections, tobacco, and STDs.

- A pregnant female needs to take good care of her body.

**Lesson 3 From Childhood to Adolescence**

**Main Idea** Human beings go through stages as they develop from infants to adults.

- There are four stages of childhood: infancy, early childhood, middle childhood, and late childhood.
- The stages of development involve physical, mental/emotional, and social changes.
- Adolescence is a time of transition from child to adult.
- Puberty is the time during adolescence when your body changes to take on the physical characteristics of your gender.

**Lesson 4 Adulthood and Aging**

**Main Idea** Adulthood begins at age 18 and ends at death.

- Adulthood can be divided into three stages: early, middle, and late.
- Certain milestones, such as starting a career, raising children, or retiring, mark each stage of adulthood.
- All adults do not age at the same rate or in the same way.
- There are three ways to measure age: chronological, biological, and social.
- Older adults need to focus on all three sides of their health triangle in order to stay healthy and active.



## After You Read

## HEALTH QUIZ

Now that you have read the chapter, look back at your answers to the Health Quiz on the chapter opener. Would you change any of them? What would your answers be now?

## Reviewing Vocabulary and Concepts

On a sheet of paper, write the numbers 1–5. After each number, write the term from the list that best completes each statement.

- fetus
- sperm cell
- prenatal care
- uterus
- chromosomes
- obstetrician
- placenta
- umbilical cord
- cervix

### Lesson 1 The Beginning of Life

1. The \_\_\_\_\_ must unite with the egg cell in order for fertilization to occur.
2. In order for a baby to be born, the mother's \_\_\_\_\_ has to widen so the baby can pass through.
3. A baby develops in its mother's \_\_\_\_\_.

### Lesson 2 Heredity and Environment

4. When a woman becomes pregnant, she needs to see an \_\_\_\_\_ for regular check-ups.
5. Each parent contributes 23 \_\_\_\_\_ to create an embryo.



### Lesson 3 From Childhood to Adolescence

On a sheet of paper, write the numbers 6–7. After each number, write the letter of the answer that best completes each statement.

6. The time when a child doubles in height and triples in weight is \_\_\_\_\_.
  - a. early childhood
  - b. adolescence
  - c. infancy
  - d. late childhood
7. There are \_\_\_\_\_ stages of life according to scientist Erik Erikson.
  - a. eight
  - b. six
  - c. three
  - d. ten

### Lesson 4 Adulthood and Aging

On a sheet of paper, write the numbers 8–11. Write **True** or **False** for each statement below. If the statement is false, change the underlined word or phrase to make it true.

8. All adults age at the same time and in the same way.
9. Middle adulthood is when most people retire from their jobs.
10. The age determined by how well your body parts are working is your chronological age.
11. Volunteering is one way for older adults to build good mental/emotional health.



## Applying Technology

### Growing Games

You and a partner will use draw tools to create a game about growth and development.

- Using Microsoft Word®, open draw tools, and select a 2" square. Copy and paste that square 30 times, making a game board.
- Open a new Microsoft Word® document.
- Create two columns with 30 lines each. One column will contain questions. The other column will contain answers.
- Write 30 questions and 30 answers about the various topics discussed in this chapter.
- Edit for accuracy, clarity, and punctuation.

## Thinking Critically

Using complete sentences, answer the following questions on a sheet of paper.

- 12. Interpret** How might the environment inside a mother's uterus affect her baby's health?
- 13. Analyze** What are some ways an older adult can keep his or her health triangle balanced?

## Write About It

- 14. Expository Writing** Find out what organizations in your community pair teens and older adults. Then, write a short letter to the editor of your school paper describing these projects.

## Standardized Test Practice

### Reading

Read the passage and then answer the questions.

In addition to physical changes, puberty brings with it many emotional changes. During puberty, young people develop intense friendships, especially with members of the same sex. They care a lot about what other people think, and they want to be liked and accepted by their friends. Sometimes they may want to spend more time with friends and less time with family. This can be a difficult time of adjustment for parents and guardians, who are used to being the center of their child's life.

Many pre-teens feel anxious or self-conscious about the physical changes of puberty. This is especially true when they compare themselves with others. Young people need to be aware that while their friends may grow at different rates, they will eventually catch up with one another. During puberty, many parents also notice their child's moods change quickly and often. Although it can be frustrating, parents need to remember that these mood swings are normal and are probably related to changes in hormone levels in the body.

1. When young people go through puberty, they experience the following emotional changes *except*
  - A. They have intense friendships with members of the same sex.
  - B. They care deeply about what other people think.
  - C. They do not care if they are liked or not.
  - D. Sometimes they may want to spend more time with friends and less time with family.
2. During puberty, many parents may notice that their child's moods can
  - A. remain steady.
  - B. always be positive.
  - C. always be negative.
  - D. can change quickly and often.