

محاضرات مادة اللغة الانجليزية

الفصل الدراسي الثاني


السنة الثانية

(4)

## Lecture (5)

**Lesson 12** You Can Grow Plants from Seeds

**Before You Read**

 **Think about what you know.** Read the lesson title above. What do you predict the article will be about? What do you know about growing plants?

**Vocabulary**

The content-area and academic English words below appear in "You Can Grow Plants from Seeds." Read the definitions and the example sentences.

**Content-Area Words**

**conditions** (kən dīsh'ənz) things necessary for the appearance or happening of something  
*Example:* The rich, moist soil provided the perfect *conditions* for the plants to grow in.

**clay** (klā) a sticky material found in the earth that can be shaped when it is wet and that gets hard when it is dried or baked  
*Example:* In my art class, we made flowerpots out of *clay*.

**fertilizer** (fɜrt'əl ī'zər) nutrients added to the soil to help plants grow  
*Example:* The farmer spread *fertilizer* onto the field so that the plants would be healthy.

**sprout** (sprout) to begin to grow  
*Example:* Many plants *sprout* in the spring.

**roots** (rōōts) the part of a plant that grows downward into the soil and takes in water and food  
*Example:* The *roots* of large trees go deep into the ground.


**Academic English**

**consult** (kən sult') to seek advice or ideas from someone or something  
*Example:* You may *consult* a medical book for information about your health.

**select** (si lekt') to choose something from a group of choices  
*Example:* It can be difficult to *select* a meal from a large menu.

Rate each vocabulary word according to the following scale. Write a number next to each content-area and academic English word.

- 4 I have never seen the word before.
- 3 I have seen the word but do not know what it means.
- 2 I know what the word means when I read it.
- 1 I use the word myself in speaking or writing.

 **Dictionary** Now skim the article and look for other words that are new to you. Write each new word and its definition in the Personal Dictionary.

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## While You Read

**Tip!** Think about why you read. Have you ever planted seeds or grown different kinds of plants? As you read, think about what kinds of plants you would grow where you live.

## You Can GROW Plants from Seeds

Gardening, or growing and caring for plants, can be interesting and fun. Some helpful steps can make it easier to grow seeds in a garden.

*Step 1:* Find out which plants grow best where you live. For example, some plants that grow well in California cannot grow in Michigan. Ask some good gardeners which plants grow well for them. **Consult** gardening books for ideas. Make a list of interesting plants that grow well in your area. Next to the name of each plant, write down the **conditions** in which it needs to grow.

*Step 2:* Think about the growing conditions in your garden. Is the dirt (or soil) light and sandy or heavy and full of **clay**? How much sunshine does the garden receive? **Select** plants from the list that need the kind of soil and the amount of sunshine the garden has. For example, impatiens are flowers that grow best in shade, or places that sunlight does not reach. Geraniums are flowers that grow best with sunlight shining on them most of the day.

*Step 3:* Buy fresh seeds that should be planted this year.

*Step 4:* Know the best time of the year to plant. In some southern states, you can plant anytime during the year. In northern states, you should plant in the spring—as soon as it is warm enough and there is little danger of frost. Cold temperatures could cause your plants to freeze. In places where warm, sunny weather does not last very long, plant the seeds indoors in cups of soil. Then place the cups near a sunny window. Vegetables such as tomatoes and peppers, as well as flowers such as zinnias and marigolds, can be grown for a few weeks indoors. They can be transplanted, or moved and put into the ground outdoors, when the weather gets warmer.

*Step 5:* Prepare the garden for planting by breaking up clumps of dirt. Mix **fertilizer** into the soil. Then rake the ground so that it is smooth.

*Step 6:* Plant the seeds in rows. Read the directions on the seed packages to find out how deep into the soil and how far apart the seeds should be.

*Step 7:* Use a small amount of water to keep the soil moist, or slightly wet, until the seeds **sprout**. Then water the plants as often and as much as they need it. For example, zinnias do not need to be watered very often. They need to be watered heavily, however, so that the water can reach down to the deepest **roots**. Other plants, such as begonias, need to be watered lightly every two days. As the plants grow, pull out any nearby weeds, or plants that grow where you do not want them to grow.

*Step 8:* To help new flowers bloom, cut off the old flowers when they have finished blooming and begin to look faded, or less colorful.

### CONTENT CONNECTION

This article tells you in steps how to plant a garden. Steps are instructions that explain what to do in a set order. Where have you seen numbered steps before?

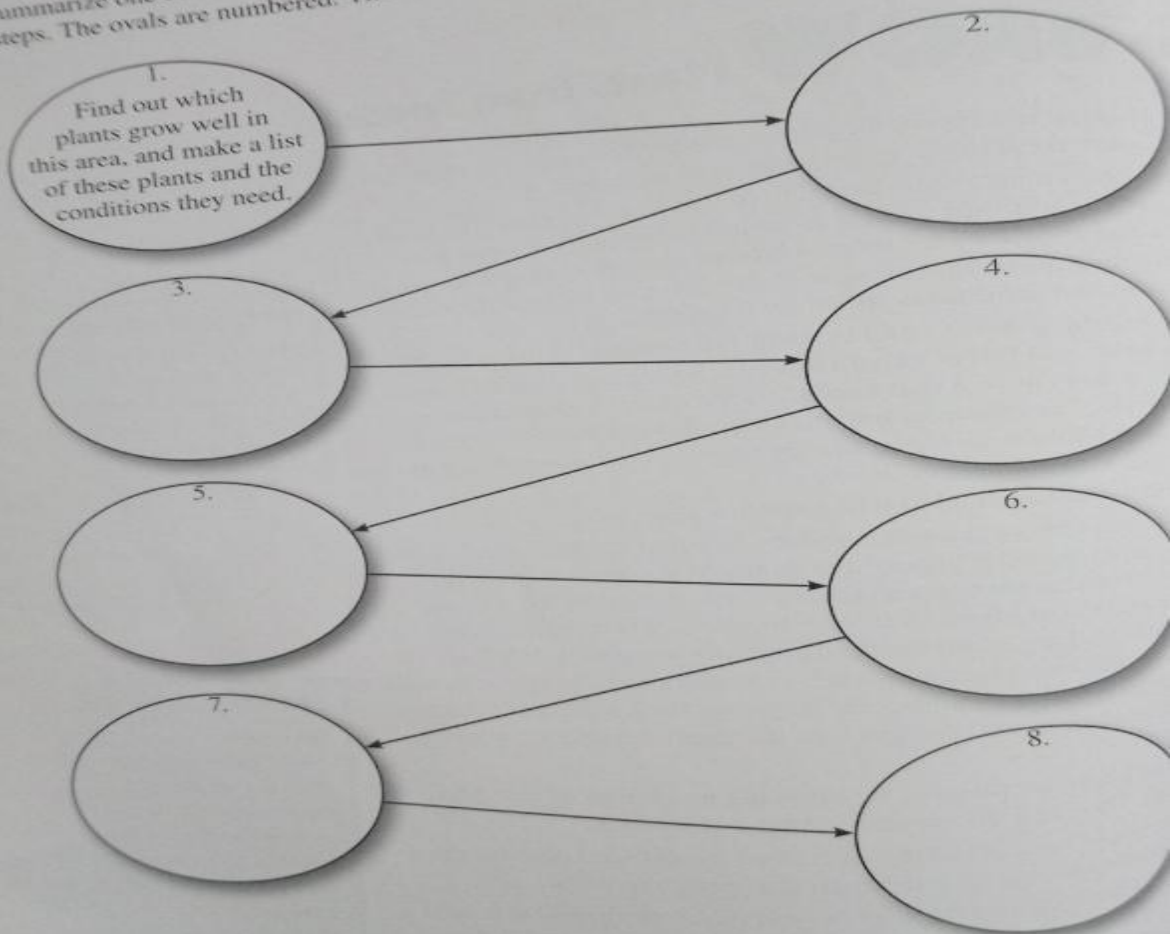
### LANGUAGE CONNECTION

The word *transplanted* means "moved from one place to another place." Doctors transplant organs, such as a heart or a kidney, from one person to another. Gardeners transplant plants from pots to the ground outside. Have you heard the word *transplant* before?

## After You Read

### A. Organizing Ideas

How do you grow your own plants? Complete the web below. In each oval, summarize one of the eight steps for growing plants. Refer to the article to find the steps. The ovals are numbered. The first one has been done for you.



What did you learn about the process of growing plants from completing the web? Write two or more sentences about what you learned. Is it easier for you to read directions in text or in a web? Explain your answer.

## B. Comprehension Skills



**Tip!** Think about how to find answers. Think about what each sentence means. Try to say it to yourself in your own words before you complete it.

Mark box **a**, **b**, or **c** with an **X** before the choice that best completes each sentence.

### Recalling Facts

- A good way to find out which plants will grow best in a garden is to
  - a. plant many kinds of seeds and see which ones grow well.
  - b. ask gardeners in the neighborhood.
  - c. make a list of the plants you like.
- Important conditions in a garden include everything except
  - a. the type of soil.
  - b. the age of garden tools.
  - c. the amount of sunshine.
- In the northern states, seeds should be planted
  - a. in dry soil.
  - b. at many times of the year.
  - c. in the spring, as soon as it is warm enough.
- Before seeds have sprouted, gardeners should
  - a. keep the soil moist at all times.
  - b. water the soil every two days.
  - c. water the soil heavily once a week.
- When seeds are planted indoors in cups of soil, the cups should be put
  - a. on a table in the middle of a room.
  - b. in a warm, dark basement.
  - c. near a sunny window.

### Understanding Ideas

- To grow plants from seeds, it is most important for a gardener to
  - a. plant them in rows.
  - b. start growing them in cups.
  - c. choose plants that grow well where the gardener lives.
- In a place that is warm all year, gardeners
  - a. can plant seeds outside anytime.
  - b. should plant seeds only in the spring.
  - c. must plant seeds inside first and then later move the plants outside.
- From the article, you can conclude that seeds, in order to sprout, must have
  - a. expensive fertilizers.
  - b. shelter from the wind.
  - c. water and warmth.
- You can also conclude that the word *transplanted*, as it is used in the article, means
  - a. "moved a plant from a pot to a garden."
  - b. "added pollen to a plant."
  - c. "put seeds into a garden."
- A gardener who plants seeds outdoors in October probably lives in
  - a. Michigan.
  - b. California.
  - c. Alaska.

## C. Reading Strategies

### 1. Recognizing Words in Context

Find the word *clumps* in the article. One definition below is closest to the meaning of that word. One definition has the opposite or nearly the opposite meaning. The remaining definition has a meaning that has nothing to do with the other two words. Label the definitions **C** for *closest*, **O** for *opposite* or *nearly opposite*, and **U** for *unrelated*.

- a. rows of plants
- b. lumps of something stuck together
- c. loose material

### 2. Distinguishing Fact from Opinion

Two of the statements below present *facts*, which can be proved. The other statement is an *opinion*, which expresses someone's thoughts or beliefs. Label the statements **F** for *fact* and **O** for *opinion*.

- a. Zinnias are more colorful than marigolds.
- b. The right time to plant seeds varies throughout the United States.
- c. Some plants grow best in sunlight, and some grow best in shade.

### 3. Making Correct Inferences

Two of the statements below are correct *inferences*, or reasonable guesses, that are based on information in the article. The other statement is an incorrect, or faulty, inference. Label the statements **C** for *correct* inference and **I** for *incorrect* inference.

- a. The roots of a plant grow downward into the soil.
- b. Weeds that are not pulled may get in the way of other plants.
- c. It is fine to plant tomatoes anytime, anywhere.

### 4. Understanding Main Ideas

One of the statements below expresses the main idea of the article. Another statement is too general, or too broad. The other explains only part of the article; it is too narrow. Label the statements **M** for *main idea*, **B** for *too broad*, and **N** for *too narrow*.

- a. Begonias need to be watered lightly every two days—unlike zinnias, which need to be watered less often.
- b. A successful garden needs the right seeds and proper conditions in prepared soil.
- c. Gardening is easy if plants have what they need.

### 5. Responding to the Article

Complete the following sentences in your own words:

One of the things I did best while reading "You *Can* Grow Plants from Seeds" was

I think that I did this well because \_\_\_\_\_

## D. Expanding Vocabulary

### Content-Area Words

Complete each sentence with a word from the box. Write the missing word on the line.

fertilizer   clay   roots   sprout   conditions

1. Before you plant seeds, know what \_\_\_\_\_ they need in order to grow.
2. If soil has too much \_\_\_\_\_ in it, plants may not grow well.
3. If growing plants cannot get all the nutrients they need from the soil, they may need \_\_\_\_\_.
4. It may take only a few days for seeds to \_\_\_\_\_.
5. If you break the \_\_\_\_\_ of a plant, it may not be able to take in water.

### Academic English

In the article "You Can Grow Plants from Seeds," you learned that *consult* means "to seek advice or ideas from someone or something." *Consult* can describe seeking advice from a book. *Consult* can also describe seeking advice or ideas from people or from other places, as in the following sentence.

*I could consult my grandfather about life during the 1930s.*

Complete the sentence below.

1. If you have questions about your schoolwork, you might *consult* \_\_\_\_\_.

Now use the word *consult* in a sentence of your own.

2. \_\_\_\_\_

You also learned that *select* is a verb that means "to choose something from a group of choices." *Select* can also be an adjective that means "of special value or excellence," as in the following sentence.

*Only a select few were permitted to attend the performance.*

Complete the sentence below.

3. The apples sent as a gift were of *select* \_\_\_\_\_.

Now use the word *select* in two sentences of your own.

4. \_\_\_\_\_
5. \_\_\_\_\_



Share your new sentences with a partner.

# Lesson 13

## A Meal of Wild Forest Plants

### Before You Read

**Tip!** Think about what you know. Read the title and first two sentences of the article on the opposite page. Have you ever seen a movie or read a story about someone who survived in the forest alone? What did the person eat?

### Vocabulary

The content-area and academic English words below appear in "A Meal of Wild Forest Plants." Read the definitions and the example sentences.

#### Content-Area Words

- clover** (klō'vər) plants that have small green leaves that have three or four parts  
*Example:* In one part of the forest, the ground is covered with green *clover*.
- tubers** (tōō'bərz) large, fleshy parts of underground roots that store food for a plant  
*Example:* Potatoes are *tubers* that are delicious to eat.
- acorns** (ā'kōrnz) nuts that grow on oak trees and are partly covered by a woody cup  
*Example:* Squirrels store *acorns* to eat in the winter.
- bitter** (bit'ər) having a sharp, unpleasant taste  
*Example:* Fruit that is not ripe often has a *bitter* taste.
- thorns** (thōrnz) short, sharp points on the stem or branches of a plant  
*Example:* Rosebushes have beautiful flowers but sharp *thorns*.

#### Academic English

- extract** (iks trakt') to take something out of something else  
*Example:* It can be difficult to *extract* one chemical from a mixture.
- expert** (eks'pərt) someone who knows a great deal about a subject  
*Example:* A doctor is an *expert* on health and the body.

Answer the questions below. Circle the part of each question that is the answer. The first one has been done for you.

1. Do *acorns* grow on a tree or under the ground?
2. Is *clover* a fruit with seeds or a plant with leaves?
3. If you wanted to talk to an *expert* on animals, would you call a musician or a veterinarian?
4. If you wanted to taste something *bitter*, would you try a green banana or a piece of cake?
5. If doctors need to *extract* something from inside the body, would they perform surgery or take an X-ray?
6. Would you find *tubers* under the ground or inside a fruit?
7. Would *thorns* make a plant sweet to eat or dangerous to touch?



Now skim the article and look for other words that are new to you. Write each new word and its definition in the Personal Dictionary.



## While You Read

**Think about why you read.** Have you ever eaten wild forest plants? Do you know which plants are safe to eat? As you read, look for four kinds of plants that are safe for people to eat.

### A Meal of Wild Forest Plants

Many wild plants in the United States are edible, which means that we can eat them. The part of the plant that we can eat depends on the type of plant. Some plants have underground roots that are edible. Other edible plant parts may include the stems, leaves, seeds, or even flowers. Edible plants grow at different times of the year and in different places. You could make a whole meal of forest plants. In autumn this meal might include watercress salad, arrowhead soup, acorn bread, and gooseberry pie. You would need to find watercress leaves, arrowhead roots, acorns, and gooseberries to make this meal.

Watercress grows in wet places, such as springs (places where water comes out of the ground) or the edges of rivers. To find this plant, a person would look for large areas of leaves that look like **clover** and are attached to tall reddish stalks, or stems. These stalks should be growing sideways in water. Watercress roots are white, and the small, four-petal flowers can be white or yellow. You can eat watercress raw, or without cooking it, in a salad or cooked with steam, like spinach.

A person looking for arrowhead roots would probably wear old clothes, because this is a dirty job. The arrowhead plant grows in mud near ponds and rivers. To find this plant, a person would look for a plant with arrow-shaped leaves and flowers that have three round white petals. The flowers grow on a single stem. In the fall, arrowhead roots grow potatolike **tubers** that taste good with wild onions in soups. Arrowhead tubers grow about 30 centimeters (12 inches) below the ground and about 1 meter (3¼ feet) from the stalk of the plant. You can use gardening tools, such as rakes or shovels, to find them in the mud.

In early autumn, **acorns** fall from oak trees. A substance called tannin makes the acorns taste **bitter**. After you take the shells off the acorns, you need to soak them in water for a few days or cook them in boiling water a few times to **extract** the tannin. When the acorns are not bitter anymore, you can bake them in an oven and grind, or smash, them to make flour for bread.

Gooseberries grow in open areas of the forest. Gooseberries are small and round. They can be white, red, yellow, or green. They grow on small bushes, or shrubs, and they become ripe and ready to eat in autumn. To be sure that a shrub is really a gooseberry shrub, look for **thorns**. Also, look for hand-shaped leaves that look like they have three or five fingers. You can bake the berries of the gooseberry shrub in a pie.

Only a person who is an **expert** on wild plants should find them for meals. Some poisonous wild plants look like edible plants, but poisonous plants can make you very sick if you eat them. Sometimes poisonous plants can even cause death.

#### LANGUAGE CONNECTION

Autumn is one of the four seasons. *Autumn* is a synonym for *fall*, which means that the two words have about the same meaning. Can you name the other three seasons?

#### CONTENT CONNECTION

Have you ever picked up an acorn in the fall? Some animals, such as squirrels, pick up fallen acorns and save them to eat during the winter. Have you ever seen a squirrel carrying an acorn in its mouth?

## After You Read

### A. Organizing Ideas

What forest plants are edible? Complete the chart below. Fill in the missing information about the four edible plants you read about. Use the article to help you. Some have been done for you.

Edible Plant	Description	Location	How to Eat It
watercress			
			in arrowhead soup
		grow on oak trees	
	small berries on shrubs; berries can be white, red, yellow, or green; shrubs have hand- shaped leaves with 3 or 5 "fingers"		

Could you make a meal of wild forest plants? Choose one of the plants in the chart. Write two or more sentences about what you would do to find the plant and make food from it. Did the chart help you decide what you would do? Why or why not?

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## B. Comprehension Skills

**Tip!** Think about how to find answers. Read each sentence below. Underline the words that will help you figure out how to complete each item.

Mark box a, b, or c with an **X** before the choice that best completes each sentence.

### Recalling Facts

- Edible plants are plants that
  - a. we can eat.
  - b. we cannot eat.
  - c. are poisonous.
- An edible plant that grows in springs or along rivers is
  - a. a cactus.
  - b. an apple.
  - c. watercress.
- An edible potato-like tuber that grows in the mud is
  - a. a pumpkin.
  - b. a gooseberry.
  - c. an arrowhead root.
- Oak trees produce
  - a. acorns.
  - b. pine nuts.
  - c. arrowhead roots.
- Small round gooseberries grow
  - a. on shrubs with thorns.
  - b. on large trees with no thorns.
  - c. on underwater stalks with no leaves.

### Understanding Ideas

- A tuber is a
  - a. tall stalk.
  - b. large leaf.
  - c. thick root part.
- To find an edible plant, you need to know where the plant grows and
  - a. how it tastes.
  - b. what it looks like.
  - c. how it is cooked.
- Because of the bitter tannin in acorns, you should
  - a. never eat them.
  - b. handle them carefully.
  - c. soak or boil them before eating.
- A person living in the wild who knew about edible plants would probably
  - a. go hungry.
  - b. have many plants to eat all year.
  - c. have few plants to eat in only one season of the year.
- From the article, you can conclude that a meal of wild plants
  - a. is dangerous.
  - b. is not possible.
  - c. is possible if you know what to look for.

## C. Reading Strategies

### 1. Recognizing Words in Context

Find the word *poisonous* in the article. One definition below is closest to the meaning of that word. One definition has the opposite or nearly the opposite meaning. The remaining definition has a meaning that has nothing to do with the other two words. Label the definitions **C** for *closest*, **O** for *opposite or nearly opposite*, and **U** for *unrelated*.

- \_\_\_ a. helpful
- \_\_\_ b. grateful
- \_\_\_ c. harmful

### 2. Distinguishing Fact from Opinion

Two of the statements below present *facts*, which can be proved. The other statement is an *opinion*, which expresses someone's thoughts or beliefs. Label the statements **F** for *fact* and **O** for *opinion*.

- \_\_\_ a. Acorns are the nuts of oak trees.
- \_\_\_ b. Gooseberries taste better than strawberries.
- \_\_\_ c. Poisonous plants may look like edible plants.

### 3. Making Correct Inferences

Two of the statements below are *correct inferences*, or reasonable guesses, that are based on information in the article. The other statement is an *incorrect, or faulty, inference*. Label the statements **C** for *correct inference* and **I** for *incorrect inference*.

- \_\_\_ a. Watercress is more similar to spinach than it is to potatoes.
- \_\_\_ b. You might trip over arrowhead roots as you walk next to a river.
- \_\_\_ c. If you see a shrub with leaves shaped like hands, it could be a gooseberry shrub.

### 4. Understanding Main Ideas

One of the statements below expresses the main idea of the article. Another statement is too general, or too broad. The other explains only part of the article; it is too narrow. Label the statements **M** for *main idea*, **B** for *too broad*, and **N** for *too narrow*.

- \_\_\_ a. Many wild plants are edible.
- \_\_\_ b. Although many wild plants have edible parts, people must be able to tell which plants are safe before eating them.
- \_\_\_ c. People can use acorns to make flour, but first they need to extract the bitter tannin.

### 5. Responding to the Article

Complete the following sentences in your own words:

One of the things I did best while reading "A Meal of Wild Forest Plants" was

I think that I did this well because \_\_\_\_\_

# Lesson 14

## Precipitation

### Before You Read



**Think about what you know.** Read the title and the first two sentences of the article on the opposite page. What do you already know about the different kinds of precipitation?

### Vocabulary

The content-area and academic English words below appear in "Precipitation." Read the definitions and the example sentences.

#### Content-Area Words

**atmosphere** (at'məs fēr') the gases or air that surrounds Earth or any other planet  
*Example:* Earth's *atmosphere* contains oxygen that people breathe in.

**moisture** (mois'chər) water or other liquid in the air  
*Example:* Rain is *moisture* that falls from clouds.

**crystals** (krist'əlz) minerals, with patterns and flat surfaces, that are often clear and transparent  
*Example:* Snowflakes are *crystals* of ice that fall from the sky.

**humidity** (hū mid'ə tē) moisture or dampness of the air that is caused by water vapor  
*Example:* On very hot days, *humidity* in the air can make the skin feel sticky.

**currents** (kur'ənts) directed flows of air, water, or electricity  
*Example:* A fan blows *currents* of air into or around a room.

#### Academic English

**attach** (ə tach') to connect or put together  
*Example:* You can use paper clips to *attach* several pieces of paper.

**potentially** (pə ten'shə lē) in a way that seems possible  
*Example:* Lightning is *potentially* dangerous.

Complete the sentences below that contain the content-area and academic English words above. Use the spaces provided. The first one has been done for you.

- Ocean *currents* flow in many directions.
- Walking on slippery ice is *potentially* \_\_\_\_\_.
- Too much water in the *atmosphere* could result in \_\_\_\_\_.
- Crystals* that have no color are \_\_\_\_\_.
- To *attach* an essay to note cards, you could use \_\_\_\_\_.
- Hail and snow are forms of *moisture* that are \_\_\_\_\_.
- Without enough *humidity*, the air will feel \_\_\_\_\_.



Now skim the article and look for other words that are new to you. Write each new word and its definition in the Personal Dictionary.

## While You Read

**Tip!** Think about why you read. Have you seen all of the different kinds of precipitation? What causes different types of precipitation? As you read, look for the answer.

### Precipitation

Any water that falls through the **atmosphere** is called precipitation. This water can come down in different ways, such as rain, snow, hail, and sleet.

We know rain as drops of water that fall from clouds. Warm air picks up tiny drops of **moisture** from Earth's oceans, lakes, rivers, and streams. This moisture is called water vapor. Warm air tends to rise; as it rises, it gets cooler. Since cool air cannot hold as much moisture as warm air can, the water vapor will **attach** to tiny pieces of dirt, dust, or pollen from plants and form small drops, or droplets. These droplets form clouds. As more and more water vapor sticks to the droplets, they become too heavy to float in the air, and they fall as rain.

If the temperature is very cold, the water vapor freezes around the bits of dust or pollen and forms **crystals**. As more and more water vapor freezes onto the crystals, they grow into snowflakes. When the snowflakes get heavy enough, they fall to the ground.

All snow crystals are symmetrical, or have two identical halves. This means that if the crystal were cut in half, each half would be exactly the same. A single snowflake can be made of up to two hundred crystals. Snow crystals have four basic shapes. One looks like a long needle, like one with which you would sew a button on a shirt. This type of crystal forms very high up in the atmosphere, where the air is coldest. The other three shapes are hexagons; that is, they have six sides. One hexagon shape looks like a hollow pole. Another looks flat. The third looks like a star. A crystal gets its shape from the temperature and **humidity** that are part of the air while the crystal forms.

Hail is balls of ice, called hailstones, that form in layers. Inside storm clouds are wind **currents** that flow upward. These winds carry water droplets up to colder air, where they freeze into tiny pieces of ice. As the pieces of ice begin to fall, the wind currents may push them back up again. Layers of ice are added to these ice pieces until they turn into ice balls. When these balls become too heavy for the winds to lift them, they fall to the ground as hailstones. Most hailstones are smaller than a marble, but some can be much larger.

Sleet forms when rain moves through very cold air near the ground and becomes partly frozen. Sleet can cover car windows, telephone wires, and roads. The icy coating formed in this way can make roads **potentially** dangerous.

#### CONTENT CONNECTION

No two snowflakes are alike. Each is unique, or unlike any other. Have you ever seen a picture of a snowflake that shows its amazing shape?

#### LANGUAGE CONNECTION

Hexagon comes from the Greek word root *hex*, which means "six." A hexagon has six sides. Can you draw one?

## After You Read

### A. Organizing Ideas

What are the different forms of precipitation? Complete the chart below. Write a brief definition of each type of precipitation. Then list two important facts about each kind of precipitation. Refer to the article to help you. Some parts have been done for you.

Rain	Snow	Hail	Sleet
			partly frozen moisture that falls from the sky
Fact 1: Rain begins to form when warm air picks up tiny drops of moisture from Earth.  Fact 2:	Fact 1:  Fact 2: All snowflakes are symmetrical.	Fact 1: Hailstones are balls of ice that are formed in layers.  Fact 2:	Fact 1:  Fact 2:

What are the main differences in conditions that cause the types of precipitation? Write two or more sentences about the differences. Did you think the chart helped you to find the differences? In what way?

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## B. Comprehension Skills



**Think about how to find answers.** Look back at what you read. The information is in the text, but you may have to look in several sentences to find it.

Mark box **a**, **b**, or **c** with an **X** before the choice that best completes each sentence.

### Recalling Facts

- Precipitation is any
  - a. wind that carries water vapor.
  - b. group of clouds high in the atmosphere.
  - c. kind of water that falls through the atmosphere.
- Rain is made up of
  - a. drops of water that freeze.
  - b. drops of water that melt.
  - c. droplets of water vapor that form a cloud.
- Three of the types of ice crystals
  - a. are shaped like needles.
  - b. are six-sided and symmetrical.
  - c. have liquid water trapped inside them.
- Hail is made up of
  - a. balls of ice that are formed in layers.
  - b. clumps of snowflakes.
  - c. fog that freezes.
- Sleet forms when
  - a. rain hits very cold air near the ground and becomes partly frozen.
  - b. air near the ground can hold no more water vapor.
  - c. snow melts in a cloud.

### Understanding Ideas

- From the article, you can conclude that
  - a. water moves from Earth into the atmosphere and back to the ground again.
  - b. ocean water is beginning to dry up.
  - c. lakes are made of water vapor.
- You can also conclude that all forms of precipitation do not
  - a. fall from clouds.
  - b. have about the same temperature.
  - c. contain bits of dust and pollen.
- Very high clouds are likely to be made of
  - a. air and gases.
  - b. ice crystals.
  - c. sleet.
- If hail the size of golf balls began to fall, you would know that
  - a. the hail formed in clouds with very strong upward wind currents.
  - b. wind pushed hailstones together as they fell from the sky.
  - c. huge hailstones exploded high in the atmosphere.
- Tree branches are most likely to break when they are covered with a large amount of
  - a. snow.
  - b. rain.
  - c. sleet.



## C. Reading Strategies

### 1. Recognizing Words in Context

Find the word *partly* in the article. One definition below is closest to the meaning of that word. One definition has the opposite or nearly the opposite meaning. The remaining definition has a meaning that has nothing to do with the other two words. Label the definitions **C** for *closest*, **O** for *opposite or nearly opposite*, and **U** for *unrelated*.

- a. completely
- b. somewhat or sort of
- c. inclined to be fat

### 2. Distinguishing Fact from Opinion

Two of the statements below present *facts*, which can be proved. The other statement is an *opinion*, which expresses someone's thoughts or beliefs. Label the statements **F** for *fact* and **O** for *opinion*.

- a. One snowflake may be made of up to two hundred ice crystals.
- b. Cool air cannot hold as much moisture or water vapor as warm air can.
- c. Hail can damage cars more than sleet can.

### 3. Making Correct Inferences

Two of the statements below are correct *inferences*, or reasonable guesses, that are based on information in the article. The other statement is an incorrect, or faulty, inference. Label the statements **C** for *correct* inference and **I** for *incorrect* inference.

- a. Large hailstones have many layers of ice on them.
- b. Earth's oceans and lakes supply the water that falls down as rain.
- c. Sleet is made of melting snow crystals.

### 4. Understanding Main Ideas

One of the statements below expresses the main idea of the article. Another statement is too general, or too broad. The other explains only part of the article; it is too narrow. Label the statements **M** for *main idea*, **B** for *too broad*, and **N** for *too narrow*.

- a. The forms of precipitation we call snow, rain, hail, and sleet each form in a different way.
- b. Wind currents flow upward within storm clouds, and this causes hail to form.
- c. Water falls through the atmosphere in many forms.

### 5. Responding to the Article

Complete the following sentence in your own words:

One thing in "Precipitation" that I cannot understand is

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## D. Expanding Vocabulary

### Content-Area Words

Read each item carefully. Write on the line the word or phrase that best completes each sentence.

- Rain, sleet, snow, and hail that fall through Earth's atmosphere are \_\_\_\_\_  
weather                  precipitation                  storms
- Warm air that picks up moisture from a lake is called \_\_\_\_\_  
water bottle                  water cloud                  water vapor
- There are \_\_\_\_\_ basic types of snow crystals.  
four                  three                  five
- \_\_\_\_\_ and humidity cause the shape of a snow crystal.  
Temperature                  Hail                  Weight
- Wind currents flow \_\_\_\_\_ within storm clouds.  
sideways                  upward                  downward

### Academic English

In the article "Precipitation," you learned that *attach* means "to connect or put together." *Attach* can relate to how water vapor connects to tiny items in the air to make rain. *Attach* can also mean "to connect in ties of affection," as in the following sentence.

*A puppy may attach itself to a human being as it would to its mother.*

Complete the sentence below.

- The members of a family *attach* themselves to \_\_\_\_\_

Now use the word *attach* in a sentence of your own.

- \_\_\_\_\_

You also learned that *potentially* means "in a way that seems possible." *Potentially* can relate to possible dangers. *Potentially* can also relate to positive things that are possible, as in the following sentence.

*Eating citrus fruits could potentially protect sailors from scurvy.*

Complete the sentence below.

- Farmers look for clouds in the sky that might *potentially* \_\_\_\_\_

Now use the word *potentially* in two sentences of your own.

- \_\_\_\_\_

- \_\_\_\_\_



Share your new sentences with a partner.

# Lesson 15

## Climate and the Change of Seasons

### Before You Read



**Tip!** Think about what you know. Read the lesson title above. What do you know about the seasons that occur where you live? Do you know of a place where the seasons are different?

### Vocabulary

The content-area and academic English words below appear in "Climate and the Change of Seasons." Read the definitions and the example sentences.

#### Content-Area Words

- humid** (hū'mid) moist or damp because of water in the air  
Example: The humid air makes my clothes feel damp.
- tropics** (trɒp'iks) hot, sunny areas near the equator  
Example: You would not need a winter coat if you lived in the tropics.
- poles** (pōlz) the north and south ends of Earth's axis  
Example: The climate is very cold at Earth's poles.
- season** (sē'zən) one of four times of the year that have different weather conditions  
Example: Summer is my favorite season because it is warm.
- angle** (ang'gəl) a shape formed by two lines that come from the same point  
Example: You can bend your arm to form an angle at the elbow.

#### Academic English

- contrast** (kɒn'trast) a difference between two or more things  
Example: I felt the contrast between the warmth inside and the cold outside.
- occupy** (ɒk'yə pi) to live in or be in a place  
Example: Many people occupy the neighborhoods in large cities.

Rate each vocabulary word according to the following scale. Write a number next to each content-area and academic English word.

- 4 I have never seen the word before.
- 3 I have seen the word but do not know what it means.
- 2 I know what the word means when I read it.
- 1 I use the word myself in speaking or writing.



Now skim the article and look for other words that are new to you. Write each new word and its definition in the Personal Dictionary.

### While You Read

**TIP!** Think about why you read. Do you know why some places have different seasons? As you read, try to find the answer.

## Climate and the Change of Seasons

1 Some parts of the United States have different weather during different times of the year. Cold and snowy winters may change to hot and humid summers. In other parts of the country, it is warm all year. In the **tropics**, near the equator, it is always hot. In **contrast**, it is always cold at Earth's **poles**. These places have different climates, or usual weather patterns for an area. The most important reason for the different climates is the tilt, or slant, of Earth's axis as Earth orbits, or circles, the Sun.

Earth's axis is the imaginary line that goes through the middle of Earth. It goes from the North Pole to the South Pole. For half of the year, or half of Earth's orbit, 10 the northern half of Earth tilts toward the Sun. For the other half of the year, the southern half of Earth tilts toward the Sun. More direct light and heat reach the half of Earth that is tilted toward the Sun, so it is warmer on that half. On that half of Earth, the **season** is summer. The half of Earth that is tilted away from the Sun receives less direct heat and light. The season on that half of Earth is winter. 15 Summer starts in June in the northern half of the world, and summer starts in December in the southern half of the world.

The Sun's light shines on Earth in rays, or lines of light. These rays always form an **angle** with the surface of Earth. In the tropics along the equator, this angle does not change very much throughout the year. The tropics get direct sunlight all 20 year and are always hot. Instead of summer and winter, the tropics may have a dry season or a wet season, depending on how much rain falls.

The angle of the Sun's rays at the North and South Poles makes these places cold. In the summer, when a pole is tilted toward the Sun, it may get up to 24 hours of sunlight a day. However, the angle of the rays is very sharp. Because of 25 this, the heat of the rays is not very strong. In the winter, when the pole is tilted away from the Sun, the rays of the Sun hit the pole for only a few hours each day. During some winter days, the rays may not hit the pole at all. Winters at the poles are dark and very cold. Without the summer months in these and other cold regions, plants and animals probably could not survive. The length and warmth of 30 the summer in any particular region determine what kinds of plants and animals can **occupy** that region.

#### CONTENT CONNECTION

Earth takes one year to orbit the Sun. What else orbits the Sun?

#### LANGUAGE CONNECTION

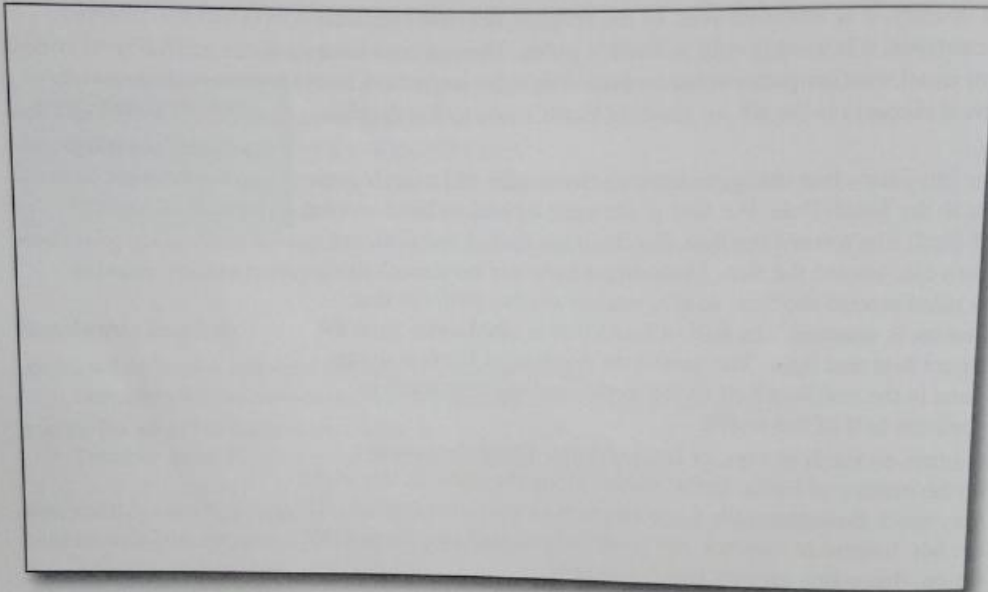
The word *sharp* usually means "coming to a point," as in a sharp angle or a sharp pencil. It can also mean "extreme," as in a sharp change in direction. Can you use this meaning of *sharp* in a sentence?

## After You Read

### A. Organizing Ideas

What causes some places on Earth to have different seasons? In the space below, draw a picture of Earth and the Sun. Show the Sun's rays hitting part of Earth. Use the following labels in your drawing.

Sun	Summer	Axis
Sun Rays	Winter	North Pole
Earth	Equator	South Pole



What did you learn about why some places have different seasons? Write two or more sentences to summarize what you learned. How did the drawing help you understand the seasons? Explain your answer.

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## B. Comprehension Skills

**Tip!** Think about how to find answers. Look back at what you read. The words in an answer are usually contained in a single sentence.

Mark box **a**, **b**, or **c** with an **X** before the choice that best completes each sentence.

### Recalling Facts

- The differences in Earth's climates and seasons are caused by
  - a. the tilt of Earth as it orbits the Sun.
  - b. the type of rays that come from the Sun.
  - c. weaker rays as the Sun ages.
- We call the imaginary line through Earth from the North Pole to the South Pole the
  - a. axis.
  - b. equator.
  - c. pole line.
- Strong light and heat warm the half of Earth that is
  - a. facing the Moon.
  - b. tilted toward the Sun.
  - c. tilted away from the Sun.
- The region that gets direct sunlight all year is the
  - a. tropics.
  - b. North Pole.
  - c. South Pole.
- The sharp angles between the Sun and the poles cause the poles to be
  - a. hot all year.
  - b. cold all year.
  - c. hot in the summer and cold in the winter.

### Understanding Ideas

- In different regions of the world, seasons
  - a. are different.
  - b. are exactly alike.
  - c. often do not exist.
- An example of a place that has one period of complete darkness and one of constant daylight is
  - a. the Sun.
  - b. the tropics.
  - c. the North Pole.
- The season in the half of Earth that is tilted away from the Sun is
  - a. summer.
  - b. winter.
  - c. the dry season.
- From the article, you can conclude that when the northern half of Earth is tilted toward the Sun, the southern half is
  - a. straight up and down.
  - b. tilted away from the Sun.
  - c. also tilted toward the Sun.
- You can also conclude that when it is summer in the northern half of Earth, the season in the southern half is
  - a. winter.
  - b. also summer.
  - c. the wet season.

## C. Reading Strategies

### 1. Recognizing Words in Context

Find the word *imaginary* in the article. One definition below is closest to the meaning of that word. One definition has the opposite or nearly the opposite meaning. The remaining definition has a meaning that has nothing to do with the other two words. Label the definitions **C** for *closest*, **O** for *opposite or nearly opposite*, and **U** for *unrelated*.

- a. unreal
- b. bright
- c. real

### 2. Distinguishing Fact from Opinion

Two of the statements below present *facts*, which can be proved. The other statement is an *opinion*, which expresses someone's thoughts or beliefs. Label the statements **F** for *fact* and **O** for *opinion*.

- a. It would be better to live in the tropics than at the North Pole.
- b. The angle of the Sun's rays causes the South Pole to be cold.
- c. When one half of Earth is tilted toward the Sun, it is summer there.

### 3. Making Correct Inferences

Two of the statements below are correct *inferences*, or reasonable guesses, that are based on information in the article. The other statement is an incorrect, or faulty, inference. Label the statements **C** for *correct* inference and **I** for *incorrect* inference.

- a. It probably does not snow in the tropics.
- b. Different parts of the world have different plants and animals because of their climates.
- c. The climate of the South Pole is tropical during the summer months.

### 4. Understanding Main Ideas

One of the statements below expresses the main idea of the article. Another statement is too general, or too broad. The other explains only part of the article; it is too narrow. Label the statements **M** for *main idea*, **B** for *too broad*, and **N** for *too narrow*.

- a. The amount of rain is the main seasonal change in the tropics.
- b. The different climates and seasons around the world occur because of the way Earth tilts as it moves around the Sun.
- c. There are many different climates and types of seasons on Earth.

### 5. Responding to the Article

Complete the following sentence in your own words:

One thing in "Climate and the Change of Seasons" that I cannot understand is

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## D. Expanding Vocabulary

### Content-Area Words

Cross out one word or phrase in each row that is not related to the word in dark type.

- |            |           |             |         |         |
|------------|-----------|-------------|---------|---------|
| 1. humid   | damp      | water vapor | desert  | summer  |
| 2. tropics | sunlight  | visible     | equator | warm    |
| 3. poles   | cold      | North       | East    | South   |
| 4. season  | four      | winter      | spring  | October |
| 5. angle   | direction | shape       | points  | map     |

### Academic English

In the article "Climate and the Change of Seasons," you learned that *contrast* is a noun that means "a difference between two or more things." *Contrast* can refer to differences in climate. *Contrast* can also refer to other differences, as in the following sentence.

*The contrast between my older brother's and my heights is great.*

Complete the sentence below.

1. The weather today, in *contrast* with the warmth of yesterday, is \_\_\_\_\_

Now use the word *contrast* in a sentence of your own.

2. \_\_\_\_\_  
\_\_\_\_\_

You also learned that *occupy* means "to live in or be in a place." *Occupy* can also mean "to take up time or attention," as in the following sentence.

*Writing my book report will occupy several hours of my time.*

Complete the sentence below.

3. Children often *occupy* themselves by playing with \_\_\_\_\_

Now use the word *occupy* in two sentences of your own.

4. \_\_\_\_\_  
5. \_\_\_\_\_



Share your new sentences with a partner.





