



ESSENTIAL QUESTION

How Do Organisms Change with the Seasons?



Engage Your Brain

Find the answer to the following question in this lesson and record it here.

Which season are these trees experiencing? How do you know?



ACTIVE READING

Lesson Vocabulary

List the terms. As you learn about each one, makes notes in the Interactive Glossary.

Using Headings

Active readers preview headings and use them to ask questions. The questions help set a purpose for reading. Reading with a purpose helps active readers focus on understanding and recalling what they read.

Changing with the Seasons

Are winters cold or mild where you live?
Are summers cool or hot? Different places
have different temperatures throughout
the seasons.

ACTIVE READING As you read these two pages,
turn the main heading into a question in your mind.
Underline sentences that answer the question.

States like Colorado,
where the Rocky
Mountains are, have
cold winters with
lots of snow.





Parts of Texas have mild winters with little or no snow and cool temperatures.

Cold or Mild?

Look at the places shown in the pictures. Group the places by whether they have cold winters or mild winters. Place your own area in the proper group.

Every place in the United States has four seasons. The seasons are winter, spring, summer, and fall. But different places have different weather during the seasons. Florida and Texas have mild winters and hot summers. Ohio and the Rocky Mountains have cold winters and warm summers.

During winter, places get less direct sunlight. This is true even where winters are mild. There are fewer hours of daylight. Temperatures go down.

During summer, places get more direct sunlight. There are more hours of daylight. Temperatures go up.

The seasonal changes in temperature and sunlight affect living things.

Winters in Florida are mild. It rarely snows, and temperatures are cool. How does winter in Florida compare to winter in Colorado?

Parts of Ohio are covered by forests. Winters can be cold and snowy.



(clockwise from top left) © Robert Schatz/Alamy, (clockwise from top right) © Sam Bagshaw/Alamy, (clockwise from bottom left) © Corbis

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Plants *and* Seasons

What happens to plants when the seasons change? Are plants the same year-round, or do they change with the seasons?

ACTIVE READING As you read these two pages, draw one line under a cause of the seasons. Draw two lines under an effect of the seasons.

Picture a maple tree in the winter. The branches of the tree are bare. The tree is dormant. **Dormancy** is a rest period for plants. The plant does not grow or reproduce when it is dormant. Plants become dormant when temperatures go

down. Dormancy helps plants save energy in the winter when there is less sunlight.

In spring, temperatures get warmer. Hours of daylight increase. The maple tree begins to bud. The buds will turn into leaves. Many plants grow and reproduce in spring. Flowering plants can grow fruit. The fruit is the part of the plant that enables it to reproduce. The fruit has seeds. A seed has a tiny plant inside of it. The tiny plant will grow into an adult plant.

In summer, temperatures are warmer still. Hours of daylight are long. The maple tree continues to grow during the summer. Its branches become longer. The tree gets taller. Many plants spend the summer growing.

In fall, temperatures cool down. Hours of daylight decrease. The leaves on the maple tree change color. They become red, orange, and gold. Then they fall to the ground. Many trees lose their leaves during the fall. They also drop their fruits.

Plants such as palm trees and evergreens do not lose their leaves in the fall. But they still might become dormant if temperatures go down. Places with mild winters, like Florida, have many palm trees.

What Happens When?

Fill in the blanks to show the effects of seasons on maple trees.

Cause	Effect
Winter	<hr/> <hr/>
Spring	<hr/> <hr/>
Summer	<hr/> <hr/>
Fall	<hr/> <hr/>



Fall



Winter



Spring



Summer

A maple tree changes with the seasons. The changes are caused by differences in temperature and hours of sunlight.

Animals *and* Seasons


Plants are not the only living things that change with the seasons. Seasons affect animals, too.

ACTIVE READING As you read these two pages, find and underline the definition of *hibernation*.


Many animals eat plants. In many places during the winter, there are fewer plants for animals to eat. Some animals get through this time of little food and cold temperatures by entering an inactive state called **hibernation**. The heart barely beats, and body temperature drops to just above freezing. Because its body is barely working, a hibernating

animal doesn't use much energy and doesn't need to eat.

Other animals use different ways to cope with seasonal change. Some animals change colors. The fur of the arctic fox turns white during fall and winter. In spring, the fur turns brown again. This helps the fox blend in with its surroundings.



The fur of arctic foxes changes colors with the seasons, so they blend with their surroundings. This makes it easier for them to stay hidden while they hunt.



The ground squirrel hibernates. There is enough fat stored in its body to keep it alive through the winter.

Some animals take a break from cold winter temperatures. They spend the winter in warm places. In spring, they migrate to their summer homes. When animals regularly move as a group from one region to another and back, it's a **migration**. Manatees spend the winter in Florida's warm natural springs. In

spring, ocean water temperatures warm up. The manatees migrate north to ocean waters from Louisiana to Virginia.

Many animals reproduce in spring. They spend the summer eating and growing. In fall, some animals are busy storing food. Other animals begin to migrate to their winter homes.

Where Do They Go?

Draw the migration routes of the humpback whale on the map. Use arrows to show the direction of migration.



Manatees spend the winter in warm waters around Florida. They'll even gather in rivers at the openings of water pipes that pump out warm water.

Humpback whales migrate along the Atlantic Coast. They feed in cold waters off Canada during spring and summer. In fall, they head south to warm waters near Puerto Rico.



Winter Foods

Most plants do not grow during the winter when temperatures are cold. So how do places with cold winters get their food during the cold winter months?

ACTIVE READING As you read these pages, put a *P* next to the sentences that describe a problem. Put an *S* next to the sentences that describe a solution.

Picture winter in the Rocky Mountains. Deep snow covers the ground, but you can still walk into a grocery store and buy fruit. Where does the fruit come from?

Often, it comes from places that have mild winters, such as Florida and California.



These states can grow plants year-round. That's one reason why you can have fresh fruit and vegetables in the middle of winter no matter how cold it is outside.

Many plants that we eat can be grown across the country during the summer growing season. Some of these plants are potatoes, green beans, and tomatoes. The foods are harvested at nearby farms. They are taken from the farms to nearby markets. The foods do not travel far. So, it does not cost very much to transport them.

During winter, though, foods cannot be grown locally in most places in the United States. Foods grown in Florida, California, and other warm places are sent across the country. The foods cost more because their prices include transportation costs.



Transportation costs are not the only things that affect food prices. Sometimes places that have mild winters have freezing weather. Plants may be damaged. Fewer plants are harvested and sent across the country. The prices of the plants go up.



DO THE MATH

Solve Real-World Problems

In the town where Teresa lives, strawberries are grown during the summer. The cost of the locally grown strawberries is \$1.00 per pint. During the cold winter, strawberries are brought in by truck from California.

The cost of these strawberries is \$3.00 per pint. Teresa's family eats 13 pints every month. How much more does Teresa's family spend on strawberries in December than they do in June? Show your work.



Sum It Up »

Read the summary statements. Match each statement with the correct image.

1

Some living things become dormant during winter.



2

Some living things hibernate during winter.



3

Some living things migrate during winter.



Fill in the missing words to tell about changes with the seasons.

During winter, places get less direct 4. _____. This is true even where winters are mild. There are 5. _____ hours of daylight. Temperatures go 6. _____.

During 7. _____, places get more direct sunlight. There are 8. _____ hours of daylight. Temperatures go 9. _____.

Some plants become 10. _____ during the winter so they can save energy. Some animals 11. _____ to save energy. Other animals, such as humpback whales and manatees, 12. _____ to different places.



Name _____

Vocabulary Review

1 Use the clues to fill in the missing letters of the words.

1. ___ b ___ r n _____ an inactive time for some animals
2. ___ i ___ e ___ a season with the fewest hours of daylight
3. ___ r ___ a _____ a rest time for plants
4. m ___ a ___ e an animal that migrates in Florida's warm waters
5. ___ u ___ m ___ a season with the most hours of daylight
6. ___ g r ___ i ___ a movement of animals from place to place
7. s ___ u ___ r ___ an animal that hibernates
8. ___ a ___ i ___ r ___ a state that grows food during winter

Apply Concepts

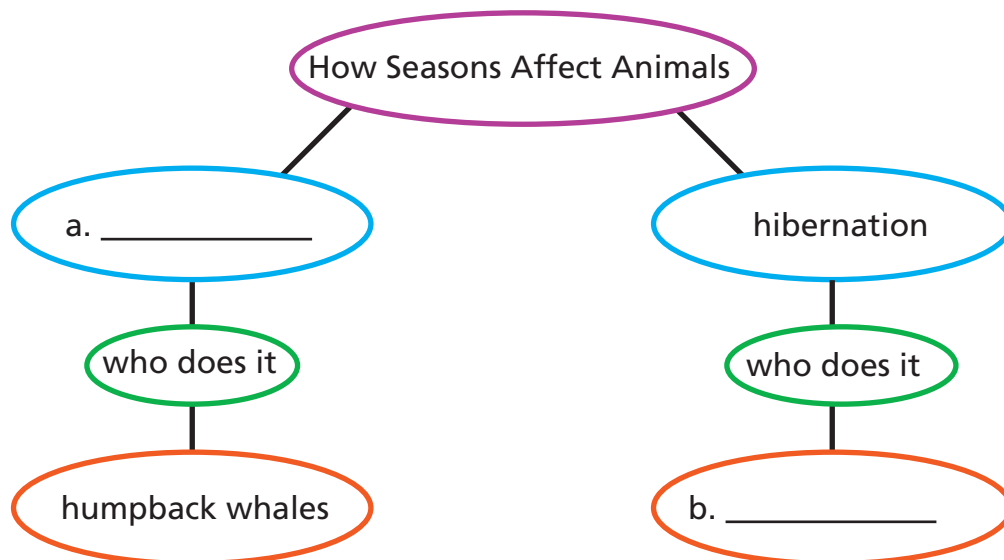
2 On the lines below, list some fruits that you eat during winter. Tell where the fruits might have been grown.

Apply Concepts

- 3 The pictures show a maple tree in four different seasons. Label the seasons and tell what happens to the tree during that season.



- 4 Fill in the concept map showing how the seasons affect animals.



5

The map below shows Florida. Draw the migration route of the manatee on the map.



6

In the space below, draw your schoolyard during summer. Then draw your schoolyard during winter. Show how plants change during the seasons.

- 7 In the chart below, write some changes that happen to hours of sunlight and temperatures during summer and winter.

Changes With Seasons	
Summer	Winter

- 8 These pictures show the arctic fox during different seasons. Label the seasons.



Take It
Home!

See *ScienceSaurus*® for more information about organisms.