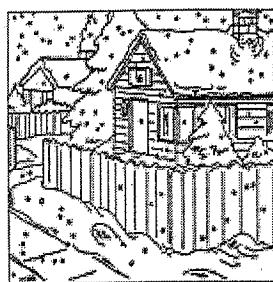


Climate and Climate Change ▪ *Review and Reinforce*

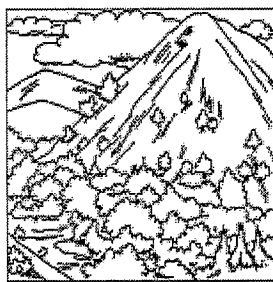
What Causes Climate?

Understanding Main Ideas

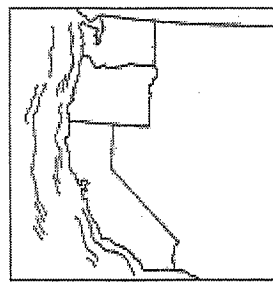
On a separate sheet of paper, identify the climate factor(s) that influence the climate in each picture. Indicate whether the climate factors are affecting temperature, precipitation, or both.



1. Alaska



2. Rocky Mountains



3. West Coast

Answer the following questions on your other sheet of paper.

4. Explain how Earth's tilted axis causes the seasons.
5. At what times of the year do both of Earth's hemispheres receive the same amount of energy from the sun? Explain why this occurs.

Building Vocabulary

Match each term with its definition by writing the letter of the correct definition on the line beside the term.

- | | |
|---|--|
| <p>_____ 6. leeward</p> <p>_____ 7. polar zones</p> <p>_____ 8. climate</p> <p>_____ 9. windward</p> <p>_____ 10. tropical zone</p> <p>_____ 11. microclimate</p> <p>_____ 12. temperate zones</p> <p>_____ 13. monsoon</p> | <p>a. the average year-after-year conditions of temperature, precipitation, winds, and clouds</p> <p>b. an area near the equator that receives direct sunlight all year round</p> <p>c. the side of a mountain that faces the oncoming wind</p> <p>d. a small area with climate conditions different from those around it</p> <p>e. areas that extend from about 66.5° to 90° north and south latitudes</p> <p>f. the side of a mountain that is downwind</p> <p>g. sea and land breezes over a large region that change direction with the season</p> <p>h. areas located from about 23.5° to 66.5° north and south latitudes</p> |
|---|--|

Climate and Climate Change ▪ *Guided Reading and Study*

What Causes Climate? *(continued)*

Introduction

1. The average, year-after-year conditions of temperature, precipitation, winds, and clouds in an area is its _____.
2. A small area with climate conditions that differ from those around it is called a(n) _____.

Factors Affecting Temperature

3. What are the main factors that influence temperature?

4. It is colder at high latitudes because the sun's rays strike Earth's surface at a(n) _____ angle there.
5. List the three temperature zones on Earth's surface that are based on latitude.
 - a. _____
 - b. _____
 - c. _____
6. Complete the following compare-and-contrast table to show the relationship among temperature zones, latitude, and angle of the sun's rays.

Temperature Zone	Latitude Is Between	Angle of Sun's Rays
a. _____	23.5° north and b. _____	Direct or nearly direct all year round
Temperate	c. _____ and 23.5° to 66.5° south	More direct in the summer; Less direct in d. _____
e. _____	f. _____ _____	Less direct all year round

- g. Use the chart to write one or two sentences about the relationship between latitude and the angle of the sun's rays.

Climate and Climate Change ▪ *Guided Reading and Study*

- h. Is the climate of a temperate zone in summer more like a polar zone or a tropical zone? Use the information in the table to explain your answer.

7. Is the following sentence true or false? Areas at high altitudes have cool climates, no matter what their latitude. _____

Match the type of climate with its description.

Type of Climate	Description
_____ 8. marine climate	a. Relatively warm winters and cool summers
_____ 9. continental climate	b. Cold winters and warm or hot summers

10. Circle the letter of each sentence that is true about how ocean currents influence climates.
- a. Ocean currents influence many marine climates.
 - b. Only warm ocean currents influence climates.
 - c. The North Atlantic Drift gives Ireland a warm climate for its latitude.
 - d. The California Current gives the West Coast a warm climate for its latitude.

Factors Affecting Precipitation

11. List the main factors that affect precipitation.
- a. _____ b. _____
12. Is the following sentence true or false? Winds blowing inland from oceans carry less water than winds blowing from land. _____
13. Circle the letter of each sentence that is true about the effect of mountain ranges on precipitation.
- a. Precipitation falls mainly on the leeward side of mountains.
 - b. The windward side of mountains is in a rain shadow.
 - c. As air rises to pass over a mountain range, its water vapor condenses, forming clouds.
 - d. Precipitation usually falls on the side of the mountains that is hit by oncoming wind.

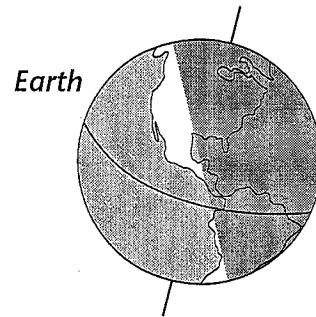
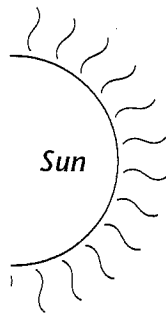
Climate and Climate Change ▪ *Guided Reading and Study*

What Causes Climate? *(continued)*

The Seasons

14. Is the following sentence true or false? It is colder in the winter in the Northern Hemisphere because Earth is farther from the sun then.

15. When Earth is in the position shown in the drawing, what season is it in the Northern Hemisphere?



16. Circle the letter of each sentence that is true about Earth's axis.

- a. The axis always points in the same direction.
- b. The north end of the axis is tilted away from the sun all year.
- c. When it is summer in the Southern Hemisphere, the south end of the axis is tilted toward the sun.
- d. In March and September, neither end of the axis is tilted toward the sun.

17. Why is Earth's surface warmer in the Northern Hemisphere when it is summer there?

Climate and Climate Change ▪ *Guided Reading and Study*

Global Changes in the Atmosphere

This section explains how human activities may be increasing Earth's temperature by changing the atmosphere.

Use Target Reading Skills

Preview the red headings and write a what or how question for each heading on the left side of the graphic organizer below. As you read about global warming, write the answers on the right side.

Global Changes in the Atmosphere

Question	Answer
What is El Niño?	

Short-Term Climate Change

- The movement of warm surface water toward the coast of South America is known as _____.
- A climate event known as _____ occurs when ocean surface waters in the eastern Pacific are colder than normal.

Global Warming

- Is the following sentence true or false? Over the last 120 years, the average temperature of the troposphere has risen by about 0.5° C.

Match the term with its definition.

- | Term | Definition |
|---|--|
| _____ 4. greenhouse effect | a. Process by which Earth's atmosphere traps solar energy |
| _____ 5. global warming | b. Gradual increase in the temperature of Earth's atmosphere |
| 6. Gases in the atmosphere that trap solar energy are called _____. | |



ES206

Organizing Information: Concept Mapping

