

Mr. Hammond

7th Grade Science

Calamity Day Assignments

Day 6

Changes In Communities :

_Read and complete questions.

Day 7

Cycles of Matter:

Read and complete questions

Day 8

Biomes

Complete review assessment.

Populations and Communities ▪ Section Summary

Changes in Communities

Key Concepts

- How do primary and secondary succession differ?

Fires, floods, volcanoes, hurricanes, and other natural disasters can change communities in a short period of time. Even without a disaster, communities change. The series of predictable changes that occur in a community over time is called succession.

Primary succession is the series of changes that occur in an area where no soil or organisms exist. The area might be a new island formed by the eruption of an undersea volcano or an area uncovered by a melting sheet of ice. When the land is first exposed, there is no soil. The first species to populate the area are called pioneer species. Pioneer species are usually lichens and mosses, which can grow on bare rocks. As they grow, the lichens and mosses help break up the rocks to form soil. When these organisms die, they provide nutrients that enrich the developing soil. Over time, seeds of plants land in the new soil and begin to grow. The specific plants that grow depend on the biome of the area. In time, as the soil grows older and richer, a mature forest may develop.

Secondary succession is the series of changes that occur in an area where the ecosystem has been disturbed, but where soil and organisms still exist. Natural disturbances include fires, hurricanes, and tornadoes. Human activities, such as farming, logging, or mining, also may disturb an ecosystem. **Unlike primary succession, secondary succession occurs in a place where an ecosystem currently exists.** Secondary succession occurs more rapidly than primary succession. The particular plant species that appear and then are replaced in the process of succession depend on the biome.

Populations and Communities ▪ *Guided Reading and Study*

Changes in Communities (pp. 730–733)

This section describes a series of predictable changes that occur in a community over time.

Use Target Reading Skills

As you read, compare and contrast primary and secondary succession by completing the table below.

Factors in Succession	Primary Succession	Secondary Succession
Possible cause	Volcanic eruption	_____
Type of area	_____	_____
Existing ecosystem?	_____	_____

Introduction (p. 730)

1. What is succession?

Primary Succession (p. 731)

2. What is primary succession?

3. Circle the letter of each choice that describes an area where primary succession might occur.

- a. A new island formed by the eruption of an undersea volcano
- b. An area of bare rock uncovered by a melting ice sheet
- c. A clearing in a forest left by cutting down the trees
- d. An area without any trees or other plants following a forest fire

4. The first species to populate the area in primary succession are called

Populations and Communities ▪ *Guided Reading and Study*

5. Pioneer species are often _____ and _____.

6. How do pioneer species help develop soil?

Secondary Succession (pp. 732–733)

7. The series of changes that occur where the ecosystem has been disturbed but soil and organisms still exist is called _____.

3 8. What natural disturbances can result in secondary succession?

3 9. What human activities can result in secondary succession?

10. Is the following sentence true or false? Secondary succession occurs more slowly than primary succession. _____

11. The particular species that come and go in the process of succession depend on the _____.

Ecosystems and Biomes ▪ *Section Summary***Cycles of Matter****Key Concepts**

- What three major processes make up the water cycle?
- How are carbon and oxygen recycled in ecosystems?
- What is the nitrogen cycle?

Matter is recycled in ecosystems. Matter includes water, oxygen, carbon, nitrogen, and many other substances. The most important cycles of matter are the water cycle, the carbon and oxygen cycles, and the nitrogen cycle.

The **water cycle** is the continuous process by which water moves from Earth's surface to the atmosphere and back. **The processes of evaporation, condensation, and precipitation make up the water cycle.** **Evaporation** is the process by which molecules of liquid water absorb energy and change to the gas state. Water evaporates from Earth's surface and forms water vapor, a gas, in the atmosphere. The process by which a gas changes to a liquid is called **condensation**. When water vapor in the atmosphere cools, it turns back into tiny droplets of liquid water. As more water vapor condenses, the drops grow larger and heavier. Eventually, the heavy drops fall back to Earth as a form of **precipitation**—rain, snow, sleet, or hail.

Carbon is the building block for the matter that makes up the bodies of living things. **In the ecosystem, the processes by which carbon and oxygen are recycled are linked. Producers, consumers, and decomposers play roles in recycling carbon and oxygen.** Producers take in carbon dioxide from the atmosphere during photosynthesis. In this process, the producers use carbon from the carbon dioxide to produce other carbon-containing molecules. These molecules include sugars and starches. Consumers obtain energy from these molecules by breaking them down into simpler molecules. The consumers release water and carbon dioxide as waste products of the process. At the same time, producers release oxygen during photosynthesis. Other organisms take in oxygen from the atmosphere and use it in their life processes.

Like carbon, nitrogen is a necessary building block in the matter that makes up living things. **In the nitrogen cycle, nitrogen moves from the air to the soil, into living things, and back into the air.** Most organisms cannot use nitrogen gas in the air. Nitrogen gas is called "free" nitrogen because it is not combined with other kinds of atoms. Most organisms can use nitrogen only when it has been "fixed," or combined with other elements to form nitrogen-containing compounds. The process of changing nitrogen gas into a usable form of nitrogen is called **nitrogen fixation**. Most nitrogen fixation is performed by certain kinds of bacteria. Some of these bacteria live in bumps called nodules on the roots of certain plants. Once the nitrogen has been fixed, it can be used by organisms to build proteins and other complex substances. Decomposers break down these complex compounds. Decomposition returns simple nitrogen compounds to the soil. Certain types of bacteria break down the nitrogen compounds completely. These bacteria release free nitrogen back into the air, and the cycle starts again.

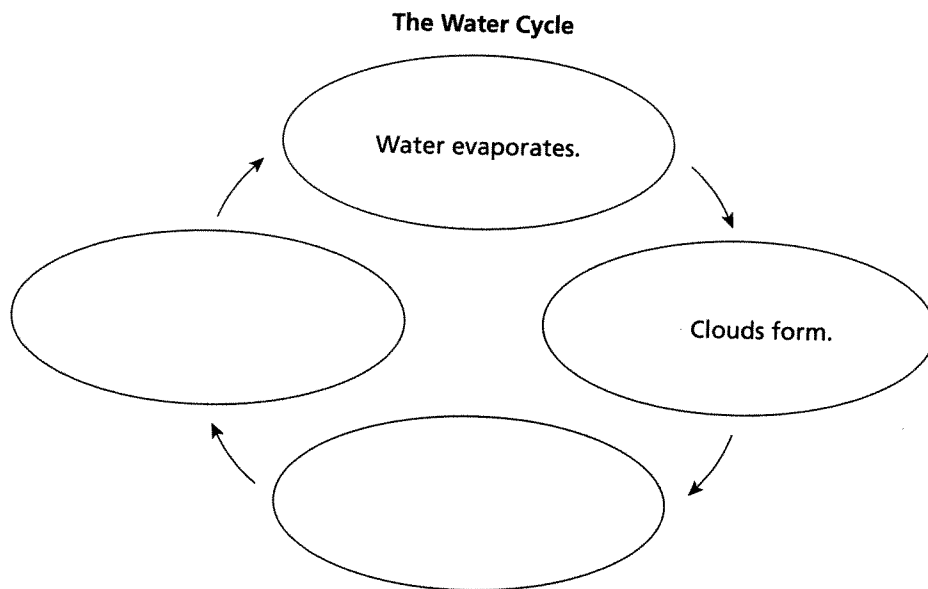
Ecosystems and Biomes ▪ *Guided Reading and Study*

Cycles of Matter (pp. 746–751)

This section describes three cycles in nature that recycle matter in ecosystems.

Use Target Reading Skills

As you read, make a cycle diagram that shows the water cycle. Write each event of the water cycle in a separate oval.



Introduction (p. 746)

1. Matter is made up of tiny particles called _____.
Two or more of these tiny particles that are joined and act as a unit are called _____.
2. The important cycles of matter in an ecosystem include the water cycle, the carbon and oxygen cycles, and the _____ cycle.

Ecosystems and Biomes ▪ *Guided Reading and Study*

The Water Cycle (pp. 746–747)

3. Is the following sentence true or false? Water is essential for life.

4. The continuous process by which water moves from Earth's surface to the atmosphere and back is the _____.

Match the term with its definition.

Term	Definition
____ 5. evaporation	a. Process by which liquid water changes to water vapor
____ 6. condensation	b. Forms of water that fall from clouds and reach Earth's surface
____ 7. precipitation	c. Process by which water vapor changes to liquid water

8. Is the following sentence true or false? The energy for evaporation comes from the sun. _____

9. What process results in the formation of clouds?

10. List four forms of precipitation.

- a. _____ b. _____
c. _____ d. _____

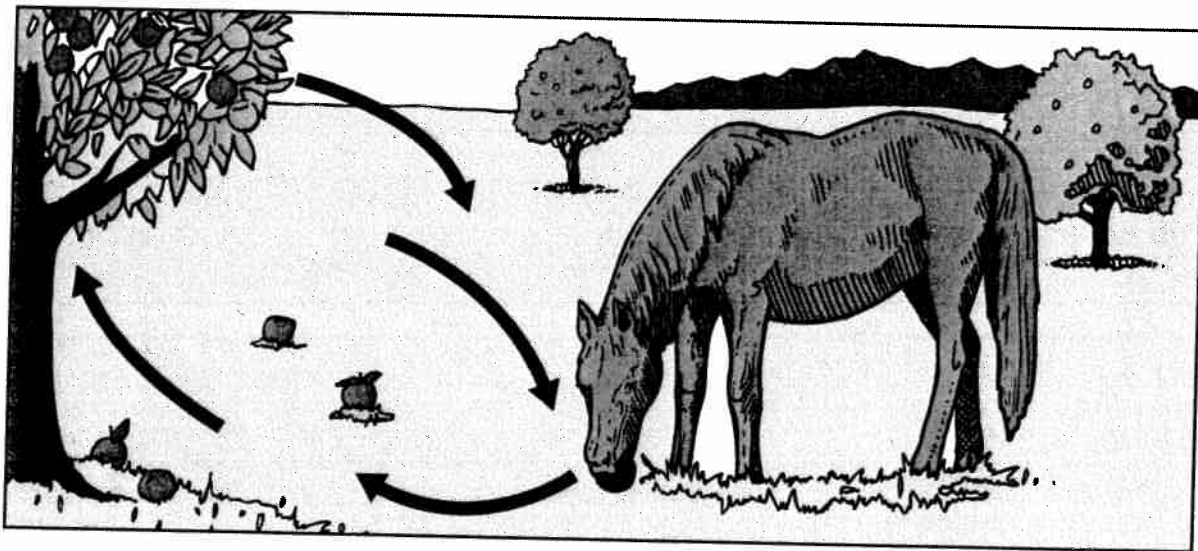
Ecosystems and Biomes ▪ *Guided Reading and Study*

Cycles of Matter *(continued)*

The Carbon and Oxygen Cycles (pp. 748–749)

11. Is the following sentence true or false? Carbon is not necessary for life.

12. Circle the letter of each sentence that is true about the carbon and oxygen cycles.
 - a. Producers take in oxygen during photosynthesis.
 - b. Producers release carbon dioxide as a result of photosynthesis.
 - c. Consumers release carbon dioxide as a waste product.
 - d. Consumers take in oxygen for their life processes.
13. Label the arrows in the illustration below to indicate whether they show the movement of oxygen or the movement of carbon dioxide through the ecosystem.



The Nitrogen Cycle (pp. 750–751)

14. Is the following sentence true or false? Most organisms use nitrogen directly from the air. _____
15. The process of changing free nitrogen gas into a usable form of nitrogen is called _____.
16. Is the following sentence true or false? Most nitrogen fixation is performed by plants. _____

Ecosystems and Biomes ▪ *Review and Reinforce*

Cycles of Matter

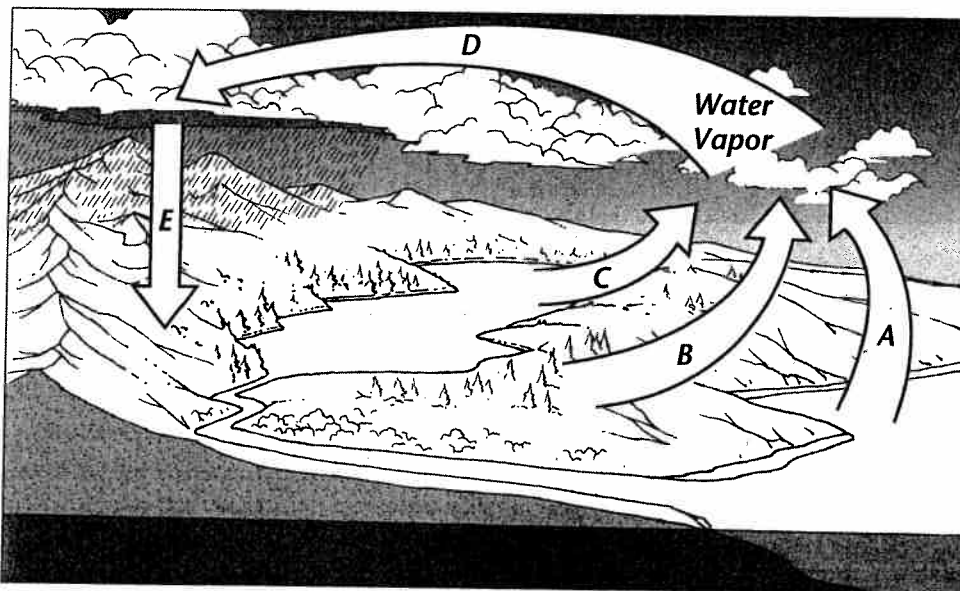
Understanding Main Ideas

Answer the following questions on a separate sheet of paper.

1. What is the source of energy for the process of evaporation?
2. What happens to rainwater that falls on land?
3. How are oxygen and carbon cycled between plants and animals?
4. Why are nitrogen-fixing bacteria so important to other organisms?

Building Vocabulary

Answer the following questions in the spaces provided.



5. Which cycle is shown in the diagram above?

6. Identify each process labeled in the diagram.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

Ecosystems and Biomes

Biomes

Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

- _____ 1. The typical weather pattern in an area over a long period of time is called
 - a. climate.
 - b. precipitation.
 - c. the water cycle.
 - d. weather.

- _____ 2. A group of land ecosystems with similar climates and organisms is called a(n)
 - a. energy pyramid.
 - b. climate.
 - c. biome.
 - d. food web.

- _____ 3. Which biome is extremely cold and dry?
 - a. desert
 - b. tundra
 - c. grassland
 - d. mountains

- _____ 4. The biome that is home to many of the largest animals on Earth, herbivores such as elephants, zebras, and giraffes is the
 - a. grassland.
 - b. temperate rain forest.
 - c. freshwater ecosystems.
 - d. desert.

- _____ 5. The ocean water is completely dark throughout the
 - a. estuary.
 - b. intertidal zone.
 - c. neritic zone.
 - d. deep zone.

- _____ 6. Which biome receives less than 25 centimeters of rain per year?
 - a. desert
 - b. grassland
 - c. temperate rain forest
 - d. tropical rain forest

- _____ 7. This biome is located in the northwestern coast of the United States receives more than 300 centimeters of rain a year.
 - a. desert
 - b. tundra
 - c. mountains and ice
 - d. temperate rain forest

- _____ 8. Which ecosystem is found where the fresh water of a river meets the salt water of the ocean?
 - a. estuary
 - b. neritic zone
 - c. surface zone
 - d. rocky intertidal zone

- _____ 9. What area(s) are not part of any major biome?
- tundras
 - deserts
 - grasslands
 - mountains and ice
- _____ 10. A large variety of plants grows in tropical rain forest because
- many insects live there.
 - the forest floor is very dark.
 - it has very good soil.
 - the climate conditions are warm, humid, and rainy

Modified True/False

Indicate whether the sentence or statement is true or false. If false, change the identified word or phrase to make the sentence or statement true.

- _____ 11. The tropical rain forests are found in regions close to the equator. _____
- _____ 12. The deciduous forest biome is typically populated by many grasses, along with a few shrubs and trees.

- _____ 13. Oak and maple trees, which have leaves that change colors and shed are typically found in a boreal forest.

- _____ 14. Rivers, ponds, and lakes are part of marine ecosystems. _____
- _____ 15. A type of grassland called the savanna receives as much as 25 to 75 centimeters of rain each year.

Completion

Complete each sentence or statement.

16. Temperature and _____ determine an area's climate, which can limit dispersal of organisms.
17. The _____ biome receives less than 25 centimeters of rain a year and may have large temperature shifts every day.
18. The soil that is frozen all year in the tundra is called _____.
19. The neritic zone over the continental shelf is part of the _____ ecosystem.
20. In the desert biome, _____ is greater than the amount of precipitation.

Matching

Match each of the words in letters A to H with one of the statements in numbers 21 to 28. Each letter will only be used once.

- a. Desert
- b. Intertidal Zone
- c. Deciduous Forest
- d. Temperate Rain Forest
- e. Grassland
- f. Surface Zone
- g. Canopy
- h. Coniferous

- _____ 21. Algae carry out photosynthesis in this region of the open ocean known as this.
- _____ 22. Temperatures in this biome are said to be more comfortable than in a desert.
- _____ 23. Trees that produce their seeds in cones and have leaves shaped like needles.
- _____ 24. Tall trees form a leafy roof called this in a tropical rain forest.
- _____ 25. Organisms that live here must be adapted to the lack of rain and extreme temperatures.
- _____ 26. Organisms here must be able to survive pounding waves and the sudden changes in water levels and temperature.
- _____ 27. Temperature in this biome vary greatly throughout the year, and the growing season lasts five to six months.
- _____ 28. Huge trees grow here such as cedars, redwoods, and Douglas firs.

Essay

In the essays listed below, please fill in short answers to complete the layers of the tropical rain forest. In the table, list some characteristics about the biomes.

- 29. The trees in the tropical rain forest form several distinct layers. Label the layers in order from bottom to top.

Name: _____

ID: A

30.

Characteristic	Tropical Rain Forest	Desert	Boreal Forest
Temperature			
Precipitation			
Typical Organisms (Plants)			
Typical Organisms (Animals)			