

Study Guide

CHAPTER 2 Section 3: Cycling of Matter

In your textbook, read about the water cycle.

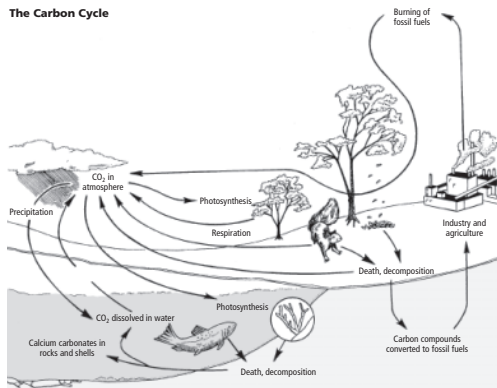
Number the steps of the water cycle in the order in which they occur, starting with the collection of water in lakes or oceans.

- _____ 1. Water is absorbed by plants growing in the soil and used for photosynthesis.
- _____ 2. Water returns to Earth as rain or snow through the process of precipitation.
- _____ 3. Through evaporation, water changes from a liquid to a gas that becomes part of the air.
- _____ 4. Through condensation, water in the air changes from a gas to tiny droplets of liquid.

In your textbook, read about the carbon and oxygen cycles.

Refer to the illustration. Use each of the terms below only once to complete the passage.

atmosphere carbon cycles decomposition
 living organisms photosynthesis respiration water



- (5) _____ is a part of all organic compounds, which make up living things.
- It (6) _____ through the environment due to the flow of energy in ecosystems.
- The carbon cycle is made of several processes, including (7) _____, (8) _____, and (9) _____. During these processes, carbon moves between its major reservoirs. These major reservoirs include the (10) _____, the (11) _____, and (12) _____.

Study Guide, Section 3: Cycling of Matter continued

In your textbook, read about the nitrogen cycle.

Use each of the terms below only once to complete the passage.

ammonia atmosphere consumers decay decomposers
 denitrification nitrogen fixation plants proteins urinate

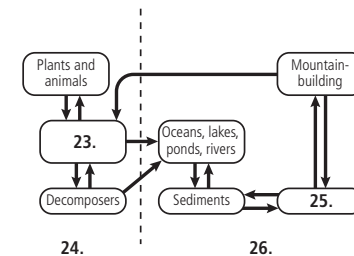
- Nitrogen is a nutrient that organisms need to produce (13) _____. Plants and animals cannot use the nitrogen that makes up a large percentage of the (14) _____. The nitrogen is captured and converted into a form that is usable by plants in a process called (15) _____. Nitrogen enters the food web when (16) _____ absorb nitrogen compounds from the soil and use them to make proteins. (17) _____ get nitrogen by eating plants or animals that contain nitrogen. Nitrogen is returned to the soil when animals (18) _____ or when organisms die and (19) _____. (20) _____ break down organic matter found in organisms into (21) _____. This compound is changed by organisms in the soil into other nitrogen compounds that can be used by plants. Finally, some soil bacteria convert nitrogen compounds into nitrogen gas, which returns to the atmosphere in a process called (22) _____.

In your textbook, read about the phosphorus cycle.

Label the diagram of the phosphorus cycle. Use these choices:

long-term cycle new rock short-term cycle soil and groundwater

23. _____
24. _____
25. _____
26. _____



Section Quick Check

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After reading the section in your textbook, respond to each statement.

1. **State** the function of nitrogen fixation.

2. **Summarize** the long-term cycle of phosphorus.

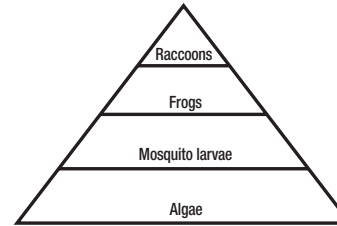
3. **Determine** why cycles in the biosphere are called biogeochemical cycles.

4. **Describe** the carbon and oxygen cycles that occur among living things.

5. **Appraise** the importance of the role that plants play in the water cycle.

Chapter 2

10. In which type of ecological relationship do two organisms benefit from living together?
A commensalism
B competition
C mutualism
D parasitism
11. In the nitrogen cycle, nitrogen is continuously recycled. Which types of organisms break down nitrogen compounds in dead organisms and recycle them into the soil?
A heterotrophs
B bacteria
C green plants
D herbivores
12. According to the energy pyramid below, which organisms are the primary consumers?



- A algae
- B mosquito larvae
- C frogs
- D raccoons

13. Eating a sweet potato can provide energy for human metabolic processes. What is the original source of this energy?
A protein molecules stored in the potato
B starch molecules absorbed by the potato
C vitamins and minerals from the soil
D light energy transformed by photosynthesis
14. What is released at each level of a pyramid of energy?
A animals
B heat
C decomposers
D plants
15. In an ecosystem, what happens to the atoms of certain chemical elements, such as carbon, oxygen, and nitrogen?
A They move into and out of living systems.
B They are only found in abiotic factors.
C They move out of living systems and do not return.
D They move into living systems and remain there.