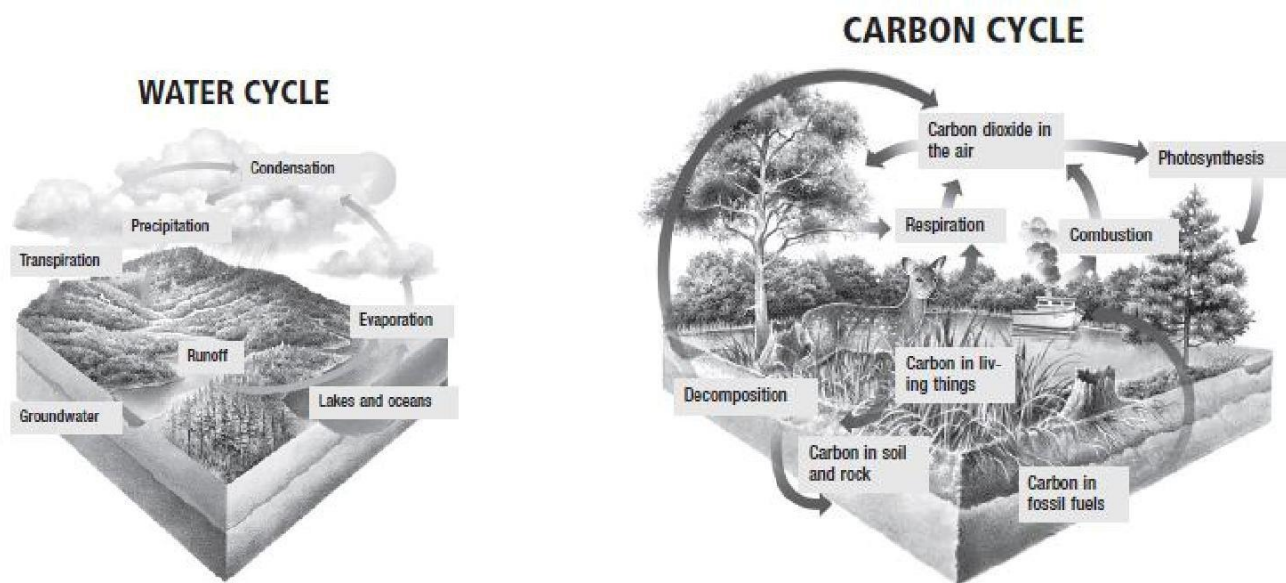


## The Water Cycle

The movement of water between the oceans, atmosphere, land, and living things is known as the *water cycle*. During *evaporation*, the Sun's heat causes water to change from liquid to vapor. In the process of *condensation*, the water vapor cools and returns to a liquid state.

The water that falls from the atmosphere to the land and oceans is *precipitation*. Some of the precipitation that falls on land flows into streams, rivers, and lakes and is called *runoff*. Some precipitation seeps into the ground and is stored in spaces between or within rocks. This water, known as *groundwater*, will slowly flow back into the soil, streams, rivers, and oceans.



(Source: Holt McDougal Biology 2012 Test Prep)

## The Carbon Cycle

Carbon is an essential substance in the fuels used for life processes. Carbon moves through the environment in a process called the *carbon cycle*. Part of the carbon cycle is a short-term cycle. In this short-term cycle, plants convert carbon dioxide from the atmosphere into sugars and starches. Plants use these substances for energy, releasing carbon dioxide into the air. Other organisms eat the plants to get the carbon. Like plants, the organisms break down sugars for energy, releasing some of the carbon back into the air. The decay of dead organisms and wastes also releases carbon into the air.

SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
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1. On your own, sketch and label both the water cycle and the carbon cycle. Label and define the following terms (in your own words):

Water Cycle	Carbon cycle
Evaporation Precipitation Condensation Runoff Transpiration	Photosynthesis Respiration Decomposition Combustion Glucose Water Carbon Dioxide Oxygen

2. Define biogeochemical cycles.
3. In what way does the water cycle and the carbon cycle interact?
4. What is the source of energy that fuels each of these cycles?
5. In a different color ink/pencil use arrows to describe the flow of energy through each biogeochemical cycle.
6. Compare and contrast the flow of energy through these cycles to the flow of energy through a food chain.
7. A student set up a terrarium, watered the soil, and covered the terrarium tightly with a lid. The next day, the student observed water droplets on the inside of the lid. The droplets provide evidence that which of the following steps of the water cycle had occurred in the terrarium?
  - a. runoff and evaporation
  - b. precipitation and runoff
  - c. evaporation and condensation
  - d. condensation and precipitation
8. Tyler is growing plants in a closed terrarium to study the carbon cycle. He hypothesizes that if plants are grown in a closed environment, then the total amount of carbon in the terrarium will remain constant. He measures the amounts of different gases in the terrarium when he adds the plants, and he will measure again after one month. Which result would best support his hypothesis?
  - a. The amount of oxygen decreased as the plants grow.
  - b. The amount of carbon dioxide increased as the plants grow.
  - c. The amount of carbon dioxide decreased as the plants grow.
  - d. The amount of oxygen became less than the amount of carbon dioxide as the plants grow.