

**CHAPTER 2****HANDOUT**

# Hydrologic and Biogeochemical Cycles Review Question and Answer Exercise

**BLM 2.2.15**

Answer the following questions in the space provided.

1. a) How is the movement of matter through an ecosystem different than the movement of energy?

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b) Why do you think Earth is often referred to as a closed system with regards to matter but an open system with regards to energy?

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2. Fill in the blanks.

a) In the hydrologic cycle, \_\_\_\_\_ refers to water loss by plants. Loss of water from a lake or ocean is \_\_\_\_\_. The hydrologic cycle is driven by \_\_\_\_\_ from the Sun.

b) At each step in a biogeochemical cycle, substances are temporarily stored in \_\_\_\_\_. When substances cycle between these relatively quickly, they are said to be part of the \_\_\_\_\_ of nutrients.

c) Plants and algae use sulfur in the form of \_\_\_\_\_, which dissolves readily in water. Sulfur compounds spend the least amount of time in the \_\_\_\_\_. \_\_\_\_\_ returns sulfur in the air to the soil and water.

d) Bacteria convert nitrogen gas into ammonium in a process called \_\_\_\_\_. The process known as \_\_\_\_\_ converts nitrite or nitrate back into nitrogen gas.

e) Phosphorus does not cycle through the \_\_\_\_\_. Excess phosphorus in an \_\_\_\_\_ ecosystem can result in a \_\_\_\_\_.

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3. Explain how the carbon and oxygen cycles are interconnected.

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4. What is the main difference between nitrogen fixation and ammonification? How are these two processes similar?

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5. How could an excess of dissolved phosphorus in a lake affect the oxygen levels in the same body of water?

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