Date:\_\_\_\_\_\_\_\_\_\_

**4.4: Matter Cycles Through Earth’s Sphere’s**

**Water Cycle:**

1. What are the 4 processes that allow water to continuously cycle within an ecosystem?

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| * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

2. Some examples of *point sources* of water pollution are:

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3. Why are *non-point* *sources* of pollution more difficult to monitor, regulate, and treat in regards to water pollution?

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4. Define:

Bioaccumulation - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Biomagnification - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  
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5. Explain how these processes are related?

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**Carbon Cycle:**

1. Define:

Source - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sink - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. What two processes allow Carbon to move from the atmosphere to the biosphere and back?

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| * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

3. What are some ways that we, as humans, are adding to increased levels of carbon dioxide in the atmosphere?

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4. Describe some ways that excess carbon in the carbon cycle are negatively impacting Earth?

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**Nitrogen Cycle:**

1. Explain the significance of nitrogen to living organisms? What do living organisms use nitrogen for? Where is it found in organisms?

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2. How does nitrogen to move from the atmosphere to the biosphere and back?

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3. How do producers obtain nitrogen? How is this different from how consumers obtain nitrogen?

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4. What is one example of a human activity that causes excess nitrogen to enter the nitrogen cycle and what effects does this have?

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**Phosphorus Cycle:**

1. Explain the significance of phosphorus to living organisms? What do living organisms use phosphorus for?

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2. Most phosphorus on Earth is trapped inside the Earth’s crust (geosphere). How does phosphorus move from the geosphere to the biosphere and back?

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3. How do producers obtain phosphorus? How is this different from how consumers obtain phosphorus?

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4. What human activities cause excess phosphorus to enter the phosphorus cycle and what effects does this have?

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