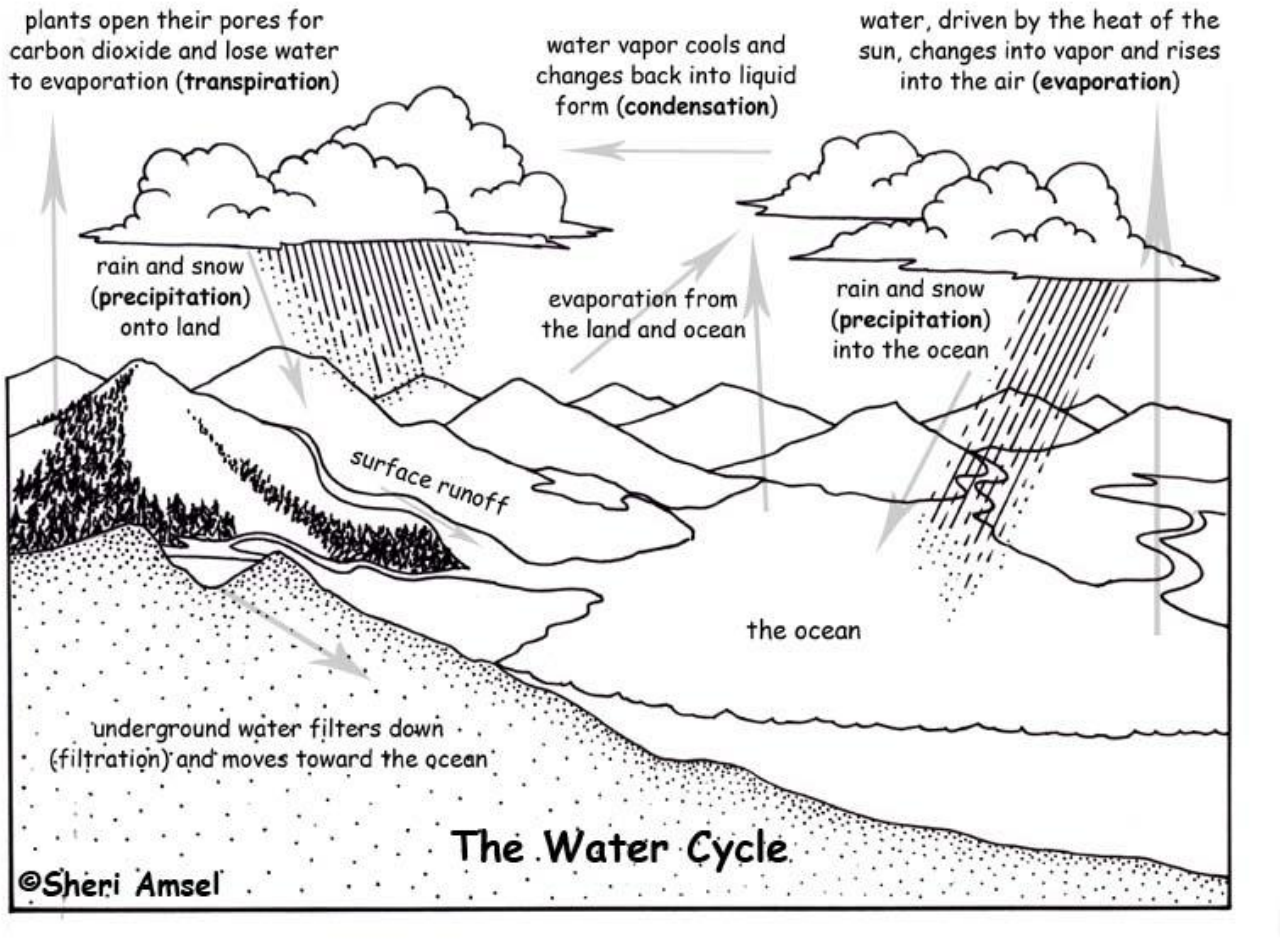
# Biogeochemical Cycles: Water, Nitrogen, Carbon, sulfur, and phosphorus

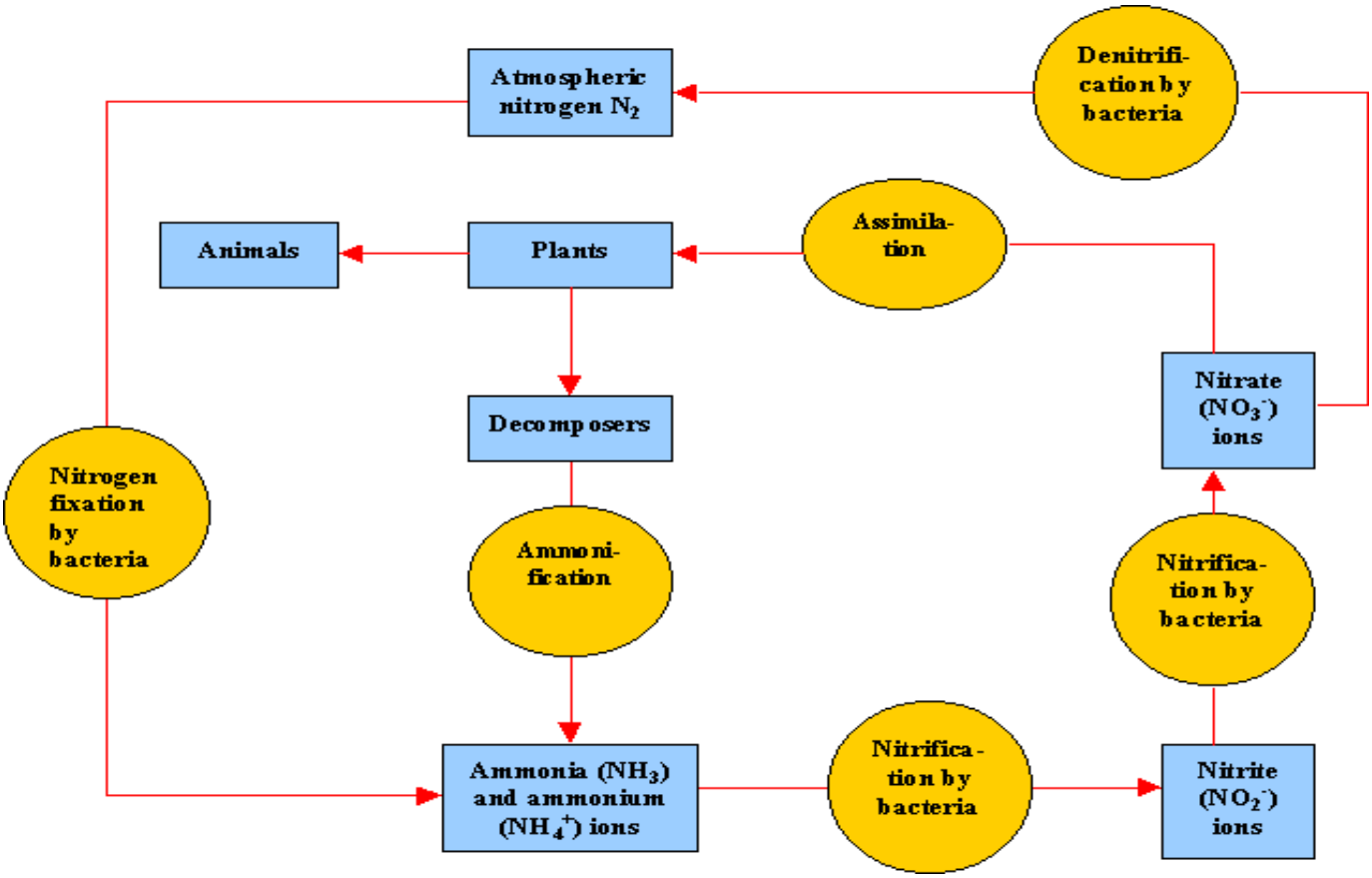



**Assignment:** Pretend you are a drop of water in the ocean. Describe your voyage in the water cycle. Your goal is to ultimately return back to the ocean. You must use the following words in your journey: **condensation, evaporation, transpiration, precipitation, percolation, and runoff**. Please underline the word when used. You may use the diagram above to assist with your writing.

# Nitrogen Cycle

**Directions:** Watch the video clip http://studyjams.scholastic.com/studyjams/jams/science/ecosystems/nitrogen-cycle.htm

Below is a chart of the nitrogen cycle to help you as well. Answer the questions below.




**Atmospheric Nitrogen's Chemical Formula: _____**
**Ammonia's Chemical Formula: _____**

**Nitrate's Chemical Formula: _____**
**Ammonium's Chemical Formula: _____**

1) Who runs the nitrogen cycle?

2) What are nodules?

3) Nitrogen in the air is what chemical formula?

4) Why can't plants use ammonia?

5) Describe the process of nitrification.

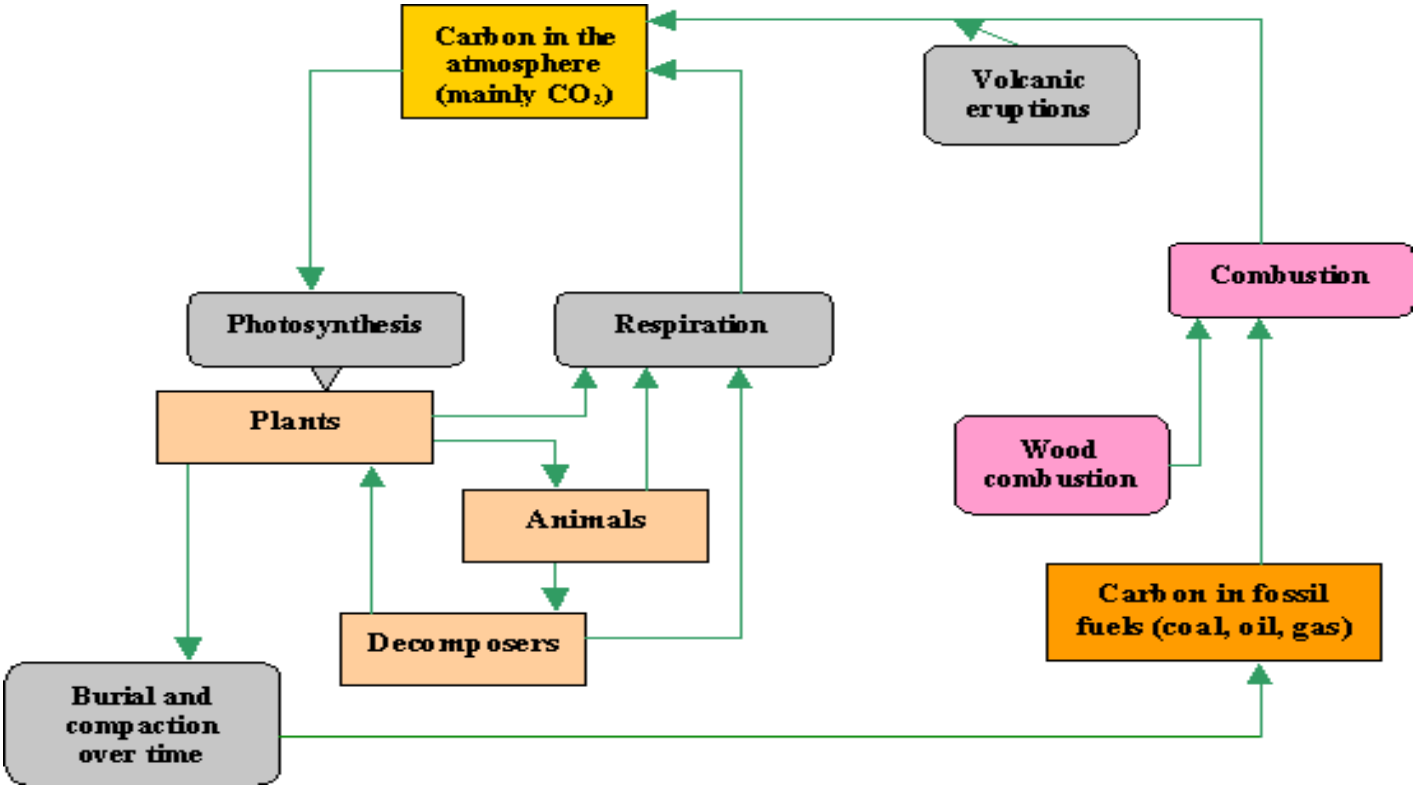
6) What do plants use nitrogen for (assimilation)?

7) How do decomposers help the nitrogen cycle (denitrification)?

8) What are two environmental effects of too much nitrogen in the air?

# Carbon Cycle

**Carbon Cycle Directions:** Watch the video clip http://studyjams.scholastic.com/studyjams/jams/science/ecosystems/carbon-cycle.htm . Below is a chart of the Carbon Cycle to help as well. A carbon **sink** is any place/thing where carbon is stored. A carbon **source** is any place/thing where carbon is released.




1) What is respiration in terms of carbon?

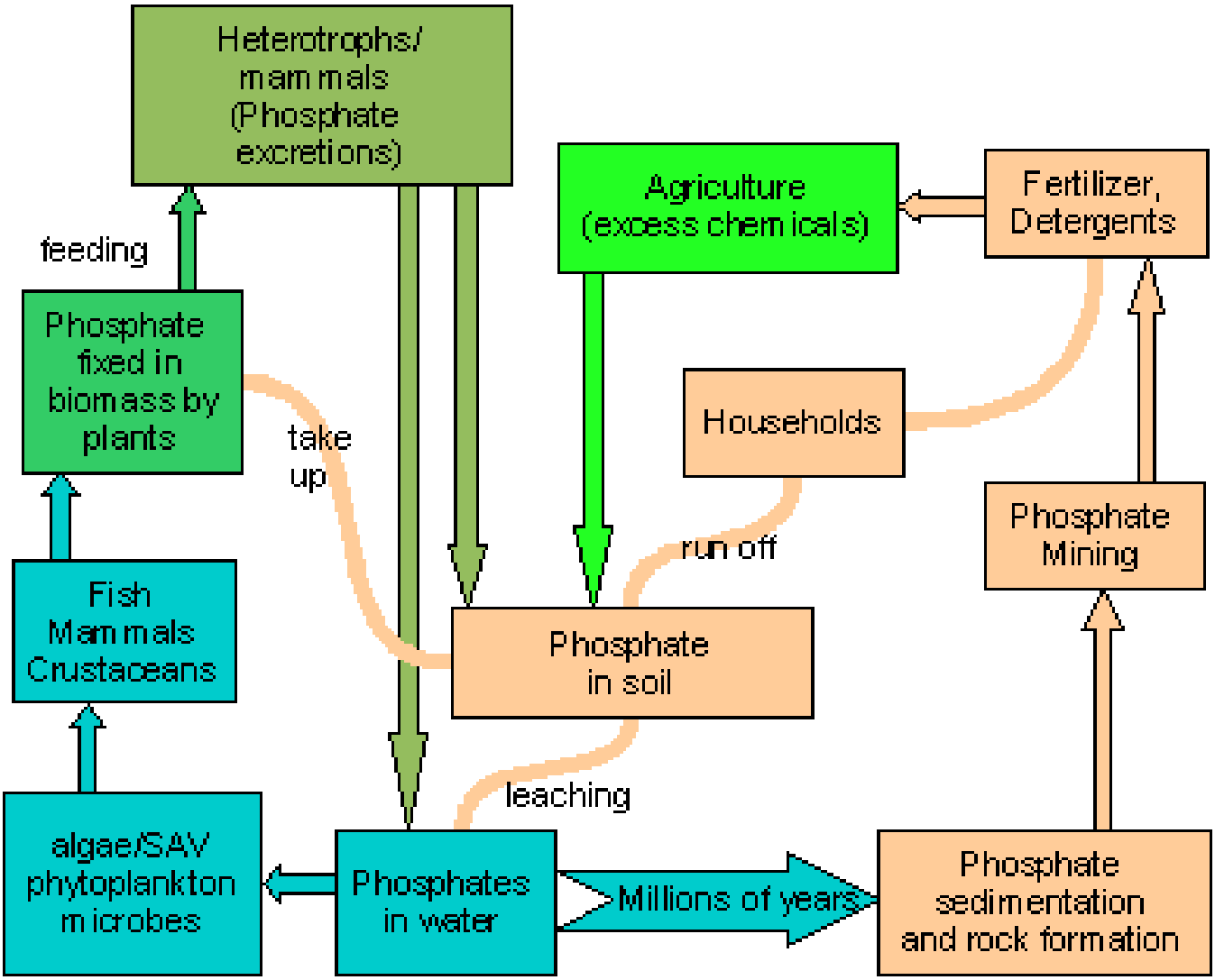
2) What is photosynthesis in terms of carbon?

3) Why do you think that the global carbon cycle is upset? Explain.

**Fill in the Chart Below. What are common sinks of carbon? What are some sources of Carbon?**

| Sinks of Carbon (Storage Areas) | Sources of Carbon (Releasing Carbon) |
|---|---|
| Seashells (Bicarbonate $HCO_3$ ions) | Volcanoes (Carbon dioxide $CO_2$) |

# Phosphorus Cycle

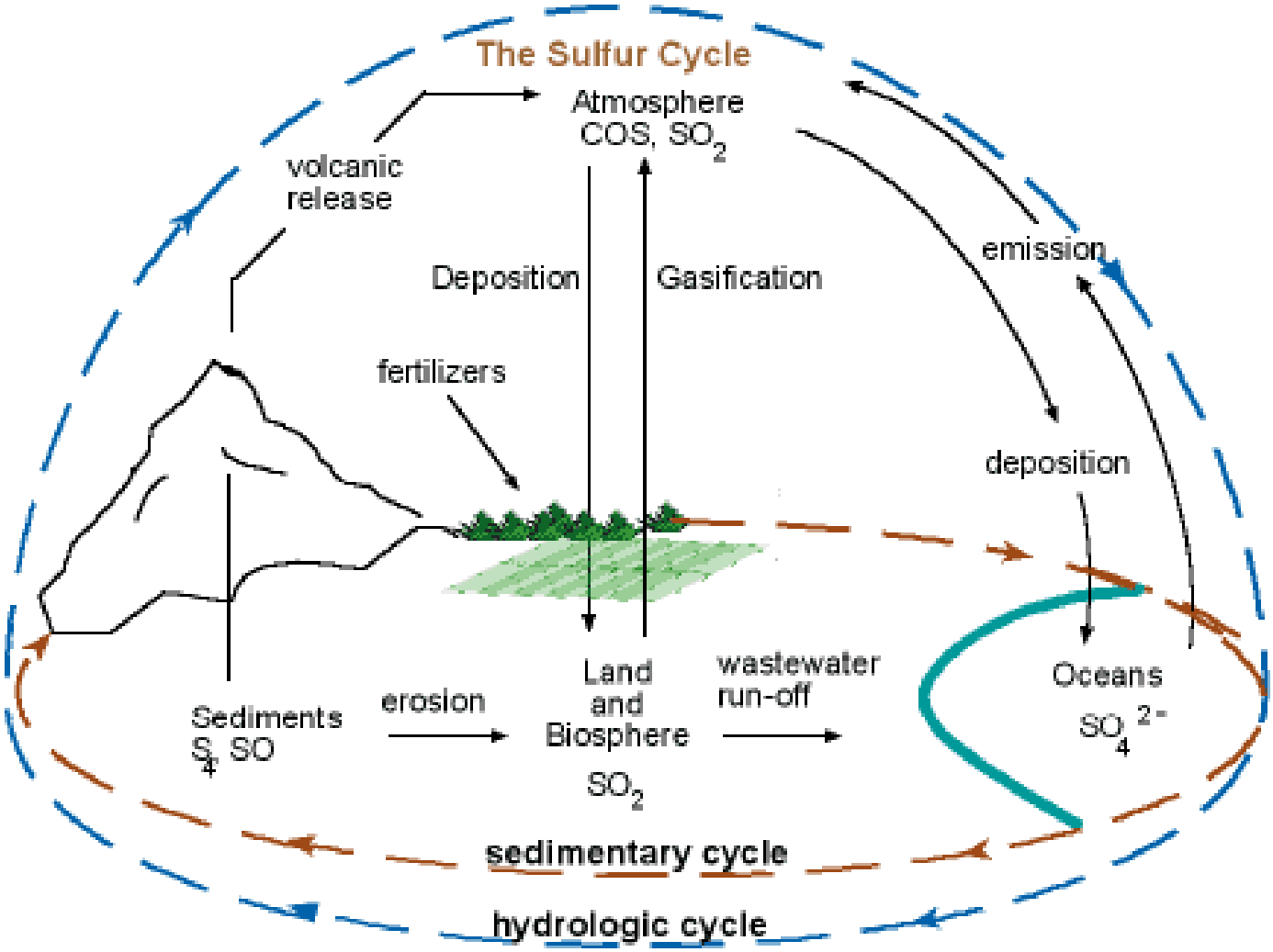



1) What takes up and uses phosphorus?

2) How does phosphorus enter the water?

3) Is there a gaseous phase of phosphorus? What is your evidence?

# Sulfur Cycle




1) What are three sources of sulfur?

2) What are three sinks of sulfur?

3) How are humans impacting the sulfur cycle? Describe in detail at least one process.