**The Carbon and Nitrogen Cycle: What goes around comes around**

1. What is the element number for carbon on the periodic table of elements?
   1. Carbon: **\_\_\_6th\_\_\_\_**
   2. Nitrogen: **\_\_\_7th\_\_\_**
2. **True**/False: Carbon and nitrogen are essential for living organisms.
3. Who were the two scientists that discovered the carbon cycle?
   1. **Antoine Lavoisier**
   2. **Joseph Priestley**
4. What are carbon and nitrogen storage pools?

**A carbon storage pool is an area that holds a large amount of carbon. A nitrogen storage pool is an area that holds a large amount of nitrogen.**

1. What are the two forms of carbon gas that are in the atmosphere?

**Carbon dioxide (CO2) and methane (CH4)**

1. What are the four forms of nitrogen that we see in the nitrogen cycle?

**Nitrogen gas (N2), ammonia (NH3), nitrites (NO2-), and nitrates (NO3-)**

1. What are greenhouse gases?

**Greenhouse gases are gases that trap heat in the Earth’s atmosphere.**

1. What are two ways that carbon is transferred from the atmosphere? What carbon pool are they transferred to?

**Photosynthesis (biosphere), weathering (lithosphere), and precipitation (hydrosphere)**

1. What are two ways that carbon is transferred from the hydrosphere? What carbon pool are they transferred to?

**Diffusion (atmosphere), shellfish (biosphere), and subduction (lithosphere)**

1. What is one way that carbon is transferred from the lithosphere? What carbon pool is it transferred to?

**Volcanism (atmosphere), burning fossil fuels (atmosphere), and photosynthesis (biosphere)**

1. What are two ways that carbon is transferred from the biosphere? What carbon pool are they transferred to?

**Decomposition (lithosphere), cellular respiration (atmosphere), or ruminant digestion (atmosphere)**

1. What gas product do livestock species produce as a product of digestion?

**Methane gas (CH4)**

1. What are two ways that humans impact the carbon cycle?

**Deforestation, burning fossil fuels**

1. What are the five major processes in the nitrogen cycle?
   1. **Nitrogen fixation**
   2. **Ammonification**
   3. **Nitrification**
   4. **Assimilation**
   5. **Denitrification**
2. What are two impacts that humans have on the nitrogen cycle?

**Using nitrogen based fertilizer in crops and other agriculture, sewage runoff into bodies of water, or using modern technology that creates nitrogen**

1. Why has the Earth’s temperature been rising consistently over the past few decades?

**Human impact on the carbon cycle has increased the levels of carbon dioxide in the atmosphere, which increases the greenhouse effect by trapping more heat in the atmosphere.**

1. True/**False**: Carbon dioxide and temperature are ~~not~~ related and are independent of each other.