Student Exploration: Carbon Cycle

Vocabulary: atmosphere, biomass, biosphere, carbon reservoir, carbon sink, fossil fuel, geosphere, greenhouse gas, hydrosphere, lithosphere, photosynthesis

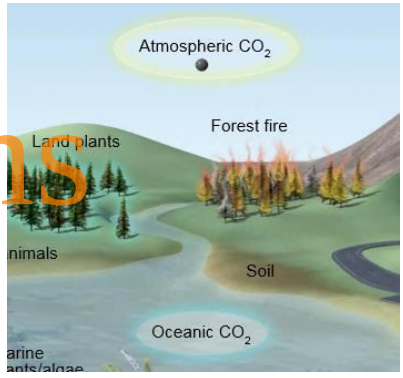
Prior Knowledge Questions (Do these BEFORE using the Gizmo.)
In the process of **photosynthesis**, plants take in carbon dioxide (CO_2) from the atmosphere and water (H_2O) from the soil. Using the energy of sunlight, plants build molecules of glucose ($C_6H_{12}O_6$) and oxygen (O_2). Make sure all of your answers are in a different color.

1. How do plants on Earth affect the amount of carbon in Earth's atmosphere?
   Plants take in carbon dioxide and process it into oxygen.

2. Animals eat plants and produce carbon dioxide and water. How do animals affect the amount of carbon in Earth's atmosphere?
   They eat plants that process carbon dioxide and when they eat theses plants, there are fewer plants that can process the carbon dioxide.

Gizmo Warm-up

The *Carbon Cycle* Gizmo allows you to follow the many paths an atom of carbon can take through Earth's systems. To begin, notice the black carbon atom in the **Atmospheric CO_2** area, highlighted in yellow. The glowing blue areas represent possible locations the carbon atom could go next.



1. From Earth's atmosphere, where can the carbon atom go next? Oceanic Co2, land plants, and exposed rock

2. Click on **Land plants** and read the description (at the bottom of the simulation). How did the carbon atom get from the atmosphere to a plant? Plants use energy from the sun for photosynthesis. Most of the oxygen is released.

3. Select **Land animals**. How did the carbon atom get from land plants into the animal (read the description)? Land animals consume plants for energy.

4. Select **Atmospheric CO_2**. How did the carbon atom get from land animals back to the atmosphere? They release carbon dioxide back into the atmosphere through cellular

learnexams