j0285360**The Carbon Cycle**

Carbon is an important abiotic factor in our environment. It can combine with many other elements and is found in some very different places within the Earth system. Living things, including plants and animals, are made of carbon and depend on carbon for nutrition. Carbon is also an important component in bones, seashells, and chemical sedimentary rocks like limestone. Carbon can dissolve in water. In the atmosphere, carbon forms a greenhouse gas called carbon dioxide. Carbon continually moves through these parts of the Earth system. This is called the carbon cycle.

The carbon cycle is one of the biogeochemical cycles. Other biogeochemical cycles we will study include the water cycle and the nitrogen cycle. In biogeochemical cycles, elements are transported between the atmosphere, biosphere (living things), hydrosphere (water) and geosphere (rocks, minerals, and soils).

1. Begin by reading the *Windows to the Universe* page entitled The Carbon Cycle and answer the following questions. <http://www.windows2universe.org/earth/Water/co2_cycle.html>
   1. What process pulls carbon dioxide from the air?
   2. Where do animals get their carbon from?
   3. When plants and animals die, their bodies, wood and leaves \_\_\_\_\_\_\_\_\_\_\_ bringing the carbon into the ground.
   4. What is the name of the process used by plants and animals to release carbon dioxide back into the atmosphere?
   5. Humans release carbon dioxide gas into the atmosphere by burning fossil fuels. Each year how much carbon do we release?
   6. Oceans and other bodies of water do what with carbon?
   7. There is about \_\_\_\_\_\_% of carbon dioxide in the air today than there was 150 years ago.
   8. Shells and bones can sink to the ocean bottom forming \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which can trap carbon for a long amount of time.
   9. List 5 places carbon is found on Earth:
   10. Name one reason carbon is important:
   11. Name one reason carbon can be dangerous:
2. In the following ***Carbon Cycle Game***, you will play the role of a carbon atom travelling through the carbon cycle. Answer the quiz questions and fill in the table below as you travel. <http://www.windows2universe.org/earth/climate/carbon_cycle.html>

Quiz Questions: \*\* These may not be in order.\*\*

* 1. True or False: Plants both absorb carbon dioxide from the atmosphere and release it into the atmosphere.
  2. True or False: When carbon dioxide is released into the atmosphere from burning fossil fuels, it makes the Earth colder.
  3. In the atmosphere, carbon atoms are often part of a greenhouse gas called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  4. True or False: More carbon can dissolve in cold water than in warm water.
  5. When carbon enters the deep ocean, how long does it stay there?
  6. True or False: Too much carbon in seawater prevents clams, snails, and other sea animals from growing their shells.
  7. True or False: Soils emit carbon dioxide into the atmosphere.

|  |  |  |  |
| --- | --- | --- | --- |
| **Reservoir** | **Where did you come from?** | **How did you get here?** | **2 important facts about this reservoir** |
| **Atmosphere** |  |  |  |
| **Surface Ocean** |  |  |  |
| **Marine Life** |  |  |  |
| **Deep Ocean** |  |  |  |
| **Land Plants** |  |  |  |
| **Soil** |  |  |  |

1. Post Game Discussion Questions
   1. How many stops did you make on your trip?
   2. Will your journey ever end?
   3. Was everyone’s journey the same?
   4. What would happen if we burned more fossil fuels?