Where in the world is carbon?

**Introduction**

The carbon cycle is a “big idea” that can be difficult to understand because parts of it work at a microscopic scale while other parts affect the whole Earth. Also, some parts happen in milliseconds while others can take millions of years to have an effect. We can get a feel for how the whole carbon cycle works by turning the lab into a model of the carbon cycle and seeing how the different things that are produced in the cycle (the products) fit together with the way those products are made (the processes).

**Where is Carbon?**

**Carbon** is a chemical element with the symbol C and atomic number 6. Carbon occurs in all life. This nonmetal also has the interesting chemical property of being able to bond with itself and a wide variety of other elements, forming nearly 10 million known compounds including:

Mixed with other elements:

- When united with oxygen it forms carbon dioxide which is vital to plant growth.
- When united with hydrogen, it forms various compounds called hydrocarbons which are essential to industry in the form of fossil fuels. (example: coal)
- When combined with both oxygen and hydrogen it can form many groups of compounds including fatty substances, flavor to many fruits, and sugar.

Pure Carbon:

- Diamond- pure carbon, hardest known natural mineral
- Graphite- pure carbon, one of the softest substances
- Chaoite- A mineral supposedly formed in meteorite impacts.

**ACTIVITY:**

**What you need**

A copy of the carbon cycle diagram, scissors, handout to cut out products, glue (don’t use until teacher gives permission)

**What to do**

You are going to draw a diagram of the carbon cycle on a big sheet of paper with your team or group. A smaller carbon cycle will be provided so you can make yours similar. Then you
will cut up the different products and place them in the appropriate location on your carbon cycle.

After your group finishes the diagram fill out the chart and answer the questions on a separate piece of paper. Each person should answer questions 1 and 2 separately.

1) What are the processes and products of the carbon cycle? Draw out this table on a separate piece of paper and write down 4 processes and the products those processes produce.

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<tr>
<th>Processes</th>
<th>Products</th>
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2) Use the diagram you produced to answer the following questions. Which products of the carbon cycle:

a) Can you see outside the window?
b) Are fluids (air or liquid)?
c) Might affect global warming?