

Name(s): \_\_\_\_\_

Period: \_\_\_\_\_

### **PART I: The Carbon Cycle Board Game**

You are a carbon atom. For millions of years you were underground in fossil fuels. Now, you have been released into the atmosphere as humans burn fuels. Did you know that 5000 megatons of carbon are released into the atmosphere as fossil fuels are burned each year?

In this game, you will travel the carbon cycle. Your objective is to get to all the places that carbon is stored along this map.

## **TALLY SHEET**

1 (Atmosphere)	2 (Water)	3 (Land Plant)	4 (Sediment/Rock)	5 (Land Animal)	6 (Aquatic Plants)	7 (Aquatic Animals)

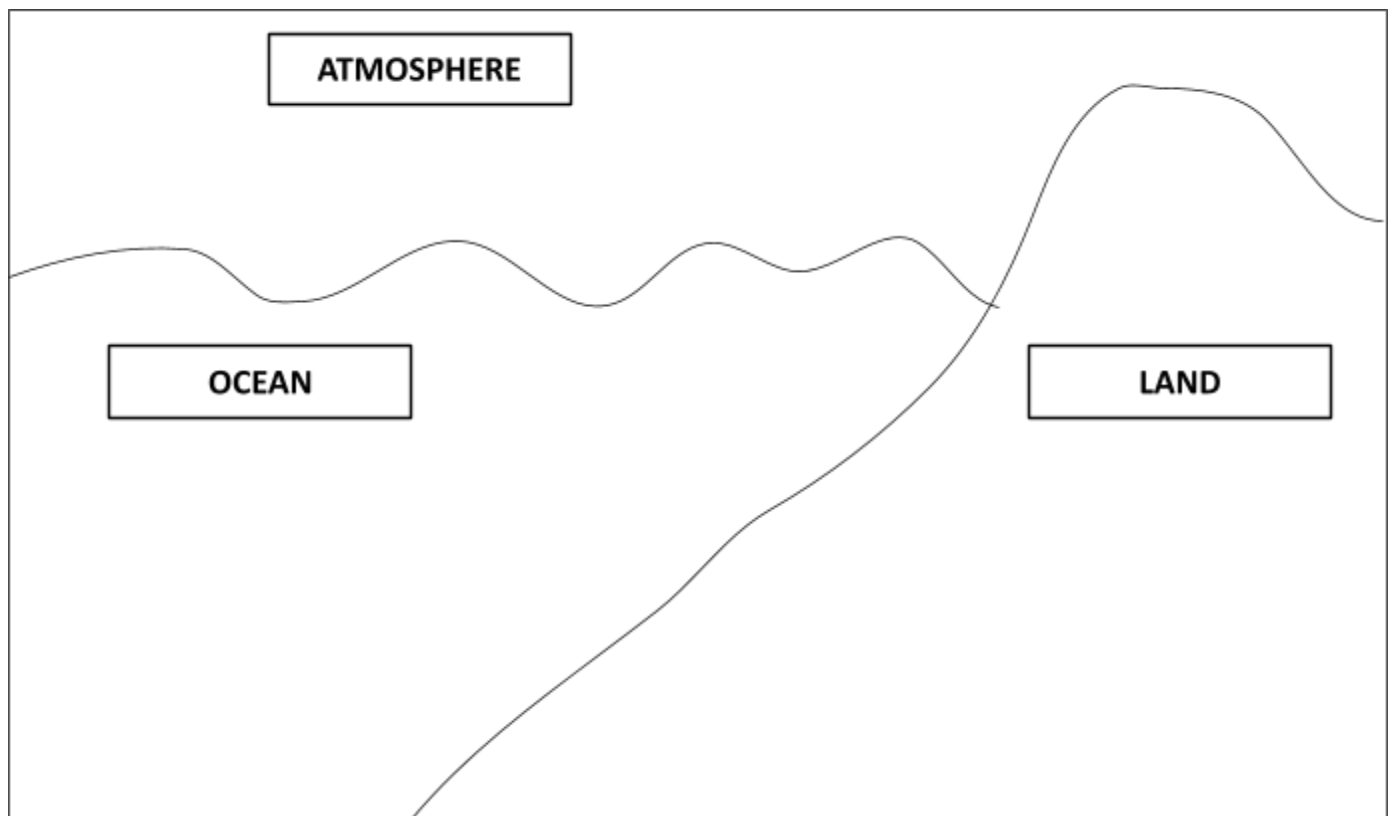
**Please answer the following questions as you play the game:**

1. What are some factors releasing carbon into the atmosphere?
2. What are some factors that store/remove carbon from the atmosphere?
3. Where did you end up the most?
4. How was carbon actually exchanged? READ THE DESCRIPTIONS

## **Part II. Carbon Cycle Diagram**

### **Procedure:**

1. List all the major players discussed in the Carbon Cycle game (atmosphere, caterpillars, water, marine snail, trees, sediments/rocks, and algae) in their respective locations on the diagram below (atmosphere, ocean, or land). You may also include drawings if you wish.
2. Next, use the knowledge you acquired during the game, as well as the Carbon Cycle Board Game Directions, to draw arrows between each player to show how carbon moves from one place to the next. For example, carbon dioxide diffusing back into the atmosphere would show an exchange of carbon from water to atmosphere. You would draw an arrow FROM water TO the atmosphere.
3. **HINT:** starting with one player at a time (such as water) and drawing those exchanges first is highly recommended; this will help you keep track.



Name:

Date:

### **Part III: The Carbon Cycle Analysis Questions**

Answer the following analysis question AFTER completion of the Carbon Cycle Diagram **INDIVIDUALLY**. Be THOROUGH in your answer! Please answer in paragraph form using complete sentences.

1. Explain how and why the carbon cycle is a good example of an "Earth System" (i.e. how does the carbon cycle demonstrate the cycling of matter and the flow of energy in ecosystems). Use examples from your poster! Be sure to explain:
  - a. The chemical, physical, geological, and biological processes covered in class
  - b. How these processes exchange carbon between the biosphere (the whole sum of the ecosystems of the earth), atmosphere, oceans, and geosphere (the rocks and minerals of the earth).