CO_2 Carbon Pathway

NAME DATE

Instructions: Imagine you are a carbon atom in one of many places that carbon is found. Write your starting location on the first line, roll the die, and determine your next location. Follow the instructions for the number you roll to move to another station or stay where you are. What process was responsible for moving you from one carbon pool to another? Repeat this eight times and record in the table below what happens during each round. Make sure to record what happens, even if you have to stay at one station for more than one turn.

Round	Starting Location (Carbon Pool)	What happened? (Carbon Flux)	Ending Location (Carbon Pool)
Example	Atmosphere	Photosynthesis	Forest
1			
2			
3			
4			
5			
6			
7			
8			

CO_2 Station Cards (1 of 2)

Atmosphere

1. You continue to circulate through the atmosphere. **Stay at Atmosphere.**
2. You continue to circulate through the atmosphere. **Stay at Atmosphere.**
3. In a forest, a pine tree needle absorbs and uses carbon dioxide during photosynthesis. **Go to Forest.**
4. In a forest, a pine tree needle absorbs and uses carbon dioxide during photosynthesis. **Go to Forest.**
5. Near the East coast, you dissolve into the waters of the Atlantic Ocean. **Go to Surface Ocean.**
6. Near the East coast, you dissolve into the waters of the Atlantic Ocean. **Go to Surface Ocean.**

Wood Products

1. The lumber where you are sequestered is used to build a house. **Stay at Wood Products.**
2. The lumber where you are sequestered is used to build a house. **Stay at Wood Products.**
3. After many years, the lumber gets thrown in a pile of old wood and begins to rot and break down. **Go to Soil Carbon.**
4. You are eaten by termites. **Go to Animals.**
5. After many years, the lumber where you are sequestered gets burned for firewood. **Go to Atmosphere.**
6. After many years, the lumber where you are sequestered gets burned for firewood. **Go to Atmosphere.**

Forest

1. Through respiration, a tree uses your sugar molecule for energy. **Go to Atmosphere.**
2. The pinecone where you have been stored is eaten by an Eastern fox squirrel. **Go to Animals.**
3. You become sequestered in a tree's trunk. After several years, your tree gets cut down. **Go to Wood Products.**
4. You become sequestered in a tree's trunk. After several years, your tree gets cut down. **Go to Wood Products.**
5. You become sequestered in a tree root, which dies and decays. **Go to Soil Carbon.**
6. A fire moves through the forest and burns the tree where you have been stored. **Go to Atmosphere.**

Surface Ocean

1. Through wave action, you mix with air and come out of the water—leaving solution as carbon dioxide gas. **Go to Atmosphere.**
2. Through wave action, you mix with air and come out of the water—leaving solution as carbon dioxide gas. **Go to Atmosphere.**
3. You continue mixing in water near the surface of the ocean. **Stay at Surface Ocean.**
4. Water currents and ocean mixing send you deeper within the ocean. **Go to Deep Ocean.**
5. An algae plant takes you in during photosynthesis. **Go to Marine Life.**
6. An algae plant takes you in during photosynthesis. **Go to Marine Life.**

CO_2 Station Cards (2 of 2)

Soil Carbon

1. As the organic matter decomposes, you become carbon dioxide through soil respiration. **Go to Atmosphere.**
2. As the organic matter decomposes, you become carbon dioxide through soil respiration. **Go to Atmosphere.**
3. An insect eats the rotting material where you are located. **Go to Animal.**
4. An insect eats the rotting material where you are located. **Go to Animal.**
5. You become buried in layers of leaf litter and soil. **Stay at Soil Carbon.**
6. You become buried in layers of leaf litter and soil. **Stay at Soil Carbon.**

Deep Ocean

1. Ocean mixing and water currents send you toward the surface. **Go to Surface Ocean.**
2. Ocean mixing and water currents send you toward the surface. **Go to Surface Ocean.**
3. Ocean mixing and water currents send you toward the surface. **Go to Surface Ocean.**
4. Ocean mixing and water currents send you toward the surface. **Go to Surface Ocean.**
5. Water currents send you deeper within the ocean. **Stay at Deep Ocean.**
6. Water currents send you deeper within the ocean. **Stay at Deep Ocean.**

Animals

1. A bird eats you for dinner. **Stay at Animal.**
2. You are stored in animal fat cells. **Stay at Animal.**
3. You get released as carbon dioxide during respiration. **Go to Atmosphere.**
4. You get released as carbon dioxide during respiration. **Go to Atmosphere.**
5. When the animal produces waste, you find yourself on the forest floor in a pile of poop. **Go to Soil Carbon.**
6. The animal dies and begins to break down on the forest floor. **Go to Soil Carbon.**

Marine Life

1. You are eaten by tiny marine animal, called zooplankton. **Stay at Marine Life.**
2. You are eaten by tiny marine animal, called zooplankton. **Stay at Marine Life.**
3. You are exhaled through respiration. **Go to Surface Ocean.**
4. You are exhaled through respiration. **Go to Surface Ocean.**
5. The organism you are part of dies. You break down and sink through the waters of the Atlantic Ocean. **Go to Deep Ocean.**
6. The organism you are part of dies. You break down and sink through the waters of the Atlantic Ocean. **Go to Deep Ocean.**