



# THE CARBON CYCLE GAME

Students play the role of carbon atoms traveling through the carbon cycle to gain understanding of the varied pathways through the cycle and the relevance of carbon to living and non-living things..

## Related Web Pages for Students

- <http://eo.ucar.edu/kids/green/cycles6.htm>
- [http://www.windows2universe.org/earth/Water/co2\\_cycle.html](http://www.windows2universe.org/earth/Water/co2_cycle.html)
- <http://www.physicalgeography.net/fundamentals/9r.html>

## Student Learning Objectives

- Students will learn that carbon cycles indefinitely through the Earth system and where it is found.
- Students will learn that carbon is integral to Earth's various spheres and that it is exchanged and cycles among them.
- Students will learn that all living things are made of carbon and that it is also a part of the ocean, air, rocks and more.

## Time

- One or more class periods

## Materials

- Copies of game posters on 8.5"x11" sheets of paper
- Copies of game tickets placed at the appropriate center
- Passport, one per student
- Stickers, stamps, or other passport markers
- 1 pencil per student

## National Standards

5-8 Content Standard D: Structure of the Earth System  
5-8 Content Standard C: Populations and Ecosystems  
9-12 Content Standard C: Interdependence of Organisms  
9-12 Content Standard D: Geochemical Cycles

## Preparation

1. Post the larger poster signs provided representing various carbon sources and sinks at various stations around the room.
2. Print passport tickets for each carbon source and sink and place them with their corresponding station. The initials at the bottom of each ticket represent the initials of the center to which they belong.
3. Place a unique stamp or sticker at each center with which students will mark their passports when visiting the center.
4. Copy the passport worksheets, one for each student.

## Activity

1. Determine what students know and don't know about carbon and the carbon cycle. Discuss the carbon cycle as a class and explain carbon sources and sinks.
2. Place the various carbon stations and each station's tickets in various locations about the room (a larger room is best). Explain that these are places where carbon can be found within the carbon cycle.
3. Tell the students that they each will be playing the role of a carbon atom. They will be given a passport and start at one of the stations, draw a ticket, and cycle to new places placed on the information on the ticket drawn. They will record the various stations they visit by marketing their travels on their individual passport. Students should write a note on the passport to explain how they went from one station to the next (i.e. decomposition, animal respiration...).
4. Spread the students out among the various stations and have them begin their travels.
5. Discuss these questions and more with your students following the activity:
  - In the real world, does the cycling of carbon stop?
  - Was everyone's journey the same? Why or why not?
  - What might cause an increase or decrease of carbon dioxide in a given location such as in the atmosphere or buried under ground.
  - Carbon dioxide is often referred to as a greenhouse gas. What does that term mean?
  - Where do you think most of the carbon is located on our planet? Look for evidence online to support your opinion.

*Related Background Information on the Carbon Cycle and biogeo-chemical cycles in general can be found at the website at the top of the page.*