# The Carbon Cycle

**Real World Ecosystems**
**Activity**
**Grade Level: 5-8**

## Main Objectives

Learners are introduced to terminology along with background information on the carbon cycle, then they will read a story about the life of a carbon atom as it is passed from one form to another.

## Learning Outcomes

By the end of this activity, learners will:

- Describe matter cycles in terms of the stages and processes by which specific atoms are withdrawn from a source, are incorporated into the tissues of living organisms, and return to their original source.
- Construct a simple diagram to represent each of the given cycles.
- Identify some of the ways in which human activity may chance each of he cycles and the issue involved with that change.

## Length of Activity

2 hours

## Materials List

Matter Cycles Backgrounder
The Carbon Cycle Backgrounder
The Carbon Cycle Activity
The Carbon Cycle Learner Worksheet
The Carbon Caper Article

## Procedure

### Step 1: Backgrounder

a. In groups or individually, review the Matter Cycles Backgrounder to introduce basic concepts about how matter cycles in the environment.
b. Then, in groups or individually, review the Carbon Cycle backgrounder.

### Step 2: Worksheet

a. Have learners complete part A of the Carbon Cycle Worksheet.

### Step 3: Carbon Caper Article

a. In groups or individually, have learners read the Carbon Caper Article.

### Step 3: Worksheet

b. Have learners answer the Carbon Caper questions on part B of the worksheet.

## Tips and Extensions

- Ask learners to look through various print media such as magazines and newspapers, to identify articles that might be related to the issue of human changes to the cycles presented.
- Demonstrate how matter cycles by building a biosphere in a bottle.
    - Build one as a demo or have learners work in small groups to create one per group. A large water bottle (20 L) or a large glass jar can use used. Have the learners put a layer of rocks (3L), activated charcoal (1L), a few pinecones and humidity-loving plants (3-4) in the bottle

- Then spray with water and cap tightly. Discuss how the biosphere bottle is much like the Earth's atmosphere and has its own matter cycles.

## Comprehension

- When learners have finished this activity, they should be able to describe the key characteristics of the carbon cycle.
- Have learners identify some of the following terms:
  - CO2
  - Combustion
  - Respiration
  - Photosynthesis
- Discuss how plants and animals dying contribute to the carbon cycle.
- Discuss how animal respiration is also part of the carbon cycle.
- Have learners think of examples of sources and sinks.
- Discuss why there is concern about depleting fossil fuels?
- Have learners recount the carbon cycle and how matter flows.
- Ask learners why are plants photosynthetic, and why do they capture carbon dioxide from the atmosphere.