



CRITICAL THINKING ACTIVITY: WHAT GOES AROUND COMES AROUND!

OBJECTIVES: Students will:

- ✚ Understand that carbon is critical to the biosphere and must continue cycling to support life on earth.
- ✚ Be able to identify carbon sources, sinks, and release agents in the carbon cycle.
- ✚ Create a visual representation of the carbon cycle.

MATERIALS:

- ✚ Research materials
- ✚ **Student Activity** Sheets
- ✚ Tag board
- ✚ Colored pencils/Glue/scissors
- ✚ Computer access if desired

PROCEDURE:

1. Students should be assigned one of the five aspects of the carbon cycle to research and fully understand. Research may be done in class or at home. Those aspects include:

- ✚ Photosynthesis
- ✚ Respiration
- ✚ Combustion
- ✚ Carbonization
- ✚ Death/decomposition

2. In preparation for their next class period, students should write at least two paragraphs describing what you know about this aspect of the organic carbon cycle, including answering the following:

- ✚ Where does this process occur in the biosphere and geosphere?
- ✚ How important it is relative to other processes in the short-term carbon cycle?

Teacher Sheet 2

- ✚ What is the correct chemical equation to describe the process?
- ✚ What is the rate of the process, with correct units?
- ✚ What is the residence time of carbon in the sink that leads to this process?
- ✚ How does this process affect or control atmospheric CO_2 ?

3. Students will meet with other members of their class to share their understanding of that specific aspect of the carbon cycle.

4. Students should then be placed in teams of 5 students and explain to other students their particular aspect of the carbon cycle.

5. In exchange, students responsible for other aspects will explain their understanding to the teams of five.

6. At the end of the sharing episodes, all students should have a fairly comprehensive understanding of all aspects of the carbon cycle.

7. Students should go on to complete the chart attached.

8. In their teams, students should each create a concise visual representation of the carbon cycle. It is their choice which format they choose:

- ✚ A collage
- ✚ A cartoon story
- ✚ A simplified diagram
- ✚ A diorama

9. Prior to presenting the finished artifact to the class, students should prepare a draft proposal of a timeline on the Carbon Cycle explaining significant information and noting the key parts of the Earth system involved. The draft should show brainstorming, concept mapping, website, and books or videos used for research.