

## **Climate Heroes Lesson Plan**

### **The Carbon Cycle and its Role in Climate Change**

#### **Activity 4**

**Grades 8-10**

**Time required:** 2 class periods

#### **Focus question**

- How does carbon cycle through the troposphere?

#### **Learning objective**

- Students will compare and contrast natural vs. handmade origins of carbon in the atmosphere and explain specific human activities that impact climate change through class presentation and a series of targeted questions.

#### **Materials**

- internet
- poster board

#### **Procedures**

1. Use provided resources and websites you find during your research to complete the assignment.
2. After reading about the carbon cycle create a poster on the carbon cycle. The poster should be completed as described below:
  - Where appropriate include chemical compounds or reactions involved in the cycle
  - Identify inorganic and organic reservoirs for the element (where is this element stored throughout the cycle).
  - In addition to the above content, posters should be visually pleasing including colour, illustrations, and any other items you would like to use. For example, you may want to use cotton balls to represent clouds. You can color them gray to show the pollutants released when fossil fuels (carbon) are burned.

**Additional Information:** On the back of your poster, answer the following questions, in full sentences, about the carbon cycle.

Carbon cycle:

- In what four organic compounds is carbon found?
- Carbon dioxide comprises approximately what percent of tropospheric gases?
- How is the relative amount (%) of CO<sub>2</sub> significant in contributing to the Earth's "natural thermostat"?
- Identify the two processes which have the greatest influence on tropospheric concentrations of CO<sub>2</sub> on a monthly or yearly basis.
- Name the two largest sinks (storage areas) for carbon.
- Discuss how oceans play a major role in regulating CO<sub>2</sub> levels in the troposphere.
- Describe the major ways that human activity influences the carbon cycle.

**Presentation**

You will present your poster and discuss the additional information questions with the classroom.