GLOBE Trees

Carbon Around Me*

Background

Carbon is the basic building block of life. Carbon atoms are found everywhere on Earth. Carbon accounts for 45-50% of the total mass of the biosphere and is also stored in the ocean, the atmosphere, and the crust of the planet. A carbon atom could spend millions of years moving through Earth in a complex cycle. The global carbon cycle characterizes the movement of carbon between Earth's spheres. It is a key regulator of Earth's climate system and is central to ecosystem function.

Task

Students will learn:

- About the existence of the carbon cycle and its main parts.
- Discuss, what carbon pools and fluxes (flows) can be found in your area.
- Think about local sources of carbon.

Time

20-30 minutes

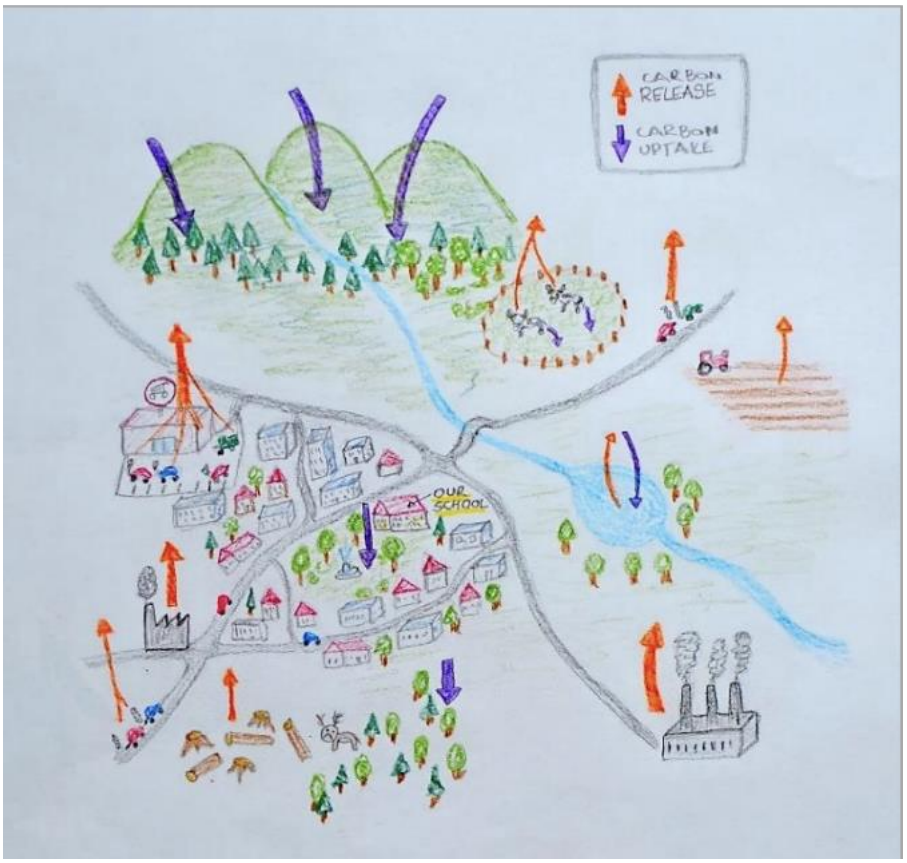
Materials

- Computer with internet access
- Poster paper
- Crayons

What to Do

1. Watch an animation that provides an illustration of the various parts of the Carbon cycle: https://svs.gsfc.nasa.gov/10494 (created by NASA/Goddard Space Flight Center/UMBC). In the animation, purple arrows indicate the uptake of Carbon; yellow arrows indicate the release of Carbon.
2. Let your students think about and discuss carbon release and uptake of carbon in your surroundings. Are there any major sources of carbon? Are there any pools?

3. Create a carbon map of your neighborhood based on the results of your discussion. You can use the map from the next page or create your own.
4. Use a different color for uptake and for release flows.
5. Add a legend on the map.



Example of neighborhood carbon map poster

Optional Steps:

1. Think about your role in the carbon cycle. Which of your activities contribute to the carbon production?
2. With older students do research about carbon cycle sources and storage in your neighborhood.

Glossary

Carbon - a widely distributed element that forms organic compounds in combination with hydrogen, oxygen, etc., and that occurs in a pure state as diamond and graphite, and in an impure state as charcoal.

Carbon Cycle - the process in which carbon atoms continually travel from the atmosphere to the Earth and then back into the atmosphere.

Carbon Dioxide - (CO_2) is an important heat-trapping (greenhouse) gas, which is released through human activities such as deforestation and burning fossil fuels, as well as natural processes such as respiration and volcanic eruptions.

Carbon Fluxes - Movement of carbon between pools, measured in Petagrams/year

Carbon Pools - A place where carbon resides, measured in Petagrams/year

***The Carbon Around Me Activity has been adapted from the "Carbon Around Me Activity" created by the GLOBE Program's European Phenology Campaign.**