



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
2021 Volume IV: The Earth's Greenhouse and Global Warming

Understanding the Carbon Cycle and Climate Change in 4th Grade

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The science of Earth's global climate system and the responsibilities that all humans share as protective caretakers of our planet are important for every person to understand. We all have a vested interest in our planet because Earth is our only home. People have been observing, questioning, and analyzing collected information about the history of the Earth ever since the earliest humans first wondered about the world around them. Learning from the past is a smart and logical way to prepare for the future.

This unit will help 4th or 5th grade teachers prepare students to explore two big questions related to the Earth's changing climate. The primary goal is to nurture an understanding of the element carbon, Earth's carbon cycle, and how carbon dioxide and other gases contribute to the planet warming greenhouse effect of Earth's atmosphere. The questions are:

- 1) What is carbon and why are all living things on Earth considered to be carbon-based lifeforms?
- 2) What is the greenhouse effect and why should we care about how much carbon is in our atmosphere?

These questions align with the Next Generation Science Standards (NGSS) for 4th grade that many states have adopted or adapted.

(Developed for Elementary Science, grade 4; recommended for Elementary Science, grade 4)

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