

Does it Matter How You Got to School Today?



HOW DID YOU GET TO SCHOOL TODAY? Did you drive or ride in a car? Did you take a bus? Perhaps you walked or rode a bicycle? All of these ways of getting to school take energy in one form or another, but does the source of energy matter to us, or our community, or our world?

If you drove in a car, the energy came from fossil fuels, which are from deposits of carbon from organisms that lived millions of years ago. On the other hand, if you walked or rode a bike, the energy came from food you've eaten. The combustion of fossil fuels such as gasoline have a lot in common with the respiration reactions that take place while digesting food. Both processes release energy and both produce carbon dioxide gas. If the processes are so similar, does it matter which mode you choose to get to school?

Driving the Carbon Cycle

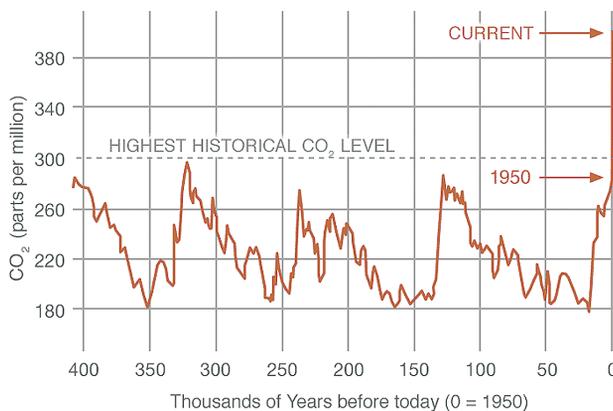
For much of the past 400,000 years the amount of carbon in our global ecosystem has been essentially constant. **This carbon is involved in a complex cycle—it moves among the atmosphere, biosphere (living things), and geosphere (the physical environment).**

The carbon cycle has many loops. For example, gaseous carbon dioxide (CO₂) in the air is consumed by plants, which turn it into carbohydrates, fats, proteins, and other organic (carbon-containing) compounds. When animals eat plants, more carbon compounds are formed but some of the carbon-containing compounds fuel respiration and carbon is released back into the air as carbon dioxide. Also, when plant matter burns or decays carbon-containing compounds

Atmospheric CO₂ concentrations vary, but was something new (or very old) added to the mix a hundred years ago?

Source: National Oceanic and Atmospheric Administration (NOAA) ice-core data. Note: Highest historical level is based on the past 400,000 years.

are released into the air as carbon dioxide. In this way, carbon constantly cycles from carbon dioxide gas in the air to carbon-containing compounds in our world and vice versa. Atmospheric CO₂ variation occurs, but starting a hundred years ago was something new (or very old) added to the mix?



The Global Carbon Budget

But starting in the 18th century this balanced carbon cycle began to change. Humans discovered that fossil fuels could be used for energy, which added carbon to the system. **Before discovering fossil fuels, that carbon was buried for millions of years and didn't take part in the global carbon cycle.** As a result, we've seen a rise in the amount of carbon dioxide in our atmosphere and changes in our global climate systems.

Wise Decisions

How important is it for all of us, worldwide, to reduce the amount of ancient carbon we add to the global system? **To make wise decisions we need to think about where the carbon we are using comes from and where it is going.** Once we understand that, we can begin to make decisions that will help us lessen the impact on the climate. Even if it is thinking about something as simple as how you get to school! 