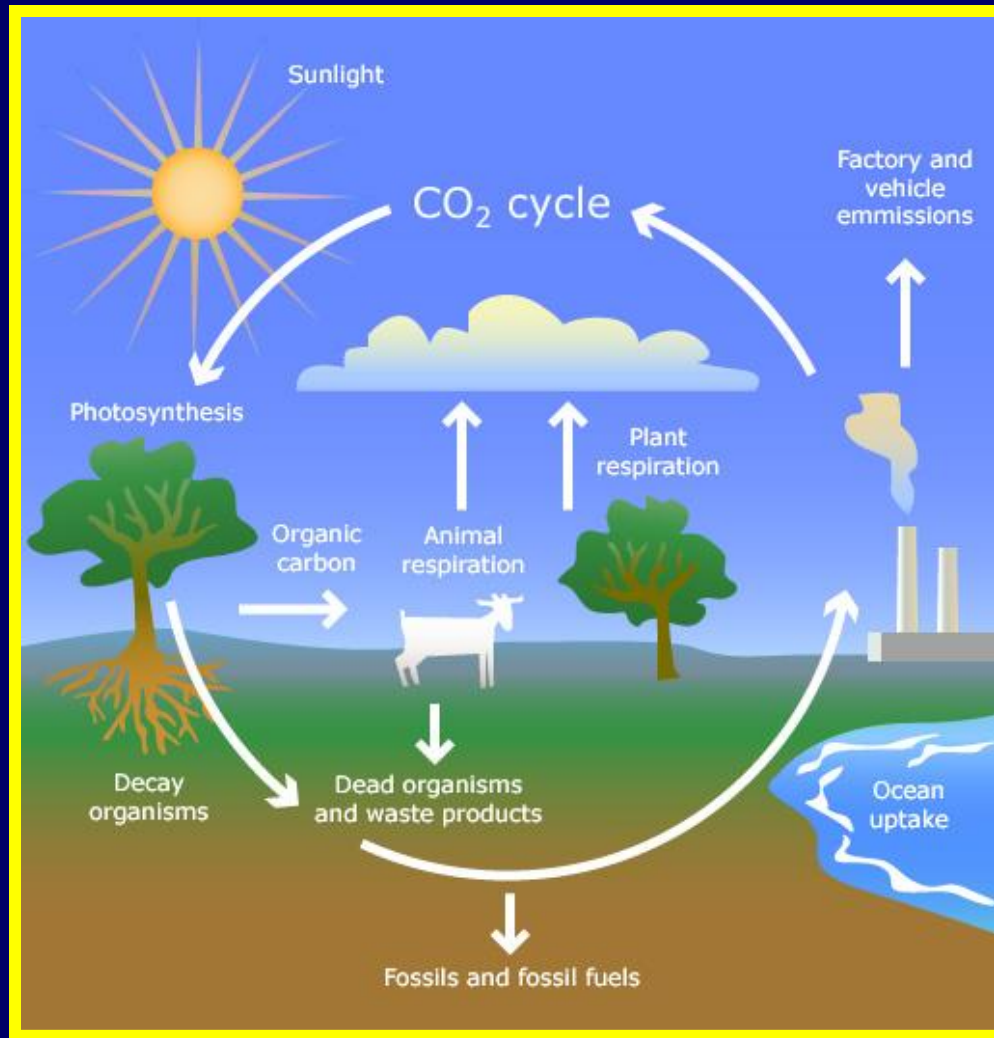


Carbon Cycle



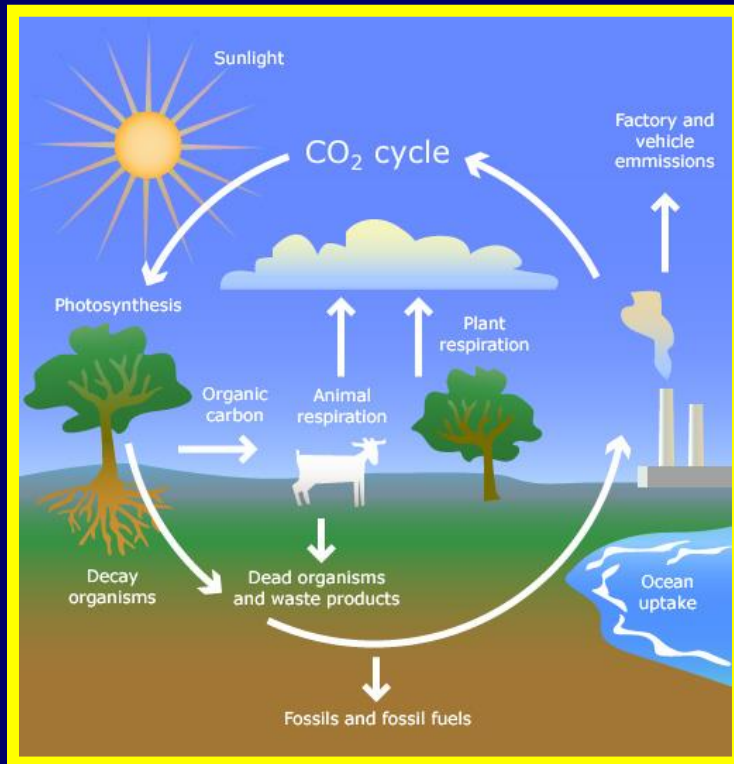
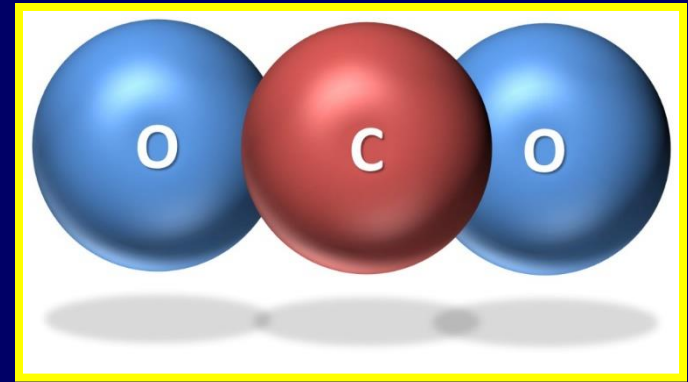
I Can Statements

At the end of this lesson, you should be able to say, with confidence:

- I can explain how carbon dioxide is cycled through various processes in the carbon cycle.
- I can explain how human activity led to an increase in carbon dioxide in the atmosphere and how scientists know it is from human activity.
- I can explain the relationship between increased carbon dioxide levels and an increase in the global average temperature.

Carbon Cycle

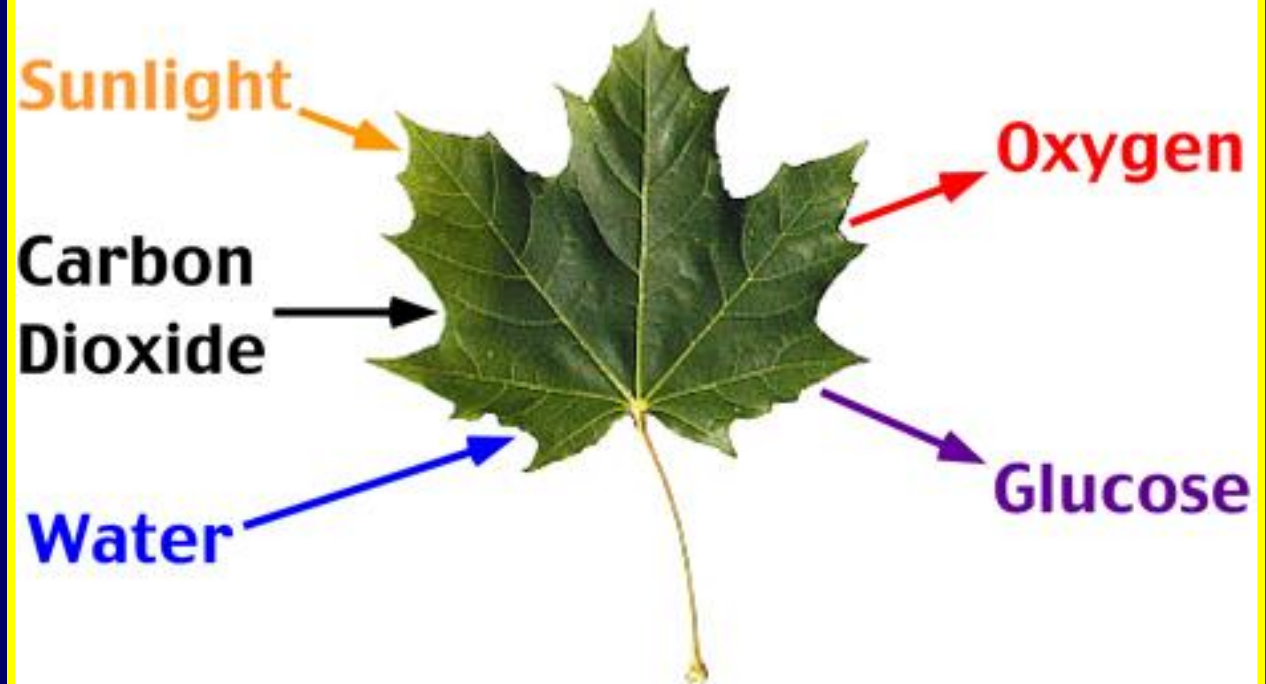
Carbon dioxide, CO_2 , molecules consist of one carbon atom bonded to the two oxygen atoms.



Carbon dioxide, CO_2 , is cycled through the atmosphere, hydrosphere, lithosphere, and biosphere through processes that make up the carbon cycle.

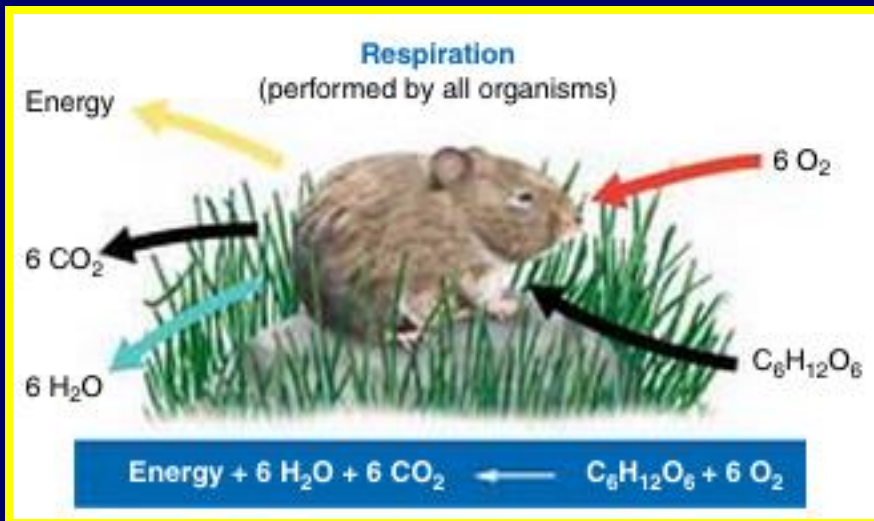
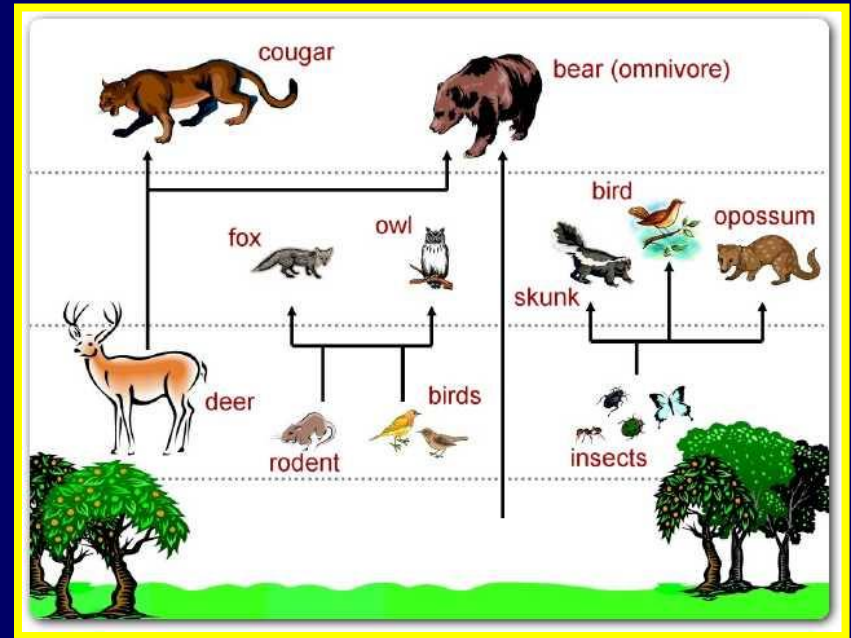
Photosynthesis

During photosynthesis, plants, plankton, other algae, and cyanobacteria remove carbon dioxide, CO_2 , from the atmosphere and use light energy to convert the carbon into glucose, $\text{C}_6\text{H}_{12}\text{O}_6$.



Respiration

Carbon, in the form of glucose, $C_6H_{12}O_6$, is then passed through the food chain.



As food is broken down, carbon dioxide, CO_2 , is released back into the atmosphere through the process of respiration.

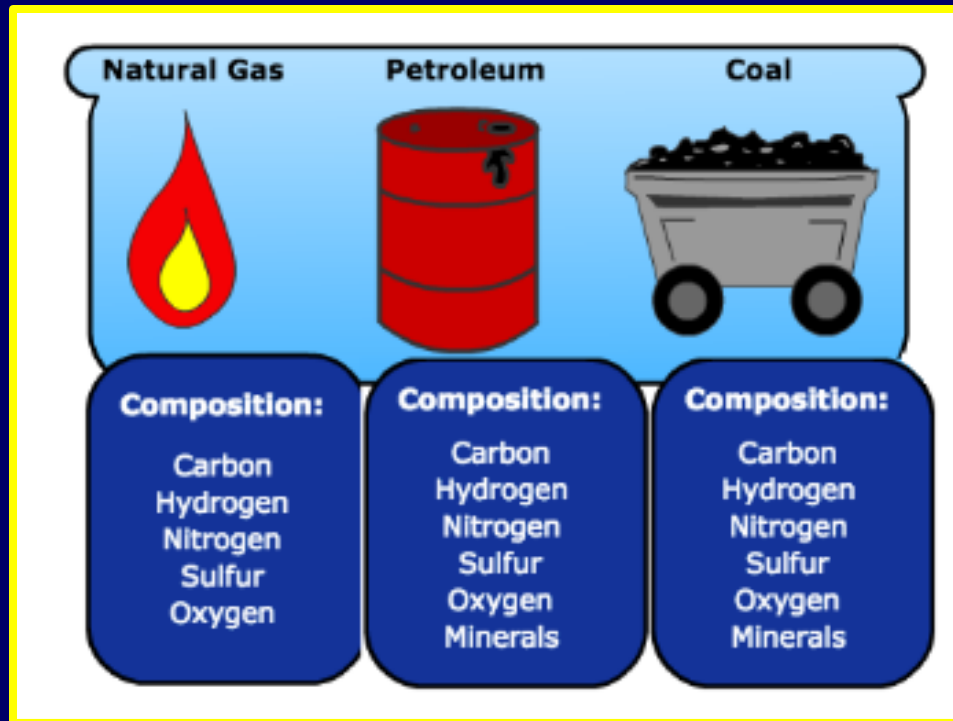
Decomposition

Decomposition also releases carbon dioxide, CO_2 , into the atmosphere, as plant and animal wastes are broken down by decomposers.



Fossil Fuels

Organic matter, rich in carbon, that is not decomposed ends up being buried and, overtime, due to heat and pressure, turns into carbon-rich fossil fuels such as coal, oil, and natural gas.

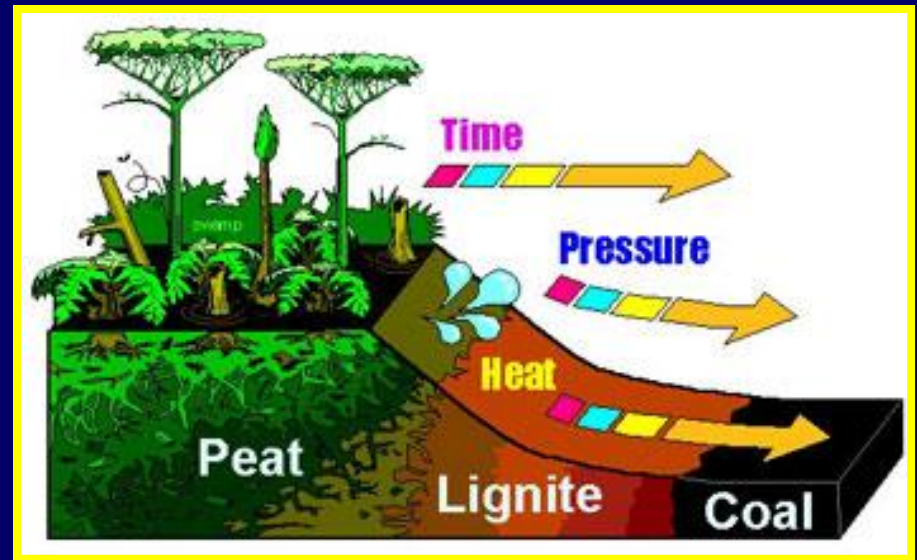


Coal



Trees that died in swamps millions of years ago were unable to decompose due to the lack of oxygen in the water and soil.

The dead trees were eventually buried and over time, heat and pressure turned the carbon rich material into coal.



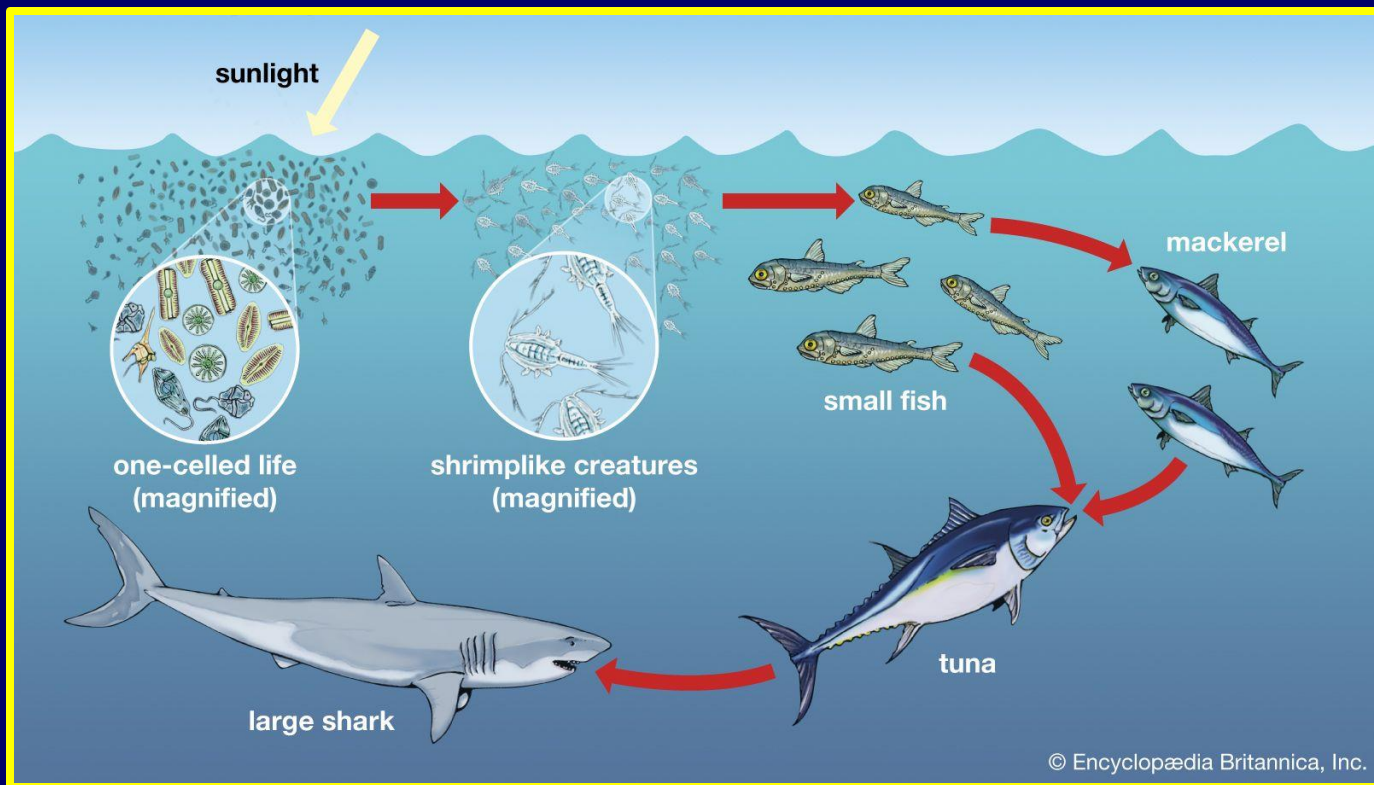
Carbon Sinks

Coal is a carbon sink, as it takes millions of years to form and remains underground until removed.



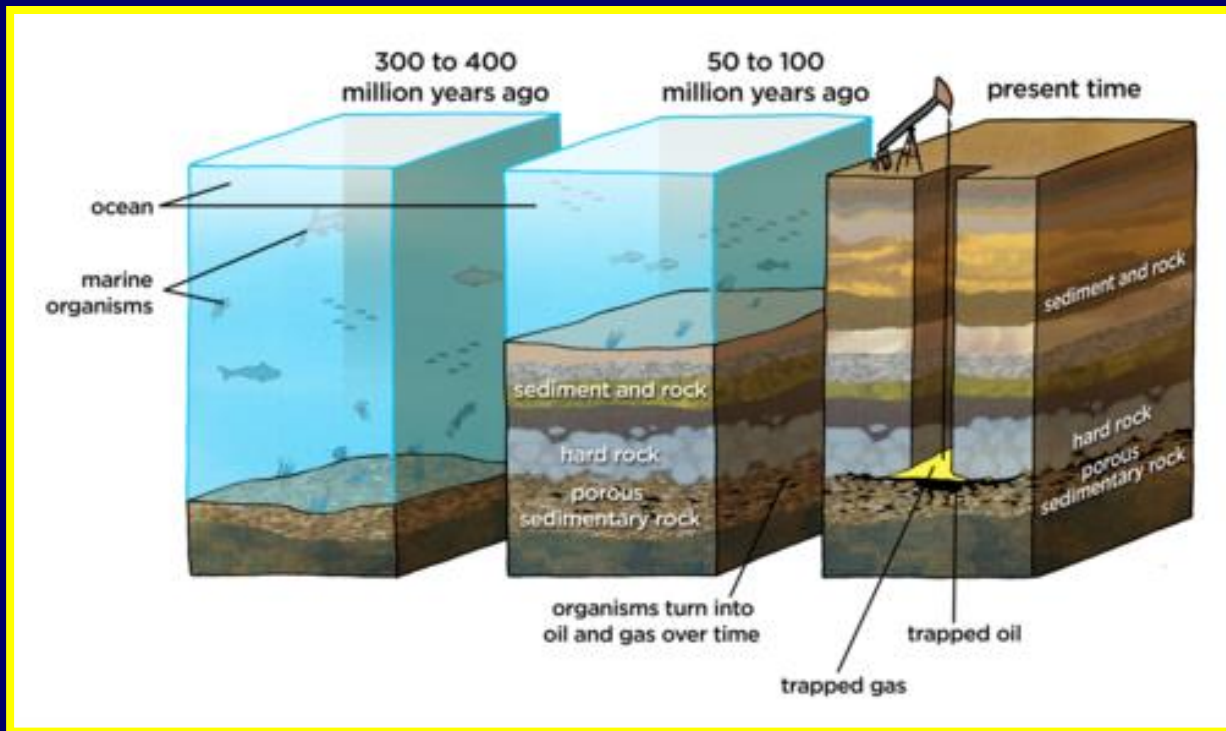
Aquatic Carbon Cycle

The cycling of carbon dioxide, CO_2 , also occurs in aquatic ecosystems with phytoplankton removing CO_2 from the atmosphere or water to produce glucose, $\text{C}_6\text{H}_{12}\text{O}_6$, that is passed up the food chain.



Oil and Natural Gas

Organic wastes of marine organisms also become buried and over time and are turned oil and natural gas.



Combustion

When fossil fuels are burned, during a process called combustion, large amounts of carbon dioxide, CO_2 , are released into the atmosphere.



Combustion also occurs when wood is burned and carbon dioxide, CO_2 , is released.

The End

