# SCI – CARBON CYCLE

There exist a good number of $CO_2$ molecule in the air. Through photosynthesis and further metabolism, carbon atoms from $CO_2$ become the carbon atoms of the organic molecules making up a plant's body. The carbon atoms then move into food webs and become part of the tissues of all the other organisms in the ecosystem. About half is respired by plants and animals and half is deposited to the soil (a large reservoir) in the form of detritus. Respiration by soil decomposers returns about 60 gigatons per year of carbon to the atmosphere (as $CO_2$).

The carbon cycle is different in the oceans. Photosynthesis by phytoplankton and macroalgae removes $CO_2$ from the huge pool of inorganic carbonates in seawater and feeding moves the organic carbon through marine food webs. Respiration by the biota and decomposers return the $CO_2$ to the inorganic carbonates in solution.

Some processes other than trophic transfer are significant: (1) Diffusion exchange between the atmosphere and the oceans; (2) The combustion of fossil fuels, which releases some 7.2 gigatons/year of $CO_2$ to the atmosphere.

Some geological processes of the carbon cycle are not mentioned: the formation of fossil carbon by biological systems, limestone formation by marine organisms, and weathering of exposed limestone.

*Diagram of the Carbon Cycle*