

Carbon as a result of
carbon assimilation.



**ASSIGN
BUSTER**

Carbon is a structural component of the organic molecules and is considered as the backbone of life. Earth's carbon is found locked away in the form of carbonate rocks in organic matters. There is actually very little carbon found in the atmosphere, but plays a fundamental role in relation to living organisms.

Role of carbon begins with autotrophs taking in CO_2 . Starch is synthesized in green plants as a result of carbon assimilation. It helps in energy consumption. The breakdown of complex carbon compounds results in the release of ATP through respiration in plants. Weathering, respiration, combustion release carbon to the atmosphere. Carbon may also get locked up for longer periods in both organic (coal, oil, gas) and inorganic (limestone, dolomite) geological formations, called carbon sinks.

When we burn fossil fuels or clear forests, carbon releases from these sinks and the natural recycling system becomes unable to pick up. The Nitrogen Cycle Nitrogen is said to be the basic component of protein, nucleic acids, amino acids and peptides. Nitrogen is also a component of agriculture, fertilizers and is important for living things. Nitrogen is incorporated into ecosystem, when plants and bacteria use it to build their amino acids / proteins. Bacterial decomposition releases N_2 from ecosystem. Free nitrogen gets fixed up by nitrogen fixing bacteria. In plants and other nitrogen gets converted into nitrates and nitrates are reduced to ammonia. Denitrifying bacteria releases N_2 and N_2O into atmosphere.

Nitrogen makes re-entry through the death of organisms resulting in the release of ammonia followed by nitrite and further nitrate formation.

Decomposed plant parts and animals waste contain nitrogenous compounds which replenish soil fertilizers. Sulphur Cycle It is an important element in protein synthesis; it provides a linkage between polypeptide chains in protein molecules. Sulphur exists in the elemental form and in several oxidation states, including hydrogen sulfide (H_2S), sulfites (SO_2) & sulfates (SO_4), in nature. Organic Sulphur in plants and animals is decomposed to H_2S by bacterial action, and the H_2S is further oxidized to sulphates such as NH_4SO_4 by sulphur oxidizing bacteria. This Sulphur is then taken up by plants as primary nutrients. Sulphur is also locked into coal and petroleum and is released as Sulphur dioxide when these products are burned.