

# Chapter 6 – Nutrient Cycles

*Where does carbon enter the living component of an ecosystem?*

- Carbon dioxide is an inorganic molecule taken in by photosynthetic producers and used to produce organic macromolecules
- When this producer is consumed by a primary consumer, the carbon containing organic molecules are incorporated into the consumer
- This continues so forth with each subsequent consumer in a food chain
- When an organism dies, saprobiotic organisms decompose the body and release the carbon back in its basic form

*Where does carbon enter the non-living component of an ecosystem?*

Carbon is present in the atmosphere, after being given out as carbon dioxide in respiration by living organisms.

The oceans act as a huge carbon sink, absorbing carbon dioxide present in the atmosphere when levels rise. This dissolved carbon dioxide is then used by aquatic photosynthetic organisms.

If, upon death of an organism, decay is prevented by lack of oxygen, moisture or warmth then the shells and bones of the dead organism may sink to the bottom on the ocean. Over millions of years carbon containing rocks build up from these organisms.

The carbon in these rocks can be released to the atmosphere when the rock is weathered.

*What role is played by saprobiotic organisms in the carbon cycle?*

Saprobiotic organisms are decomposers – they break down dead organic matter by secreting enzymes onto the surface of the organism, which breaks the complex organic molecules into smaller, soluble molecules which can be absorbed by diffusion.

The stored carbon is released as carbon dioxide through respiration.

