B15 Organisms and their environment

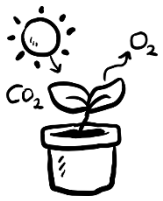
B15.3 Carbon Cycle

The Carbon Cycle

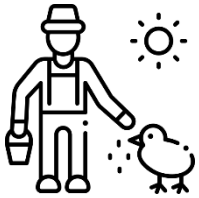
The carbon cycle keeps the amount of carbon in the atmosphere roughly balanced, but human activities (burning fuels, deforestation) are increasing CO_2 levels, contributing to climate change.

Key Processes

Photosynthesis Plants take in carbon dioxide (CO_2) from the air. They use it to make glucose ($C_6H_{12}O_6$) during photosynthesis.



- Equation: $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
- Carbon becomes part of plant biomass (e.g. leaves, stems).

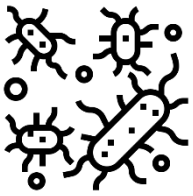


Feeding

- Animals eat plants and obtain carbon compounds. Carbon moves through the food chain as animals eat other animals.

Respiration (occurs in cells)

- Plants and animals release CO_2 back into the air when they respire.
- Equation: $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$



Decomposition

- Microorganisms (bacteria and fungi) break down dead organisms and waste.
- During decay, CO_2 is released through respiration of decomposers.

Formation of Fossil Fuels

- Some dead plants and animals are buried and compressed over millions of years.
- This forms coal, oil, and natural gas, which store carbon underground.

Combustion (Burning)

- Burning fossil fuels or wood releases CO_2 into the atmosphere.
- Equation (example): $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$