



How Carbon Moves Between Air and Living Things

KS4 BIOLOGY

KS3 SCIENCE

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What is the Carbon Cycle?

Carbon is an element found in all living things. It exists in the air as a gas called **carbon dioxide (CO₂)**. Carbon moves between the **atmosphere** (the air around Earth) and living organisms in a continuous journey called the **carbon cycle**. This cycle has been happening for billions of years and is essential for life on Earth.

Think of it like a never-ending relay race: carbon passes the baton between the air, plants, animals, soil, and back to the air again.

How Plants Pull Carbon from the Air

Plants are carbon's first stop on its journey. When plants **photosynthesise**, they take in carbon dioxide from the air through tiny holes in their leaves called **stomata**. They use sunlight, water, and this carbon dioxide to make food and grow. The carbon becomes part of the plant's leaves, stems, and roots.

How Carbon Moves to Animals

When animals eat plants, they consume the carbon stored inside them. A cow eating grass, a rabbit nibbling clover, or a human eating an apple—they're all taking in carbon. Animals use this carbon for energy and to build their bodies. When animals eat other animals, carbon passes along the food chain too.

Think of it like money passing from one person's wallet to another's when you buy something.

Carbon Returns to the Atmosphere

Living things release carbon back into the air through **respiration**. This happens when animals and plants breathe out, breaking down food for energy and releasing carbon dioxide. When living things die, decomposers like bacteria and fungi break

down their bodies, releasing carbon back to the soil and air. Even burning wood or fossil fuels releases carbon dioxide.

The Big Picture

The carbon cycle is perfectly balanced in nature—carbon released equals carbon absorbed. However, humans burning **fossil fuels** like coal and oil adds extra carbon dioxide to the atmosphere, disrupting this balance. Understanding the carbon cycle helps us see why this matters for our planet's future.