



How do plants make food?

KS2 Ages 7-11 🕒 3 min read

Plants don't eat. They don't need to find food or chase it or buy it at the supermarket. They make it themselves, out of things that aren't food at all: sunlight, water, and a gas in the air. This process is called **photosynthesis**, and it's one of the most important chemical reactions on Earth.

What's the recipe?

Plants need three ingredients:

- **Carbon dioxide (CO₂)** — sucked in from the air through tiny pores on leaves called stomata
- **Water (H₂O)** — absorbed through the roots and transported up through the plant
- **Light energy** — captured by the green pigment chlorophyll in the leaves

Chlorophyll absorbs sunlight and uses that energy to combine the carbon dioxide and water into **glucose** — a sugar the plant uses for energy and growth. The leftover byproduct is **oxygen**, which gets released back into the air through the stomata.

A plant is basically a solar-powered factory. The factory inputs are water (delivered via underground pipes — the roots and stem), carbon dioxide (delivered via air vents — the stomata), and sunlight (the power supply). The output is sugar (to fuel the factory) and oxygen (waste product they just throw away). You and I breathe that "waste product." Every breath you take was produced by a plant doing this process.

Why does it matter so much?

Photosynthesis is the base of almost every food chain on Earth. Plants use it to grow. Animals eat the plants. Other animals eat those animals. Even predators at the top of the food chain are ultimately powered by plant energy captured from sunlight. Remove photosynthesis and the entire web of life collapses within weeks.

Photosynthesis is also responsible for all the oxygen in Earth's atmosphere. Early Earth had no oxygen. When photosynthetic microbes appeared about 2.7 billion years ago, they gradually filled the atmosphere with the oxygen that made complex animal life possible.

Why are leaves green?

Chlorophyll absorbs red and blue light very effectively — those are the wavelengths most useful for photosynthesis. But it reflects green light. So when you see a green leaf, you're seeing the part of sunlight the plant has decided it doesn't need.