

Cycles within ecosystems

Revision notes · The carbon cycle: how photosynthesis, respiration, combustion and decomposers move carbon between living things and the air.

For Edexcel International GCSE Science (Double Award) 4SD0.

Cycles within ecosystems Spec 4.10–4.11B

The carbon cycle Spec 4.10

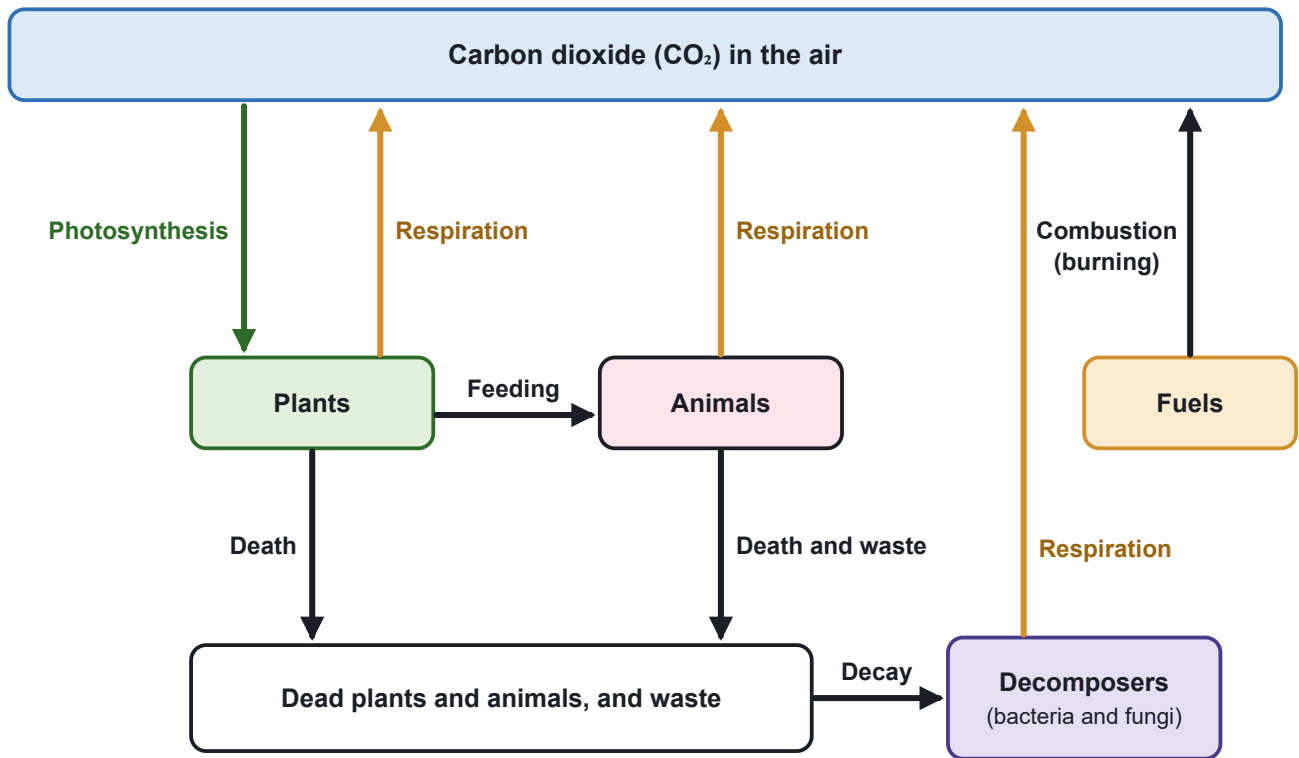
All living things are made of carbon compounds. The **carbon cycle** returns carbon to the atmosphere as carbon dioxide, so that it is available for plants to use in photosynthesis again. Carbon is also stored in fossil fuels, which are the remains of long-dead organisms.

1. Plants and algae take carbon dioxide from the air and use it in **photosynthesis** to make carbon compounds such as glucose, starch and proteins.
2. The carbon compounds pass along the food chain when animals feed.
3. All living organisms (plants, animals and decomposers) release carbon dioxide into the air by **respiration**.
4. When plants and animals die, and when they produce waste, **decomposition** by bacteria and fungi breaks down the material. The decomposers release carbon dioxide into the air by respiration.
5. Burning fuels such as wood, coal, oil and natural gas (**combustion**) releases carbon dioxide into the air.

The role of decomposers

Decomposers are bacteria and fungi. They break down dead plants, dead animals and waste, and they respire as they do so, releasing carbon dioxide. Without decomposers, dead material would pile up and the carbon in it would be locked away. The supply of carbon dioxide for photosynthesis would eventually run out.

Exam tip: Name the process at each arrow. Photosynthesis takes carbon dioxide out of the air. Respiration, decomposition and combustion put it back.



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The carbon cycle: **photosynthesis** takes carbon dioxide in; **respiration**, **decomposition** and **combustion** put it back.

Quick check

1. Which process removes carbon dioxide from the air?
2. Name three processes that return carbon dioxide to the air.
3. Why are decomposers important in the carbon cycle?

Quick check answers

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1. Photosynthesis.
2. Any three of: respiration, decomposition, combustion.
3. They break down dead material and release carbon dioxide by respiration.