

This is the **Higher Separate** version — includes all Higher Tier content (marked ★) and all Separate Science content.

Matter cycles continuously through ecosystems — the same atoms are reused again and again.

- Carbon cycle: photosynthesis removes CO₂; respiration, decomposition and combustion return it
- Decomposers (bacteria and fungi) break down dead matter → release CO₂ and mineral ions
- Water cycle: evaporation → condensation → precipitation → runoff
- ★ HT Nitrogen cycle: fixing (N₂→nitrates), nitrifying (ammonia→nitrates), denitrifying (nitrates→N₂), decomposing (organic→ammonia)
- Only photosynthesis removes CO₂ from atmosphere — all other processes add CO₂

Key Terms

Decomposer	Organism breaking down dead matter — releases nutrients for reuse
Nitrogen fixation	Converting N ₂ into ammonia/nitrates — done by bacteria

■ **Exam Tip:** The key fact about carbon cycle: **ONLY** photosynthesis removes CO₂. All others add it. This comes up in every exam series.