

★ **HIGHER TIER ONLY** content is highlighted in blue. Foundation students — focus on the un-highlighted sections.

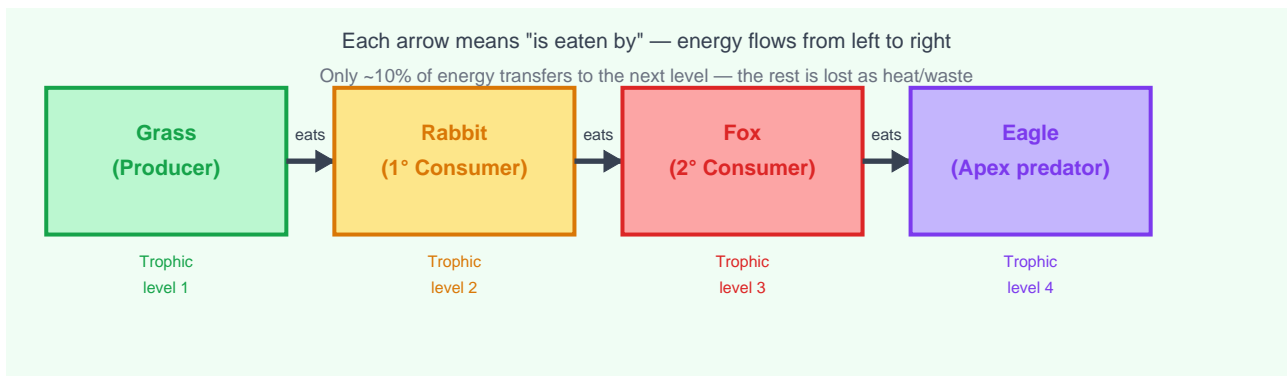


Fig: A simple food chain showing trophic levels

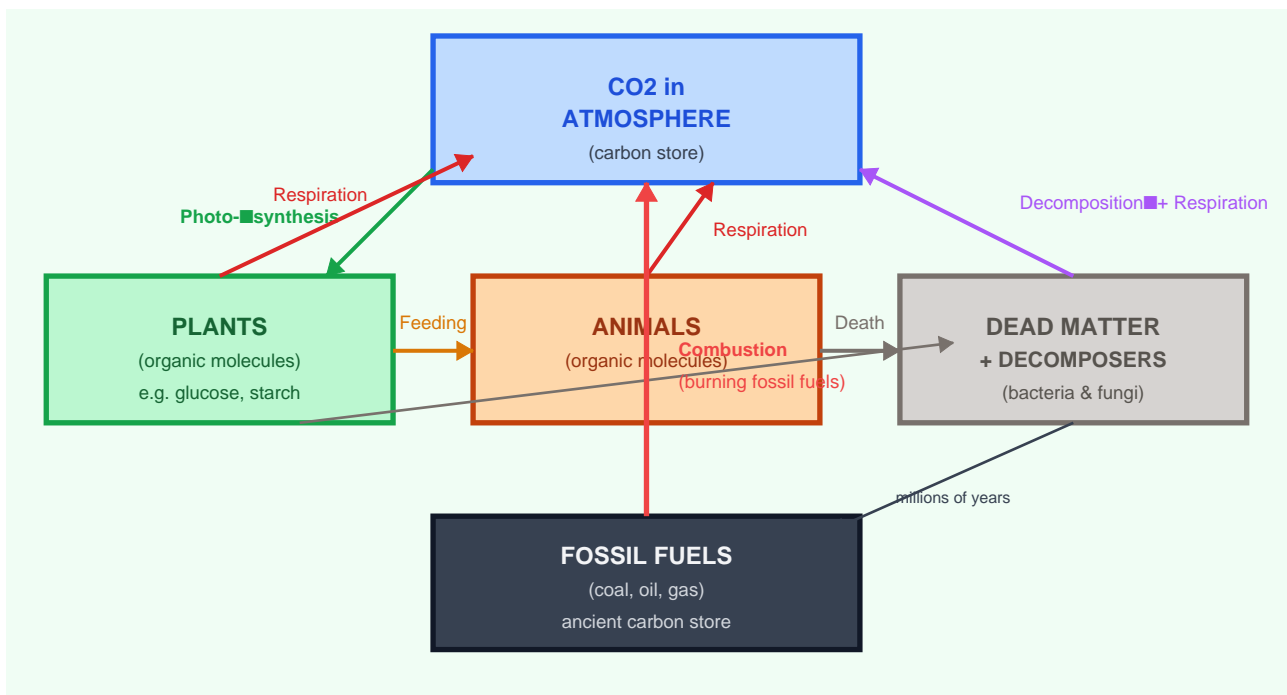


Fig: The Carbon Cycle — carbon continuously cycles through living organisms and the environment

The Nitrogen Cycle

Key steps in the Nitrogen Cycle

- 1. Nitrogen-fixing bacteria (in soil & root nodules) convert N₂ → ammonia/nitrates
- 2. Plants absorb nitrates from soil and use them to make proteins
- 3. Animals eat plants — nitrogen passes along food chain
- 4. Decomposers (bacteria/fungi) break down dead matter → release ammonia
- 5. Nitrifying bacteria convert ammonia → nitrates (back to soil)
- 6. Denitrifying bacteria convert nitrates → N₂ (back to atmosphere)

■ **Exam Tip:** Eutrophication: fertiliser runoff → algal bloom → blocks light → plants die → bacteria decompose → use all O₂ → fish die. Learn the CHAIN!

Producer

Organism that makes food by photosynthesis — start of every food chain

Decomposer

Bacteria/fungi that break down dead matter — essential for nutrient cycling

Biodiversity

Number and variety of species — more = more stable ecosystem