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

Human activities including deforestation, farming and urbanisation have dramatically altered natural habitats, threatening biodiversity and ecosystem stability.

- Deforestation: deliberate clearing of forests for: agriculture, cattle ranching, timber, settlements, palm oil plantations.
- Consequences of deforestation: habitat destruction → biodiversity loss; release of stored CO■ (burning or decomposition); reduced rainfall (trees absorb and release water); soil erosion (roots no longer bind soil).
- Land use change: converting natural habitats to farmland, quarries, housing, roads — direct destruction of habitats.
- Eutrophication: agricultural fertilisers run into water → algal bloom → oxygen depletion → fish and aquatic organisms die.

★ **HT** Peat bogs: store huge amounts of carbon. Draining for farmland or compost releases CO■. Reducing peat use is a conservation priority.

★ **HT** Biomass fuels: burning wood or crops releases CO■ — but new plants grown to replace absorb CO■ (approximately carbon neutral if sustainable).

Key Terms

Deforestation	Permanent removal of forest — destroys habitat, releases carbon, reduces biodiversity
Eutrophication	Over-enrichment of water with nutrients → algal bloom → O■ depletion → aquatic life dies
Peat bog	Wetland ecosystem storing large amounts of carbon — draining releases CO■
Land use	The way in which humans use land — farming, housing, industry replace natural habitats

■ **Exam Tip:** For eutrophication, always give the CHAIN: fertilisers → water → algal bloom → blocks light → aquatic plants die → bacteria decompose → bacteria use O■ → O■ depleted → fish suffocate. The chain must be complete for full marks.