

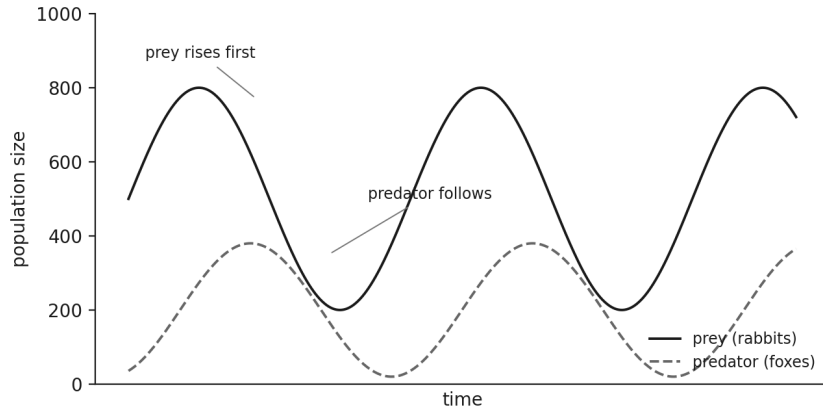
Exercise walk-through

7.3

Biodiversity and human interactions (4.7.3)

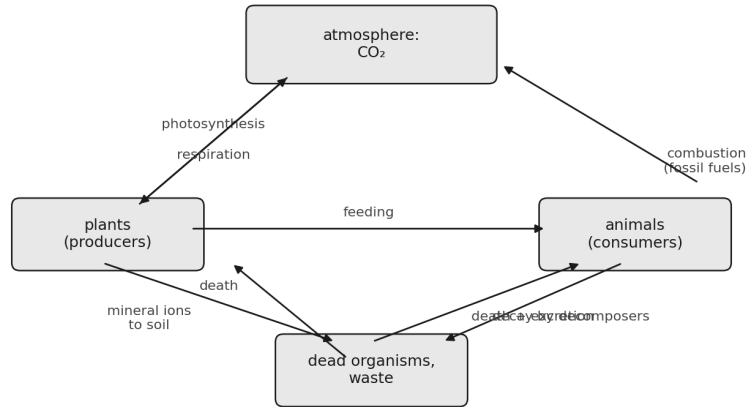
AQA · GCSE · Biology

Food chains and predator-prey cycles



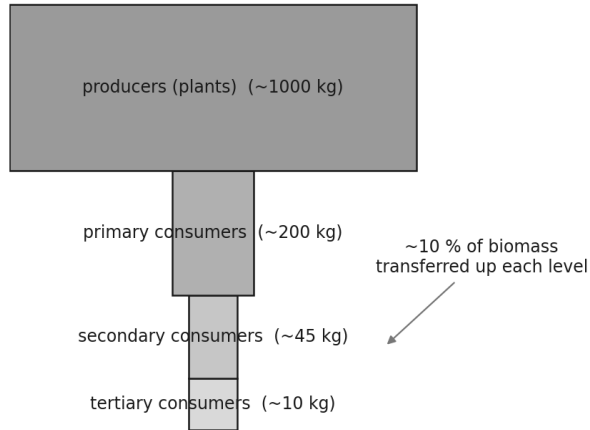
- Producer, primary, secondary, tertiary consumers.
- Prey rise first, predator follows, both oscillate.
- Photosynthetic organisms are Earth's biomass producers.

Carbon and water cycles



- Photosynthesis takes in CO₂; respiration and decay return it.
- Decomposers return mineral ions to the soil.
- Water — continuous evaporation and precipitation.

Trophic levels and the 10 percent rule



- Levels — producers, primary, secondary, tertiary; apex predators; decomposers.
- Only about 10 percent of biomass passes up each level.
- Lost — faeces, respiration, urine; producers store ~1 percent of sunlight.

Exercises 2.1·2.3

2.1 Define biodiversity.

[1]

2.2 Give two reasons why high biodiversity makes an ecosystem stable.

[2]

2.3 Name two programmes that maintain biodiversity.

[2]

Exercises 2.1·2.3

2.1 Define biodiversity. [1]

2.1 The variety of all the different species of organisms on Earth, or within an ecosystem.

2.2 Give two reasons why high biodiversity makes an ecosystem stable. [2]

2.2 Reduces the dependence of one species on another for food/shelter; many species maintain the physical environment, so loss of one does not collapse the system.

2.3 Name two programmes that maintain biodiversity. [2]

2.3 Any two: breeding programmes for endangered species; protection/regeneration of rare habitats; field margins and hedgerows; reduced deforestation and CO₂ emissions; recycling.

Exercises 3.1·3.2

3.1 Explain how an increase in the human population leads to more pollution, naming where pollution can occur. [5]

3.2 Explain why large-scale deforestation in tropical areas happens and give three environmental consequences. [5]

Exercises 3.1·3.2

3.1 Explain how an increase in the human population leads to more pollution, naming where pollution can occur. [5]

3.1 Population growth raises demand for resources and living standards raise consumption further; more waste is produced – sewage, landfill, industrial waste; unless properly handled it causes pollution in water – sewage/fertiliser/toxic chemicals; in air – smoke and acidic gases; on land – landfill and toxic chemicals; pollution kills plants and animals, reducing biodiversity.

3.2 Explain why large-scale deforestation in tropical areas happens and give three environmental consequences. [5]

3.2 Land is cleared to provide grazing for cattle and rice fields, and to grow crops for biofuels. Consequences: habitat destroyed so species are lost, reducing biodiversity; fewer trees photosynthesise, so less CO₂ is removed; burning/clearing releases CO₂, adding to global warming; soil erosion and loss of mineral cycling as roots and decomposer systems go.

Exercise 3.3

3.3 Farmers are paid to replant hedgerows around single-crop fields. Explain how this affects biodiversity. [4]

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3.3 Hedgerows provide habitats, food and shelter for a wider variety of plants and animals than a single crop; they create corridors linking populations, allowing migration and genetic mixing; they support predators of crop pests, improving natural pest control; so the farmland's biodiversity rises while crops continue.