

Investigating Energy Flow: The Food Chain Challenge

Learning objective: To construct and analyse food chains, identifying producers, predators, and prey within an ecosystem.

Use this writing frame to describe the flow of energy through a specific habitat. Refer to Nova's notes on scientific classification to ensure you are using accurate terminology. Use the word bank to help you link your ideas together.

In any thriving ecosystem, the movement of energy begins with the sun, which provides the essential fuel for all living things.

Word bank: photosynthesis · energy transfer · primary consumer · apex predator · ecosystem · consequently · furthermore · in contrast · therefore · interdependent

1. The Producer: Identify a producer in your chosen habitat and explain why it is the fundamental starting point of the food chain. Start with: 'The primary source of energy in this habitat is...' (2 marks)

2. The Consumers: Describe the feeding relationships between the organisms in your chain. Start with: 'As the energy transfers, the primary consumer feeds on...' (3 marks)

3. Justify: Explain why the population of apex predators is often smaller than the population of producers. Start with: 'I believe the number of predators is limited because...' (3 marks)

4. Compare and Contrast: How does a food chain differ from a food web? Start with: 'While a food chain shows a single path, a food web illustrates...' (3 marks)

5. Predict: What might happen to the stability of the ecosystem if the primary consumer were removed? Start with: 'If the primary consumer were to vanish, the ecosystem would be affected because...' (4 marks)

6. Synthesise: How do humans impact these natural energy cycles? Start with: 'Human activity often disrupts food chains by...' (3 marks)

Extension challenge: Design a complex food web for a rainforest environment. Write a persuasive paragraph justifying why biodiversity is essential for the survival of the entire habitat, ensuring you use at least four terms from the word bank.