

Energy in the Meadow: A Food Chain Investigation

Learning objective: To identify and describe the roles of producers and consumers within a food chain.

Read the text carefully and answer the questions below. Use full sentences and refer back to the text to support your answers.

Bea the honeybee spends her days buzzing across the vibrant meadow, observing how energy flows through the ecosystem. Every food chain begins with a producer, typically a plant, which harnesses sunlight to create its own food through photosynthesis. In our meadow, the tall, swaying grasses act as the primary producers. When a grasshopper munches on the leaves, it becomes a primary consumer. The energy stored within the grass is transferred to the grasshopper. However, the grasshopper must remain alert, as it is the prey for other creatures. Kit the fox, watching from the edge of the woodland, knows that the blue tit bird often hunts these grasshoppers. The bird, acting as a secondary consumer, is a predator in this cycle. This chain continues until the energy is passed along to the top of the food chain. If one part of this delicate sequence is removed, the entire balance of the meadow is threatened. Understanding these connections helps us protect the natural world and the creatures that rely on these vital energy sources to survive and thrive.

Word bank: producer · consumer · predator · prey · energy · ecosystem

1. According to the text, what is the role of a producer and where does it get its energy from? (2 marks) (2 marks)

2. Name one example of a primary consumer and one example of a secondary consumer mentioned in the passage. (2 marks) (2 marks)

3. Why does the author describe the food chain as a 'delicate sequence'? (2 marks) (2 marks)

4. What might happen to the population of blue tits if all the grass in the meadow disappeared? Explain your reasoning. (3 marks) (3 marks)

5. Do you agree that even the smallest insect is important to the survival of the entire meadow ecosystem? Justify your opinion. (3 marks) (3 marks)

Draw: Draw a food chain featuring the sun, a blade of grass, a grasshopper, and a blue tit. Use arrows to show the direction of energy flow.



Extension challenge: Imagine you are an ecologist. Write a short paragraph explaining the impact on the food chain if a new predator, such as a hawk, were introduced to the meadow. Compare and contrast how this might affect both the primary and secondary consumers.