Energy in the Meadow: Understanding Food Chains

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

Read the text carefully and answer the questions below. Ensure you use evidence from the text to support your answers where required.

Bea the honeybee spends her days buzzing across the wildflower meadow. To understand how life thrives here, she looks at food chains. Every food chain begins with a producer, usually a green plant. Plants are remarkable because they capture energy from the sun through photosynthesis, creating their own food. In our meadow, this might be a dandelion or a blade of grass.

Next come the consumers. A small beetle acts as a primary consumer by eating the dandelion. This beetle is a herbivore. Soon, a hungry spider arrives; the spider is a secondary consumer and a predator. It hunts the beetle for energy. Finally, a blue tit bird might swoop down to eat the spider, acting as a tertiary consumer. The arrows in a food chain are vital—they do not show who eats whom, but rather the direction that energy flows. When these creatures eventually die, decomposers like fungi break them down, returning nutrients to the soil to help the plants grow again. This cycle keeps the meadow ecosystem healthy and balanced, ensuring that energy is never truly wasted in the natural world.

Word bank: producer · consumer · predator · prey · ecosystem · herbivore · carnivore

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

2. Identify the primary consumer and the secondary consumer mentioned in the meadow food chain. (2 marks)

3. Why does the author state that the arrows in a food chain represent the flow of energy rather than just 'who eats whom'? (2 marks)

4. What might happen to the meadow ecosystem if the population of spiders suddenly disappeared? Explain your reasoning. (2 marks)

5. Do you agree that decomposers are the most important part of a food chain? Justify your opinion using the information provided. (2 marks)

Draw: Draw a diagram of a simple food chain found in a garden. Include labels for the producer, primary consumer, and secondary consumer, and draw arrows showing the correct direction of energy flow.

Extension challenge: Research a food chain in a different habitat, such as a pond or a forest. Write a paragraph explaining how it differs from the meadow food chain described by Bea.