

Nova's Ecosystem Investigator Report

Learning objective: To construct and interpret food chains, identifying producers, primary consumers, secondary consumers, and apex predators.

Nova the owl needs your help to map out the connections in a local habitat. Choose a habitat (such as a woodland, pond, or meadow) and use your scientific knowledge to identify the organisms that live there. Complete the sections below to show how energy flows through your chosen food chain.

Word bank: Producer · Primary consumer · Secondary consumer · Apex predator · Herbivore · Carnivore · Omnivore · Energy flow · Habitat · Photosynthesis

1. Habitat Selection: Identify the specific habitat you are studying. Describe two environmental conditions that make this area suitable for the organisms you have chosen. (2 marks)

2. The Producers: Name the producer in your food chain. Explain why this organism is essential for the survival of the other animals in the chain. (3 marks)

3. The Consumer Hierarchy: List your primary and secondary consumers. Justify your classification of each animal based on their diet. (4 marks)

4. The Apex Predator: Identify the apex predator. Compare and contrast the role of an apex predator with that of a primary consumer. (4 marks)

5. Energy Prediction: What might happen to the population of the secondary consumer if the producer were to be removed from this habitat? Explain your reasoning. (3 marks)

6. Scientific Reflection: How does the sun provide the original source of energy for your entire food chain? Provide a brief explanation of the process. (2 marks)

Extension challenge: Imagine a sudden environmental change, such as a drought or the introduction of a new species. Write a short paragraph justifying how this change would affect the balance of your food chain. If you could add one 'decomposer' to your diagram to show the cycle of nutrients, where would it fit and why is it crucial for the ecosystem?