Year 5 Science Assessment: Food Chains and Ecosystems

Learning objective: To identify, construct, and explain food chains and the roles of producers, predators, and prey within a local ecosystem.

Read each question carefully. Use the word bank to help you construct your scientific explanations. Ensure your answers are clear and use accurate biological terminology.

Nova the owl is observing a meadow ecosystem. She notices that the sun provides energy for the green plants. A small beetle feeds on the leaves of a plant. Later, a hungry frog catches the beetle, and finally, a grass snake hunts the frog. Meanwhile, Bea the honeybee visits flowers to collect nectar, playing a vital role in the meadow's life cycle.

Word bank: Producer · Consumer · Herbivore · Carnivore · Omnivore · Predator · Prey · Photosynthesis · Energy transfer · Ecosystem

1. Using the passage provided, identify the producer in the food chain and explain why it is classified as such. (2 marks) (2 marks)

2. Define the terms 'predator' and 'prey'. Use an example from the passage to support your definitions. (3 marks) (3 marks)

3. Construct a food chain using the organisms mentioned in the passage: grass snake, plant, frog, beetle. Use arrows to show the direction of energy flow. (2 marks) (2 marks)

4. Explain why the sun is considered the ultimate source of energy for almost all food chains. (3 marks) (3 marks)

5. Compare and contrast the diet of a herbivore and an omnivore. Provide one original example for each. (4 marks) (4 marks)

6. What might happen to the population of frogs if the grass snake population were to suddenly decrease? Justify your answer using your knowledge of ecosystem balance. (3 marks) (3 marks)

7. Extended Writing: Imagine an ecosystem is affected by a severe drought, causing most plants to wither. Write a detailed response explaining how this event would impact the entire food chain, starting from the producers up to the apex predators. (5 marks) (5 marks)

Draw: Draw a pyramid of numbers or a food web showing at least five different organisms, including a producer and an apex predator. Label each organism correctly.

Extension challenge: Research a woodland habitat. Create a detailed table comparing a nocturnal predator (like Nova the owl) with a diurnal predator, explaining how their hunting strategies differ based on their environment. Total: /25