Nova’s Magnetic Mysteries

Learning objective: To understand how magnets work, identify magnetic materials, and describe how magnets attract and repel.

Read each question carefully and use your knowledge of magnetic forces to provide detailed answers. Remember to use scientific vocabulary.

Word bank: attract · repel · magnetic · pole · force · iron · nickel · cobalt

1. Nova the owl is testing different objects in the forest. Which three metals are typically magnetic? List them below. (3 marks)

2. If you have two bar magnets, what happens when you bring the North pole of one magnet close to the North pole of another? Explain why. (2 marks)

3. Max the monkey has a box containing a steel paperclip, a plastic button, an iron nail, and a wooden bead. Which items will the magnet pick up and why? (3 marks)

4. Describe the difference between a 'contact force' and a 'non-contact force'. Which category does magnetic attraction fall into? (2 marks)

5. If a magnet costs £1.50 and you need to buy 4 magnets for your experiment, what is the total cost? If you pay with a £10 note, how much change should you receive? (2 marks)

Draw: Draw two bar magnets placed end-to-end. Use arrows to show the magnetic field lines, and label the poles (North and South) to show how they would repel each other.

Extension challenge: Design an experiment to test which magnet is the strongest. Write a short paragraph explaining how you would ensure your test is 'fair' (e.g., using the same type of paperclip for each magnet).