

Nova's Magnetic Investigation Log

Learning objective: To identify magnetic materials and explore the properties of magnetic poles through scientific enquiry.

Use this log to record your scientific findings during your magnetism experiment. Work with your partner to test different objects found in the classroom. Ensure your fair test is controlled by only changing the object being tested while keeping the magnet the same.

Word bank: attract · repel · magnetic · non-magnetic · poles · force · iron · steel · predict · observation

1. Prediction: Which items do you hypothesise will be attracted to the magnet? List them and justify your reasoning based on the material they are made from. (2 marks)

2. Method: Explain why it is important to keep the magnet at the same distance from each object during your investigation. How does this ensure a fair test? (3 marks)

3. Observations: Describe what happened when you brought the magnet near a steel paperclip versus a wooden pencil. Use the words 'attract' or 'repel' in your answer. (2 marks)

4. Compare and contrast: What are the similarities and differences between the behavior of the North pole and the South pole when placed near each other? (3 marks)

5. Explain why: If you were to cut a bar magnet in half, what do you think would happen to the poles? Justify your prediction using scientific vocabulary. (3 marks)

6. Critical Thinking: If you were designing a machine to sort through a bin of mixed metal and plastic items, how could you use your knowledge of magnets to make the process more efficient? (4 marks)

Extension challenge: Design an experiment to test if the strength of a magnet decreases with distance. Create a table to record the number of paperclips a magnet can pick up at 1cm, 2cm, and 3cm intervals.