

Nova's Magnetic Investigations

Learning objective: To conduct a scientific enquiry into the properties of magnets and communicate findings using formal scientific vocabulary.

Use this writing scaffold to record the results of your magnetic experiment. Ensure you use precise terminology and refer back to your observations when justifying your conclusions.

Nova the owl observed that not all metallic objects in the forest classroom were affected by the invisible pull of the magnet.

Word bank: attract · repel · magnetic force · poles · magnetic material · conclusively · furthermore · consequently · hypothesis · iron · nickel · cobalt

1. Introduction: State your hypothesis clearly. What did you predict would happen when you tested different objects, and why did you think this? (2 marks)

2. Methodology: Explain how you ensured your test was fair. Which variables did you keep the same, and why is this important for a scientific enquiry? (3 marks)

3. Results Analysis: Describe your findings. Which objects were attracted to the magnet, and what do these objects have in common? Justify your answer. (3 marks)

4. Comparison: Compare and contrast the behaviour of the magnet's poles. What happens when you bring two 'like' poles together versus two 'opposite' poles? (2 marks)

5. Conclusion: Based on your evidence, what can you conclude about the properties of magnetic materials? (2 marks)

6. Evaluation: What might happen if you increased the strength of the magnet or the distance between the magnet and the object? Explain your reasoning. (3 marks)

Extension challenge: Design a 'Magnetic Sorting Machine' for Nova. Write a detailed description of how your machine would function, using magnets to separate magnetic materials from non-magnetic materials in a recycling centre. Consider: How would you position the magnets to make the process most efficient?