Investigating Material Properties: A Scientific Report

Learning objective: To compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity, and response to magnets.

Use this scaffold to structure your scientific report about the materials you have tested. Ensure you use scientific vocabulary and clear, objective language.

In this investigation, Nova the owl and I set out to determine which materials are most suitable for building a waterproof shelter for a garden hedgehog.

Word bank: consequently · furthermore · in contrast · observable properties · thermal conductivity · electrical insulator · permeable · soluble · opaque · transparent · magnetic

1. Introduction: State the aim of your investigation. Why is it important to understand the properties of materials before choosing them for a specific purpose? Start with: 'The aim of this experiment was to investigate...', (2 marks)

2. Methodology: Describe the steps you took to test the materials. How did you ensure your test was fair? Start with: 'To ensure a fair test, I kept the following variables the same: ...' (3 marks)

3. Results: Present your findings. Which material was the most effective for your purpose? Start with: 'The results showed that [material name] was the most effective because...', (3 marks)

4. Scientific Reasoning: Explain the properties of the material you chose. Why did its physical properties make it the right choice? Start with: 'The material was suitable because it is [property] and has low...', (3 marks)

5. Conclusion: Summarise your findings. Would you recommend a different material if the conditions changed? Start with: 'In conclusion, the investigation demonstrates that...', (2 marks)

Extension challenge: Imagine you are building a bridge for Max the monkey. Write a paragraph explaining which material would be best for the bridge base, considering strength and flexibility, and how much it would cost if a square metre of your chosen material costs £12.50.