Nova’s Material Investigation Log

Learning objective: To identify, compare, and group materials based on their properties, including hardness, solubility, transparency, conductivity, and magnetism.

Help Nova the owl investigate the world around her! Choose three different objects from your classroom or home. For each object, identify the material it is made from and test its properties. Use the word bank to help you describe what you observe.

Word bank: transparent · opaque · translucent · flexible · rigid · conductor · insulator · soluble · insoluble · magnetic · permeable · durable

1. Object Name and Material: Name the object you have chosen and identify the material (or materials) it is made from. Why might this material be suitable for this object? (2 marks)

2. Transparency and Flexibility: Is the material transparent, translucent, or opaque? Is it flexible or rigid? Explain how these properties affect how the object is used. (2 marks)

3. Thermal and Electrical Conductivity: Test or predict if your material is a thermal or electrical conductor or an insulator. Why is this important for its function? (2 marks)

4. Solubility and Magnetism: Is the material magnetic? If you were to place it in water, would it be soluble or insoluble? How do these properties keep the object safe to use? (2 marks)

5. Material Comparison: If you could swap the material of this object for a different one (e.g., plastic to metal), would it still work effectively? Explain your reasoning. (2 marks)

Extension challenge: Nova wants to build a shelter for her stargazing equipment. Write a short paragraph explaining which materials you would choose for the shelter walls and roof, and justify your choices using at least three of the scientific properties from the word bank.