Nova’s Material Investigation

Learning objective: To understand, identify, and compare the properties of materials based on their suitability for specific purposes.

Nova the barn owl is building a new stargazing hut! Look at the list of materials and their properties below. Match the material to the correct item Nova needs for her hut by writing the material name in the box. Then, explain your reasoning using scientific vocabulary such as 'thermal insulator', 'transparent', 'durable', or 'flexible'.

Word bank: Glass · Copper · Rubber · Polyester · Concrete · Wool

1. Nova needs a window for her hut so she can see the stars clearly at night. Which material should she choose and why? (2 marks)

2. Nova wants to lay a strong, solid base for her hut that will last for many years in the rain. Which material is best for the foundation? (2 marks)

3. To keep her telescope wires safe and prevent electricity from escaping, what material should she use to coat the cables? (2 marks)

4. Nova needs a warm blanket for cold nights in the forest. Which material would act as the best thermal insulator? (2 marks)

5. If Nova wanted to create a waterproof roof cover that is lightweight, why might she choose polyester instead of wood? (2 marks)

Draw: Draw a blueprint of Nova’s stargazing hut. Label three different parts of the hut and identify which material you have used for each part, explaining one property that makes it suitable.

Extension challenge: Research and explain why metal (a conductor) would be a poor choice for a handle on a hot frying pan, and suggest a better material to use instead.