

Nova's Material Mystery

Learning objective: To identify and describe the properties of materials and explain their suitability for different purposes.

Read the passage carefully and answer the questions below using full sentences where required.

Nova the owl was busy preparing for a midnight stargazing session. She needed to choose the right materials to build a shelter that would keep her warm and dry. First, she looked at a thin piece of plastic sheeting. It was transparent, allowing her to see the stars, and it was completely waterproof. However, it was not very durable and ripped easily in the wind. Next, Nova tested a piece of thick, rigid wood. It was strong and opaque, blocking out the light, but it was not flexible enough to bend into a curved roof shape. Finally, she considered a heavy-duty rubberised fabric. It was flexible, which made it easy to drape over her branch, and it was excellent at keeping out the rain. Nova decided to combine a small square of plastic for a 'window' with the rubberised fabric for the main structure. By understanding the properties of these materials, Nova knew she could stay cosy while observing the night sky. Choosing the right material for the job is a clever way to solve a problem!

Word bank: transparent · opaque · flexible · rigid · durable · waterproof · properties

1. Identify two properties of the plastic sheeting that Nova tested. (2 marks)

2. Why did Nova decide not to use the thick wood for her roof? (2 marks)

3. Why might Nova need her shelter to be 'waterproof'? (2 marks)

4. Based on the text, what does the word 'flexible' mean in the context of building a shelter? (2 marks)

5. Do you think Nova made the right choice by combining two materials? Explain your reasoning. (2 marks)

Draw: Draw a sketch of Nova's finished shelter, clearly labelling which parts are the transparent plastic window and which parts are the flexible rubberised fabric.



Extension challenge: Imagine you are designing a new school bag. List three properties the material must have to be useful, and explain why each property is important.