

Nova's Material Marvels Quiz

Learning objective: To identify and describe the properties of materials and understand why specific materials are chosen for particular purposes.

Join Nova the Barn Owl on a nocturnal adventure! Read each question carefully and use your knowledge of material properties to select the best answer. Good luck, young scientists!

Answer Key: 1. B, 2. True, 3. Opaque, 4. C, 5. False, 6. A, 7. Waterproof, 8. C, 9. True, 10. Thermal insulator. --- Greater Depth Guidance: Ensure pupils justify their choices by linking the property (e.g., flexibility) to the function (e.g., comfort). Encourage the use of technical vocabulary like 'properties', 'suitability', and 'states of matter'.

Word bank: Transparent · Opaque · Flexible · Rigid · Thermal insulator · Electrical conductor · Waterproof · Permeable

1. 1. Nova is building a nest. Which property is most important for a material to keep her eggs dry? A) Flexible B) Waterproof* C) Transparent D) Magnetic (1 mark)

2. 2. True or False: A material that allows light to pass through it is called transparent. (1 mark)

3. 3. If you cannot see through a wooden door, what property does the wood have? (1-word answer) (1 mark)

4. 4. Which material is best for making a saucepan handle so you do not burn your hand? A) Iron B) Copper C) Plastic* D) Steel (1 mark)

5. 5. True or False: All metals are flexible and can be easily bent into any shape. (1 mark)

6. 6. Why is glass often used for windows? A) It is transparent* B) It is magnetic C) It is absorbent D) It is soft (1 mark)

7. 7. What property describes a fabric that lets water pass through it easily? (1-word answer) (1 mark)

8. 8. Max the monkey needs a rope to swing from a tree. Which property does he need? A) Brittle B) Rigid C) Flexible* D) Transparent (1 mark)

9. 9. True or False: A material that acts as a thermal insulator keeps heat from moving through it quickly. (1 mark)

10. 10. What do we call a material that does not allow electricity to flow through it? (1-word answer) (1 mark)

Draw: Draw a futuristic birdhouse for Nova. Label the materials you have used (e.g., metal, plastic, wood, rubber) and explain one property for each material you chose.



Extension challenge: 1. Explain why a metal spoon would be a poor choice for stirring a pot of hot soup compared to a wooden spoon. 2. Compare and contrast the properties of a rubber tyre and a glass bottle. 3. Justify your answer: If you were building a bridge, would you choose a flexible or rigid material? Why? 4. What might happen if we made raincoats out of cotton instead of a waterproof synthetic material? 5. Design a test to determine if a mystery object is a thermal conductor or insulator. 6. Propose a new material for a school bag; what properties must it possess to be durable and practical for daily use?