

# Materials Mastery with Nova the Owl

*Learning objective: To identify, describe, and compare the properties of a variety of everyday materials and justify their uses based on these properties.*

Read the front of the flashcard, think of the answer, then check the back. Use these cards to test your knowledge of material science!

**Nova asks: What does it mean if a material is 'transparent'?**

A transparent material allows light to pass through it so that objects behind it can be clearly seen.

**Nova asks: How would you describe a material that is 'impermeable'?**

An impermeable material does not allow liquids or gases to pass through it, such as a plastic raincoat.

**Nova asks: What is the difference between a thermal conductor and a thermal insulator?**

A thermal conductor allows heat to pass through it easily, whereas a thermal insulator slows down or prevents the transfer of heat.

**Nova asks: If a material is 'rigid', how does it behave when you try to bend it?**

A rigid material is stiff and resistant to bending or changing shape under force.

**Nova asks: Why is metal often used to make frying pans?**

Metal is a thermal conductor, which allows heat from the hob to travel efficiently into the food being cooked.

**Nova asks: What is an 'opaque' material?**

An opaque material does not allow any light to pass through it, creating a shadow.

**Nova asks: Give an example of a material property that makes a sponge useful for cleaning.**

Porosity or permeability, which allows the sponge to absorb and hold liquid.

**Nova asks: Explain why a window is made of glass rather than wood.**

Glass is transparent, allowing light to enter the room, whereas wood is opaque and would block the light.

**Nova asks: What does it mean if a material is magnetic?**

A magnetic material is one that is attracted to a magnet, such as iron, nickel, or cobalt.

**Nova asks: Why do we use eraser to cover electrical wires?**

Eraser is an electrical insulator, which prevents electricity from escaping the wire and keeps the user safe.

**Nova asks: Compare the properties of a eraser band and a ceramic mug.**

A eraser band is flexible and can change shape, whereas a ceramic mug is rigid and brittle, meaning it might shatter if dropped.

**Nova asks: If you were building a greenhouse, why would you choose transparent plastic over opaque fabric?**

The plastic allows sunlight to reach the plants, which is necessary for photosynthesis, whereas fabric would block the light and prevent the plants from growing.