

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 rubber to cover electrical wires?

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

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

A rubber 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.