

Properties of Materials

Aim

- I can compare materials according to their properties.

Success Criteria

- I can describe a material's properties.
- I can explain the uses of different materials based on their properties.
- I can sort and compare materials according to their properties.

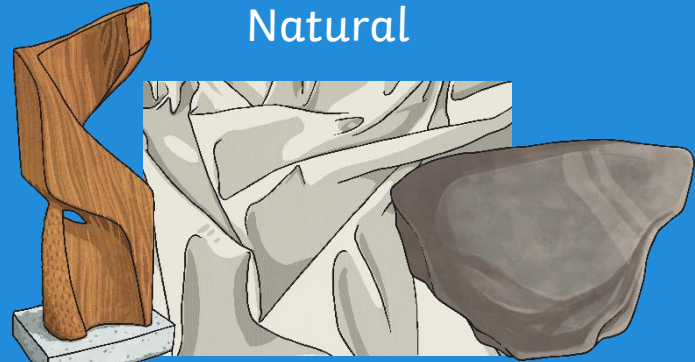
Describing Materials

Any substance that is used to make something is a material.

Natural materials such as stone, wood and cotton are used or worked with in the way they are found in nature.

Synthetic or human-made materials are made from natural materials, but are altered with the help of heat or chemicals. Some examples include plastics, polyester and Kevlar.

Natural



Human-made



Properties



The words used to describe a material are known as its properties.

Each material has its own set of properties.

These properties make different materials useful for different purposes.

Can you match the properties with their definitions on your Material Properties Activity Sheet?

The image shows a worksheet titled "Material Properties and Definitions" with a star icon. It includes a table for matching properties with definitions. The properties listed are Magnetic, Reflective, Absorbent, Permeable, Translucent, Flexible, Hard, Flammable, Insulating, and Transparent. The definitions listed are: attracted to magnets, its surface, liquid easily, to pass through it, vapours, pass through, in quickly, or heat from, and are seen clearly. The worksheet also features a "twinkl planit" logo and a "Science Year 5 Properties and Changes of Materials Properties of Materials Lesson 1" footer.

Material Properties and Definitions	
Put the correct definitions with the property words in this table.	
Magnetic	
Reflective	
Absorbent	
Permeable	
Translucent	
Flexible	
Hard	
Flammable	
Insulating	
Transparent	

ies and Definitions

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Using Materials



Why is it useful to know the properties of a material?

It is useful because if you know the properties of a material, you can then choose the best material for a purpose.

Talk to your partner about your ideas.



Testing Properties

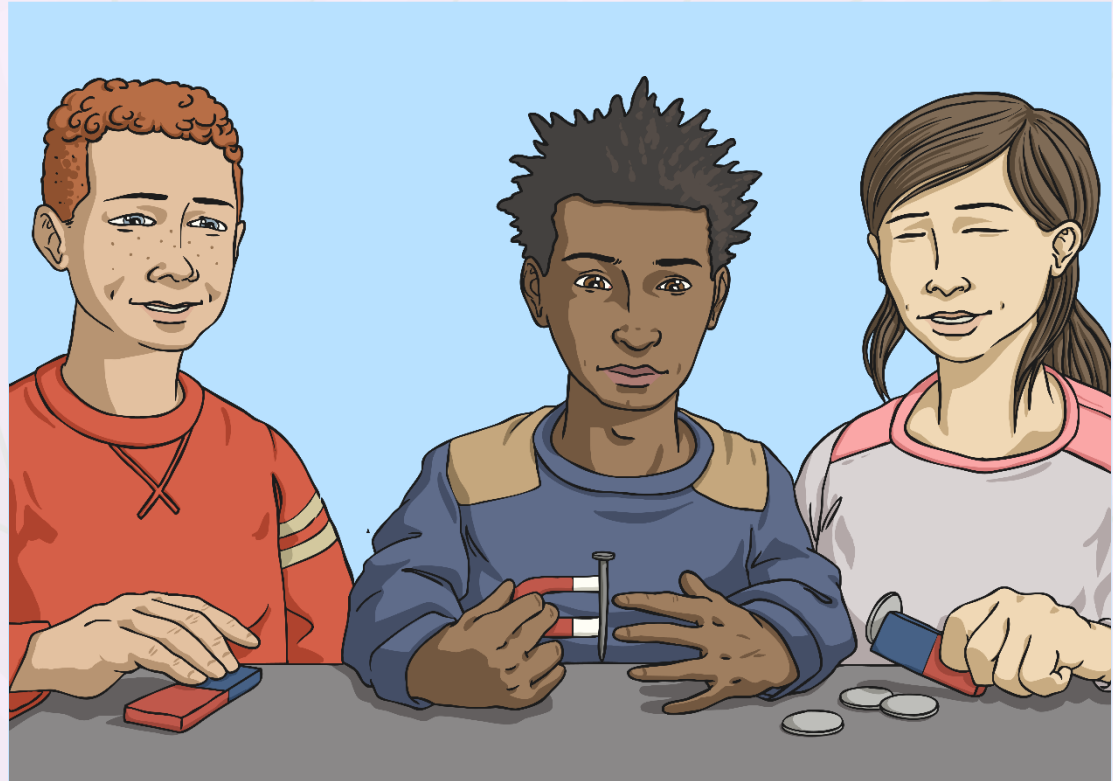


To find out which properties a material has, they have to be tested.

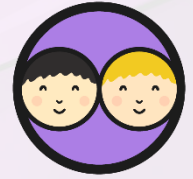
You are going to test several different materials to find their properties.

You will test for:

- magnetism;
- hardness;
- transparency;
- flexibility;
- permeability.



Testing Properties



Follow the instructions for each test, and try out each test with each material.

Complete your Testing Properties Activity Sheet with your results.



Testing Properties

Follow these instructions to test the properties of different materials.

Magnetism test.
Touch a magnet to each material. If it is attracted to the magnet, it is a magnetic material. If it is not attracted to the magnet, it is not magnetic. Cross or tick to show whether each material is magnetic.

Hardness test.
Using the pointed end of a nail, carefully try to scratch the surface of each material. Number the materials from 1 to 5, with 1 being the softest material and easiest to scratch with the nail, and 5 being the hardest material and hardest to scratch with the nail. Wear goggles for this test.

Transparency test.
Hold each material in front of your eyes. If you can completely see through it, it is transparent. If you can see through it a bit, it is translucent. If you can't see through it at all, it is opaque. Cross or tick to show whether each material is transparent.

Flexibility test.
Flexibility means how much a material will bend without breaking. Try to gently bend each material over the edge of the table. Number the materials from 1 to 5, with 1 being the least flexible material and hardest to bend, and 5 being the most flexible material and easiest to bend.

Permeability test.
If a material is permeable, it allows liquids to go through it. Impermeable materials do not allow liquids through, so they are waterproof. Place each material over a jar that is in an empty tray, using an elastic band to hold it in place if necessary. Pour 20ml of water onto the material. If the material is permeable, some or all of the water will go through it into the jar. If it is impermeable, the water will stay on the material or run off it into the tray. Cross or tick to show whether each material is permeable.

Record your results below.

Material	Properties				
	Magnetic Y or N	Hardness 1-5	Transparent Y or N	Flexibility 1-5	Permeable Y or N

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