

Lesson 1

- I can identify the properties of a range of materials and explain their uses.



Did you know?

- Graphene is the thinnest material, but still stronger than Superman.
- Geckskin is a super strong adhesive that can hold up to 330 kg on a smooth wall. That's the weight of a Harley-Davidson motorbike!
- A thread of spider silk breaks less easily than a thread of steel.
- Pearls will melt in vinegar.
- All materials on Earth are made from just 92 naturally occurring materials.



Glossary

Material – the matter from which an object can be made
Property – attributes, qualities and characteristics of materials



Types of Materials

Metals

Most metals are strong, hard and shiny materials that can be hammered into different shapes without breaking. They are good conductors of heat and electricity and some are magnetic. Their properties make them useful for objects such as cutlery, saucepans, cars and coins.



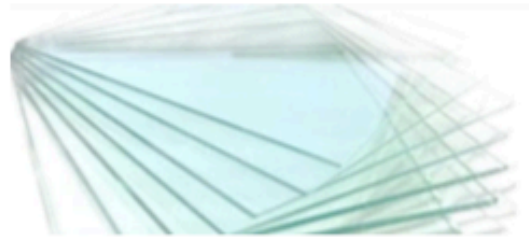
Plastics

Plastics are materials made from chemicals and are not found in nature. They are strong and waterproof. They can be made into any shape by applying heat. Plastics are not magnetic. They are good insulators and do not conduct heat or electricity. They are used to make things like bags, bottles and toys.



Glass

Glass is made by melting sand and other minerals together at very high temperatures. It is normally transparent and can be made into different shapes. Thick glass can be strong, but thin glass breaks easily. It is used for objects that need to be transparent, such as windows and spectacles.



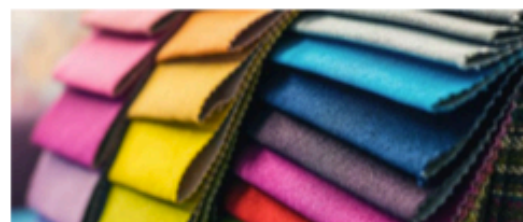
Wood

Wood comes from trees. It is strong, flexible and long-lasting. It is an insulator of heat and electricity. It is used to make things such as furniture.



Fabrics

Fabrics are made from thin fibres woven together. Different fabrics have different properties. They can be stretchy (a pair of tights), insulating (a woollen coat) or absorbent (a towel). Fabrics are used to make clothes as they are flexible, warm and do not wear out easily.



Windows are made from glass because _____

Skateboards could be made from rubber but _____

Umbrellas are made from plastic so _____



Why Materials Matter



There are many ways to group materials, from their colours to their textures, but there are also standard groupings such as metal and plastic. Standard groupings are based on properties and origins which are not always easy to grasp. Plastics, for example, have a huge range of properties.



Material chosen depends on the appearance, comfort or cost, or all of these. For instance, wood, steel and plastic are all strong enough to make chairs and can all be manufactured into suitable shapes.



The choice of a material for a particular job is often a compromise. For instance, silver is a better electrical conductor than copper, but it would be too expensive to use in electrical wires.

