

## PROPERTIES OF MATERIALS

We can group materials according to certain properties:

### Solubility

Some solids like sugar **dissolve** in water. This means when we put them in water the particles seem to disappear. In fact the solid has dissolved in the water and made a **solution**.



### Hardness

This is a measure of easily a material can be scratched.

### Transparency

If you can see an object clearly through a material then the material is **transparent**. If you cannot see the object clearly then it is **translucent**. If you cannot see the object at all then the material is **opaque**.



### Conductivity

This is a measure of whether a material lets electricity or heat travel through it quickly.

### Ability to attract magnets

Magnetic materials are attracted to magnets.



## Year 5 Autumn Term

## PROPERTIES AND CHANGES OF MATERIALS

### SEPARATING MATERIALS

You can separate mixtures of different materials by using one of the following methods:

**Using a magnet**- Magnetic materials are attracted to the magnet, leaving behind the other solid (e.g. paper clips and matchsticks).

**Evaporation** - A solid dissolved in a liquid (solution) can be heated. Liquid evaporates and leaves behind the solid (e.g. salt and water solution).

**Filtration** - A mixture of liquids and solids which haven't dissolved (e.g. sand and water) can be filtered using paper with tiny holes. The liquid pours through the holes and the solid stays in the paper.

**Sieving** - A way to separate two solids of different sizes (e.g. flour and rice).

### REVERSIBLE CHANGES

When some materials change they can be changed back or reversed. Dissolving, mixing and changes of state are reversible changes.



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### USES OF MATERIALS

Materials can be used for different purposes according to their properties.

**Rubber** is used for balloons, car tyres and swimming caps because it is strong and very stretchy.

**Wood** is used for furniture, boats and instruments because it is strong, attractive and easily shaped.

**Metal** is used for cutlery and cars because it is strong, hard, smooth and easily washable.

**Plastic** is used for different things because it can be made to be strong, flexible, hard or smooth.

**Stone** is used for building because it is hard, strong and resistant to bad weather.

**Glass** is used for windows because it is hard, smooth and transparent.

### IRREVERSIBLE CHANGES

Some changes in materials cannot be reversed. A new material is usually made from this type of change. Toasting bread is irreversible.

