# Waterbeach Community Primary School

## Curriculum Capture for Year 6 Science: Properties of Materials

### Key Knowledge

**What is meant by the properties of a material?**

Any substance that is used to make something is called a **material**. Materials can be natural (e.g. stone, wood) or man-made (e.g. plastic, glass)

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

**What happens to a material when it dissolves?**

Some materials are described as being **soluble** which means they can dissolve in some liquids (usually water). When a material dissolves, its particles break up into pieces so small we cannot see them and the **transparent** mixture of the solid and liquid is known as a **solution**. This is different to melting which happens when heat turns solid to turn it into a liquid form of the same material

Not all materials dissolve, a mixture of a liquid and an **insoluble** solid is called a **suspension.**

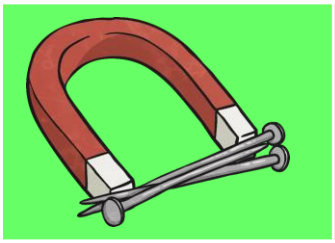
**What happens when a material undergoes an irreversible change?**

Melting, freezing, evaporating and dissolving are examples of processes resulting in **reversible changes**. These are **physical** changes: no new materials are created and the material is able to be returned to its original form.

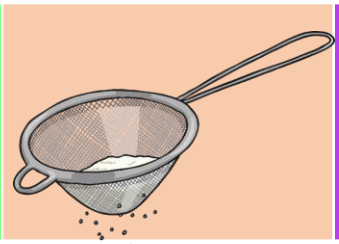
Some processes result in a change where a **new material is formed**. These are **chemical** changes and are **irreversible**: the process cannot be reversed and the original materials can not be recovered. Examples of irreversible changes include baking, burning and chemical reactions.

**How can different types of mixtures be separated?**

| | |
|---|---|
| Magnetic attraction | Magnets can be used to separate materials which are attracted to magnets from those which are not |
| Sieving | Sieving can be used to separate materials according to size: small particles will go through the holes, larger particles will not. |
| Filtration | Like a very fine sieve, the tiny holes in the filter paper will allow liquids to pass through but not solids |
| Evaporation | When a solution is evaporated, the liquid will turn into a gas and leave the solid particles behind. |

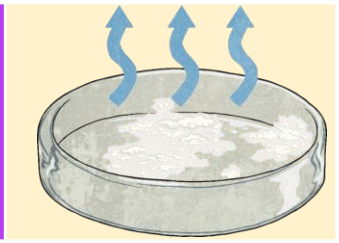


Magnetic attraction



Sieving

Filtration



Evaporation

### Some Properties of Materials

| | |
|---|---|
| absorbent | able to soak up liquid easily [opposite: non-absorbent] |
| conductive | allows heat or electrical energy to move through it easily |
| flammable | will catch fire and burn easily [opposite: non-flammable] |
| flexible | easy to bend [opposite: rigid] |
| hard | difficult to scratch |
| permeable | will allow liquids and gases to pass through it [opposite: impermeable] |
| soluble | able to be dissolved in a liquid [opposite: insoluble] |
| insulating | will resist energy such as electricity or heat transferring through it |
| magnetic | attracted to magnets OR will act as a magnet to attract some kinds of metal |
| opaque | will not allow light to pass through it |
| reflective | light bounces easily off its surface |
| translucent | will let light but not detailed shapes pass through them |
| transparent | light passes through easily and objects are seen clearly |