

Previous knowledge: What should I already know?

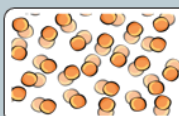
- Compare and group materials together, according to whether they are solids, liquids or gases
- Observe that some materials change state when they are heated or cooled, and measure or research temperature at which this happens in degrees Celsius
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

Key facts / information

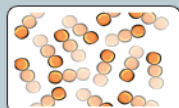
In a **solid**, the **particles** are closely packed together.



The **particles** are close together but free to move about in a **liquid**.



In a **gas**, the **particles** are widely separated and can move freely.

**Key vocabulary**

Conductor – A material or device which allows heat or electricity to pass through it

Dissolve – When something solid mixes with a liquid and becomes part of the liquid

Evaporation – The process of turning from liquid to vapour (gas)

Flexible – Capable of bending easily without breaking

Gas – An air-like substance which expands freely to fill any space available

Insulator – A substance which does not allow heat, sound or electricity to pass through it

Irreversible – Cannot be changed back to its original state

Liquid – A substance that can be poured, flows freely and will change shape depending upon the container it is in

Magnetic – A material that is attracted to a magnet

Material – The matter from which a thing is made from

Opaque – Not able to be seen through, not transparent

Property – The characteristics of something

Reversible – Able to be changed back to its original state

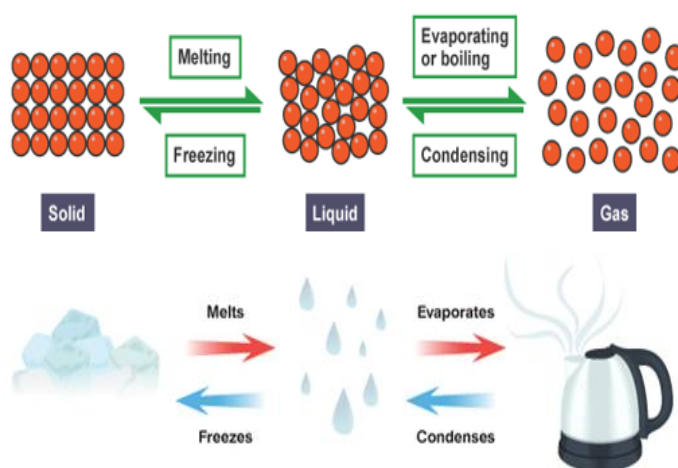
Solid – Firm and stable in shape, not a liquid or fluid.

Can be cut, bent or squashed to change its shape

Soluble – Able to be dissolved, especially in water

Thermal – Relating to heat

Transparent – Allows light to pass through so that objects behind can be seen

Diagram – changing state**Key facts / information – separating materials**

evaporation – used for separating a soluble solid and a liquid

sieving – used for separating two solids

magnets – used for separating magnetic and non-magnetic materials

filtration – used for separating a liquid and a solid

**Key knowledge: What I should know by the end of the unit?**

- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets
- Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- Demonstrate that dissolving, mixing and changes of state are reversible changes
- Explain that some changes result in the formation of new materials and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Materials mini – quiz

1. Solids, liquids and gases have different properties. Put a tick in the correct boxes.

	Solid	Liquid	Gas
can fill the container			
can change volume			
can be cut			

2. Choose a suitable word to describe each of these materials:

a) brick - _____

b) glass - _____

c) plastic - _____

3. Name a reversible change.

4. Name an irreversible change.

5. Explain which method you would use to separate the following mixtures:

a) sugar and coffee _____

b) paper clips and rice _____

c) sand and water _____

6. What happens when...

a) a liquid is heated? _____

b) a liquid is cooled? _____

