



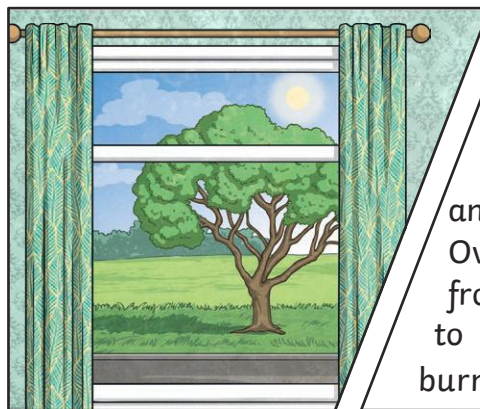
## Year 5 – Stillness Juniors Knowledge Organiser - Properties and Changes of Materials

### Key Vocabulary

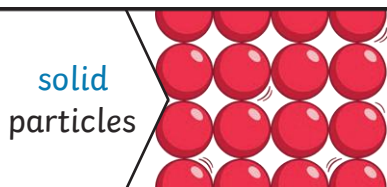
<b>materials</b>	The substance that something is made out of, e.g. wood, plastic, metal.
<b>solids</b>	One of the three states of matter. <b>Solid</b> particles are very close together, meaning <b>solids</b> , such as wood and glass, hold their shape.
<b>liquids</b>	This state of matter can flow and take the shape of the container because the particles are more loosely packed than solids and can move around each other. Examples of <b>liquids</b> include water and milk.
<b>gases</b>	One of the three states of matter. <b>Gas</b> particles are further apart than <b>solid</b> or <b>liquid</b> particles and they are free to move around. A gas fills its container, taking both the shape and the volume of the container. Examples of <b>gases</b> are oxygen and helium.
<b>melting</b>	The process of heating a <b>solid</b> until it changes into a <b>liquid</b> .
<b>freezing</b>	When a <b>liquid</b> cools and turns into a <b>solid</b> .
<b>evaporating</b>	When a <b>liquid</b> turns into a <b>gas</b> or vapour.
<b>condensing</b>	When a <b>gas</b> , such as water vapour, cools and turns into a <b>liquid</b> .

### Key Knowledge

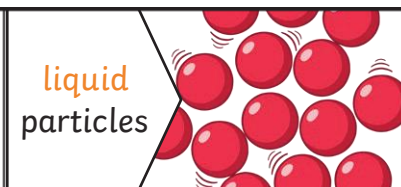
Different **materials** are used for particular jobs based on their properties: electrical **conductivity**, flexibility, hardness, **insulators**, magnetism, solubility, thermal **conductivity**, **transparency**.



For example, glass is used for windows because it is hard and **transparent**. Oven gloves are made from a thermal **insulator** to keep the heat from burning your hand.



**solid**  
particles



**liquid**  
particles



**gas**  
particles

### Changes of State



**solid**

The **solid** **melts**.

The **liquid** **freezes**.



**liquid**



**liquid**

The **gas** **condenses**.

The **liquid** **evaporates**.



**gas**



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### Key Vocabulary

#### conductor

A **conductor** is a material that heat or electricity can easily travel through. Most metals are both thermal **conductors** (they **conduct** heat) and electrical **conductors** (they **conduct** electricity).

#### insulator

An **insulator** is a material that does not let heat or electricity travel through them. Wood and plastic are both thermal and electrical **insulators**.

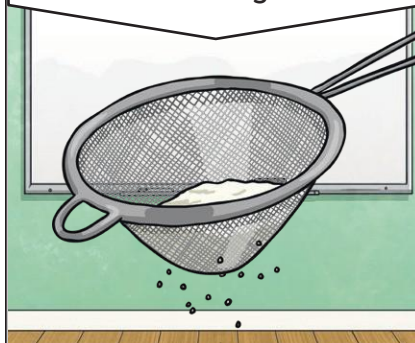
#### transparency

A **transparent** object lets light through so the object can be looked through, for example glass or some plastics.

### Key Knowledge

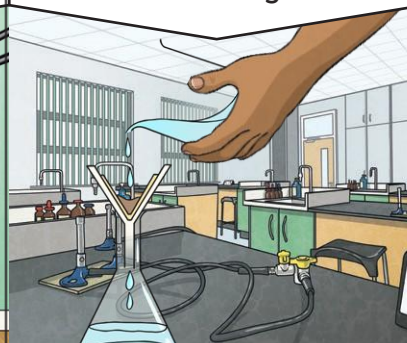
Reversible changes, such as mixing and dissolving **solids** and **liquids** together, can be reversed by:

#### Sieving



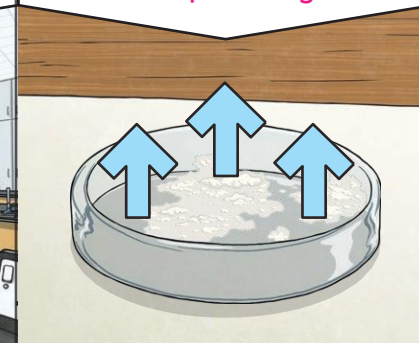
Smaller **materials** are able to fall through the holes in the sieve, separating them from larger particles.

#### Filtering



The **solid** particles will get caught in the filter paper but the **liquid** will be able to get through.

#### Evaporating

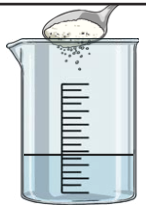


The **liquid** changes into a **gas**, leaving the **solid** particles behind.

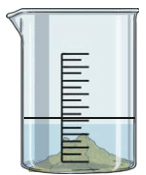
#### Dissolving

A solution is made when **solid** particles are mixed with **liquid** particles. **Materials** that will dissolve are known as soluble. **Materials** that won't dissolve are known as insoluble. A suspension is when the particles don't dissolve.

Sugar is a soluble **material**.



Sand is an insoluble **material**.



Irreversible changes often result in a new product being made from the old **materials** (reactants). For example, burning wood produces ash. Mixing vinegar and milk produces casein plastic.

