

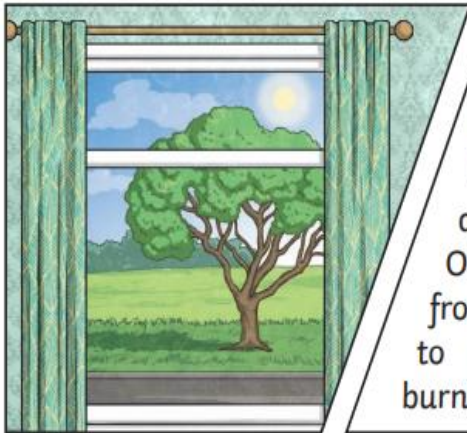


### Key Vocabulary

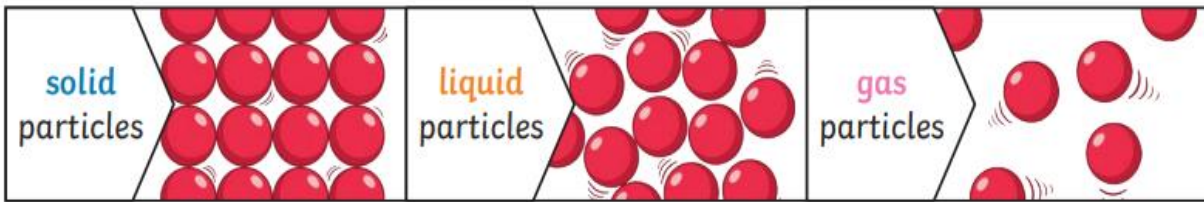
|                    |  |
|--------------------|--|
| <b>materials</b>   | The substance that something is made out of, e.g. wood, plastic, metal.  |
| <b>solids</b>      | One of the three states of matter. <b>Solid</b> particles are very close together, meaning <b>solids</b> , such as wood and glass, 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.



### Changes of State



The **solid** melts.



The **liquid** freezes.





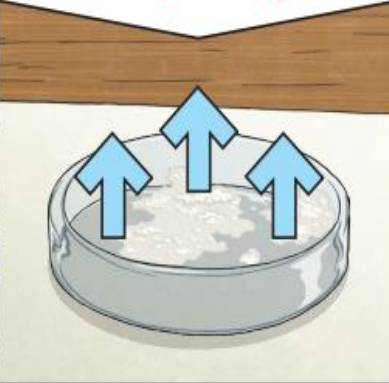
The **gas** condenses.



The **liquid** evaporates.




| Key Vocabulary      |  |
|---------------------|--|
| <b>conductor</b>    | A <b>conductor</b> is a material that heat or electricity can easily travel through. Most metals are both thermal <b>conductors</b> (they <b>conduct</b> heat) and electrical <b>conductors</b> (they <b>conduct</b> electricity). |
| <b>insulator</b>    | An <b>insulator</b> is a material that does not let heat or electricity travel through them. Wood and plastic are both thermal and electrical <b>insulators</b> .  |
| <b>transparency</b> | A <b>transparent</b> 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 <b>solids</b> and <b>liquids</b> together, can be reversed by: |   |   |
| <b>Sieving</b><br>             | <b>Filtering</b><br>           | <b>Evaporating</b><br> |
| Smaller <b>materials</b> are able to fall through the holes in the sieve, separating them from larger particles. | The <b>solid</b> particles will get caught in the filter paper but the <b>liquid</b> will be able to get through. | The <b>liquid</b> changes into a <b>gas</b> , leaving the <b>solid</b> 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.

