

# My Knowledge Journal



## Materials

Name: \_\_\_\_\_

## Pre Knowledge Quiz

Q1. Tick all the changes that are irreversible.

|                            |                          |                          |                          |
|----------------------------|--------------------------|--------------------------|--------------------------|
| Frying an egg              | <input type="checkbox"/> | Dissolving salt in water | <input type="checkbox"/> |
| Melting chocolate          | <input type="checkbox"/> | Burning wood             | <input type="checkbox"/> |
| Freezing water to make ice | <input type="checkbox"/> | Making bread into toast  | <input type="checkbox"/> |

Q2. Materials that are good at keeping things warm or cold are called...

Q3. When a material is dissolved what does it make?

|                             |                          |         |                          |
|-----------------------------|--------------------------|---------|--------------------------|
| A new substance or material | <input type="checkbox"/> | A gas   | <input type="checkbox"/> |
| A solution                  | <input type="checkbox"/> | A force | <input type="checkbox"/> |

Q4. A material that **cannot** be dissolved is called...

# Materials Knowledge Organiser

## What should I already know?

- A range of different materials
- If materials are solids, liquids or gases and that some materials change state when they are heated or cooled
- The part played by evaporation and condensation in the water cycle and how evaporation relates to temperature
- How magnets attract or repel each other
- A variety of materials that are magnetic and non-magnetic

### Irreversible Changes

A change is called irreversible if it cannot be changed back again. In an irreversible change, new materials are always formed. Irreversible changes are permanent. They cannot be undone. For example you cannot change a cake back into its ingredients again, and you cannot turn ash back into wood.

### Reversible Changes

A reversible change is a change that can be undone or reversed. A reversible change might change how a material looks or feels, but it doesn't create new materials. Examples of reversible reactions include dissolving, evaporation, melting and freezing.



## Key Vocabulary

|              |  |
|--------------|--|
| Material     | The matter from which a thing is or can be made from                         |
| Absorb       | Takes in or soaks up liquid  |
| Conductor    | A material or device which allows heat or electricity to carry through       |
| Dissolve     | When something solid mixes with a liquid and becomes part of the liquid      |
| Evaporate    | The process of turning from liquid to vapour                                 |
| Gas          | An air-like fluid substance which expands freely to fill any space available |
| Insulator    | A substance which does not readily allow the passage of heat or sound        |
| Irreversible | Cannot be reversed back to its original state                                |
| Liquid       | A substance that flows freely and can be measured by volume                  |
| Magnetic     | Capable of being magnetised or attracted by a magnet                         |
| Opaque       | Not able to be seen through, not transparent                                 |
| Reversible   | Able to be reversed back to its original state                               |
| Solid        | Firm and stable in shape, not a liquid or fluid                              |
| Soluble      | Able to be dissolved, especially in water                                    |
| Insoluble    | Unable to be dissolved   |
| Sieving      | A mixture of particles can be separated using a sieve                        |
| Thermal      | Relating to heat   |
| Transparent  | Allows light to pass through so that objects behind can be seen              |
| Waterproof   | A material that keeps water out  |
| Saturated    | An undissolved substance, usually found at the bottom                        |

## Conductors

Some materials let electricity pass through them easily. These materials are known as electrical conductors. Many metals, such as copper, iron and steel, are good electrical conductors. That is why the parts of electrical objects that need to let electricity pass through are always made of metal. Metal is used in plugs to allow electricity to transfer from the wall socket, through the plug, and into a device such as a radio or TV. In a light bulb, the metal filament conducts electricity and causes the light bulb to light up.

## Insulators

Some materials do not allow electricity to pass through them. These materials are known as electrical insulators. Plastic, wood, glass and rubber are good electrical insulators. That is why they are used to cover materials that carry electricity. The plastic covering that surrounds wires is an electrical insulator. It stops you from getting an electrical shock.

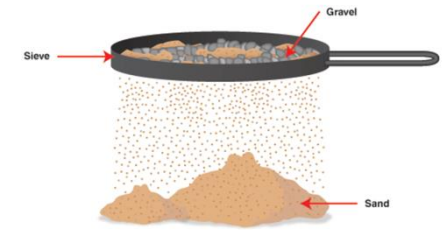


## Thermal Insulators

Thermal insulation is the reduction of heat transfer between objects. Some materials do not let heat travel through them and these are called thermal insulators. E.g oven gloves, thermal vests and thermal flasks. Thermal insulators are also good for keeping heat out and ensuring temperatures stay cool.

## Sieving

A mixture of different solid particles can be separated using a sieve.



## Filtering

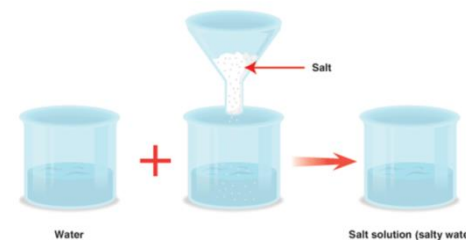
An insoluble solid can be separated from a liquid when passed through a filter. The liquid can pass through the filter whilst the solid particles are trapped in the filter.



## Dissolving

Some substances dissolve when you mix them with water. When a substance dissolves, it might look like it has disappeared, but in fact it has just mixed with the water to make a transparent (see-through) liquid called a solution.

Substances that dissolve in water are called soluble substances. When you mix sugar with water, the sugar dissolves to make a transparent solution. Salt is soluble in water too. Substances that do not dissolve in water are called insoluble substances. When you mix sand or flour with water, they do not dissolve.



Heat can help some substances dissolve faster in water. Salt will dissolve quicker in hot water than in cold water.

# My Knowledge Builder

My Previous Knowledge...

New knowledge ...

Week  
1

- 
- 
- 

Week  
2

- 
- 
- 

Week  
3

- 
- 
-

|           |   |
|-----------|---|
| Week<br>4 | <ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul> |
| Week<br>5 | <ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul> |
| Week<br>6 | <ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul> |
| Week<br>7 | <ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul> |

## Post Knowledge Quiz

Q1. Tick all the changes that are irreversible.

|                            |  |                          |  |
|----------------------------|--|--------------------------|--|
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| Melting chocolate          |  | Burning wood             |  |
| Freezing water to make ice |  | Making bread into toast  |  |

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