

What I will know by the end of the unit:

I can compare and group together everyday materials based on their properties. I will be able to give reasons for the particular uses of everyday materials.

**Material properties**  
**Hardness**      **solubility**  
**transparency**    **thermal conductivity**  
**magnetism**      **electrical conductivity**

Glass is used for windows because it is **transparent** and oven gloves are used from a **thermal insulator** to stop the heat from burning your hands.

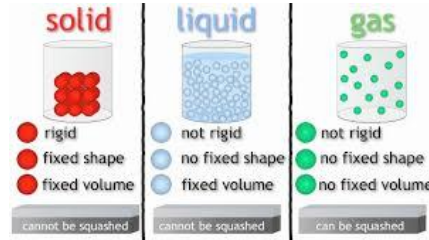


I will know that some materials will dissolve in liquid to form a solution.

A **solution** is formed when solid particles are mixed with a liquid particles. Materials that will **dissolve** in liquid are called **soluble**. Materials that don't dissolve are **insoluble**. For example, sugar or salt will dissolve when mixed with water to form a sugar solution.



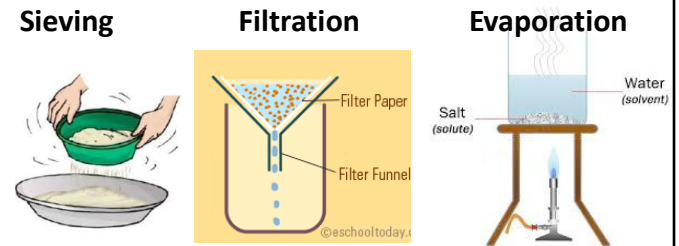
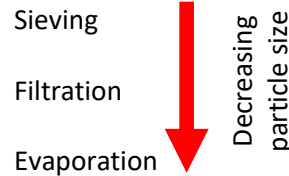
I will be able to use my knowledge of solids, liquids and gases to decide how to separate materials



I will be able to demonstrate that dissolving, mixing and changes of state are reversible changes.

A reversible change is a change where the original components of a mixture can be separated out again

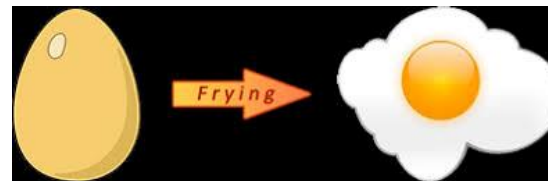
Materials can be separated using:



I will be able to explain and give example of irreversible changes.

An irreversible change is when something can't be changed back to its original form

Examples:



### Key Vocabulary

materials	The substance that something is made out of.
solid	Out of the three states of matter, solid particles are very close together and will keep a fixed shape.
liquid	This state of matter can flow and take a different shape because the particles are more loosely packed together and can move around each other.
gas	Gas particles are further apart than solid or liquid particles and they are free to move around.
melting	The process of heating a solid until it changes into a liquid.
freezing	When a liquid cools and turns into a solid.
evaporating	When a liquid is heated up and turns into a gas.
condensing	When a gas cools down and turns into a liquid.
filtration	The process of separating solid particles from a liquid by letting the mixture pass through filter paper.
dissolving	When a solid is mixed with a liquid and they combine together to form a new liquid called a solution.
soluble	A material that will dissolve in liquid.
insoluble	A material that won't dissolve in liquid.

### This unit of work links to ...

- This unit builds on and links the materials topics carried out in Y1 and Y2 and the states of matter topic in Y4.
- The work on evaporation and condensation links back to the water cycle topic carried out last term.
- Children can apply their knowledge of reversible and irreversible changes to cookery lessons.

### Investigate!

- Explore examples of dissolving from everyday life.
- How can I separate out the different materials in this muddy water?
- If the flour doesn't dissolve in water, can I still separate it?
- Can a solution be separated? Can you show how?
- Which of these changes are irreversible? Why?
- Can you identify the reactants and products of chemical change?