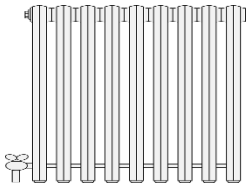
# SCIENCE - Properties and changes of materials
# Year 5 – Lent Term 1

***Thermal Insulators*** – Do not let heat travel through easily such as fabrics, wood and plastics. Can keep heat in or out.



***Thermal Conductors*** - Lets heat travel easily through such as metals.

When things get hot, atoms start to vibrate. Heat produces energy. This could cause them to change state!

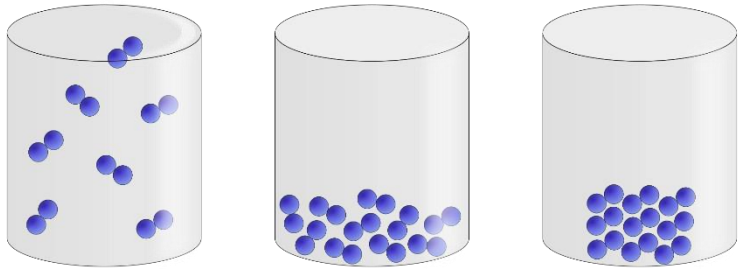
**Separating Materials**

**SIEVING** – A way to separate two solids of different sizes (e.g. flour and raisins).

**FILTRATION** – A mixture of liquids and solids which haven't dissolved can be filtered using paper with tiny holes (e.g. sand and water).

**EVAPORATION** – A solid dissolved in aliquid (solution) can be heated. Liquid evaporates and leaves behind the solid (e.g. salt and water solution).

**MAGNETISM** – Metal attracts to the magnet, leaving behind the other solid (e.g. paper clips and matchsticks).



Gas Liquid Solid

| Examples | Examples | Examples |
|---|---|---|
| Steam (water vapour) | Water | Ice |
| Hydrogen | Milk | Wood |
| Carbon Dioxide | Washing up liquid | Glass |
| Oxygen | Juice | Diamond |

## Three states of matter:

**SOLID**: particles close together / vibrate around a fixed position

**LIQUID**: particles close but randomly arranged / move around

**GAS**: particles far apart and randomly arranged / move around

## Key words

**Soluble** – something that can be dissolved in water

**Solution** – What is created when a solid is dissolved into a liquid

**Reversible change** - When a solid, liquid or gas can be changed back to its original state of matter.

**Irreversible change** – When a solid, liquid or gas that has been changed, can't be changed back to its original state.

**Dissolving** - when the particles of solids mix with particles of liquids. It often looks like the solid has disappeared but it has dissolved in the liquid to make a transparent solution (e.g. mixing sugar into water). It does not always need heat to occur.

**Melting** - Involves only solids which change into a liquid due to heat. They stay as the same material (e.g. ice to water)