Year 5

Topic: Properties and changes of materials

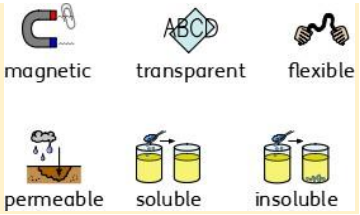
Strand: Chemistry

What I should already know.

- A variety of everyday materials including wood, plastic, glass, metal, water and rock.
- The physical **properties** of a variety of everyday **materials** and to compare and group **materials** on the basis of these **properties.**
- How materials are suitably used based on their **properties**.
- How **magnets** and simple **electrical circuits** work.
- Some materials which are **magnetic.**
- How shapes of solid objects can be changed by squashing, bending, twisting and stretching.
- **Materials** that are **solids, liquids** and **gases** and their **particle** structure.
- Some **materials** change **state** when they are heated or cooled and the **temperature** at which this happens.
- The roles of **melting, evaporation** and **condensation** in the **water cycle** and the role **temperature** has on the **rate** of **evaporation**.
- Some rocks are **permeable.**

What will I know by the end of the unit?

How to group materials based on their properties using more complex vocabulary.

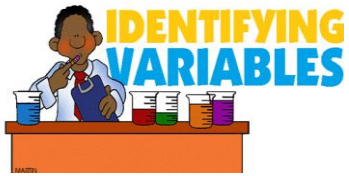


How to conduct an experiment and make it a **fair test?**

When completing an experiment, it is important to test one variable and keep all others the same.

•Record results accurately using careful observations.

•It is important to take repeat readings in order to get a more accurate result.

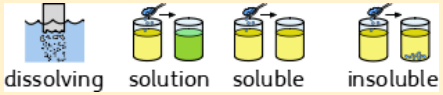


Vocabulary

Condensation	Small drops of water which form when water vapour or steam touches a cold surface, such as a window.
Dissolves	When a substance is mixed with a liquid and the substance disappears.
Evaporation	To turn from liquid into gas; pass away in the form of vapour.
Filtering	A device used to remove dirt or other **solids** from **liquids** or **gases**. A filter can be made of paper, charcoal, or other material with tiny holes in it.
Gas	A form of matter that is neither **liquid** nor **solid**. A **gas** rapidly spreads out when it is warmed and contracts when it is cooled.
Insoluble	Impossible to **dissolve**, esp. in a given **liquid**.
Irreversible	Impossible to reverse, turn back, or change.
Liquid	In a form that flows easily and is neither a **solid** nor a **gas**.
Magnetic	Having to do with magnets and the way they work.
Melting	To change from a **solid** to a **liquid** state through heat or pressure.
Particles	A tiny amount or small piece.
Permeable	Of a substance, being such that **gas** or **liquid** can pass through it.
Process	A series of actions used to produce something or reach a goal.
Properties	The ways in which an object behaves.
Rate	The speed with which something happens.
Resistance	The opposing power of one force against another.
Reversible	Able to turn or change back.
Solid	Having a firm shape or form that can be measured in length, width, and height; not like a **liquid** or a **gas.**
Soluble	Able to be **dissolved**.
Solution	A mixture that contains two or more substances combined evenly.

What is dissolving?

- When the **particles** of a **solid** mix with the **particles** of a **liquid,** this is called **dissolving**.
- The result is a **solution.**
- **Materials** that **dissolve** are **soluble, materials** that do not **dissolve** are **insoluble.**



Can **materials** be separated after they have been mixed?

- Some **materials** can be separated after they have been mixed based on their **properties** - this is called a **reversible** change.
- Some methods of separation include the use of a magnet, a **filter** (for insoluble materials), a sieve (based on the size of the solids) and **evaporation.**
- When a mixture cannot be separated back into the original components, this is called an **irreversible** change. Examples of this include when materials burn or mixing bicarbonate of soda with vinegar.