Lunsford Primary School – Science	Topic: Properties and Changes of Materials	Strand: Chemistry	Year 5

Linked scientists

Spencer Silver & Arthur Fry - Chemical Engineer & Chemist who invented the post-it note

Key Vocabulary

absorbent	Material which has the ability to soak up another substance – usually **liquids**
change of state	When a substance changes from one **state** to another without changing its chemical makeup. Substances can change from **solids** to **liquids** to **gases**
conductor	A substance or material that transmits electricity, heat, light or sound
dissolve	When a substance is broken up or **absorbed** and disappears into another substance.
evaporation	When a **liquid** changes to a **gas** (vapour) after being heated up
filter	A device with tiny openings that allows you to remove things from a **gas** or **liquid**
freezing	When a substance changes from a **liquid** to a **solid** in lower **temperatures**. Water **freezes** at 0°C
gas	Air-like substance that moves around. **Gases** don't have a shape, but fill the space they are in
insoluble	**Solid** which won't **dissolve** into a **liquid**, even when stirred or mixed
insulator	A substance or material that that doesn't transmit electricity, heat, light or sound.
liquid	One of the 3 states of matter. **Liquids** flow and take the shape of the container they are in
mixture	2 or more substances are mixed, but not joined together. One substance hasn't **dissolved** into the other. **Mixtures** can be easily separated
non-reversible	When a change cannot be undone or **reversed**
reversible	When a change can be undone or **reversed**

Key Vocabulary

rusting	Orange, red or brownish coating that appears on metals left exposed to air and water
solid	One of the 3 states of matter. **Solids** keep their shape and have a fixed volume
solution	**Mixture** where one substance is **dissolved** into another. The two substances can't be separated by **filtering**
soluble	Substance which will **dissolve** into a **liquid**
thermal	Type of energy in the form of heat
transparent	Lets light pass through

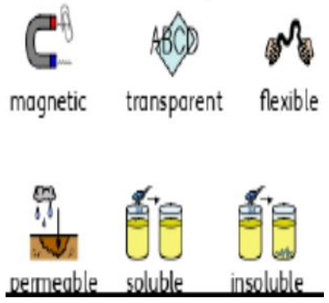
What I will know by the end of the unit

Compare and group together materials based on their properties

Materials are in different states – **solid**, **liquid** or **gas**

Gas Liquid Solid

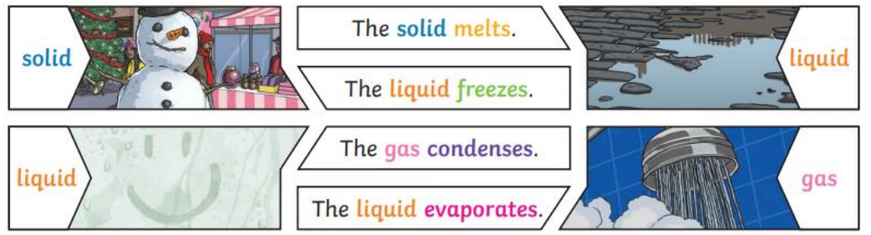
Different materials are used for particular purposes based on their properties: electrical conductivity, flexibility, hardness, insulators, magnetism, solubility, thermal conductivity, transparency.



What I will know by the end of the unit

Materials can change state

Changes of state occur depending on **temperature**.



Some materials dissolve in liquid to form a solution

Dissolving materials

When the particles of a solid mix with the particles of a liquid, this is called dissolving. The result is a solution.

Salt and water are an example of a solution.

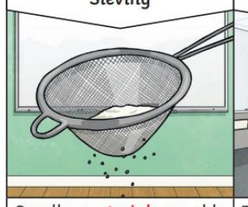
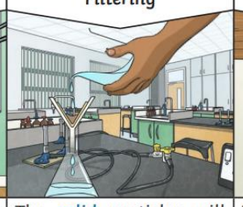
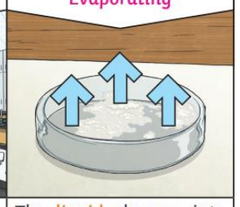
Some other materials are **insoluble**.

Changes of state can be reversible or irreversible

Mixtures and **solutions** can be separated.

Some **changes of state** – including **burning** and **rusting** – are **irreversible** and a new material is formed.

Reversible changes, such as mixing and dissolving **solids** and **liquids** together, can be reversed by:

Sieving	Filtering	Evaporating
		
Smaller **materials** are able to fall through the holes in the sieve, separating them from larger particles.	The **solid** particles will get caught in the filter paper but the **liquid** will be able to get through.	The **liquid** changes into a **gas**, leaving the **solid** particles behind.

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.