Science – Properties of materials Year 5/6 Autumn Term

Prior Learning:

Year 2
- Identify and compare the suitability of a variety of everyday materials
- Find out how the shapes of solid objects can be changed

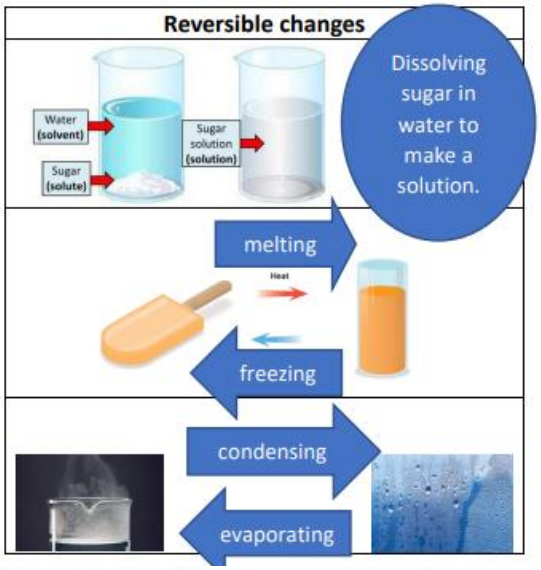
Year 3
- Group magnetic and non-magnetic materials

Year 4
- Compare and group materials – solids, liquids, gases
- Observe that some materials change state when they are heated or cooled
- Identify the part played by evaporation and condensation in the water cycle

Key vocabulary	
thermal conductor	allows heat to pass through it easily
thermal insulator	does not allow heat to pass through it easily
electrical conductor	allows electricity to pass through it
electrical insulator	does not allow electricity to pass through it
change of state	when a solid, liquid or gas changes into a different form e.g. solid to liquid
mixture	a substance made by mixing two or more materials together
dissolve	a solid that completely mixes in with a liquid and cannot be seen.
solution	a mixture of a liquid with a dissolved solid or gas.
soluble	solids and gases that dissolve in liquids
insoluble	solids that do not dissolve in a liquid
filter	separates an insoluble solid that is mixed in a liquid
sieve	separates solids of different sizes
reversible change	changes that can be switched back and are not permanent
non-reversible change	changes that can not be reversed back to their original state
burning	irreversible change caused by heat or flames.
rusting	irreversible change caused when iron or steel is in contact with oxygen and water
new material	material formed after an action such as dissolving, sieving for example

Materials can be grouped together based on their properties. For example:
- hardness
- solubility
- transparency
- thermal conductivity
- electrical conductivity
- response to magnets

Reversible changes



Non-reversible changes - these result in the formation of new materials

Burning	
Mixing vinegar and bicarbonate of soda	
Rusting	

Significant scientist

Spencer Silver (1941 - 2021)

Spencer Silver is an American scientist who together with Arthur Fry was the inventor of Post-it notes in 1974. At the time, he was working to develop new classes of adhesives.

Separating materials

Sieving separates the stones and twigs from the soil.

Filtering separates the sand from the mixture.

Evaporating separates the dissolved salt from the water.

Can I answer?
- What does dissolving mean? Give an example of dissolving.
- What equipment can we use to separate materials?
- How can be materials be recovered from solutions by evaporation, filtering and sieving?
- Use an example to describe a simple reversible change.
- Use an example to describe a simple irreversible change.