Topic: **Properties and changes of materials**	Year: 5	Strand: **Chemistry**

What should I already know?

- Similarities and differences between common, everyday objects (EYFS)
- A variety of everyday materials including wood, plastic, glass, metal, water and rock (Y1)
- The physical properties of a variety of everyday materials (including those that are transparent) and to compare and group materials on the basis of these properties (Y2)
- How materials are suitably used based on their properties (Y2)
- How shapes of solid objects can be changed by squashing, bending, twisting and stretching (Y2)
- How magnets and electrical circuits work (Y3)
- Some materials which are magnetic (Y3)
- Some rocks are permeable (Y3)
- Materials that are solids, liquids and gases and their particle structure (Y4)
- Some materials change state when they are heated or cooled and the temperature at which this happens (Y4)
- The roles of melting, evaporation and condensation in the water cycle and the role temperature has on

Vocabulary

condensation	small drops of water which form when water vapour or steam touches a cold surface, such as a window
dissolve	when a substance is mixed with a liquid and the substance disappears
filter	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
insoluble	impossible to dissolve, esp. in a given liquid
irreversible change	impossible to reverse, turn back, or change
material	the matter from which a thing is or can be made
mixture	a substance made by mixing other substances together
reversible change	able to turn or change back
soluble	able to be dissolved
solution	a mixture that contains two or more substances combined evenly
thermometer	An instrument used to measure the temperature of liquids, air and body heat

What will I know by the end of the unit?

How to group materials based on their properties (complex)	• Materials can be grouped depending on their properties; hardness, solubility, magnetism.
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— 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.

Investigate!

- Explain the difference between dissolving and melting.
- Investigate which materials are soluble and insoluble.
- Investigate what happens to water when it evaporates.
- Create a variety of mixtures using materials such as salt, sand, water, paper clips and rice and use sieves and colanders to separate them. Can you think of other ways to separate them?