Learning Organiser

Topic: Properties and changes of materials

Principle Subject: Science

Year: 5

What I know already:

- How to compare and group materials together according to whether they are solids, liquids or gases.
- How to observe that some materials change state when they are heated or cooled.
- How to identify the part played by evaporation and condensation in the water cycle and its links to temperature.

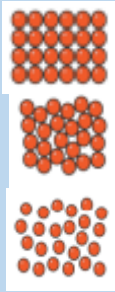
What I will know by the end of this topic:

- Compare and group together everyday materials on the basis of their properties.
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated through filtering, sieving and evaporating.
- Know that some materials will dissolve in liquid to form a solution.
- Understand how to recover a substance from a solution.
- Use evidence from comparative and fair tests to give reasons for the use of everyday materials, including metals, wood and plastic.
- Demonstrate that dissolving, mixing and changing of states are reversible.
- Explain that some changes results in the formation of new materials and that this kind of change is usually irreversible.

Key Vocabulary:

soluble - able to be dissolved, especially in water
insoluble - cannot be dissolved, especially in water
dissolve - when something solid mixes with a liquid and becomes part of the liquid
solution - is made when one substance dissolves into another
reversible - can be reversed back to its original state
irreversible – cannot be reversed back to its original state
transparent - allows light to pass through
thermal insulator - a material or device which reduces the transfer of heat between objects
electrical conductor - a material or device with allows electricity to carry through
evaporate – Turn from liquid into vapour (gas)
evaporation – The process of turning liquid into vapour
condense – Change, or cause to change, from a vapour (gas) to a liquid
condensation – Water which collects as droplets on a cold surface
state of matter – The distinct forms in which matter can exist (solid, liquid, gas)
melt – Make or become liquefied by heat
freeze – Turn or be turned into ice or another solid as a result of extreme cold
solidify – Make or become hard or solid
properties – Characteristics that enable us to differentiate one material from another.

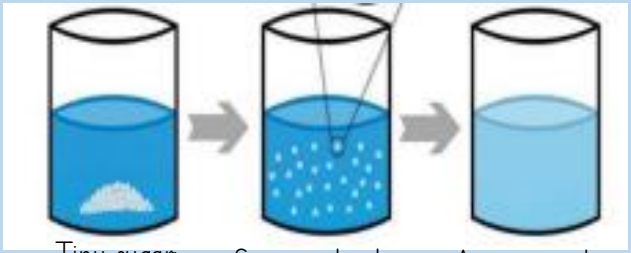
Diagrams



Solid – particles packed closely together

Liquid – particles have some space to move

Gas – particles are free to move



Tiny sugar cubes still in water

Sugar cubes being distributed through the solution

A sugary solution