Year 5 – Autumn 2 – Properties and changes of materials

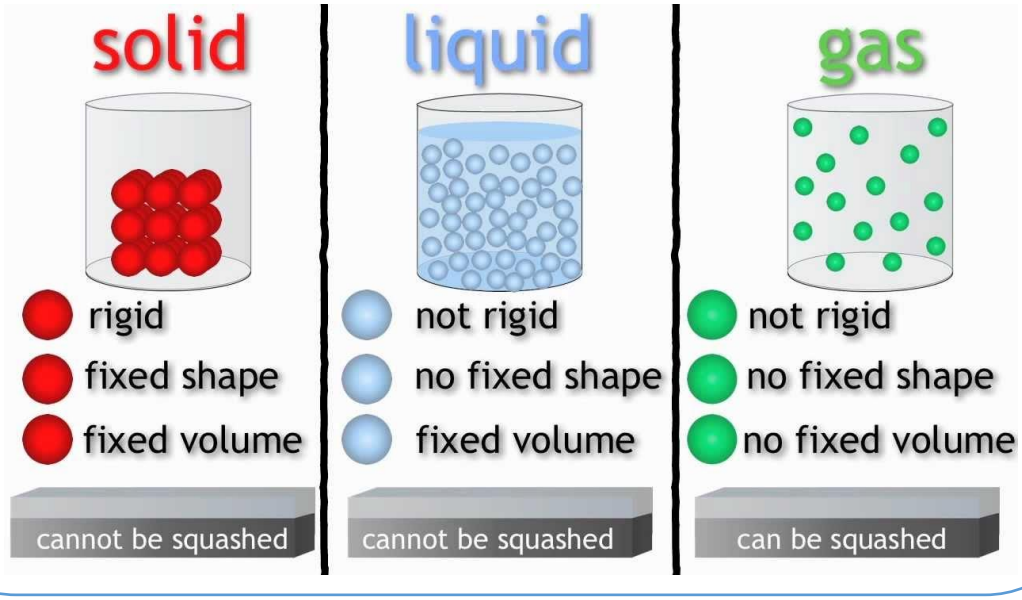
Science

By the end of this topic, children will know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. They will use their knowledge of solids, liquids and gases to decide how mixtures might be separated, They will learn that dissolving, mixing and changes of state are reversible changes explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible,

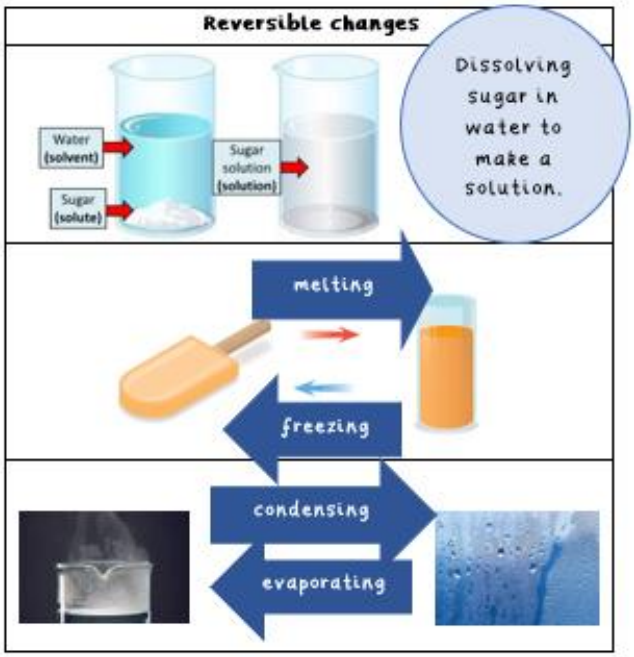
Key Questions

- What are the particles like in a solid, liquid and gas?
- Which substances are soluble/insoluble?
- What affects the rate of dissolving?
- How can we separate materials?

Key vocabulary	
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.
sieve	Separates solids of different sizes.
filter	Separates an insoluble solid that is mixed in a liquid.
evaporation	Separates a soluble solid and a liquid.
reversible change	Changes that can be switched back and are not permanent. E.g. dissolving, melting, freezing
non-reversible change	Changes that can not be reversed back to their original state. E.g. burning, rusting



Reversible changes



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.	

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

Burning	
Mixing vinegar and bicarbonate of soda	
Rusting	

When a solute dissolves in a solvent, it does not disappear!

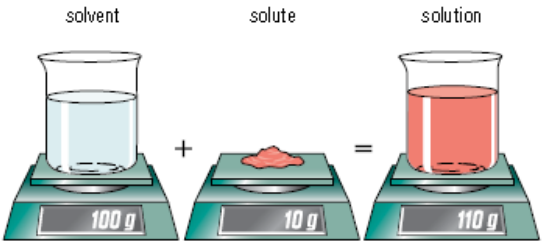


Fig 3.1.1 When you dissolve a solid it might look like it disappears, but mass tells you it's still there.

Home Learning Suggestions

1. Bake something at home and comment on the chemical reactions which occur in cooking.
2. Leave something that is metal outside and observe what happens over the course of a few weeks.
3. (With adult supervision) observe a candle burning. What are the chemical changes which are occurring here?