

Knowledge Mat- Science – Y5 Properties and Changes in materials

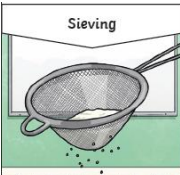

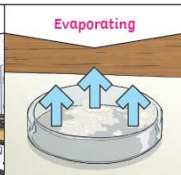
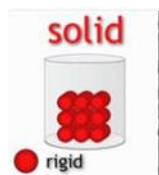

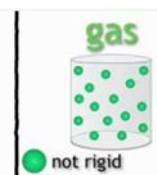
Year 4	Year 5	Secondary school
<ul style="list-style-type: none"> Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	<ul style="list-style-type: none"> Compare and group together everyday materials on the basis of their properties, Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new materials. 	<ul style="list-style-type: none"> Chemical reactions as the rearrangement of atoms. Representing chemical reactions using formulae and using equations. Combustion, thermal decomposition, oxidation and displacement reactions. Defining acids and alkalis in terms of neutralisation reactions. The pH scale for measuring acidity/alkalinity; and indicators.

Subject Specific Vocabulary

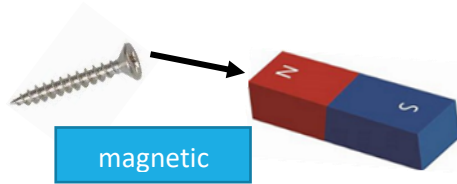
solubility	Is a chemical property referring to the ability for a given substance, the solute, to dissolve in a solvent.
conductivity	Conductivity defines a material's ability to conduct electricity.
transparency	In general, transparency is the quality of being easily seen through.
evaporation	Evaporation is the process of a substance in a liquid state changing to a gaseous state due to an increase in temperature and/or pressure.
dissolve	To dissolve is defined as to become broken up or absorbed by something or to disappear into something else.
thermal	Something that is thermal is hot, retains heat, or has a warming effect
filtering	To filter a substance means to pass it through a device which is designed to remove certain particles contained.
melting	Melting, is a physical process that results in the phase transition of a substance from a solid to a liquid.
separate	separate, part, and divide mean to break into parts or to keep apart.

Knowledge

- I can compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.
- I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.
- I know how to separate solids, liquids and gases to decide through filtering, sieving and evaporating.
- I know that dissolving, mixing and changes of state are reversible changes.
- I know that some changes make new materials, and that this kind of change is not usually reversible e.g. burning.

Sieving	Filtering	Evaporating	solid	liquid	gas
					
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.	<ul style="list-style-type: none"> ● rigid ● fixed shape ● fixed volume 	<ul style="list-style-type: none"> ● not rigid ● no fixed shape ● fixed volume 	<ul style="list-style-type: none"> ● not rigid ● no fixed shape ● no fixed volume

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solid 




liquid 

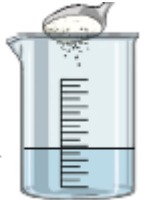

gas 




heat 





freeze 

melt 

solid	liquid	gas
		
● rigid	● not rigid	● not rigid
● fixed shape	● no fixed shape	● no fixed shape
● fixed volume	● fixed volume	● no fixed volume

soluble	insoluble
	
Sugar and water	Sand and water
Dissolving	

Separating solutions		
		
sieving	evaporating	filtering

Changes of state	Reversible changes
 solid	The solid melts .
 liquid	The liquid freezes .
 liquid	The gas condenses .
 gas	The liquid evaporates .