

Scheme of Learning: Particles & Separation Techniques

Topic Sequence:

1	2	3	4	5	6	7	8	9	10
Lab Skills	Particles and Separation Techniques	Forces	Cells and Organisation	Elements and the Periodic Table	Energy	Health and Human Body	Chemical Reactions	Electricity and Magnetism	Reproduction

Topic Overview:

The national curriculum requires that we teach the following:

- the properties of the different states of matter (solid, liquid and gas) in terms of the particle model.
- changes of state in terms of the particle model
- mixtures, including dissolving
- diffusion in terms of the particle model
- simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography

Lesson Sequence:

We start with an introduction to particles and states of matter. We build on that to look at changes of state, then the movement of particles and finally separation techniques.

Sequence of Lessons:

1	States of Matter
2	The Particle Model
3	Changes of State
4	Boiling Vs Evaporation
5	Melting & Freezing
6	Diffusion
7	Solubility
8	Saturation
9	Filtering
10	Distillation
11	Chromatography
12	Revision
13	Assessment

Resources:

1	Selection of solids, liquids and gases (include sand, hair gel/jelly)
2	Lego blocks
3	Stearic acid warmed in water bath
4	Sulphuric acid, Copper oxide, Post-its for labelling dishes
5	Petri dishes, cubes of lard, butter, chocolate
6	Demo: Potassium permanganate crystals Class set: Equal sized cubes of agar jelly containing phenolphthalein, various concentrations of HCl
7	Liquids: Ethanol, copper sulphate solution Solids: Coffee, sugar, salt
8	Sugar
9	Rock salt mixture
10	Inky water, delivery tubes & conical flasks
11	Chromatography paper strips, pens for testing.
12	n/a
13	Worksheets in shared folder.

Supportive Reading:

Comprehension activity	TBC
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Assessment:

Knowledge:	Multiple choice questions.
Application of Knowledge:	Describe the structure and properties of the three states of matter.