



01

Chemistry - UK

YEARS 7 - 9

Experience Level: **KEY-STAGE 3**Number of Classes: **VARIABLE**Age Range: **11 - 14 YEARS**

01

The particulate nature of matter

- The properties of the different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure.
- Changes of state in terms of the particle model.

02

Atoms, elements and compounds

- A simple (Dalton) atomic model.
- Differences between atoms, elements and compounds.
- Chemical symbols and formulae for elements and compounds.
- Conservation of mass changes of state and chemical reactions.



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02

03

Pure and impure substances

- The concept of a pure substance.
- Mixtures, including dissolving.
- Diffusion in terms of the particle model.
- Simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography.
- The identification of pure substances.

04

Chemical reactions

- 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.
- Reactions of acids with metals to produce a salt plus hydrogen.
- Reactions of acids with alkalis to produce a salt plus water.
- What catalysts do.

05

Energetics

- Energy changes on changes of state (qualitative).
- Exothermic and endothermic chemical reactions (qualitative).



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03

06

The periodic table

- The varying physical and chemical properties of different elements.
- The principles underpinning the Mendeleev periodic table.
- The periodic table: periods and groups; metals and non-metals.
- How patterns in reactions can be predicted with reference to the periodic table.
- The properties of metals and non-metals.
- The chemical properties of metal and non-metal oxides with respect to acidity.

07

Materials

- The order of metals and carbon in the reactivity series.
- The use of carbon in obtaining metals from metal oxides.
- Properties of ceramics, polymers and composites (qualitative).

08

Earth and atmosphere

- The composition of the Earth.
- The structure of the Earth.
- The rock cycle and the formation of igneous, sedimentary and metamorphic rocks.
- Earth as a source of limited resources and the efficacy of recycling.
- The composition of the atmosphere.
- The production of carbon dioxide by human activity and the impact on climate.



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