Year 8 Scheme of Work

Units DEJ will be completed between May and July, then the next units will begin
Units ABCFGHKL will be completed by January

CHEMISTRY

8E In the drink
Topic 8Ea introduces the idea that the water we get from our taps has to be treated to make it clean, and then revisits mixtures and dissolving, which pupils will have met in KS2.

Topic 8Eb looks at the particle model of matter to explain dissolving, filtering and the conservation of mass, and then looks at saturated solutions, and the effect of temperature on solubility.

Topic 8Ec focuses on the evaporation of water from solutions and the process used to do this in the laboratory, and also how this is applied to the production of salt from brine.

Topic 8Ed focuses on chromatography and its applications.

Topic 8Ee looks at distillation, including an explanation of why it works in terms of particles. The unit finishes with a discussion of whether and how we should conserve water supplies in the UK.

8F Materials and recycling
Topic 8Fa starts with an introduction to recycling. A brief history of some of the common materials develops the idea that there is a class of simple substances, called elements, from which all the substances in the world are made. A chemical element is based on the properties of the material.

Topic 8Fb extends Year 7 work on particle theory and applies it to elements. At this level all atoms of an element are treated as identical. International codes are introduced in the context of plastics reprocessing and this is related to chemical symbols. Atoms are defined as the smallest particle of an element that can exist.

Topic 8Fc builds on Year 7 work to develop the idea of properties, and summarises the main differences between metals and non- metals. The position of metals and non-metals in the periodic table is discussed based on observable physical properties.

Topic 8Fd introduces compounds, using examples chosen to link with the unit theme. Pupils are introduced to molecules, chemical formulae and the naming of binary compounds.

Topic 8Fe looks at the recycling of glass, paper, plastics and aluminium. The distinction between re-using and recycling is emphasised, and pupils are introduced to concepts of sustainable development and renewable resources. The unit concludes with a debate on schemes for waste management.

8G All that glitters
Topic 8Ga uses examples of substances used in jewellery making (e.g. gold, diamond) to introduce the difference between elements and compounds at a macroscopic and particle level. Simple formulae are also introduced, including for the oxides of certain elements and the acids met in Unit 7E. The formation of compounds is exemplified by the reaction of iron and sulphur.

Topic 8Gb develops the idea of chemical and physical changes. A number of changes are studied: in some cases the chemicals react just by mixing together (precipitation reactions), whereas in others heat is required (decomposition reactions).

Topic 8Gc introduces the idea of mixtures as another class of substances other than elements and compounds. Natural water, seawater and air are the contexts for explaining the distinction.

Topic 8Gd looks at the alloys used in jewellery making as examples of mixtures and how the properties of elements can be changed by mixing them with other substances.

Topic 8Ge builds on previous work on changes of state to establish that a definite melting or boiling point is a criterion for deciding whether something is pure or not. Ice/salt and water/salt mixtures and solder are used as examples of mixtures that have melting and boiling points different from the pure elements or compounds from which they are made.

8H Explaining the Earth

Topic 8Ha reviews some of the ideas and words met in Unit 7H to consolidate pupils' learning about the processes involved in the formation of sedimentary rock. It also looks at what kinds of evidence can be found in sedimentary rocks for how they were formed, or for finding out about past climates or living organisms.

Topic 8Hb examines igneous rocks and how their cooling rate leads to different crystal sizes. It looks at their features such as basalt columns, and rocks formed from volcanic fragments.

Topic 8Hc focuses on the idea of metamorphism and the processes by which rock of one type can be changed into a new form. Various models illustrate the processes, and metamorphic rocks are compared to the rocks from which they were formed.

Topic 8Hd outlines theories that have been used to explain the formation of rocks and where they can be found. Evidence is presented for and against different theories. The concept of geological time is also introduced.

Topic 8He draws together the content of the previous topics by considering the rock cycle as a summary of the processes studied so far.