Thomas Mills
High School & Sixth Form

CURRICULUM OVERVIEW: Chemistry

Our Key Stage 3 Chemistry curriculum is designed to spark curiosity and build a strong foundation in scientific thinking. Through hands-on investigations and clear explanations, pupils begin to explore the particle model, the nature of materials, and the Earth's structure. By connecting classroom learning to real-world contexts such as climate change, recycling and everyday materials, we aim to develop confident young scientists who can think critically and understand the impact of Chemistry on society.

Important Note: At Key Stage 3, Science is taught in a carousel model. This means that different classes may study the Chemistry units at different times of the year.

Year 7

Term	Topic	Knowledge and Skills	Useful Links
1	**Mind Over Matter**	**Knowledge:** The Key Stage 3 Mind Over Matter topic introduces pupils to the fundamental principles of the particle model and the structure of matter. Pupils learn to describe and compare the properties of solids, liquids and gases, and use particle theory to explain changes of state, pressure and viscosity. They explore how temperature and energy affect the behaviour of particles and interpret heating and cooling curves. The curriculum also introduces the structure of the atom, elements, compounds and mixtures, along with practical methods for separating substances. Pupils investigate the properties and uses of metals, non-metals, polymers, ceramics and composites, making links between particle structure and material behaviour. **Skills:** Through practical investigations, pupils develop an understanding of how the particle model explains the behaviour of materials in different states. In this topic, pupils apply logical reasoning to predict changes of state,	Unit: Solid, liquid, gas states and changes of state | KS3 Science | Oak National Academy The particle model of matter - KS3 Chemistry - BBC Bitesize Pure and impure substances - KS3 Chemistry - BBC Bitesize Materials - KS3 Chemistry - BBC Bitesize

		interpret heating and cooling curves, and explain patterns in material properties using particle theory. They build confidence in using scientific vocabulary, representing particles in diagrams, and linking microscopic structure to observable behaviour. Pupils also develop analytical skills by interpreting data from practical work and applying knowledge to real-world materials and their uses.	
Assessments		A mid-unit low-stakes test and a more formal end-of-unit test completed under exam conditions. These assessments are designed to check understanding of key concepts and identify areas for improvement. Pupils receive feedback on both assessments, with time allocated in class to review answers and address misconceptions. Tests will contain a mixture of exam questions, matched to the format seen in end of key stage assessments. Topic Summary Checklists are used throughout the unit to help pupils monitor their own progress and reflect on their understanding of the content.	
2	**Earth and Atmosphere**	**Knowledge:** The Key Stage 3 Earth and Atmosphere topic introduces pupils to the structure of the Earth and the dynamic processes that shape it. Pupils learn about the layers of the Earth, tectonic plate movement, and how natural phenomena such as earthquakes, volcanoes and mountain ranges occur. They explore the formation of sedimentary, igneous and metamorphic rocks, and investigate the processes of weathering, erosion and fossilisation. The curriculum also covers key environmental topics including recycling, the carbon cycle, the greenhouse effect and climate change, helping pupils understand the impact of human activity on the Earth's systems.	Atmospheric pollution guide for KS3 chemistry students - BBC Bitesize Resources from the Earth guide for KS3 chemistry students - BBC Bitesize Composition of the atmosphere - BBC Bitesize

		Skills: Through practical activities, model-making and data interpretation, pupils develop key skills in explaining Earth processes and environmental issues. They learn to label and interpret diagrams of geological structures, sequence the rock cycle, and explain the causes and consequences of natural events using scientific language. Pupils evaluate evidence for tectonic plate movement, analyse data related to climate change, and use their understanding of biological and chemical cycles to explain real-world environmental challenges. Throughout the topic, pupils build confidence in applying knowledge to unfamiliar scenarios and justifying their reasoning.	What is carbon dioxide (CO_2) guide for KS3 chemistry students - BBC Bitesize Structure of the Earth - The Earth and atmosphere - KS3 Chemistry - BBC Bitesize Rock types - The Earth and atmosphere - KS3 Chemistry - BBC Bitesize The rock cycle - The Earth and atmosphere - KS3 Chemistry - BBC Bitesize
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