

MOOR PARK HIGH SCHOOL: CURRICULUM

Long Term Planning

Year 9

Curriculum Area: Chemistry

Year 9	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Syllabus	AQA Chemistry ARK Curriculum 3.1 The Periodic Table		AQA Chemistry Ark Curriculum 3.2 Intro into Qualitative Chemistry		AQA Chemistry ARK Curriculum 3.3 Using Resources	
Connections to prior KS3 learning	<p>Atoms are the smallest units</p> <p>The position of metals and non-metals in the periodic table and the properties of each.</p> <p>Like charges repel and opposite charges reflect</p> <p>The periodic table contains all the elements, arranged in order.</p> <p>Definitions of boiling and melting points and be able to identify what state an element would be in at a specific temperature.</p> <p>Alkalis have a pH of greater than 7 and turn purple/blue when universal indicator is added.</p> <p>The halogens are included in the 7 diatomic molecules.</p> <p>general properties of metals and be able to relate them to their structure.</p>		<p>States of Matter and their properties</p> <p>Chemical symbols and formulae for elements and compounds.</p> <p>Representing chemical reactions using formulae.</p> <p>relative atomic mass and to calculate the relative formula mass of a compound.</p> <p>Knowledge of conservation of mass, changes of state and chemical reactions.</p> <p>The small subscript number after an element symbol is the number of atoms of that element are in one molecule</p> <p>Mixture, compounds, pure substance, solution, solute and a solvent.</p> <p>Acids are neutralised by alkalis (eg soluble metal hydroxides) and bases (eg insoluble metal hydroxides and metal oxides) to produce salts and water, and by metal carbonates to produce salts, water and carbon dioxide.</p> <p>Acids react with some metals to produce salts and hydrogen</p>		<p>Atoms are made up of three sub-atomic particles: protons, neutrons and electrons.</p> <p>The number of protons, neutrons and electrons for an atom of any element can be deduced from the atomic number and relative atomic mass number</p> <p>Arrangement of electrons orbiting the nucleus can be shown using electronic configuration diagrams.</p> <p>A pure substance is one that contains atoms or molecules of one type only.</p> <p>Distillation separates a mixture based on the boiling points of the component parts.</p> <p>Osmosis is the diffusion of water from a dilute to a concentrated solution.</p> <p>pH paper can be used to see how acidic or alkaline a solution is.</p> <p>Some of the Earth's resources are renewable and others are non-renewable (finite).</p> <p>Fossil fuels can be burned to produce heat energy, which can be used.</p> <p>Students will be familiar with the concept of recycling and many may recycle their waste at home.</p>	

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Knowledge	<p>Standard Form</p> <p>Orders of Magnitude</p> <p>Atoms</p> <p>Electronic Configuration</p> <p>Isotopes</p> <p>Understanding the Atom</p> <p>The Periodic Table</p> <p>The Noble Gases</p> <p>The Alkali Metals</p> <p>The Halogens</p> <p>Reactions of the Halogens</p> <p>Taking it Further The Transition Elements</p>	<p>Relative Formula Mass</p> <p>Percentage by mass</p> <p>Conservation of Mass</p> <p>Balancing Equations</p> <p>Uncertainty</p> <p>Introducing Concentration</p> <p>Concentration Calculations</p> <p>Salts</p> <p>Making Soluble Salts</p> <p>Making Soluble Salts 2</p>	<p>Reactions of Metals</p> <p>Observing Reactivity</p> <p>Using the Reactivity Series</p> <p>Treating Water</p> <p>Testing Water</p> <p>Using Materials</p> <p>Life Cycle Assessments</p> <p>Reduce, Reuse, Recycle</p> <p>Evaluating Impact</p> <p>Sources of Information</p>
Skills	<p>Demonstrations of physical vs chemical changes, depending on the gaps identified from previous units</p> <p>Recognise that scientific methods and theories change over time</p> <p>Use models to represent data, events, processes, behaviours and other scientific phenomena or show its limitations.</p> <p>Critique and evaluate models.</p> <p>Make predictions or calculate quantities based on the model</p> <p>Evaluate the strengths and limitations of a model</p> <p>Elements in the same group have similar properties.</p> <p>Reactivity of alkali metals demonstration</p> <p>Measure pH</p>	<p>Making of magnesium oxide by burning magnesium.</p> <p>Include a coherent and sensible order of steps, with sufficient detail to obtain valid results, including suggested equipment</p> <p>Preparation of a pure dry sample of a soluble salt.</p> <p>Preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate</p> <p>Safe use of equipment to separate mixtures using evaporation or filtration or crystallisation</p> <p>Measure volumes of liquids accurately</p>	<p>Safe use of equipment to separate mixtures using filtration</p> <p>Purification of dirty water.</p> <p>Safe use of equipment to separate mixtures using distillation</p> <p>Measure pH</p> <p>Demonstration of saline water distillation.</p> <p>Salt water solution. Distillation apparatus with condenser, round bottomed flask, Bunsen burner or heater, beaker to collect distillate</p> <p>Analysis and purification of water samples from different sources, including pH, dissolved solids and distillation.</p>
Assessment	<p>End of unit test</p>	<p>End of unit test</p>	<p>End of unit test</p>

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Homework	<p>GCSE past paper exam questions</p> <p>Analysis / Evaluation of investigations</p> <p>Extended answer questions</p>		
Cultural enrichment including Trips, Visits, Experiences, Extra-curricular	<p>During the course of the academic year, Year 9 students will attend the University of Central Lancashire. This visit will enable students to:</p> <p>Explore Advanced Scientific Concepts: Students will have the opportunity to engage with scientific research and technology, enhancing their understanding of key topics covered in their science curriculum.</p> <p>Hands-On Learning: Through interactive workshops and laboratory sessions, students will apply theoretical knowledge in practical settings, fostering a deeper comprehension of scientific principles.</p> <p>Inspiration and Aspiration: Exposure to a university environment and interaction with university faculty and students will inspire Year 9 pupils to consider future educational and career paths in science and related fields.</p> <p>Curriculum Integration: The visit is designed to complement and enrich the current science curriculum, providing real-world context to classroom learning and helping students see the relevance of their studies.</p> <p>This experience aims to ignite a passion for science, encourage critical thinking, and support the academic growth of our students.</p>		
Literacy	<p>Keywords that students may find difficult:</p> <p>Standard form, Scientific notation, tera, giga, centi, mega, micro, nano, Atom, proton, neutron, electron, atomic number, mass number, nucleus, energy level, radius, Electron, energy level, configuration, stable, ion, "Mass number, relative atomic mass, isotope, abundance, nucleus, plum pudding, alpha particle, model, theory, "Periodic table, group, period, electron configuration, atomic number, Mendeleev, Noble gas, stable, electron configuration, inert, unreactive, Alkali metal, reactive, Halogen, diatomic, molecule, reactivity, displacement, Transition, properties, ion, catalyst</p>	<p>Keywords that students may find difficult:</p> <p>Compound, subscript, acid, chemical formula, neutralisation, metal, Relative, formula, Mr, Relative formula mass, relative atomic mass, percentage, conservation of mass, Conservation of mass; formulae; compound, element; "Reactant, Product, Atom, Element, Coefficient, Subscript, Uncertainty, instrument, repeat, resolution, range, Concentration, solution, dilute, solute, solvent, , insoluble, dissolve, melt, aqueous, neutralization, Evaporation, crystallisation, filtration, concentrated, solution, Meniscus, accurate, justify, concentration, volume, crystals, Concentration, relative formula mass, soluble salt, mass</p>	<p>Keywords that students may find difficult:</p> <p>Atomic number, Relative atomic mass, atom, electronic configuration, metal, reactivity series, rust, tarnished, metal, reactivity, fizzing, effervescence, Metal, reactivity series, displacement, oxidation, reduction, Sewage, Potable, Sterilisation, Screening, Sedimentation, Filtration, Desalination, Distillation Potable, Reverse Osmosis, Evaporation, Condensation, ceramics, composites, properties, reinforcement, matrix, glass, Finite, resource, sustainable development, life cycle assessment, renewable, Reduce, Reuse, Recycle, Biodegradable, Finite, Energy, evaluate, advantages, disadvantages, life cycle assessment, impact, evaluate, cite, tone, reliability, audience, recycle, potable, sewage, distillation, desalination, impact</p>

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Numeracy	<p>Recognise and use expressions in standard form</p> <p>Use prefixes and powers of ten for orders of magnitude (eg tera, giga, mega, kilo, centi, milli, micro and nano).</p> <p>Make order of magnitude calculations</p> <p>Interpret a line (scatter) graph</p>	<p>Apply the idea that whenever a measurement is made, there is always some uncertainty about the result obtained.</p> <p>Use the range of a set of measurements about the mean as a measure of uncertainty."</p> <p>Interconvert units.</p> <p>Change the subject of an equation</p>	<p>Apply the idea that whenever a measurement is made, there is always some uncertainty about the result obtained.</p> <p>Use the range of a set of measurements about the mean as a measure of uncertainty.</p> <p>Understand the terms mean, mode and median</p> <p>Understand the terms mean, mode and median</p> <p>Interpret the reliability of sources of information.</p>
CIAG	<p>What workplace skills does chemistry develop?</p> <p>Collating: Bringing together information from different sources is a useful skill in many jobs. An investigative journalist will need to find evidence from a range of sources to build a story. Software testers need to collate information about the performance of a programme to find issues and suggest appropriate improvements.</p> <p>Investigation: There are many jobs where you have to use these investigative skills. A forensic computer analyst investigates cyber crime to find out how breaches happen. A vet must investigate the causes of illness in an animal by looking at the symptoms and then deciding on a treatment.</p> <p>Critical evaluation: Critical evaluation is a skill that transfers to many jobs. If you work as a crown prosecutor, you'll have to evaluate criminal cases and decide whether the evidence is likely to lead to a conviction. In business, managers need to carry out regular performance evaluations with the members of their team and identify areas for improvement.</p>		



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