MOOR PARK HIGH SCHOOL: CURRICULUM

Long Term Planning

Year 9

Curriculum Area: Chemistry

Year 10	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Syllabus	AQA Chemistry ARK Curriculum The Periodic Table		AQA Chemistry Ark Curriculum 3.2 Intro into Qualitative Chemistry		AQA Chemistry ARK Curriculum Using Resources	
Connections to prior KS3 learning	Pupils should know that atoms are the smallest units of matter from previous units. Pupils should know where to find metals and non-metals in the periodic table and be able to describe properties of each. Pupils should know that like charges repel and opposite charges reflect Pupils should know that the periodic table contains all the elements, arranged in order. Know definitions of boiling and melting points and be able to identify what state an element would be in at a specific temperature. Pupils should know that alkalis have a pH of greater than 7 and turn purple/blue when universal indicator is added. Most pupils should know that the halogens are included in the 7 diatomic molecules. Pupils should know the general properties of metals and be able to relate them to their structure.		Pupils should be familiar with: States of Matter and their properties Chemical symbols and formulae for elements and compounds. They should also be familiar with representing chemical reactions using formulae. how to find the relative atomic mass of an element and then how to calculate the relative formula mass of a compound. knowledge of conservation of mass, changes of state and chemical reactions. The small subscript number after an element symbol is the number of atoms of that element are in one molecule Mixture, compounds, pure substance, solution, solute and a solvent. 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. Acids react with some metals to produce salts and hydrogen		Atoms are made up of three sub-atomic particles: protons, neutrons and electrons. The number of protons, neutrons and electrons for an atom of any element can be deduced from the atomic number and relative atomic mass found on the periodic table. The arrangement of electrons orbiting the nucleus can be shown using electronic configuration diagrams. A pure substance is one that contains atoms or molecules of one type only. Distillation separates a mixture based on the boiling points of the component parts. Osmosis is the diffusion of water from a dilute to a concentrated solution. pH paper can be used to see how acidic or alkaline a solution is. " Some of the Earth's resources are renewable and others are non-renewable (finite). Fossil fuels can be burned to produce heat energy, which can be used. "	

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			Students will be familiar with the concept of recycling and many may recycle their waste at home.
Knowledge	Standard Form Orders of Magnitude Atoms Electronic Configuration Isotopes Understanding the Atom The Periodic Table The Noble Gases The Alkali Metals The Halogens Reactions of the Halogens Taking it Furter The Transition Elements	Relative Formula Mass Percentage by mass Conservation of Mass Balancing Equations Uncertainty Introducing Concentration Concentration Calculations Salts Making Soluble Salts Making Soluble Salts 2	Reactions of Metals Observing Reactivity Using the Reactivity Series Treating Water Testing Water Using Materials Life Cycle Assessments Reduce, Reuse, Recycle Evaluating Impact Sources of Information
Skills	Demonstrations of physical vs chemical changes, depending on the gaps identified from previous units Recognise that scientific methods and theories change over time Use models to represent data, events, processes, behaviours and other scientific phenomena or show its limitations. Critique and evaluate models. Make predictions or calculate quantities based on the model Evaluate the strengths and limitations of a model Samples of different elements to show their properties, and how similar properties result in elements being in the same group. 1 Reactivity of alkali metals demonstration Measure pH	Demonstration of making magnesium oxide by burning magnesium. Demonstration to show reaction where mass appears to be lost during a reaction: Include a coherent and sensible order of steps, with sufficient detail to obtain valid results, including suggested equipment Preparation of a pure dry sample of a soluble salt. Preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate using a Bunsen burner to heat dilute acid and a water bath or electric heater to evaporate the solution. Safe use of equipment to separate mixtures using evaporation or filtration or crystallisation Measure volumes of liquids accurately	Safe use of equipment to separate mixtures using filtration Purification of dirty water. Safe use of equipment to separate mixtures using distillation Measure pH Demonstration of saline water distillation. Salt water solution. Distillation apparatus with condenser, round bottomed flask, Bunsen burner or heater, beaker to collect distillate. Required practical 13: Analysis and purification of water samples from different sources, including pH, dissolved solids and distillation.

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Assessment	End of unit test for Chapter 1	End of unit test for Chapter 2	End of unit test for Chapter 3
Homework	GCSE past paper exam questions Analysis / Evaluation of investigations Extended answer questions	GCSE past paper exam questions Analysis / Evaluation of investigations Extended answer questions	GCSE past paper exam questions Analysis / Evaluation of investigations Extended answer questions
Cultural enrichment including Trips, Visits, Experiences, Extra-curricular	**School and University Network**	**School and University Network** Engineering workshop and Business workshop combined with a HE info and insights sessions	**School and University Network**
Literacy	Keywords that students may find difficult: 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	Keywords that students may find difficult: 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	Keywords that students may find difficult: 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
Numeracy	Recognise and use expressions in standard form Use prefixes and powers of ten for orders of magnitude (eg tera, giga, mega, kilo, centi, milli, micro and nano).	Apply the idea that whenever a measurement is made, there is always some uncertainty about the result obtained.	Apply the idea that whenever a measurement is made, there is always some uncertainty about the result obtained.

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	Make order of magnitude calculations Interpret a line (scatter) graph	Use the range of a set of measurements about the mean as a measure of uncertainty." Interconvert units. Change the subject of an equation	Use the range of a set of measurements about the mean as a measure of uncertainty. Understand the terms mean, mode and median Understand the terms mean, mode and median Interpret the reliability of sources of information.
CIAG	What workplace skills does chemistry develop? 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. 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. 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.		