

Summative Assessment in Science (list summative assessments in KS3 and KS4)

Assessment	Essential Component Knowledge	Why is this essential knowledge?	Misconceptions Often Addressed	What are the essential skills?	Why is this an essential skill?
<ul style="list-style-type: none"> Yr 7 assessment 1 Shark attack (diffusion) Variables 	<ul style="list-style-type: none"> The difference between IV, DV and CV 	Knowledge needed for GCSE exams need to know dependant and independent variables.	Control variables=fair test	Identifying variables	Variables will be referred to throughout the science curriculum.
<ul style="list-style-type: none"> Y7 Assessment 2 Exam 	<ul style="list-style-type: none"> Forces, matter, cells, variables. 	Will be developed in Yr 8 and KS4 pupils need to be able to label a cell and draw accurate force diagrams.	Nucleus is the 'brain' of the cell. Width v length of force arrows, gaps between particles in matter.	Taking accurate readings, analysing information, consolidating information to draw conclusions.	KS4 knowledge is dependent on an understanding of them.
<ul style="list-style-type: none"> Yr 7 assessment 3 Dissolving Methods 	To be able to write a logically sequenced method	Pupils need to be able to write a bullet pointed method and identify errors in methods.	Bullet point methods	Writing a concise method	There are 6-mark questions based on the ability to write an accurate method.
Year 7 assessment 4 cupcakes Graph skills	To draw an accurate graph from data provided	Pupils need to be able to draw a graph at GCSE	How/when to draw a line of best fit	Draw even axes	To plot a graph correctly the axis needs to be correct
Y7 assessment 5 insulation Risk assessment	To be able to plan for possible risks during an experiment	Pupils need to be able to plan and complete an experiment safely	Risk and safety are the same thing	State a risk and the safety associated with it	Pupils need to be able to complete experiments safely

<ul style="list-style-type: none"> Y7 Assessment 6 exam 	Reproduction, light and sound, interdependence, structure of the earth. Space	<p>Key information that will be tested throughout years 8-11.</p> <p>Will be developed in yr 8 and KS4</p>	<p>Sound is faster than light,</p>	<p>Analysing information</p>	<p>Science depends upon the ability to analyse findings.</p>
<ul style="list-style-type: none"> Y8 Assessment 1 Density- Errors 	The different types of error that can occur in an investigation.	<p>Pupils need to be able to identify reasons for errors in investigations.</p>	<p>Use term fair test instead of control variables.</p>	<p>Identify errors.</p>	<p>Pupils must be able to identify the source of an error.</p>
<ul style="list-style-type: none"> Y8 Assessment 2 Exam 	Forces, elements, photosynthesis	<p>Pupils need to be able to understand the language of exams, so they need to be subjected to different styles of exam question.</p>	<p>Size of force arrows, reactions,</p>	<p>Read questions carefully, recall key facts and analyse data.</p>	<p>Pupils need to be able to answer questions in an exam environment. To prepare them for GCSE.</p>
<ul style="list-style-type: none"> Yr 8 Assessment 3 reaction time - Investigation method 	To be able to write a method in a structured format.	<p>Need to write a method in GCSE.</p>	<p>Need for detail in the instructions.</p>	<p>Write clear instructions in a logical sequence.</p>	<p>Pupils will be asked questions at GCSE that require them to be able to write a step-by-step method.</p>

<ul style="list-style-type: none"> Yr 8 assessment 4 Rates of reaction- Graph skills 	Investigation skills analysing results.	Need to analyse data when answering exam questions.	Do not describe the pattern of the results.	Read questions carefully, recall key facts and analyse data.	Data analysis is important when making decisions.
<ul style="list-style-type: none"> Yr 8 assessment 5 Food tests - Risk assessment 	To be able to plan for possible risks during an experiment	Pupils need to be able to plan and complete an experiment safely	Risk and safety are the same thing.	State a risk and the safety associated with it.	Pupils need to be able to complete experiments safely.
<ul style="list-style-type: none"> Yr 8 assessment 6 Exam 	Evolution, magnetism, digestion, reactions, periodic table, waves, heating and cooling.	Knowledge will be developed at GCSE.	Mix up explain and describe.	Read questions carefully, recall key facts and analyse data.	Pupils need to be able to answer questions in an exam environment. To prepare them for GCSE.
<ul style="list-style-type: none"> Year 9 Biology Assessment 1 Microscopes 	The essential component of the assessment is to explore the key structures and function of organelles in a cell (animal and plant).	Organelles are contained within a cell studying these through microscopic techniques. Fundamental knowledge for GCSE Biology.	Unit conversions in magnification calculations.	Read questions carefully, graph analysis, Math in Science	To analyse the differences between animal and plant cells

<ul style="list-style-type: none"> Year 9 Biology Assessment 2 Food tests 	<p>The key component of this assessment is to identify the key chemicals and results of a positive food test</p>	<p>Pupils will need to Be able to apply their knowledge to method writing and also apply the knowledge throughout the Biology content.</p>	<p>Mixing up the positive test results.</p>	<p>Read questions carefully, graph analysis, discussion on 6-mark questions</p>	<p>To be able to identify a positive test result and analyse information.</p>
<ul style="list-style-type: none"> Year 9 Chemistry Assessment 1 Ions and atoms 	<p>Atom structure Sub – atomic particle/properties Electron configuration Ions and isotopes Atoms, bonding and moles</p>	<p>Fundamental knowledge for GCSE Chemistry</p>	<p>Location of protons, neutrons and electrons.</p>	<p>Interpretation and analysis</p>	<p>It affects total numbers of sub-atomic particles and atom properties. It enables pupils to distinguish between the atomic and electronic structures gain a full outer shell, they will be able to form formulas from the respective ions by cancelling the positive ions and negative ions</p>

<ul style="list-style-type: none"> Year 9 Chemistry - Assessment 3 Structure and Bonding 	<p>States of matter Ionic Bonding Covalent Bonding Giant Covalent Structures Metallic Bonding</p>	<p>Before they start pupils should be able to recall solids liquids and gases as this is the basics of science. Ionic Bonding takes place between metals and non-metals. Covalent bonding takes place between nonmetals pupil see the key types of bonding being applied in real life examples for example table salt, graphite diamond etc Common exam question application question</p>	<p>Pupils get confused when the electrons need to be mentioned when it comes to ionic bonding and when ions need to be mentioned</p>	<p>Identification of what happens to the reactivity between the Group 1 metals and Group 7 non-metals. Ionic bonding metals donate electrons and nonmetals gain electrons Ionic bonds are held together by strong electrostatic forces of attraction Ionic compounds conduct electricity when molten or in solution as ions are free to move Covalent bonds are extremely strong and require lots of energy to break Weak Intermolecular forces of attraction are present in simple covalent molecules Giant covalent structures and properties</p>	<p>Covalent compounds pupils will become familiarised with the molecular and displayed formula, and this will help in organic chemistry in Year 11 and beyond if students pursue a career in chemistry</p>
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<ul style="list-style-type: none"> Year 9 Physics Assessment 1 - Energy 	The different types of energy, how it is transferred, how it is made and how it is lost.	Pupils need to be able to identify energy transfers and calculate the efficiency. They need to be able to recall sources of energy and assess their suitability.	Energy changes, open and closed systems	Energy Calculations, analysing information	Pupils need to be able to make informed choices on energy efficient products
<ul style="list-style-type: none"> Year 9 assessment 2 Specific heat capacity 	How to complete the required practical	In the exam pupils may be asked to write a method for the experiment or identify risks	All the energy is transferred into the block.	Power calculation and energy transferred calculation	Many questions in the exam are based on this experiment.
<ul style="list-style-type: none"> Year 10 Biology Assessment 1 Christmas Exam 	Paper 1 past paper questions	Examined on paper 1 (expect bioenergetics) of the Biology paper; cell biology (structure, division, transport), organisation (digestion, circulatory, respiratory, transpiration, translocation), infection and response	Viruses need a host cell. Word equation is different to word equations CHD.	To be able to read questions carefully, develop answers clearly, recall key terms and their definitions, apply the core knowledge.	Pupils need to be able to use information to apply their knowledge to answer G.C.S.E. questions.

<ul style="list-style-type: none"> Year 10 Biology Assessment 1 Rate of photosynthesis 	<p>The essential component of this assessment is to examine the two metabolic processes of photosynthesis and respiration.</p>	<p>(communicable and non-communicable) Pupils need to recall the key word equations for the bioenergetic reactions in plants and animals. They need to understand in detail both processes: photosynthesis and respiration. Pupils need to apply this knowledge to varying topics in Biology, such as how do we test for the products in the reactions (organisation).</p>	<p>The correct reactants and products for the word equations. The impact of limiting factors for photosynthesis.</p>	<p>Analysis of results in the forms of graphs and results tables and applying this to both reactions; respiration and photosynthesis. Recalling key Scientific methods for associated required practicals. Recall the word equations.</p>	<p>To understand two key metabolic reactions in plants and animals, which are seen throughout the GCSE Biology content.</p>
<ul style="list-style-type: none"> Yr 10 biology assessment 4 reaction times 	<p>Method for a reaction time</p>	<p>To understand how independent variables can affect dependant variables</p>	<p>Longer length of the ruler means a longer reaction time.</p>	<p>Analysis of results</p>	<p>To be able to write a method for different reaction experiments.</p>

<ul style="list-style-type: none"> Year 10 Biology Assessment 5 Endocrine system 	<p>The essential component of this assessment is to explore how human maintain their internal systems; nervous and endocrine.</p>	<p>Pupils need to know the key principles of the nervous system and endocrine system. Pupils need to discuss the reproductive system, with reference to the menstrual cycle. Pupils need to evaluate the uses of contraceptive methods and treatment of infertility.</p>	<p>Recalling the key hormones in the menstrual cycle, such as FSH and their effects on the human body.</p>	<p>Retrieve information, discuss ethical situations particularly for infertility treatments. Recall methods for required practicals. Analyse the menstrual cycle graph.</p>	<p>Pupils need to evaluate key scenarios and apply to situations</p>
<ul style="list-style-type: none"> Year 10 Chemistry - Assessment 1 Moles 	<p>Quantitative Chemistry eg moles, RFM and conservation of mass Rearranging equations Balancing equations</p>	<p>Students need to be able to rearrange equations as this works in coherence with physics and therefore it becomes necessary to learn how to do this</p>	<p>Pupils multiply the RAM instead of adding.</p>	<p>Mol equations Calculation of RFM Finding unknown masses using moles from an equation Using the concentration equation</p>	<p>Being able to use the mole equation leads to pupil being able to carry out titrations as well as calculations involving limiting reagents Getting students used to using the calculation for equations is a necessity for any mathematical exam</p>

<ul style="list-style-type: none"> Year 10 Chemistry Assessment 2 	<p>Proton: +1 charge, mass = 1. Neutron: 0 charge, mass = 1. Electron: -1 charge, mass \approx 0. Atomic number = number of protons = number of electrons. Mass number = protons + neutrons. Isotopes = atoms of the same element with different numbers of neutrons. Electron configuration: fills shells 2, 8, 8 (e.g., In bonding, there are three main types: ionic, covalent, and metallic. Ionic bonding occurs between metals and non-metals, involving the transfer of electrons to form ions. The electrostatic attraction between oppositely charged ions results in strong bonds, giving ionic compounds high</p>	<p>Atomic structure is essential because it explains the basic building blocks of matter and helps us understand why elements behave differently. It underpins key ideas like electron configuration, the periodic table, and chemical reactivity. Bonding is crucial as it explains how atoms join to form compounds and how this affects the properties of materials. It helps us predict melting points, conductivity, and strength of substances. Quantitative chemistry is important because it allows us to calculate how much of a substance is needed</p>	<p>In atomic structure, students often confuse mass number with atomic number and think electrons orbit in fixed paths like planets, rather than energy levels. Some also believe all atoms of the same element have the same mass (ignoring isotopes). In bonding, a common mistake is thinking covalent bonds involve electron transfer instead of sharing, or assuming all compounds conduct electricity. Students may also confuse ionic and covalent properties. In quantitative chemistry, misconceptions include mixing up Mr and Ar, using incorrect units (e.g. cm^3 instead of dm^3), or not balancing equations before doing mole calculations. Many also assume mass is always conserved without considering gas loss or excess reactants.</p>	<p>In atomic structure, students need to interpret and use atomic numbers, mass numbers, and electron configurations accurately. Skills include reading the periodic table, drawing atoms, and identifying isotopes. In bonding, key skills include drawing dot-and-cross diagrams for ionic and covalent compounds, explaining properties based on bonding type, and linking structure to function. For quantitative chemistry, students must be confident with calculations involving moles, mass, Mr/Ar, concentration, and balanced equations. They should also convert units</p>	<p>These skills are essential because they allow students to apply chemical knowledge in real situations—such as predicting reactions, explaining material properties, and performing accurate calculations. Understanding atomic structure and bonding helps students explain why substances behave the way they do, while quantitative skills are critical for planning experiments, analysing data, and ensuring safety and efficiency in lab work and industry. Mastering these skills builds a strong foundation for further science learning and real-world problem solving.</p>
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	melting points and the ability to conduct electricity when molten or in solution. Covalent bonding occurs between non-metals and involves the sharing of electron pairs.	or produced in a reaction. It supports accurate, efficient work in labs and industries and develops vital maths skills in chemistry.		correctly (e.g. cm^3 to dm^3), use formulas accurately, and apply these skills to practical and exam scenarios.	
<ul style="list-style-type: none"> Year 10 Chemistry - Assessment 3 Electrolysis 	<p>What is Electrolysis</p> <p>Formation of products in molten conditions</p> <p>Formation of products in aqueous conditions</p> <p>Electrolysis for the extraction of aluminium</p> <p>Half Equations</p>	<p>Shows how Ionic compounds can conduct electricity as Ions are free to move</p> <p>Explains the formation of products at each electrode = purpose</p> <p>Make up half equations using OIL RIG</p>	<p>Students tend to get confused on which Ion moves to which electrode</p> <p>Which ions are present in aqueous/molten conditions</p> <p>Which ion undergoes oxidation and reduction</p> <p>Application questions for extraction of Aluminium</p>	<p>Identification of products at anode and cathode</p> <p>Observations</p> <p>Half equations at anode and cathode</p>	<p>Extract reactive metals</p> <p>Produce gases</p> <p>Purify metals</p>
<ul style="list-style-type: none"> Year 10 Chemistry Assessment 4 Energy Changes 	<p>How can we distinguish between exothermic and endothermic reactions</p>	<p>Every reaction absorbs/releases energy</p> <p>Exo = release heat</p> <p>Endo = absorb heat</p> <p>Bond break = endothermic</p> <p>Bond Make =</p>	<p>Bond breaking does not release energy</p> <p>exothermic reactions need activation energy too</p> <p>Location of products and reactants on curve</p>	<p>Scientific vocabulary</p> <p>exothermic and endothermic</p> <p>Interpreting reaction profile diagrams</p>	<p>Need to be able to produce a clear concise method for a 4- or 6-mark question.</p>

<ul style="list-style-type: none"> Year 10 Chemistry Assessment 5 C1 exam 	<p>Calculate bond energy Draw reaction profile curves</p> <p>Atoms consist of protons, neutrons, and electrons. The atomic number equals the number of protons, and the mass number is protons plus neutrons. Isotopes are atoms with the same number of protons but different neutrons. Electrons are arranged in shells: 2, 8, 8. Elements in the same group have the same number of outer electrons.</p>	<p>exothermic Essential for math based questions in chemistry Energy of reactants vs products</p> <p>This knowledge is essential because it forms the foundation of chemistry— understanding atoms, bonding, and reactions helps explain how substances behave and interact. Atomic structure explains why elements react the way they do. Bonding shows how compounds form and why materials have certain properties. Understanding acids, electrolysis, and the periodic table helps predict reactions and identify substances.</p>	<p>Common misconceptions include thinking atoms are solid or that electrons orbit like planets. Some confuse mass number with atomic number or believe atoms lose or gain protons in reactions (they don't). Students often think ionic and covalent bonds are the same, or that covalent compounds conduct electricity (they usually don't). Others assume mass changes in reactions—mass is always conserved. In electrolysis, it's wrongly</p>	<p>Bond energy Reactants-Products</p> <p>Essential skills include writing balanced chemical equations, identifying types of bonding, and explaining properties based on structure. You need to interpret data from tables, graphs, and experiments. Calculating relative formula mass, percentages, and reacting masses is key. You must also describe trends in the periodic table and make</p>	<p>These skills are essential because they let you apply your knowledge, not just recall it. In exams, you must solve problems, interpret data, and explain your reasoning clearly. Being able to balance equations or link bonding to properties shows real understanding. Analysing experiments and calculations proves you can think like a</p>
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	<p>Noble gases are unreactive due to full outer shells.</p> <p>Ionic bonding involves metal and non-metal atoms transferring electrons; they form lattices with high melting points. Covalent bonding occurs between non-metals sharing electrons; simple molecules have low melting points. Metallic bonding involves a sea of delocalised electrons, making metals conduct and malleable.</p> <p>During chemical reactions, atoms are rearranged, and mass is conserved. Acids react with bases to form salts and water. Electrolysis splits</p>	<p>These core ideas support all other chemistry topics and are key to answering exam questions correctly.</p>	<p>believed that positive ions go to the positive electrode (they go to the negative). Misunderstanding these can lead to wrong answers, so clearing them up is crucial.</p>	<p>predictions. Clear use of scientific terms, logical explanations, and careful analysis of practical results are all vital for success.</p>	<p>scientist. Without these skills, you can't fully access higher-mark questions or show examiners what you really know.</p>
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	<p>compounds using electricity; positive ions go to the negative electrode.</p> <p>The periodic table is arranged by increasing atomic number. Reactivity increases down Group 1 and decreases down Group 7. Transition metals are in the centre and form coloured compounds.</p> <p>All matter is made of particles. Solids, liquids, and gases differ in particle arrangement and movement.</p> <p>Nanoparticles have high surface area and special properties useful in medicine and electronics.</p>				
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<ul style="list-style-type: none"> Year 10 Physics Assessment 1 Method for the resistance required practical. 	Method for the resistance required practical.	Pupils need to be able to write a method for the required practical and identify sources of error	Location of the voltmeter and ammeter.	Need to develop a general diagram and step by step method that can be used for all of the practicals.	They can use this to calculate the size of a fuse for an appliance to be used safely. Pupils can identify unsafe electrical features.
<ul style="list-style-type: none"> Year 10 Physics Assessment 2 Christmas exam 	What the flow of electricity is and how it can be changed. Properties of alpha beta gamma radiation. Energy and energy changes	Examined on paper 1 of the physics papers	How resistance changes in different components,	Recall information, complete calculations, analyse information	Practices exam technique in preparation for GCSE's
<ul style="list-style-type: none"> Year 10 Physics Assessment 3 Methods for the density of an irregular shaped object and density of a liquid. 	Investigation skills focussing on methods.	One of the most examined required practicals on paper 1.	The water displaced is not the volume of the object.	Writing a concise method. Pupils need to be able to describe how to find the volume in a number of different ways.	Pupils need to be able to write a bullet pointed method for their GCSE exam.

<ul style="list-style-type: none"> Year 10 Physics assessment 4 Acceleration 	Investigation skills focussing on graphs and calculations	<p>Pupils need to be able to describe how to collect data for the acceleration of a trolley, they need to be able to use this data to calculate acceleration.</p>	<p>Mistake the time for the acceleration</p>	<p>Include the relevant equations. Drawing an appropriate graph.</p>	<p>Pupils need to be able to select an appropriate scale for a graph</p>
<ul style="list-style-type: none"> Year 11 Biology Assessment 1 Reproduction 	The essential component is to comprehend how we inherit our genes and the impacts this can have on our DNA,	<p>Pupils need to be able to discuss how cells reproduce via mitosis and meiosis, linking back to the cell division topic (year 9). Pupils need to explore DNA; its structure and discovery, how this impact our genetics, such as genetic disorders. Pupils need to understand how and why we have developed genetics screening, selective breeding, cloning and the ethics associated with such.</p>	<p>The difference between selective breeding and genetic engineering. Formulating a Punnett square from a novel scenario.</p>	<p>To be able to read questions carefully, develop answers clearly, recall key terms and their definitions, apply the core knowledge.</p>	<p>Pupils must be able to form a Punnett square from their knowledge and identify genetic inheritance from such.</p>
<ul style="list-style-type: none"> Year 11 Biology Assessment 2 Mock exam 	Paper 1 exam	<p>Examined on paper 1 of the Biology paper; cell biology (structure, division, transport), organisation</p>	<p>Viruses need a host cell.</p>	<p>To be able to read questions carefully,</p>	<p>Pupils need to be able to use information to apply</p>

<ul style="list-style-type: none"> Year 11 Biology Assessment 3 	<p>The essential: analysis and distribution of samples – systematic and random sampling</p>	<p>(digestion, circulatory, respiratory, transpiration, translocation), infection and response (communicable and non-communicable) and bioenergetics (photosynthesis and respiration)</p> <p>Pupils must understand how and why organisms are distributed through the environment. Pupils must apply their working Scientifically knowledge to sample a population. Pupils will learn how species are adapted for their environment, particularly in terms of survival of the fittest (linking back to the evolution topic). Pupils will understand the impacts of humans on biodiversity, e.g. population explosion and pollution, and how we can create and maintain a sustainable environment for all species.</p>	<p>Word equation is different to word equations</p> <p>Gradient change for systematic, what a transect line is</p>	<p>interpret and analyse data, to understand key terms and apply to core knowledge.</p> <p>Recall of Scientific method, different variables</p>	<p>their knowledge to answer G.C.S.E. questions.</p> <p>To analyse novel scenarios and apply sampling techniques to assess distribution</p>
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<ul style="list-style-type: none"> Year 11 Biology Assessment 4 	Paper 2 exam	<p>Examined on paper 2 of Biology; homeostasis and response (nervous and endocrine), inheritance variation and evolution, and ecology (biodiversity)</p>	<p>Genotype has two alleles, phenotype. Key names of hormones</p>	<p>To be able to read questions carefully, interpret and analyse data, to understand key terms and apply to core knowledge</p>	<p>Pupils need to be able to use information to apply their knowledge to answer G.C.S.E. questions.</p>
<ul style="list-style-type: none"> Year 11 Chemistry Assessment 1 crude oil and fuels 	<p>Describe how crude oil is formed HCBs = Alkanes and Alkenes To see the difference in reactivity between alkanes and alkenes and the names for the common hydrocarbons Properties of HCBs Cracking Complete/Incomplete Combustions Fractional Distillation</p>	<p>Foundational for fuel and energy Links Chemistry to the real world essential for environmental awareness</p>	<p>What the difference between saturated and unsaturated hydrocarbons are Explanation behind Fractional Distillation Alkenes are unsaturated Short HCBs burn cleanly What cracking produces What we test Bromine for Fractional distillation is physical change</p>	<p>Naming HCBs writing Balance Equations Understanding Fractional distillation Testing for Alkenes</p>	<p>Being able to draw displayed and molecular formulas is essential for the development of a pupil in chemistry</p> <p>Key chemical skills in terms of the extraction of crude oil via cracking as it allows pupils to see how fuel is produced</p>

<ul style="list-style-type: none"> Yr 11 Chemistry Assessment 2 Mock exam 	<p>GCSE Chemistry Paper 2 covers rates of reaction (affected by temperature, concentration, pressure, surface area, and catalysts), reversible reactions, and equilibrium (Le Chatelier's Principle). In organic chemistry, it includes crude oil fractionation, alkanes (saturated), alkenes (unsaturated, reactive), alcohols, carboxylic acids, and polymers. Chemical analysis focuses on purity, formulations, and tests: flame tests (e.g. Li^+ red, K^+ lilac), NaOH tests for metal ions, halide tests with silver nitrate, sulfate and carbonate tests, and gas tests (H_2 pop, O_2 relights, CO_2 cloudy limewater, Cl_2 bleaches). The atmosphere topic covers Earth's early gases, rise of oxygen via</p>	<p>This content is essential because it explains how chemical reactions happen and how to control them (important in industry), how organic compounds are used in fuels and materials, how to identify unknown substances (key in forensics and medicine), and how human activity affects the atmosphere (crucial for understanding climate change and pollution). These topics link science to real-world applications, making them vital for both exams and everyday life.</p>	<p>Common misconceptions addressed include thinking all reactions go to completion (some are reversible and reach equilibrium), believing alkanes and alkenes react the same (alkenes are more reactive), confusing pure substances with clean ones (pure = one substance only), assuming visible change always means purity or reaction, and misunderstanding climate change (greenhouse effect is natural, but enhanced by human activity). These are clarified to build accurate scientific understanding.</p>	<p>Essential skills include interpreting and drawing reaction rate graphs, using and rearranging formulas (e.g. $\text{rate} = \frac{\text{amount}}{\text{time}}$), balancing equations, identifying substances using test results, analysing data from experiments, understanding patterns in homologous series, and applying knowledge to unfamiliar contexts like environmental impact or product development. These skills are key for problem-solving in both exams and real-world science.</p>	<p>These skills are essential because they allow students to apply knowledge, not just recall facts—crucial for solving real problems, making predictions, and analysing results. They build scientific thinking, help with exam questions that test application and interpretation, and prepare students for further study or careers in science, engineering, and healthcare.</p>
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<ul style="list-style-type: none"> Year 11 Chemistry Assessment 3 – Climate Change Pure Substances and Mixture 	<p>photosynthesis, greenhouse gases (CO₂, CH₄), climate change, and pollutants like CO, SO₂, NO_x, and particulates.</p> <p>Climate Change Chromatography Gas Tests</p>	<p>Greenhouse effect common exam questions in chemistry and geography</p> <p>When doing practical's pupils can instantly see what gas is produced</p>	<p>Greenhouse effect and how it warms the atmosphere</p> <p>If there is a low amount of CO₂, then why is it an issue for Global Warming</p>	<p>Essential knowing the factors that cause climate change and the consequences that occur from climate change</p> <p>Essential knowing the gas tests</p>	<p>It enables pupils to write detailed analysis on any factors of climate change as there are several long exam style written questions</p>
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<ul style="list-style-type: none"> Year 11 Chemistry Assessment 4 	Water Treatment	<p>How potable water is obtained What two ways can we obtain potable water when there is salty water present or when there is no salty water present</p> <p>How wastewater is treated</p>	<p>Difference between Distillation and Reverse Osmosis as both achieve the same goal but through different means</p> <p>What is aerobic digestion and anaerobic digestion</p>	<p>Essential knowing the stages to obtain potable water</p> <p>Essential to know the methods regarding the two RP</p> <p>Essential to be able to write evaluations regarding LCA Essential to know the difference between Phytomining and bioleaching</p>	<p>Pupils can answer any questions regarding the removal of solid particles or the requirement of sterilisation</p> <p>Be able to write a comparative study in Exam style questions of any objects</p>
<ul style="list-style-type: none"> Year 11 Physics Assessment 1- Waves Write up the required practical 	How to determine the properties of longitudinal and transverse waves	<p>Pupils need to use this knowledge to identify waves how to measure their speed.</p>	<p>Sound travels faster than light because they hear thunder before they see lightening.</p>	<p>To be able to write a method to describe how to find the speed of a transverse or longitudinal wave/</p>	<p>Pupils need to be able to write a concise method for paper 2.</p>

<ul style="list-style-type: none"> Year 11 Physics Assessment 2 Paper 2 mock exam 	Paper 2 exam content, forces, waves, electromagnetism	Knowledge needs to be applied to answer exam question	Mix up the electromagnetic spectrum. Unit conversions.	Recall information, complete calculations, analyse information	Pupils need to be able to use information to apply their knowledge to answer G.C.S.E. questions.
<ul style="list-style-type: none"> Year 11 assessment 3 – Paper 1 mock exam 	Paper 1 exam content Energy, radioactivity, molecules of matter, electricity	Knowledge needs to be applied to answer exam questions	Structure of liquids. Re arranging equations. Energy conversions.	Recall information, complete calculations, analyse information	Pupils need to be able to use information to apply their knowledge to answer G.C.S.E. questions.
<ul style="list-style-type: none"> Yr 11 assessment 4 	Car stopping distances	Pupils need to know the factors that affect stopping distances as a valuable life skill.	That a car does not travel a distance as someone reacts. That old tyres and brakes mean that they don't work well.	Pupils need to recall what affect thinking distance and braking distance	Pupils need to be able to select reasons that stopping distances increase

What happens following an assessment to address pupil misconceptions and reteaching of essential knowledge?

Time is built into the curriculum after a test for the re-teaching of essential knowledge where necessary and to address common misconceptions. Individual misconceptions are addressed on feedback sheets.

Formative Assessment in Science

Questioning, retrieval practice, class debates, assessment of written work, whiteboards.

Feedback and Acting on Feedback (should be on the most valuable thing)

Green pen corrections, MRI section completed on the assessment label, or within the work. spellings corrected; pupils improve their answers in the lesson following the assessment.

Pupils fill in an analysis sheet after their test to celebrate what knowledge is secure but to identify where they need to improve, they then set targets for themselves on how to improve.