

Curriculum intent (overview) – To deepen students’ skills and knowledge through a broad and balanced curriculum which prepares students for adulthood.

10V - Venture Curriculum – Science Lessons Weekly

Year	2026 – 2027 Autumn 1	2026 – 2027 Autumn 2	2026 – 2027 Spring 1	2026 – 2027 Spring 2	2026 – 2027 Summer 1	2026 – 2027 Summer 2
	Topic: AQA GCSE Chemistry of the atmosphere Organic Chemistry AQA ELC Chemistry in our world OCR ELC C4 Clean air and water C9 Fuels AQA UAS EL1: Fuels and atmosphere 113794 Pre Entry: Chemistry in our world unit 2 118729 Suggested Key Questions: AQA GCSE What gasses make up the Earth’s atmosphere? How has the atmosphere changed over time? OCR ELC What is in the air? Why is air important? AQA UAS What is air? Can we see air? AQA GCSE	Topic: AQA GCSE Using Resources Earth’s Resources AQA ELC Chemistry in our world OCR ELC C5 Novel Materials C8 Heavy Metal AQA UAS EL1: Properties of metals and non metals 116824 Pre Entry: Introduction to metals 87646 Suggested Key Questions: AQA GCSE What are natural resources? Why are some resources finite and others renewable? OCR ELC What are Earth’s resources? Why do we need them? AQA UAS What comes from the Earth? What do we use rocks for? AQA GCSE	Topic: AQA GCSE Chemical changes Chemical Reactions AQA ELC Chemistry in our world OCR ELC C2 Acids and Alkalis C10 Are you over-reacting? AQA UAS EL1: Elements, compounds and chemical reactions 113193 Pre Entry: Investigating acids and alkalis 82637 Suggested Key Questions: AQA GCSE What is the difference between chemical and physical changes? What evidence shows a chemical reaction? OCR ELC What is a chemical change? What is a physical change?	Topic: AQA GCSE States of Matter Separating Techniques: Purity AQA ELC Elements, Mixtures and Compounds OCR ELC C1 Physical or chemical change C6 Sorting Out AQA UAS EL1: States of matter: solids, liquids, gases 121626 Pre Entry: Elements, mixtures and compounds (unit 1) 114509 Suggested Key Questions: AQA GCSE How are particles arranged in solids, liquids and gases? How does particle behaviour explain properties? OCR ELC What are the 3 states of matter? How are they different? AQA UAS	Topic: AQA GCSE Atomic Structure and the periodic table Bonding, Structure and Properties of Matter AQA ELC Elements, Mixtures and Compounds OCR ELC C3 Everything in it’s place C7 Let’s Get together AQA UAS Pre Entry: Elements Mixtures and compounds with support 121165 EL1: Elements and atomic structure CE7018 Suggested Key Questions: AQA GCSE What is the structure of an atom? What are protons, electrons, neutrons? OCR ELC What is an element? What is an atom? AQA UAS	Topic: AQA GCSE Rate and Extent of chemical change Chemical Analysis AQA ELC Elements, Mixtures and Compounds OCR ELC C11 How Fast? How Slow? C12 CSI Plus AQA UAS Pre Entry: Chemistry (unit 3) Hazards, acids and alkalis 115345 EL1: Science Reactions 117373 Suggested Key Questions: AQA GCSE What happens during a chemical reaction? How are reactants turned into products? OCR ELC What is a chemical reaction? What changes can we see? AQA UAS

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What are the main air pollutants? What are the effects of pollution on health and the environment? OCR ELC What causes air pollution? Why is pollution harmful? AQA UAS What is dirty air? AQA GCSE What processes are used to treat water? How is potable water produced? OCR ELC How can water become dirty? How can we make water clean? AQA UAS Why do we need clean water? AQA GCSE What are fossil fuels? What is crude oil and how is it used? OCR ELC What are fuels? Where do fuels come from? AQA UAS What do we use to keep warm? AQA GCSE What are the products of combustion? How	What are the properties of metals? Why are metals suitable for different uses? OCR ELC What are metals used for? What properties do metals have? AQA UAS What is a metal? AQA GCSE What are the environmental, impacts of extraction? How are metals extracted from ores? OCR ELC Why is it important to use metals carefully? How do we get metals from the Earth? AQA UAS Where do metals come from? AQA GCSE What are smart and composite materials? How do structure and bonding affect material properties? OCR ELC What are new (modern) materials? Why are new materials useful? AQA UAS	AQA UAS What happens when things change? AQA GCSE What is the pH Scale? What makes a substance acidic or alkaline? OCR ELC What are acids and alkalis? Where are they found? AQA UAS What is an acid? AQA GCSE What is neutralisation? What products are formed in neutralisation reactions? OCR ELC What happens when an acid and alkali mix? What is neutral? AQA UAS What happens when we mix things? AQA GCSE What are different types of reactions (e.g. combustion, displacement)? OCR ELC What is a chemical reaction? What changes can you observe? AQA UAS	What is a solid, liquid, gas? AQA GCSE What energy changes occur during changes of state? How do particles behave during state changes? OCR ELC What is melting, freezing and boiling? AQA UAS What happens when things melt or freeze? AQA GCSE What is the difference between elements, compounds and mixtures? How are atoms arranged in each? OCR ELC What is an element, compound and mixture? AQA UAS What are things made from? AQA GCSE What separation techniques are used (filtration, distillation, chromatography)? OCR ELC When is each method used? OCR ELC	What are things made from? AQA GCSE What are groups and periods? How is the periodic table arranged? OCR ELC What are metals and non-metals? How are elements organised? AQA UAS What is the periodic table? AQA GCSE What is the difference between elements, compounds and mixtures? How are compounds formed? OCR ELC What is a compound? What is a mixture? AQA UAS Can things be mixed together? AQA GCSE What are ionic, covalent and metallic bonds? How do atoms gain, lose or share electrons? OCR ELC What is bonding? How do atoms join? AQA UAS How do things join together?	What happens when we mix things? AQA GCSE What is meant by rate of reaction? How can rate be measured? OCR ELC What does 'rate of reaction' mean? Which reactions are fast or slow? AQA UAS Can reactions be fast or slow? AQA GCSE How do temperature, concentration, surface area and catalysts affect rate? Why do these factors change reaction speed? OCR ELC What can change how fast a reaction happens? AQA UAS What makes things happen faster? AQA GCSE What is chemical analysis? How can chromatography be used to identify substances? OCR ELC How can we identify substances? AQA UAS
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does burning fuels contribute to climate change? OCR ELC What happens when fuels burn? How can fuels affect the environment? AQA UAS What happens when we burn things? AQA GCSE What are renewable vs non-renewable resources? How can we reduce environmental impact of fuels? OCR ELC How can we reduce pollution? What are renewable energy sources? AQA UAS How can we help earth? Key Skills and Knowledge: Week 1: The Atmosphere Air is made of different gases (oxygen, nitrogen, carbon dioxide). Oxygen is needed for life. The atmosphere has changed over time. Week 2: Air Pollution Pollution comes from cars, factories and	What materials do we use every day? AQA GCSE What are examples of heavy metals (e.g. lead, mercury)? What are the environmental and health impacts? OCR ELC What are heavy metals? Why can they be dangerous? AQA UAS Can some materials be harmful? AQA GCSE What is sustainable development? How can recycling and reuse reduce environmental impact? OCR ELC Why should we recycle materials? How can we reduce waste? AQA UAS How can we look after the Earth? Key Skills and Knowledge: Week 1: Earth's Resources The Earth provides natural resources (rocks, fuels, metals) Some resources will run out (finite). Some	What happens when things react? AQA GCSE What is the difference between exothermic and endothermic reactions? How is energy transferred during reactions? OCR ELC What happens to energy in reactions? AQA UAS Do reactions get hot or cold? AQA GCSE Why is controlling reactions important? How are chemical reactions used in industry and everyday processes? OCR ELC How are reactions used in daily life? AQA UAS Where do we see reactions? Key Skills and Knowledge: Week 1: Chemical vs Physical Changes Physical changes don't make new substances. Chemical changes make new substances. Signs include colour change, gas, heat.	How can mixtures be separated? What methods can we use? AQA UAS How can we separate things? AQA GCSE How can melting/boiling points show purity? How is purity defined scientifically? OCR ELC What is a pure substance? How can we tell if something is pure? AQA UAS What does clean or pure mean? AQA GCSE What evidence shows a chemical reaction? How can we identify chemical vs physical changes? OCR ELC What is a physical change? What is a chemical change? AQA UAS What happens when things change? Key Skills and Knowledge: Week 1: States of matter (solids, liquids, gases) Matter exists as solids, liquids and gases. Solids	AQA GCSE How does bonding affect properties? Why do ionic, covalent and metallic substances behave differently? OCR ELC Why do materials have different properties? AQA UAS Why are materials different? AQA GCSE Why are specific materials selected for applications? How do structure and properties link to uses? OCR ELC Why are materials chosen for different jobs? AQA UAS What are materials used for? Key Skills and Knowledge: Week 1: Atoms and Elements Everything is made of atoms. Atoms have a nucleus and electrons. Elements contain one type of atom. Week 2: The Periodic Table	How can we find out what something is? AQA GCSE What tests identify gases and ions? How can results be interpreted? OCR ELC What is a fair test? How can we test acids and alkalis? AQA UAS How can we test things safely? AQA GCSE What are risks and hazards in chemical reactions? Why is controlling reactions important in industry? OCR ELC What are hazards in experiments? How can we stay safe? AQA UAS How do we stay safe in science? Key Skills and Knowledge: Week 1: What is a chemical reaction? Chemical reactions make new substances. Reactants change into products. Signs include bubbles, colour change, temperature change.
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burning fuels. Pollutants include carbon monoxide, sulphur dioxide, particulates. Pollution harms health and ecosystems. Week 3: Clean Water Clean water is essential for life. Water can be contaminated. Filtration and purification make water safe. Week 4: Fuels Fuels release energy when burned. Fossil fuels include coal, oil, gas. Crude oil is a mixture of hydrocarbons. Week 5: Using fuels and environmental impact Burning fuels produces carbon dioxide and water. Incomplete combustion produces carbon monoxide. Carbon dioxide contributes to global warming. Week 6: Sustainability and Alternatives Renewable energy includes solar and wind. Fossil fuels are non-renewable.	resources can be replaced (renewable) Week 2: Metals and their uses Metals are strong, shiny and good conductors. Different metals are used for different jobs. Properties link to uses (e.g. strength, conductivity) Week 3: Extracting and using metals Metals are found in ores in the Earth. Extraction uses energy and resources. Mining can damage the environment. Week 4: Novel Materials New materials are designed for specific uses. Composites combine materials for better properties. Materials like alloys have improved strength and durability. Week 5: Heavy Metals Some metals are toxic to living things. Heavy metals can build up in the environment. They can cause harm to health and ecosystems.	Week 2: Acids and Alkalis Acids and alkalis are types of chemicals. The pH scale measures acidity/alkalinity. Acids produce hydrogen ions, alkalis produce hydroxide ions. Week 3: Neutralisation Neutralisation happens when acids react with alkalis. It produces salt and water. Used in everyday situations (e.g. indigestion, soil treatment) Week 4: Types of chemical reactions Chemical reactions involve rearranging atoms. New substances are formed. Reactions can release or take in energy. Week 5: Energy changes in reactions Exothermic reactions release energy (heat). Endothermic reactions take in energy. Energy changes can be measured. Week 6: Reactions in everyday life	keep shape, liquids flow, gases spread out. Particle model explains differences (spacing and movement) Week 2: Changes of state Heating and cooling cause changes of state. Melting, freezing, evaporation, condensation. No new substance is formed (physical change) Week 3: Elements, compounds and mixtures Elements contain one type of atom. Compounds are chemically joined substances. Mixtures are not chemically joined and can be separated. Week 4: Separating Mixtures Mixtures can be separated using physical methods. Techniques include filtration, evaporation, chromatography. Separation depends on properties like size and boiling point. Week 5: Purity Pure substances contain only one substance. Mixtures are impure. Pure substances have fixed melting and boiling points. Week 6: Chemical vs Physical Changes	The periodic table organises elements. Metals and non-metals have different properties. Elements in the same group have similar properties. Week 3: Elements, Compounds and Mixtures Compounds are chemically joined. Mixtures are not chemically joined. Compounds have different properties to elements. Week 4: Bonding Bonding joins atoms together. Ionic bonding – transfer of electrons. Covalent bonding – sharing electrons. Metallic bonding – structure of metals. Week 5: Structure and Properties of Materials Structure affects properties (e.g. melting point, strength). Ionic compounds have high melting points. Simple covalent substances have low melting points. Metals conduct electricity.	Week 2: Rate of reaction. Rate- how fast a reaction happens. Some reactions are quick, others slow. Rate can be measured (e.g. gas produced over time) Week 3: Factors affecting rate Higher temperature – faster reactions. Higher concentration – more collisions. Larger surface area – faster reaction. Catalysts speed up reactions. Week 4: Chemical Analysis Chemical analysis helps identify unknown substances. Chromatography separates mixtures. Different substances move at different speeds. Week 5: Testing Substances Indicators show acids and alkalis. Tests can identify substances. Fair testing improves reliability. Week 6: Hazards, safety and applications Some chemicals are hazardous. Safety rules reduce risk.
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	Reducing fuel use helps protect the environment.	Week 6: Using resources sustainably Resources should be used carefully to avoid waste. Recycling helps conserve resources. Sustainable use protects the environment for the future.	Reactions are used in cooking, fuels, cleaning. Some reactions need to be controlled for safety. Chemistry is important in everyday life.	Physical changes don't form new substances. Chemical changes form new substances. Signs include colour change, gas, temperature change.	Week 6: Uses of materials Materials are chosen based on properties. Metals, plastics and ceramics have different uses. Understanding structure helps explain uses.	Reactions must be controlled in real-life applications.
Links to Gatsby Benchmarks:	Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance Students to consider what skills are required to be a paramedic, doctor, nurse, vet that leads onto looking at what skills are needed for different roles they are interested in and what qualifications.	Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance Benchmark 4 – Linking Curriculum to learning Benchmark 8 – Personal Guidance Students to consider what skills are required for waiters, builders, mechanics, to access the opportunities they are interested in. Going into work places/remote visits. Research. Writing C.Vs and cover letters.	Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance Benchmark 5- Encounters with employers and employees Students to consider what skills are required to be an electrician, technician, games designer to access the opportunities they are interested in. Research.	Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance Benchmark 5- Encounters with employers and employees Students to consider what skills are required to be a dietician, nutritionist, health care assistant to access the opportunities they are interested in. Research.	Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance Benchmark 6 – Experience of Work places Students to consider what skills are required to be a chemist, pharmacist, cleaner, paramedic, to access the opportunities they are interested in. Looking at careers in sports and researching sports.	Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance Benchmark 6 – Experience of Work places Students to consider what skills are required to be an optician, director, projector, radiographer, to access the opportunities they are interested in. Looking at careers in sports and researching sports.