

Curriculum Map – Science

What is the aim of the curriculum?	The Science curriculum at Open Academy is designed to inspire curiosity, develop scientific literacy and equip every student with the knowledge, skills and confidence to succeed both academically and beyond school. Students develop a deep understanding of Biology, Chemistry and Physics whilst learning how scientific knowledge is generated through investigation, evidence and critical thinking.
How does it demonstrate ambition for students?	Our curriculum is ambitious for every learner. It is built on the belief that all students, regardless of prior attainment or background, are capable of achieving highly when provided with a carefully sequenced curriculum, expert teaching and appropriate support. Students are encouraged to become resilient, inquisitive learners who ask questions, solve problems and apply scientific knowledge to real-world situations. The curriculum develops not only substantive scientific knowledge but also disciplinary knowledge through practical investigation, mathematical reasoning, scientific communication and evaluation of evidence. Students are supported to become confident scientists who are prepared for GCSE qualifications, further study, STEM careers and informed participation in modern society. The curriculum reflects the values of Open Academy by promoting aspiration, inclusion, respect and excellence, ensuring every student is challenged to achieve their personal best whilst developing an appreciation of the importance of science in improving lives and understanding the world around us.

How does the curriculum allow time for teaching, practicing and revisiting content and for addressing gaps in student knowledge as quickly as possible?	The Science curriculum is deliberately designed around the principle of carefully sequenced "small steps", enabling students to develop secure understanding before progressing to more challenging concepts. New knowledge is introduced in manageable stages, reducing cognitive overload and allowing sufficient time for modelling, guided practice and independent application. Knowledge is continually revisited throughout the five-year curriculum using a spiral approach. Key scientific concepts such as cells, energy, forces, particles, chemical reactions and ecology are revisited in increasingly complex contexts, allowing students to strengthen long-term memory and make meaningful links between topics. Retrieval practice forms an integral part of everyday teaching. Lessons begin with retrieval activities that revisit previously taught content, whilst questioning, low-stakes quizzes and cumulative review tasks provide regular opportunities for students to recall and apply prior learning. This continual retrieval helps secure knowledge in long-term memory and enables teachers to identify misconceptions quickly. Disciplinary literacy is explicitly developed throughout the curriculum. Key scientific vocabulary is taught systematically through a '<i>Word of the Lesson</i>' approach, ensuring students understand, accurately use and confidently apply subject-specific terminology in both discussion and written work. Scientific language is continually revisited and reinforced across topics to support long-term retention and improve students' ability to communicate scientific ideas with precision. Homework is deliberately sequenced to complement classroom learning by revisiting content from several weeks earlier rather than simply reinforcing the most recent lesson. This planned delay promotes independent retrieval practice and spaced repetition, strengthening long-term memory and helping students retain and connect knowledge over time. Homework activities provide regular opportunities for students to recall previously taught concepts without immediate teacher support, developing independent study habits while enabling teachers to identify areas requiring further reinforcement.
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Assessment is integral to the curriculum. Teachers use regular formative assessment, questioning, practical investigations, written responses and end-of-topic assessments to identify gaps in understanding. Teaching is responsive, allowing misconceptions to be addressed immediately through reteaching, additional modelling, scaffolded practice or targeted intervention before new content is introduced.

End-of-unit assessments act as low-stakes checkpoints within the curriculum, providing teachers with timely information about students' understanding before they move on to the next unit of study. These assessments are used diagnostically to identify misconceptions, gaps in knowledge and individual next steps rather than simply to measure attainment. Teachers use responses to inform responsive teaching, adapting subsequent lessons through targeted questioning and targeted practice to address misconceptions as quickly as possible. Students also receive a clear next step that helps them identify skills they need to develop.

Following each summative assessment, students complete a dedicated *Revisit Week*, where assessment outcomes are used to revisit key concepts from across multiple units of learning. The design of this week is to strengthen areas of weakness and consolidate essential knowledge before students progress further through the curriculum. This planned cycle of retrieval, assessment and responsive teaching ensures that misconceptions are systematically addressed, knowledge is securely embedded in long-term memory and students build the strong foundations needed for future learning.

At Key Stage 4, regular retrieval of GCSE content and increasing use of examination-style questions ensure students continually revisit prior learning whilst developing the confidence and examination skills required for success.

How is the curriculum designed to build students' knowledge and skills cumulatively? How does it pave the way for future learning?	Our science curriculum has been carefully sequenced to ensure that knowledge builds progressively from Year 7 through to GCSE. Each topic has been selected because it provides the foundation for future learning, allowing students to develop increasingly sophisticated scientific understanding over time. Students begin Key Stage 3 by developing secure understanding of fundamental concepts including particles, cells, forces and energy. These core ideas are then revisited and expanded through more challenging contexts before becoming the foundation for GCSE content in Key Stage 4. For example, students first develop an understanding of atomic structure before progressing to bonding, quantitative chemistry and rates of reaction. Similarly, early learning about cells, respiration and ecosystems provides the foundation for GCSE Biology topics including cell biology, bioenergetics, homeostasis and inheritance. Working scientifically is fully embedded throughout the curriculum rather than being taught as a separate unit. Students progressively develop the ability to plan investigations, identify variables, collect and analyse data, evaluate evidence and communicate scientific ideas accurately. Practical skills become increasingly independent as students progress through the curriculum, preparing them for required practical activities and GCSE assessment. Alongside practical skills, students complete writing tasks that require them to construct explanations, justify conclusions, evaluate evidence and apply scientific knowledge using accurate scientific vocabulary. This deliberate emphasis on disciplinary literacy ensures students become increasingly confident in reading, writing and communicating as scientists while preparing them for the demands of GCSE assessment. Independence and precision increase throughout the curriculum, preparing students for required practicals and beyond. The curriculum also develops transferable skills including critical thinking, mathematical reasoning, problem solving, resilience, collaboration and scientific communication. These skills prepare students not only for GCSE examinations but also for A Level study, apprenticeships, higher education and future employment. By revisiting key concepts through increasingly demanding contexts, students develop secure long-term knowledge that enables them to tackle unfamiliar scientific problems with confidence.
How does the curriculum highlight progression routes for the subject and future career paths (Gatsby Benchmark 4)	Science provides students with the knowledge and skills that underpin a vast range of future education pathways and careers. Throughout the curriculum, students are encouraged to understand how the scientific concepts they study relate directly to the wider world and the opportunities available beyond school. Careers are explicitly referenced within curriculum topics wherever appropriate. Students explore applications of science in fields including medicine, nursing, veterinary science, engineering, environmental science, renewable energy, pharmaceuticals, forensic science, biotechnology, food science, agriculture, space science, computing and research. The curriculum is further enriched through an offering of aspirational experiences that bring STEM careers to life. Students are given opportunities to visit universities, employers and industry settings, allowing them to experience first-hand how science is applied beyond the classroom. These visits help students understand the breadth of opportunities available within STEM, challenge stereotypes about scientific careers and encourage them to consider ambitious pathways that may previously have seemed beyond their reach. Encounters with professionals and employer-led activities provide authentic insight into further education, apprenticeships and careers in science, engineering and technology. The curriculum also develops employability skills valued across all sectors, including analytical thinking, problem solving, teamwork, communication, resilience, data analysis and practical investigation. Students recognise that scientific thinking extends far beyond laboratory work and is fundamental to many careers in both STEM and non-STEM industries.

At Key Stage 4, students are supported in making informed choices regarding Triple Science, post-16 study and future career pathways. Curriculum content regularly highlights the contribution of scientists from diverse backgrounds and demonstrates how scientific discoveries continue to improve health, technology and sustainability across the world. By combining ambitious curriculum content with meaningful encounters with universities, employers and STEM professionals, the curriculum broadens students' horizons, raises aspirations and equips them with the knowledge and confidence to pursue a wide range of future opportunities.

	Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
What will be taught?	7	<u>Chemistry</u> Matter as Particles <u>Biology:</u> Cells	<u>Physics</u> Forces <u>Chemistry</u> Separation	<u>Physics:</u> Magnetism <u>Chemistry</u> Chemical Reactions	<u>Physics</u> Space <u>Chemistry</u> Acids and Alkalis <u>Biology</u> Digestion and Health	<u>Biology</u> Gas Exchange <u>Physics</u> Speed	<u>Biology</u> Reproduction <u>Physics</u> Waves
	8	<u>Chemistry</u> The Periodic Table <u>Physics</u> Charge and Electrical Current	<u>Biology:</u> Transport Systems <u>Physics</u> Energy and Power <u>Chemistry</u> Energetics	<u>Physics</u> Light <u>Chemistry</u> Reactions of Metals	<u>Physics</u> Density and Pressure <u>Biology:</u> Bioenergetics	<u>Biology</u> Coordination <u>Physics:</u> Electrical Circuits	<u>Biology</u> Genetics <u>Chemistry</u> Reactivity <u>Biology</u> Interdependence
	9	<u>Biology</u> Respiration <u>Physics</u> Heating and Cooling	<u>Chemistry</u> Earth and Atmosphere <u>Physics</u> Engineering	<u>Biology:</u> Variation <u>Physics</u> Electromagnetism	<u>Biology</u> Cells <u>Chemistry</u> Atoms	<u>Physics</u> Forces <u>Biology</u> Cell Transport	<u>Chemistry</u> Separating Mixtures <u>Biology</u> Transport in Organisms <u>Chemistry</u> Reactivity
	10	<u>Physics</u> Forces <u>Biology</u> Transport in Organisms <u>Chemistry:</u> Bonding	<u>Biology</u> Digestion and Enzymes <u>Physics</u> Energy	<u>Physics</u> Electricity <u>Biology</u> Health and Disease	<u>Chemistry</u> Reaction of Acids <u>Physics</u> The Particle Model <u>Chemistry</u> Electrolysis	<u>Physics</u> Atoms and Radioactivity <u>Biology</u> Bioenergetics <u>Chemistry</u> Quantitative Chemistry	<u>Physics</u> Forces and Motion <u>Chemistry</u> Energetics
	11 Trilogy	<u>Biology</u> Homeostasis and Control <u>Chemistry</u> Rates of Reaction	<u>Physics</u> Resistive Forces <u>Chemistry</u> Organic Chemistry <u>Physics</u>	<u>Biology</u> Inheritance <u>Physics</u> Waves <u>Biology</u>	<u>Chemistry</u> Earth's atmosphere and resources <u>Biology</u> Ecology	<u>Revision:</u> Teacher Led revision of Student Next Steps and Weaknesses	

	Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
			Electromagnetism	Variation	<u>Revision:</u> Teacher Led revision of Student Next Steps and Weaknesses		
	11 Triple	<u>Physics</u> Resistive Forces <u>Biology</u> Inheritance <u>Chemistry</u> Rates of Reaction	<u>Physics</u> Electromagnetism <u>Biology</u> Ecosystems <u>Chemistry</u> Organic Chemistry	<u>Physics</u> Waves <u>Biology</u> Variation <u>Chemistry</u> Earth's atmosphere and resources	<u>Physics</u> Space <u>Biology</u> Biodiversity <u>Chemistry:</u> Teacher Led revision of Student Next Steps and Weaknesses	<u>Revision:</u> Teacher Led revision of Student Next Steps and Weaknesses	

What key threshold concepts /core skills / themes are covered each half term?	7	<u>Matter as Particles</u> Properties of solids, liquids and gases The particle model Compare solids, liquids and gases Changes of state Melting and boiling points Investigate changes of state Brownian motion Diffusion Gas pressure <u>Cells</u> Organisms The light microscope Animal cells Observe animal cells Plant cells Observe plant cells Unicellular organisms Sizes of biological structures	<u>Forces</u> Balanced and unbalanced forces Calculate resultant force Weight Friction Investigate friction Resistance in air Investigate resistance in air Resistance in liquids <u>Separation</u> Atoms, elements and compounds Pure and impure substances Solutions Solubility Filtration Crystallisation and evaporation Distillation Chromatography Apply separation techniques	<u>Magnetism</u> Magnetic materials Magnetic force Magnetic fields Investigate magnetic fields <u>Chemical Reactions</u> The periodic table of elements Represent chemical substances Physical and chemical changes Represent chemical reactions Oxidation and combustion Plan a combustion investigation Investigate combustion Evaluate the combustion investigation	<u>Space</u> The Solar System Gravity, mass and weight Models of the Solar System Stars and galaxies Day, night and the Moon Seasons <u>Acids and Alkalis</u> Acids and alkalis Indicators Neutralisation Name salts Make salts (E) Acid rain (E) <u>Digestion and Health</u> Human diet Digestion and enzymes Benedict's test (E) The digestive system Adaptations of the digestive system Energy values and requirements Plan, investigate and evaluate an energy stored in foods investigation Unbalanced diets Lifestyle choices	<u>Gas Exchange</u> The respiratory system Mechanism of breathing Gas exchange Adaptations of the respiratory system Health and lungs Plan, investigate and evaluate a lung volume investigation Respiratory disease (E) <u>Speed</u> Speed and relative motion Calculate speed Solve speed problems Interpret distance–time graphs Draw distance–time graphs Plan a speed investigation Investigate speed Evaluate the speed investigation Speed–time graphs (E)	<u>Reproduction</u> Gametes Male reproductive system Female reproductive system The menstrual cycle Fertilisation Gestation and birth Plant reproductive system Pollination and fertilisation Seed dispersal and germination Investigate seed dispersal <u>Waves</u> Transverse waves Longitudinal waves Represent waves The ear and audible ranges Echoes and reflection Uses of ultrasound Seismic waves (E)
	8	<u>The Periodic Table</u> Atomic structure Electron configuration Interpret the periodic table Properties of metals Properties of non-metals Group 1 Group 7 Word equations Symbol equations <u>Charge and Electrical Current</u> Static charge Potential difference Current Represent circuits Resistance The rope model	<u>Transport Systems</u> Blood Blood vessels The heart Organisation in plants Water transport in plants <u>Energy and Power</u> Energy stores Energy pathways Mechanical working Electrical working Compare the power of appliances Calculate power Domestic fuel bills Electrical power in circuits (E)	<u>Light</u> Light as waves Pinhole camera Reflection Refraction Convex lenses Compare cameras and eyes White and coloured light Coloured filters Objects under coloured light Electromagnetic spectrum (E) <u>Reactions of Metals</u> Conservation of mass Oxidation of metals Metal and acid reactions Observe metal and acid reactions	<u>Density and Pressure</u> Calculate density Measure the density of liquids Pressure in fluids Float or sink? Calculate pressure Calculate pressure in liquids (E) <u>Bioenergetics</u> Photosynthesis of glucose History of photosynthesis Adaptations of the leaf Sucrose transport in plants Uses of carbohydrates in plants (E) Sustainability of photosynthetic organisms	<u>Coordination</u> The musculoskeletal system Movement of the skeleton Moments – joints as levers The nervous system (E) Neurones (E) <u>Electrical Circuits</u> Current in series and parallel circuits Model series and parallel circuits Ohm's law Calculate resistance Plan, investigate and evaluate the resistance investigation Explain resistance (E)	<u>Genetics</u> DNA and chromosomes Discovery of DNA Extract DNA Alleles Genetic crosses (E) Mendel and inheritance (E) <u>Reactivity</u> Reactions of metals The reactivity series Displacement reactions Balance equations Investigate displacement reactions Extract metals with carbon <u>Interdependence</u>

			Energetics Exothermic and endothermic processes Plan, investigate and evaluate an exothermic reaction Thermal decomposition Catalysts	Metal oxide and acid reactions Observe metal oxide and acid reactions Metal carbonate and acid reactions (E) Observe metal carbonate and acid reactions (E) Balance symbol equations (E)	Aerobic respiration Investigate aerobic respiration in yeast Plan an exercise and respiration investigation Investigate exercise and respiration Evaluate the exercise and respiration investigation Compare photosynthesis and respiration		Ecosystems Sampling techniques Food chains Food webs Factors affecting food webs Biodiversity
9	Respiration Aerobic respiration Anaerobic respiration in humans Anaerobic respiration in plants and microorganisms Investigate anaerobic respiration in microorganisms Compare aerobic and anaerobic respiration Heating and Cooling Temperature and energy Changes of state or temperature Rate of heating Conduction and insulation Plan, investigate and evaluate a thermal insulation investigation Convection and insulation Radiation and insulation	Earth and Atmosphere Structure of the Earth Types of rock The rock cycle Material resources Ceramics, composites and polymers Uses of materials Recycling Energy resources The Earth's atmosphere The carbon cycle Causes of climate change Effects of climate change Reduce climate change Engineering Hooke's law Plan, investigate and evaluate elasticity of plastic investigation Calculate moments Investigate moments in equilibrium Calculate moments in equilibrium (E) Machines and energy Gears and pulleys Efficiency	Variation Variation Adaptations and competition Natural selection Speciation (E) Extinction Electromagnetism Magnetic field around a conductor Electromagnets Plan, investigate and evaluate an electromagnetism investigation Loudspeakers and microphones	Cells Eukaryotes Prokaryotes Sizes of cells Calculate cell sizes Observe cells Compare microscopes Stem cells Uses of stem cells Cell differentiation Cell specialisation in animals Cell specialisation in plants The cell cycle Cell division – mitosis Atoms Atoms, elements, compounds and mixtures The nuclear model of the atom Development of the atomic model Electronic structure Isotopes Relative atomic mass Relative formula mass The periodic table Development of the periodic table	Forces Weight, mass and gravity Contact and non-contact forces Newton's First Law Newton's Third Law Scalar and vector quantities Cell Transport Factors affecting diffusion Calculate surface area to volume ratio Osmosis Plan an osmosis investigation Investigate osmosis Evaluate the osmosis investigation Active transport	Separating Mixtures Pure substances Mixtures and formulations Filtration Crystallisation Distillation Chromatography Investigate chromatography Transport in Organisms The respiratory system Blood Blood vessels The circulatory system Transpiration Factors affecting transpiration Investigate transpiration Translocation Reactivity Noble gases Halogens Alkali metals The reactivity series <i>Half equations (H)</i> Displacement reactions of metals <i>Ionic equations (H)</i> Extraction of metals with carbon	
10	Forces Weight, mass and gravity Contact and non-contact forces Newton's First Law Newton's Third Law Scalar and vector quantities	Digestion and Enzymes The digestive system Adaptations of the digestive system Food tests Enzyme action Food and enzymes Factors affecting enzyme	Electricity Potential difference, charge and current Direct and alternating potential difference Resistance Represent circuits Plan, investigate and evaluate	Reaction of Acids Acids and alkalis Neutralisation Strong and weak acids Acids and metals Acids and metals – redox Acids and metal carbonates Produce soluble salts	Atoms and Radioactivity Unstable isotopes Development of the atomic model Types of nuclear radiation Measure nuclear radiation Nuclear decay equations Radioactive contamination	Forces and Motion Distance and displacement Speed and velocity Resolve vectors Distance–time graphs Acceleration Velocity–time graphs Calculate using motion graphs	

		<u>Transport in Organisms</u> The respiratory system Blood Blood vessels The circulatory system Transpiration Factors affecting transpiration Investigate – Transpiration Translocation <u>Bonding</u> States of matter Ions Ionic bonding Formulae of ionic compounds Properties of ionic compounds Structure and properties of metals Covalent bonding Simple covalent molecules Giant covalent structures Graphene and fullerenes Polymers Model bonding	action Plan, investigate and evaluate enzyme action <u>Energy</u> Energy stores in systems Energy changes in systems Gravitational energy store Kinetic energy store Elastic energy store Calculate energy changes Power Describe efficiency Calculate efficiency Non-renewable energy resources Renewable energy resources Energy changes in electrical circuits Electrical power The National Grid	the wire length investigation Series and parallel circuits Models of circuits Investigate resistors in series and parallel Resistors, filament lamps and diodes Thermistors and LDRs Plan, investigate and evaluate an I–V characteristics investigation Domestic electricity and safety <u>Health and Disease</u> Lifestyle choices Analyse health data Heart disease Heart disease treatment Cancer Pathogens Viral diseases Bacterial diseases Fungal diseases Protist diseases Non-specific defence systems The immune system Vaccination Medicines Drug development	<u>The Particle Model</u> Density and the particle model Measure the density of solids and liquids Changes of state and internal energy Specific latent heat Specific heat capacity Plan, investigate and evaluate a specific heat capacity investigation Pressure in gases at constant volume <u>Electrolysis</u> <i>The process of electrolysis (H)</i> <i>Electrolysis of molten ionic compounds (H)</i> <i>Electrolysis of aluminium oxide (H)</i> <i>Electrolysis of aqueous solutions (H)</i> <i>Observe aqueous solutions (H)</i>	and irradiation Uses of nuclear radiation Half-life of radioactive decay <u>Bioenergetics</u> Photosynthesis Plan, investigate and evaluate a rate of photosynthesis investigation Limiting factors in photosynthesis Light intensity and inverse proportion Uses of glucose Aerobic respiration Metabolism Anaerobic respiration Respiration and exercise <u>Quantitative Chemistry</u> Relative formula mass Conservation of mass <i>The mole (H)</i> Calculating masses using moles <i>Limiting reactants (H)</i> Balance equations using moles Concentration of solutions	Newton's Second Law Plan, investigate and evaluate Newton's Second Law investigation Momentum <u>Energetics</u> Exothermic and endothermic reactions Plan, investigate and evaluate temperature changes in reactions Reaction profiles Calculate energy changes
11 Trilogy	<u>Homeostasis and Control</u> Homeostasis Coordinated responses Reflex actions Plan, investigate and evaluate a reaction time investigation The endocrine system Feedback systems Blood glucose regulation Diabetes The menstrual cycle Contraception <i>Infertility (H)</i> <u>Rates of Reaction</u> Calculate rate of reaction Calculate rates using graphs Collision theory and activation energy Investigate surface area	<u>Resistive Forces</u> Terminal velocity Stopping distances Work done Work done in braking Hooke's law Plan, Investigate and Evaluate Hooke's law <u>Organic Chemistry</u> Alkanes Properties of hydrocarbons Combustion of hydrocarbons Fractional distillation of crude oil Alkenes Cracking <u>Electromagnetism</u>	<u>Inheritance</u> DNA and the genome Mitosis and asexual reproduction Meiosis Sexual reproduction Inheritance Genetic crosses Inherited disorders <u>Waves</u> Properties of waves Transverse and longitudinal waves Wave speed Measure wave speed in air Measure wave speed in water Measure wave speed in a solid Refraction Electromagnetic spectrum	<u>Variation</u> Variation Adaptations Natural selection Fossils and extinction Resistant bacteria Selective breeding Genetic engineering Evaluate genetic engineering Classification <u>Earth's atmosphere and resources</u> Evolution of the atmosphere The greenhouse effect Global warming Global climate change Atmospheric pollutants Earth's resources <i>Phytomining and bioleaching</i>	<u>Revision:</u> Teacher Led revision of Student Next Steps and Weaknesses		

		Plan, investigate and evaluate a concentration investigation Investigate temperature Catalysts Reversible reactions <i>Equilibrium and temperature (H)</i> <i>Equilibrium, concentration and pressure (H)</i>	Magnetic poles and fields Earth's magnetic field Electromagnets <i>Motor effect (H)</i> <i>Calculate the motor effect</i> <i>Electric motors (H)</i>	<i>Interactions of electromagnetic waves with matter (H)</i> Applications of electromagnetic radiation Risks of electromagnetic radiation Plan, investigate and evaluate an infrared radiation investigation	<i>(H)</i> Making seawater potable Investigating water Making groundwater potable Waste water treatment Ecology Ecosystems Abiotic and biotic factors Plan, investigate and evaluate a population size investigation Biomass transfer in ecosystems Material cycles in ecosystems Biodiversity Human impact on biodiversity Maintaining biodiversity		
11 Triple	Resistive Forces Terminal velocity Terminal velocity graphs Stopping distances Work done Work done in braking Hooke's law Plan a Hooke's law investigation Investigate Hooke's law Evaluate the Hooke's law investigation Inheritance DNA and the genome DNA structure Protein synthesis Mitosis and asexual reproduction Meiosis Sexual reproduction Compare sexual and asexual reproduction Inheritance Genetic crosses Mendel's discoveries Inherited disorders Rates of Reaction Calculate rate of reaction Calculate rates using graphs Collision theory and activation	Electromagnetism Magnetic poles and fields Earth's magnetic field Electromagnets Motor effect Calculate the motor effect Electric motors Generator effect Alternators and dynamos Transformers Ecosystems Ecosystems Abiotic and biotic factors Plan a population size investigation Investigate population size Evaluate the population size investigation Biomass transfer in ecosystems Transfer of biomass Material cycles in ecosystems Decomposition Decay in milk Organic Chemistry Alkanes Properties of hydrocarbons Fractional distillation of crude oil Combustion of hydrocarbons	Waves Properties of waves Transverse and longitudinal waves Wave speed Sound waves Loudspeakers and microphones Measure wave speed Measure waves in water Measure waves in a solid Reflection Refraction Investigate reflection and refraction Concave and convex lenses Applications of sound waves Seismic waves Variation Variation Adaptations The theory of evolution Natural selection Speciation Resistant bacteria Fossils and extinction Selective breeding Genetic engineering Evaluate genetic engineering Cloning in plants	Waves (Continued) Electromagnetic spectrum Interactions of electromagnetic waves with matter Applications of electromagnetic radiation Risks of electromagnetic radiation Colour Black body radiation Plan an infrared radiation investigation Investigate infrared radiation Evaluate the infrared radiation investigation Space Orbiting bodies in space Life cycle of a star Orbital motion Evidence for an expanding universe Biodiversity Biodiversity Maintaining biodiversity Human impact on biodiversity Factors affecting food security Food production Uses of biotechnology	All Branches of Science Teacher Led revision of Student Next Steps and Weaknesses		

		energy Investigate surface area Plan a concentration investigation Investigate concentration Evaluate the concentration investigation Investigate temperature Catalysts Reversible reactions Equilibrium and temperature Equilibrium, concentration and pressure The Haber process NPK fertilisers	Alkenes Reactions of alkenes Addition polymerisation Cracking Production of alcohols Reactions of alcohols Carboxylic acids Reactions of carboxylic acids Condensation polymerisation Amino acids and DNA	Cloning in animals Classification <u>Earth's atmosphere and resources</u> Evolution of the atmosphere The greenhouse effect Global warming Global climate change Atmospheric pollutants Resources and life cycle assessment (LCA) Phytomining and bioleaching Making seawater potable Investigating water Making groundwater potable Waste water treatment Corrosion Alloys Ceramics, polymers and composites	Chemistry Revision Teacher Led revision of Student Next Steps and Weaknesses		
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