

Science

Curriculum & Rubric Map Overview

2025-2026

Year 7



The table below details the skills and knowledge students will be covering each half term in science.

Time frames for when students will complete their Interim and Masters Assessments have also been given. Both assessments will aim to assess the knowledge and skills a student has covered up to that point in their education, this also includes the curriculum covered in the previous year/s.

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge and skills that will be covered during this half term.	<p>The Y7 and Y8 scheme of work (SoW) covers the KS3 national curriculum (NC) applying a project-based approach to learning Science. Students will learn how all aspects of science are intrinsically linked to allow them to apply their knowledge and understanding to answer BIG questions about the world around them.</p> <p>Topic 1 – An Introduction to Working Scientifically</p> <ul style="list-style-type: none"> An introduction to lab safety Hazard warning symbols Writing risk assessments Using a Bunsen burner Identifying variables Writing scientific methods Analysing data (discrete/continuous) <p>Working Scientifically: Bunsen burner</p> <ul style="list-style-type: none"> identifying flame types recording observations <p>Temperature changes</p> <ul style="list-style-type: none"> risk assessment recording data in a table drawing line graphs <p>Literacy: BBC news report (Non-Fiction)</p>	<p>Topic 2 – Nettles (myth or fact?)</p> <ul style="list-style-type: none"> Cell structure (plant and animal cells) Using a microscope Calculating magnification Making a specimen slide An introduction to acid and alkalis Calculating concentration Diffusion Making/using red cabbage indicator Using litmus paper Universal indicator/pH scale Neutralisation Using neutralisation The reaction of acid & metals <p>Working Scientifically: Microscopes</p> <ul style="list-style-type: none"> Using a microscope Making specimen slides <p>Indicators</p> <ul style="list-style-type: none"> Using UVI, litmus paper & red cabbage indicator <p>Neutralisation</p> <ul style="list-style-type: none"> Investigating the effectiveness of indigestion tablets <p>Literacy: Where the World Grows Wild (Fiction)</p>	<p>Topic 3 – How do we build an Eco-house?</p> <ul style="list-style-type: none"> Energy transfers and stores Power Efficiency Renewable energy resources Wind turbines Particle model/states of matter Changes of states (Brownian motion) Diffusion Conduction, convection and radiation Reducing energy loss (payback time) <p>Working Scientifically: Renewable energy</p> <ul style="list-style-type: none"> Building/evaluating wind turbines <p>Energy loss</p> <ul style="list-style-type: none"> Investigating the effect of insulation <p>Literacy: City of Rust (Fiction)</p>	<p>Topic 4 – What is our junk food diet doing to us?</p> <ul style="list-style-type: none"> Food groups Balanced diets Testing foods Digestion Enzymes in digestion Energy in foods Effects of unbalanced diets BMI Specialised cells Levels of organisation Respiratory system Gas exchange <p>Working Scientifically: Food groups</p> <ul style="list-style-type: none"> Testing nutrients (starch, sugars, lipids, proteins) <p>Energy</p> <ul style="list-style-type: none"> Determining the amount of energy stored in foods <p>Literacy: Charlie and the Chocolate Factory (Fiction)</p>	<p>Topic 4 – What is our junk food diet doing to us?</p> <ul style="list-style-type: none"> Heart Respiration Smoking and vaping Recreational and medicinal drugs Effects of caffeine <p>Topic 5 – Chicken or egg (which came first)?</p> <ul style="list-style-type: none"> Puberty Reproductive system Menstrual cycle <p>Working Scientifically: Caffeine</p> <ul style="list-style-type: none"> Investigating the effect of caffeine on reflex <p>Exercise</p> <ul style="list-style-type: none"> Investigating the effect of exercise on breathing rate <p>Literacy: A Monster Calls (Fiction)</p>	<p>Topic 5 – Chicken or egg (which came first)?</p> <ul style="list-style-type: none"> Fertilisation & implantation Gestation & birth Pressure Variation Genetic crosses Natural selection Extinction Gene banks <p>Working Scientifically: Pressure</p> <ul style="list-style-type: none"> Calculating pressure exerted on the ground <p>Variation</p> <ul style="list-style-type: none"> Investigating the effect of beak shape (Darwin's finches) <p>Literacy: A Monster Calls (Fiction)</p>
	Assessments		Interim 1 assessment Topics 1–2 60 minutes		Interim 2 assessment Topics 1–3 60 minutes	Master assessment Topics 1-5 (partial) 60 minutes

Science

Curriculum & Rubric Map Overview

2025-2026

Year 8



The table below details the skills and knowledge students will be covering each half term in science.

Time frames for when students will complete their Interim and Masters Assessments have also been given. Both assessments will aim to assess the knowledge and skills a student has covered up to that point in their education, this also includes the curriculum covered in the previous year/s.

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge and skills that will be covered during this half term.	Topic 6 – The maths behind the magic <ul style="list-style-type: none"> Calculating averages, range and uncertainty Using significant figures Converting units/SI units Ratios Calculating percentages and percentage change Drawing and analysing bar charts Drawing and analysing scatter graphs Drawing tangents and calculating gradients (HT) Substituting values and rearranging scientific formula Calculating surface area & volume <p>Working scientifically: Determining the density of a regular object</p> <p>Literacy: The maths that made us (Non-fiction)</p>	Topic 7 – A life on our planet <ul style="list-style-type: none"> The Earth The effect of fossil fuels Global warming Climate change Static electricity (weather) Atmospheric pressure Leaf structure Photosynthesis Effect of pollution Food webs Alternative protein sources Water cycle Carbon cycle Rock cycle <p>Working scientifically: Microscopy <ul style="list-style-type: none"> Investigating leaf structure </p> <p>Analysis <ul style="list-style-type: none"> Investigating rock types and their properties </p> <p>Renewable energy <ul style="list-style-type: none"> Investigating the effectiveness of wind turbines </p> <p>Literacy: The Last Bear (Fiction)</p>	Topic 8 – Smoke and mirrors <ul style="list-style-type: none"> Waves Sound Human hearing Echoes Ultrasound Light waves <p>Working scientifically: Light waves <ul style="list-style-type: none"> Determining the properties of light waves Using coloured filters </p> <p>Camera <ul style="list-style-type: none"> Making a pinhole camera </p> <p>Reflection <ul style="list-style-type: none"> Determining the relationship between the angle of incident and reflection </p> <p>Refraction <ul style="list-style-type: none"> Investigating how light travels through different media </p> <p>Literacy: Shadowghast (Fiction)</p>	Topic 8 – Smoke and mirrors <ul style="list-style-type: none"> Colour The eye Camera Reflection Refraction <p>Topic 9 – Rock it! <ul style="list-style-type: none"> Forces Balanced forces Unbalanced forces Pressure in liquid (depth, upthrust, floating, sinking) Big bang theory Solar system Mass vs. weight <p>Working scientifically: Forces <ul style="list-style-type: none"> Using Newton meters to determine forces </p> <p>Solar system <ul style="list-style-type: none"> Modelling the Earth </p> <p>Literacy: Cosmic (Fiction)</p> </p>	Topic 9 – Rock it! <ul style="list-style-type: none"> Day and night Seasons Constellation Space travel Streamlining <p>Working scientifically: Streamlining <ul style="list-style-type: none"> Investigating the effectiveness of different shaped materials </p> <p>Design <ul style="list-style-type: none"> investigating the effect of design on space travel </p> <p>Topic 10 – The Human machine <ul style="list-style-type: none"> Skeleton Joints Muscles Lever </p> <p>Working scientifically: Muscles <ul style="list-style-type: none"> Investigating muscles and how they work </p>	Topic 10 – The Human machine <ul style="list-style-type: none"> Pivots Moments Hooke’s Law Work done <p>Working scientifically: Hookes Law <ul style="list-style-type: none"> Investigating the limit of elasticity of different materials </p> <p>Lever <ul style="list-style-type: none"> Investigating how arm length affects effort </p> <p>Literacy: Skellig (Fiction)</p>
	Assessments		Interim 1 assessment Topics 1-6 60 minutes		Interim 2 assessment Topics 1-8 60 minutes	Master assessment Topics 1-9 60 minutes

Science

Curriculum & Rubric Map Overview

2025-2026

Year 9



The table below details the skills and knowledge students will be covering each half term in science.

Time frames for when students will complete their Interim and Masters Assessments have also been given. Both assessments will aim to assess the knowledge and skills a student has covered up to that point in their education, this also includes the curriculum covered in the previous year/s.

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge and skills that will be covered during this half term.	<p>Preparing for GCSE The year 9 scheme of work (SoW) is designed to support students in their transition from KS3 into KS4. Students will cover key skills and knowledge from the KS3 national curriculum (NC) in more detail and work to develop these skills further in readiness for the demands of the KS4 syllabus.</p> <p>Topic 1 – Periodicity</p> <ul style="list-style-type: none"> Periodic table Development of the periodic table <p>Physical and chemical properties of:</p> <ul style="list-style-type: none"> Group 1 Group 7 Group 0 History of the atom Atomic structure Metals and non-metals Formula mass calculations (HT) <p>Working scientifically:</p> <ul style="list-style-type: none"> Group 1 metals & water Group 7 displacement reactions <p>Topic 2 – Using microscopes</p> <ul style="list-style-type: none"> Cells Specialised animal cells Microscopes Magnification <p>Working scientifically:</p> <ul style="list-style-type: none"> Determining magnification using pre-prepared slides Preparing and viewing slides 	<p>Topic 3 – Voltage, current & resistance</p> <ul style="list-style-type: none"> Circuit symbols Circuit diagrams Measuring current & voltage VIR calculations <p>Working scientifically:</p> <ul style="list-style-type: none"> Determining resistance in a circuit Investigating how resistance changes in components <p>Topic 4 – Neutralisation</p> <ul style="list-style-type: none"> Acids and alkalis Bases Neutralisation Neutralisation equations Concentration <p>Working scientifically:</p> <ul style="list-style-type: none"> Testing the effectiveness of indigestion remedies <p>Topic 5 – Variation</p> <ul style="list-style-type: none"> Respiratory system Gas exchange Factors effecting gas exchange Variation <p>Working scientifically:</p> <ul style="list-style-type: none"> Determining relationships between height and volume of breath 	<p>Topic 6 – Insulation</p> <ul style="list-style-type: none"> Particle model Brownian motion Diffusion in liquid/gases (concentration) Conduction Convection Radiation <p>Working scientifically:</p> <ul style="list-style-type: none"> Investigating the effectiveness of different conductors Determining the effect of insulation on energy loss <p>Topic 7 – Separating mixtures</p> <ul style="list-style-type: none"> Drawing scientific equipment Elements, compound & mixtures Distillation (simple/fractional) Filtration Chromatography <p>Working scientifically:</p> <ul style="list-style-type: none"> Carrying out simple distillation Paper chromatography of soluble inks Separating rock salt 	<p>Topic 8 – Photosynthesis</p> <ul style="list-style-type: none"> Plant cells Specialised plant cells Plant tissues Photosynthesis <p>Working scientifically:</p> <ul style="list-style-type: none"> Testing leaves for starch Investigating if light is needed for photosynthesis <p>Topic 9 – Chemical reactions</p> <ul style="list-style-type: none"> States of matter Chemical reactions Conservation of mass Writing equations Balancing equations (HT) <p>Working scientifically:</p> <ul style="list-style-type: none"> Investigating changes of mass in a chemical reaction <p>Topic 10 – Speed</p> <ul style="list-style-type: none"> Calculating speed Speed, distance, time graphs Acceleration (HT) Variables, accuracy & precision <p>Working scientifically:</p> <ul style="list-style-type: none"> Investigating the effect of different variable on speed 	<p>Topic 11 – Energy reactions</p> <ul style="list-style-type: none"> Burning fuels Thermal decomposition Exothermic and endothermic reactions Reaction profile diagrams Bond energy calculations (HT) <p>Working scientifically:</p> <ul style="list-style-type: none"> Classifying reactions as exothermic or endothermic using Energy changes in chemical reactions using calorimetry <p>Topic 12 – Respiration</p> <ul style="list-style-type: none"> Aerobic respiration Response to exercise Anaerobic respiration (animal cells) Anaerobic respiration (yeast) <p>Working scientifically:</p> <ul style="list-style-type: none"> Investigating the link between heart rate and exercise Investigating the effect of temperature on the respiration of yeast 	<p>Topic 13 – Electromagnets</p> <ul style="list-style-type: none"> Magnetism Electromagnets Measuring current in electromagnets <p>Working scientifically:</p> <ul style="list-style-type: none"> Plotting magnetic field lines Building and testing electromagnets <p>Topic 14 – Materials</p> <ul style="list-style-type: none"> Reactivity series Use of carbon to extract metals Chemical/physical properties of metals Catalysis Properties of ceramics Properties of polymers Properties of ceramics <p>Working scientifically:</p> <ul style="list-style-type: none"> Making/testing reinforced concrete Making polymers
	Assessments	<p>Interim 1 assessment Topics 1-2 (plus Y7-8 content) 60 minutes</p>		<p>Interim 2 assessment Topics 1-7 (plus Y7-8 content) 60 minutes</p>		

Science

Curriculum & Rubric Map Overview

2025-2026

Year 10



The table below details the skills and knowledge students will be covering each half term in science.

Time frames for when students will complete their Interim and Masters Assessments have also been given. Both assessments will aim to assess the knowledge and skills a student has covered up to that point in their education, this also includes the curriculum covered in the previous year/s.

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
<p>Knowledge and skills that will be covered during this half term.</p>	<p>B1 - Cell Biology:</p> <ul style="list-style-type: none"> Eukaryotes and prokaryotes Animal and plant cells Cell specialisation Cell differentiation Microscopy Chromosomes Mitosis and the cell cycle Stem cells Diffusion Osmosis Active transport <p>C1 - Atomic structure & the periodic table:</p> <ul style="list-style-type: none"> Atoms, elements & compounds Mixtures Development of the model atom Structure of the atom Relative atomic mass Electronic structure Development of the periodic table Metals and non-metals Groups 1, 7 & 0 <p>P1 - Energy:</p> <ul style="list-style-type: none"> Energy stores and systems Changes in energy Energy changes in systems Power Energy transfers in a system Efficiency National and global energy resources <p>Working Scientifically: Required practical activity 1: use a light microscope to observe, draw and label a selection of plant and animal cells. Required practical activity 2: investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue. Required practical activity 14: an investigation to determine the specific heat capacity of one or more materials. The investigation will involve linking the decrease of one energy store (or work done) to the increase in temperature and subsequent increase in thermal energy stored.</p>	<p>B2 - Organisation:</p> <ul style="list-style-type: none"> Principles of organisation Human digestive system The heart and blood vessels Blood <p>C2 - Structure & Bonding:</p> <ul style="list-style-type: none"> Chemical bonds Ionic bonding, compounds and their properties Covalent bonding, simple compounds and their properties Metallic bonding Three states of matter State symbols Polymers Giant covalent compounds and their properties Properties of metals and alloys <p>P2 - Electricity:</p> <ul style="list-style-type: none"> Circuit diagram symbols Electrical charge & current Current, resistance & potential difference resistors Series & parallel circuits AC/DC potential difference Mains electricity Power Energy transfer National grid <p>Working Scientifically: Required practical activity 3: use qualitative reagents to test for a range of carbohydrates, lipids and proteins. Required practical activity 4: investigate the effect of pH on the rate of reaction of amylase enzyme. Required practical activity 15: use circuit diagrams to set up and check appropriate circuits to investigate the factors affecting the resistance of electrical circuits.</p>	<p>B2 - Organisation: Continued into half-term 3.</p> <ul style="list-style-type: none"> Coronary heart disease Health issues The effect of lifestyle Cancer Plant tissues Plant organ systems <p>B3 - Infection and response:</p> <ul style="list-style-type: none"> Communicable diseases Viral diseases Bacterial diseases Fungal diseases Protist diseases Human defence systems Vaccinations Antibiotics and painkillers Discovery and development of drugs <p>C3 - Quantitative Chemistry:</p> <ul style="list-style-type: none"> Conservation of mass Relative formula mass Moles (HT) Amounts of substance (HT) Using moles to balance equations (HT) Limiting reactants (HT) Concentration <p>P3 - Particle model of matter:</p> <ul style="list-style-type: none"> Density Changes of state Internal energy <p>Working Scientifically: Required practical activity 17: use appropriate apparatus to make and record the measurements needed to determine the densities of regular and irregular solid objects and liquids.</p>	<p>B4 - Bioenergetics:</p> <ul style="list-style-type: none"> Photosynthetic reaction Rate of photosynthesis Uses of glucose from photosynthesis <p>C4 - Chemical changes:</p> <ul style="list-style-type: none"> Metal oxides Reactivity series Extraction of metals Oxidation and reduction (HT) Reactions of acids & metals pH and neutralisation Soluble salts Strong & weak acids <p>P3 - Particle model of matter: Continued into half-term 4.</p> <ul style="list-style-type: none"> Specific heat capacity Specific latent heat Particle motion in gases <p>Working Scientifically: Required practical activity 5: investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed Required practical activity 8: 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.</p>	<p>B4 - Bioenergetics: Continued into half-term 5.</p> <ul style="list-style-type: none"> Aerobic and anaerobic respiration Response to exercise Metabolism <p>C4 - Chemical changes: Continued into half-term 5.</p> <ul style="list-style-type: none"> Electrolysis Electrolysis of molten ionic compounds Electrolysis of aqueous ionic compounds Using electrolysis to extract metals Half equations (HT) <p>P4 - Atomic Structure:</p> <ul style="list-style-type: none"> Structure of the atom Mass, atomic number & isotopes History of the atom Radioactive decay & radiation Nuclear equations Half life Radioactive contamination <p>Working Scientifically: Required practical activity 9: investigate what happens when aqueous solutions are electrolysed using inert electrodes. This should be an investigation involving developing a hypothesis.</p>	<p>B7 - Ecology:</p> <ul style="list-style-type: none"> Communities Abiotic factors Biotic factors Adaptations Levels of organisation <p>C5 - Energy changes:</p> <ul style="list-style-type: none"> Exothermic and endothermic reactions Reaction profiles Bond energy calculations (HT) <p>P7 - Magnetism:</p> <ul style="list-style-type: none"> Poles of a magnet Magnetic fields Electromagnetism Motor effect Flemings left hand rule (HT) Electric motors (HT) <p>Working scientifically: Required practical activity 7: measure the population size of a common species in a habitat. Use sampling techniques to investigate the effect of a factor on the distribution of this species. Required practical activity 10: investigate the variables that affect temperature changes in reacting solutions.</p>
	<p>Assessments</p>		<p>Interim 1 assessment Biology – B1, B3 Chemistry – C1 Physics - P1</p>		<p>Interim 2 assessment Biology – B1, B2, B3 Chemistry – C1, C2, C3 Physics – P1, P2</p>	

Science

Curriculum & Rubric Map Overview

2025-2026

Year 11



The table below details the skills and knowledge students will be covering each half term in Science.

Time frames for when students will complete their Interim and Masters Assessments have also been given. Both assessments will aim to assess the knowledge and skills a student has covered up to that point in their education, this also includes the curriculum covered in the previous year/s.

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge and skills that will be covered during this half term.	<p>B7 - Ecology:</p> <ul style="list-style-type: none"> How materials are cycled Biodiversity Waste management Land use Deforestation Global warming Maintaining biodiversity <p>C6 - Rate of reaction:</p> <ul style="list-style-type: none"> Calculating rates of reaction Factors affecting reaction rates Collision theory Activation energy Catalysts Reversible reactions Equilibrium Dynamic equilibrium (concentration, temperature, pressure) <p>P5 - Forces:</p> <ul style="list-style-type: none"> Scalar & vector quantities Contact & non-contact forces Gravity Resultant forces Work done & energy transfer Forces & elasticity Distance & displacement Speed Velocity Distance-time relationship Acceleration Newton's first law Newton's second law Newton's third law Stopping distance Reactions times Factors affecting braking distances Momentum (HT) <p>Working Scientifically: <u>Required practical activity 6:</u> plan and carry out an investigation into the effect of a factor on human reaction time.</p> <p><u>Required practical activity 11:</u> investigate how changes in concentration affect the rates of reactions by a method involving measuring the volume of a gas produced and a method involving a change in colour or turbidity.</p> <p><u>Required practical activity 18:</u> investigate the relationship between force and extension for a spring.</p>	<p>B5 - Homeostasis and response:</p> <ul style="list-style-type: none"> Homeostasis Human nervous system human endocrine system Control of blood glucose Hormones in human reproduction Contraception The use of hormones to treat infertility (HT) Feedback systems (HT) <p>C7 - Organic chemistry:</p> <ul style="list-style-type: none"> Crude oil, hydrocarbons & alkanes Fractional distillation Properties of hydrocarbons Cracking & alkenes <p>C8 - Chemical analysis:</p> <ul style="list-style-type: none"> Pure substance Formulations Chromatography Testing for common gases <p>P6 - Waves:</p> <ul style="list-style-type: none"> Transverse & longitudinal Properties of waves Types of EM waves Properties of EM waves Uses & applications of EM waves <p>Working Scientifically: <u>Required practical activity 12:</u> investigate how paper chromatography can be used to separate and tell the difference between coloured substances. Students should calculate R_f values.</p> <p><u>Required practical activity 20:</u> make observations to identify the suitability of apparatus to measure the frequency, wavelength and speed of waves in a ripple tank and waves in a solid and take appropriate measurements.</p> <p><u>Required practical activity 21:</u> investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface.</p>	<p>B6 - Inheritance, variation & evolution:</p> <ul style="list-style-type: none"> Sexual & asexual reproduction Meiosis DNA & the genome Genetic inheritance Inherited disorders Sex determination Variation Evolution Selective breeding Genetic engineering Evidence for evolution Fossils Extinction Resistant bacteria Classification of living organisms <p>C9 - Chemistry of the atmosphere:</p> <ul style="list-style-type: none"> Proportions of gases in the atmosphere Earth's early atmosphere How oxygen increased How carbon dioxide decreased Greenhouse gases Human activities that affect levels of greenhouse gases Global climate change Carbon footprint Atmospheric pollutants <p>C10 Using resources:</p> <ul style="list-style-type: none"> Earth's resources Sustainable development Potable water Waste water treatment Alternative methods of extracting metals Life cycle assessments Ways to reduce the use of resources <p>Working Scientifically: <u>Required practical activity 13:</u> analysis and purification of water samples from different sources, including pH, dissolved solids and distillation.</p>	<p>P8 - Space (Triple only):</p> <ul style="list-style-type: none"> Our solar system Life cycle of a star Orbital motion, natural and artificial satellites Red shift 	<p>Lessons personalised to the needs of the students in preparation of GCSE examinations.</p>	<p>Lessons personalised to the needs of the students in preparation of GCSE examinations.</p>
Assessments		<p>Mock Examinations - 2 Combined papers: 1h 15min Triple papers: 1h 45 mins Paper 1 – Biology (B1-4) Paper 1 – Chemistry (C1-5) Paper 1 – Physics (P1-4)</p>		<p>Mock Examinations - 3 Combined papers: 1h 15min Triple papers: 1h 45 mins Paper 2 – Biology (B5-8) Paper 2 – Chemistry (C6-10) Paper 2 – Physics (P5-8)</p>	<p>GCSE Examinations Combined papers: 1h 15min Triple papers: 1h 45 mins Paper 1 – Biology (B1-4) Paper 1 – Chemistry (C1-5) Paper 1 – Physics (P1-4)</p>	<p>GCSE Examinations Combined papers: 1h 15min Triple papers: 1h 45 mins Paper 2 – Biology (B5-8) Paper 2 – Chemistry (C6-10) Paper 2 – Physics (P5-8)</p>