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.	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. **Topic 1 – An Introduction to Working Scientifically** • An introduction to lab safety • Hazard warning symbols • Writing risk assessments • Using a Bunsen burner • Identifying variables • Writing scientific methods • Analysing data (discrete/continuous) **Working Scientifically:** Bunsen burner • identifying flame types • recording observations Temperature changes • risk assessment • recording data in a table • drawing line graphs **Literacy:** BBC news report (Non-Fiction)	**Topic 2 – Nettles (myth or fact?)** • 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 **Working Scientifically:** Microscopes - Using a microscope - Making specimen slides Indicators - Using UVI, litmus paper & red cabbage indicator Neutralisation - Investigating the effectiveness of indigestion tablets **Literacy:** Where the World Grows Wild (Fiction)	**Topic 3 – How do we build an Eco-house?** • 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) **Working Scientifically:** Renewable energy - Building/evaluating wind turbines Energy loss - Investigating the effect of insulation **Literacy:** City of Rust (Fiction)	**Topic 4 – What is our junk food diet doing to us?** • 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 **Working Scientifically:** Food groups - Testing nutrients (starch, sugars, lipids, proteins) Energy - Determining the amount of energy stored in foods **Literacy:** Charlie and the Chocolate Factory (Fiction)	**Topic 4 – What is our junk food diet doing to us?** • Heart • Respiration • Smoking and vaping • Recreational and medicinal drugs • Effects of caffeine **Topic 5 – Chicken or egg (which came first)?** • Puberty • Reproductive system • Menstrual cycle **Working Scientifically:** Caffeine - Investigating the effect of caffeine on reflex Exercise - Investigating the effect of exercise on breathing rate **Literacy:** A Monster Calls (Fiction)	**Topic 5 – Chicken or egg (which came first)?** • Fertilisation & implantation • Gestation & birth • Pressure • Variation • Genetic crosses • Natural selection • Extinction • Gene banks **Working Scientifically:** Pressure - Calculating pressure exerted on the ground Variation - Investigating the effect of beak shape (Darwin's finches) **Literacy:** A Monster Calls (Fiction)
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** • 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 **Working scientifically:** Determining the density of a regular object **Literacy:** The maths that made us (Non-fiction)	**Topic 7 – A life on our planet** • 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 **Working scientifically:** Microscopy • Investigating leaf structure Analysis • Investigating rock types and their properties Renewable energy • Investigating the effectiveness of wind turbines **Literacy:** The Last Bear (Fiction)	**Topic 8 – Smoke and mirrors** • Waves • Sound • Human hearing • Echoes • Ultrasound • Light waves **Working scientifically:** Light waves - Determining the properties of light waves - Using coloured filters Camera - Making a pinhole camera Reflection - Determining the relationship between the angle of incident and reflection Refraction - Investigating how light travels through different media **Literacy:** Shadowghast (Fiction)	**Topic 8 – Smoke and mirrors** • Colour • The eye • Camera • Reflection • Refraction **Topic 9 – Rock it!** • Forces • Balanced forces • Unbalanced forces • Pressure in liquid (depth, upthrust, floating, sinking) • Big bang theory • Solar system • Mass vs. weight **Working scientifically:** Forces • Using Newton meters to determine forces Solar system • Modelling the Earth **Literacy:** Cosmic (Fiction)	**Topic 9 – Rock it!** • Day and night • Seasons • Constellation • Space travel • Streamlining **Working scientifically:** Streamlining • Investigating the effectiveness of different shaped materials Design • investigating the effect of design on space travel **Topic 10 – The Human machine** • Skeleton • Joints • Muscles • Levers **Working scientifically:** Muscles • Investigating muscles and how they work	**Topic 10 – The Human machine** • Pivots • Moments • Hooke's Law • Work done **Working scientifically:** Hookes Law • Investigating the limit of elasticity of different materials Levers • Investigating how arm length affects effort **Literacy:** Skellig (Fiction)
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.	**<u>Preparing for GCSE</u>** 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. **Topic 1 – Periodicity** • Periodic table • Development of the periodic table Physical and chemical properties of: • Group 1 • Group 7 • Group 0 • History of the atom • Atomic structure • Metals and non-metals • Formula mass calculations (HT) **Working scientifically:** • Group 1 metals & water • Group 7 displacement reactions **Topic 2 – Using microscopes** • Cells • Specialised animal cells • Microscopes • Magnification **Working scientifically:** • Determining magnification using pre-prepared slides • Preparing and viewing slides	**Topic 3 – Voltage, current & resistance** • Circuit symbols • Circuit diagrams • Measuring current & voltage • VIR calculations **Working scientifically:** • Determining resistance in a circuit • Investigating how resistance changes in components **Topic 4 – Neutralisation** • Acids and alkalis • Bases • Neutralisation • Neutralisation equations • Concentration **Working scientifically:** • Testing the effectiveness of indigestion remedies **Topic 5 – Variation** • Respiratory system • Gas exchange • Factors effecting gas exchange • Variation **Working scientifically:** • Determining relationships between height and volume of breath	**Topic 6 – Insulation** • Particle model • Brownian motion • Diffusion in liquid/gases (concentration) • Conduction • Convection • Radiation **Working scientifically:** • Investigating the effectiveness of different conductors • Determining the effect of insulation on energy loss **Topic 7 – Separating mixtures** • Drawing scientific equipment • Elements, compound & mixtures • Distillation (simple/fractional) • Filtration • Chromatography **Working scientifically:** • Carrying out simple distillation • Paper chromatography of soluble inks • Separating rock salt	**Topic 8 – Photosynthesis** • Plant cells • Specialised plant cells • Plant tissues • Photosynthesis **Working scientifically:** • Testing leaves for starch • Investigating if light is needed for photosynthesis **Topic 9 – Chemical reactions** • States of matter • Chemical reactions • Conservation of mass • Writing equations • Balancing equations (HT) **Working scientifically:** • Investigating changes of mass in a chemical reaction **Topic 10 – Speed** • Calculating speed • Speed, distance, time graphs • Acceleration (HT) • Variables, accuracy & precision **Working scientifically:** • Investigating the effect of different variable on speed	**Topic 11 – Energy reactions** • Burning fuels • Thermal decomposition • Exothermic and endothermic reactions • Reaction profile diagrams • Bond energy calculations (HT) **Working scientifically:** • Classifying reactions as exothermic or endothermic using • Energy changes in chemical reactions using calorimetry **Topic 12 – Respiration** • Aerobic respiration • Response to exercise • Anaerobic respiration (animal cells) • Anaerobic respiration (yeast) **Working scientifically:** • Investigating the link between heart rate and exercise • Investigating the effect of temperature on the respiration of yeast	**Topic 13 – Electromagnets** • Magnetism • Electromagnets • Measuring current in electromagnets **Working scientifically:** • Plotting magnetic field lines • Building and testing electromagnets **Topic 14 – Materials** • Reactivity series • Use of carbon to extract metals • Chemical/physical properties of metals • Catalysis • Properties of ceramics • Properties of polymers • Properties of ceramics **Working scientifically:** • Making/testing reinforced concrete • Making polymers
Assessments	**<u>Interim 1 assessment</u>** Topics 1-2 (plus Y7-8 content) 60 minutes		**<u>Interim 2 assessment</u>** Topics 1-7 (plus Y7-8 content) 60 minutes			**<u>Master assessment</u>** Topics 1-12 (plus Y7-8 content) 60 minutes

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
Knowledge and skills that will be covered during this half term.	**B1 - Cell Biology:** • Eukaryotes and prokaryotes • Animal and plant cells • Cell specialisation • Cell differentiation • Microscopy • Chromosomes • Mitosis and the cell cycle • Stem cells • Diffusion • Osmosis • Active transport **C1 - Atomic structure & the periodic table:** • 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 **P1 - Energy:** • Energy stores and systems • Changes in energy • Energy changes in systems • Power • Energy transfers in a system • Efficiency • National and global energy resources **Working Scientifically:**	**B2 - Organisation:** • Principles of organisation • Human digestive system • The heart and blood vessels • Blood **C2 - Structure & Bonding:** • 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 **P2 - Electricity:** • 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 **Working Scientifically:** Required practical activity 3: use qualitative reagents to test for a range of carbohydrates, lipids and proteins.	**B2 - Organisation:** Continued into half- term 3. • Coronary heart disease • Health issues • The effect of lifestyle • Cancer • Plant tissues • Plant organ systems **B3 - Infection and response:** • Communicable diseases • Viral diseases • Bacterial diseases • Fungal diseases • Protist diseases • Human defence systems • Vaccinations • Antibiotics and painkillers • Discovery and development of drugs **C3 - Quantitative Chemistry:** • Conservation of mass • Relative formula mass • Moles (HT) • Amounts of substance (HT) • Using moles to balance equations (HT) • Limiting reactants (HT) • Concentration **P3 - Particle model of matter:** • Density • Changes of state • Internal energy **Working Scientifically:** Required practical activity 17: use appropriate apparatus to make and record the measurements needed to determine the densities of regular	**B4 - Bioenergetics:** • Photosynthetic reaction • Rate of photosynthesis • Uses of glucose from photosynthesis **C4- Chemical changes:** • Metal oxides • Reactivity series • Extraction of metals • Oxidation and reduction (HT) • Reactions of acids & metals • pH and neutralisation • Soluble salts • Strong & weak acids **P3 - Particle model of matter:** Continued into half-term 4. • Specific heat capacity • Specific latent heat • Particle motion in gases **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.	**B4 - Bioenergetics:** Continued into half-term 5. • Aerobic and anaerobic respiration • Response to exercise • Metabolism **C4 - Chemical changes:** Continued into half-term 5. • Electrolysis • Electrolysis of molten ionic compounds • Electrolysis of aqueous ionic compounds • Using electrolysis to extract metals • Half equations (HT) **P4 - Atomic Structure:** • Structure of the atom • Mass, atomic number & isotopes • History of the atom • Radioactive decay & radiation • Nuclear equations • Half life • Radioactive contamination **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.	**B7 - Ecology:** • Communities • Abiotic factors • Biotic factors • Adaptations • Levels of organisation **C5 - Energy changes:** • Exothermic and endothermic reactions • Reaction profiles • Bond energy calculations (HT) **P7 - Magnetism:** • Poles of a magnet • Magnetic fields • Electromagnetism • Motor effect • Flemings left hand rule (HT) • Electric motors (HT) **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.

	<u>Required practical activity 1</u>: use a light microscope to observe, draw and label a selection of plant and animal cells. <u>Required practical activity 2</u>: investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue. <u>Required practical activity 14:</u> 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.	<u>Required practical activity 4</u>: investigate the effect of pH on the rate of reaction of amylase enzyme. <u>Required practical activity 15:</u> use circuit diagrams to set up and check appropriate circuits to investigate the factors affecting the resistance of electrical circuits.	and irregular solid objects and liquids.			
Assessments		**<u>Interim 1 assessment</u>** Biology – B1, B3 Chemistry – C1 Physics - P1		**<u>Interim 2 assessment</u>** Biology – B1, B2, B3 Chemistry – C1, C2, C3 Physics – P1, P2		**<u>Master assessment</u>** **Mock examinations – 1** Combined papers: 1h 15min Triple papers: 1h 45 mins Paper 1 – Biology (B1-4) Paper 1 – Chemistry (C1-5) Paper 1 – Physics (P1-4)

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.	**B7 - Ecology:** • How materials are cycled • Biodiversity • Waste management • Land use • Deforestation • Global warming • Maintaining biodiversity **C6 - Rate of reaction:** • Calculating rates of reaction • Factors affecting reaction rates • Collision theory • Activation energy • Catalysts • Reversible reactions • Equilibrium • Dynamic equilibrium (concentration, temperature, pressure) **P5 - Forces:** • 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	**B5 - Homeostasis and response:** • 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) **C7 - Organic chemistry:** • Crude oil, hydrocarbons & alkanes • Fractional distillation • Properties of hydrocarbons • Cracking & alkenes **C8 - Chemical analysis:** • Pure substance • Formulations • Chromatography • Testing for common gases **P6 - Waves:** • Transverse & longitudinal • Properties of waves • Types of EM waves • Properties of EM waves • Uses & applications of EM waves **Working Scientifically:** Required practical activity 12: investigate how paper chromatography can be used to separate and tell the difference between coloured substances. Students should calculate R_f values. Required practical activity 20: make observations to identify the	**B6 - Inheritance, variation & evolution:** • 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 **C9 - Chemistry of the atmosphere:** • Proportions of gases in the atmosphere • Earths 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 **C10 Using resources:** • Earth's resources • Sustainable development • Potable water • Waste water treatment • Alternative methods of extracting metals • Life cycle assessments	**P8 – Space (Triple only):** • Our solar system • Life cycle of a star • Orbital motion, natural and artificial satellites • Red shift	Lessons personalised to the needs of the students in preparation of GCSE examinations.	Lessons personalised to the needs of the students in preparation of GCSE examinations.

	• Momentum (HT) **<u>Working Scientifically</u>:** <u>Required practical activity 6:</u> plan and carry out an investigation into the effect of a factor on human reaction time. <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. <u>Required practical activity 18</u>: investigate the relationship between force and extension for a spring.	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. <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.	• Ways to reduce the use of resources **<u>Working Scientifically</u>:** <u>Required practical activity 13</u>: analysis and purification of water samples from different sources, including pH, dissolved solids and distillation.			
Assessments		**<u>Mock Examinations - 2</u>** Combined papers: 1h 15min Triple papers: 1h 45 mins Paper 1 – Biology (B1-4) Paper 1 – Chemistry (C1-5) Paper 1 – Physics (P1-4)		**<u>Mock Examinations - 3</u>** Combined papers: 1h 15min Triple papers: 1h 45 mins Paper 2 – Biology (B5-8) Paper 2 – Chemistry (C6-10) Paper 2 – Physics (P5-8)	**<u>GCSE Examinations</u>** Combined papers: 1h 15min Triple papers: 1h 45 mins Paper 1 – Biology (B1-4) Paper 1 – Chemistry (C1-5) Paper 1 – Physics (P1-4)	**<u>GCSE Examinations</u>** Combined papers: 1h 15min Triple papers: 1h 45 mins Paper 2 – Biology (B5-8) Paper 2 – Chemistry (C6-10) Paper 2 – Physics (P5-8)