

Science

Curriculum overview

All children are entitled to a curriculum and to the powerful knowledge which will open doors and maximise their life chances. Below is a high-level overview of the critical knowledge children will learn in this particular subject, at each key stage from Reception through to Year 13, in order to equip students with the cultural capital they need to succeed in life. The curriculum is planned vertically and horizontally giving through to the optimum knowledge sequence for building secure schema

Knowledge, skills and understanding to be gained at each stage*

		Cycle 1	Cycle 2	Cycle 3
Year 1	Unit(s)	<i>Is Flying Really Magical?</i> Everyday materials <i>How can we be wise and stay safe?</i> Plants/ Seasonal changes	<i>Are we all wild things?</i> Experimenting with materials <i>Does size really matter?</i> Plants/Seasonal changes	<i>Could a penguin survive in Bradford?</i> Bodies and Senses <i>Can we save the world?</i> Animals
	Key Concepts			
	Knowledge Introduced	Everyday materials Identify and sort everyday materials; describe properties of different materials, including wood, plastic, glass, water, metal, and rock; group everyday materials by their physical properties; identify materials which are see through/ not see through. Plants Identify and name common wild and garden plants, including deciduous and evergreen trees; describe the structure of common flowering plants and trees; identify fruits and vegetables - Seasonal Changes: Observe changes across the four seasons; describe weather associated with the seasons and how day length varies; how plants in our local environment change across the seasons and how day length varies.	Experimenting with materials How to answer our own scientific questions; experimenting with materials; reporting scientific findings Plants and gardening: Planting and caring for seeds, including flowers, fruits, and vegetables; observing how plants grow over time; reporting scientific findings.	Bodies and Senses Draw and label basic parts of the human body; understand the five senses and associated body parts; investigation with our own senses. Animals Describe structures of animals (e.g., gills, claws, scales, tentacles, antennae, fins, skin, hair, fur, tail, feathers, skeleton, whiskers, segments) name common animals; understand key features of different families of animals e.g., mammals, reptiles, amphibians, fish, birds identify carnivores, herbivores, and omnivores -
	Skills introduced	Use observations and ideas to suggest answers to questions, identifying properties.	Perform simple tests; make predictions; identifying and classifying; graphs/tables of results.	Ask simple questions; observe closely, using simple equipment; fair tests; classifying using Venn diagrams; graphs.
	Knowledge revisited	Local environment; parts of a plant, materials EYFS.	Local environment; planting in EYFS, materials (water).	Five senses; describing myself.



	Skills revisited	Using resources responsibly; observing closely.	Making basic predictions; describing observations, taking care of living things.	Tally charts, observational skills
Year 2	Unit(s)	<i>Do pumpkins really come from the supermarket?</i> <i>Can you judge a person by their clothes?</i>	<i>What should I do if I get lost?</i> <i>What is the greatest invention in my parent's lifetime?</i>	<i>How can kindness change the world?</i> Living things and their habitats <i>If you were on a journey, where would it take you?</i> Living things and their habitats
	Key Concepts			
	Knowledge Introduced	Plants Observe plants, seeds, and bulbs; life cycles; describe how plants need water, light, and a suitable temperature to grow and stay healthy. Uses of everyday materials (shaping): Identify everyday materials and their uses; identify materials which are transparent and opaque; recycling; explain how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting, and stretching. Inventions of John Dunlop, Charles Macintosh, John McAdam.	Animals including humans: Animals, including humans, offspring which grow into adults; describe the basic needs of animals for survival; observations of how animals grow (e.g., incubating eggs and watching changes into chicks/ ducklings etc.). How animals obtain food from other animals; simple food chains; sources of food; healthy diet; exercise; hygiene; bacteria. Uses of everyday materials (suitability): Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, and cardboard for particular uses.	Living things and their habitats Local: Differences between things that are living, dead, and have never been alive; 7 processes of living things; describe how different habitats provide for the basic needs of different kinds of animals; name a variety of animals in their habitats, including microhabitats. Worldwide: Comparing habitats: seashore, woodland, ocean, rainforest; interdependence; human impact on habitats.
	Skills introduced	Observe changes over time; find out information using secondary sources of information.	Carry out simple comparative tests; using simple equipment where appropriate to answer questions.	Use different types of scientific enquiry to gather and record data; notice similarities, differences, and patterns; draw food chains.
	Knowledge revisited	Structure of common plants; life cycles; seasons and climate	Properties of common materials; group materials by their physical properties	Common animals; similarities between living things; animal diet; life processes; habitats
	Skills revisited	Interpreting basic information; identify and sort	Recording observations; comparing materials; describe changes	Identifying and classifying; grouping
Year 3	Unit(s)	<i>Could Year 3 have survived the Stone Age?</i> Rocks <i>What makes each continent unique?</i> Plants	<i>Are all cities like Bradford?</i> Animals including Humans. <i>How does it feel to come to a new country?</i> Light	<i>Would we like to have been a Victorian child?</i> Forces and Magnets



Key Concepts			
Knowledge Introduced	<p>Rocks and Fossils</p> <p>Types of rocks based on their appearance and physical properties; types of fossils and how they are formed; make-up of different soils.</p> <p>Reading Reconsidered focus: Charles Darwin; George Washington Carver</p> <p>Plants:</p> <p>Different parts of flowering plants; explore what plants need for life and growth; the importance flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal; how water is transported within plants.</p> <p>Specialist reading: Agnes Arber.</p>	<p>Animals including Humans</p> <p>Muscles; functions of a skeleton; naming bones; types of skeleton; types and amounts of nutrition.</p> <p>Reading Reconsidered focus: Dian Fossey</p> <p>Light</p> <p>Light and dark; how light is reflected from surfaces; Sun safety and ways to protect; formation of shadows; how the size of shadows change.</p> <p>Reading Reconsidered focus: Thomas Young</p>	<p>Forces and Magnets</p> <p>Different ways objects move on different surfaces, including friction; magnetic forces; sort magnetic and non-magnetic materials; describe magnets as having two poles, identify forces on different objects (pushing and pulling)</p> <p>Reading Reconsidered focus: Galileo Galilei</p>
Skills introduced	Dissect parts of a plant.	Set up experiments independently, according to a method; ask relevant questions and using different types of scientific enquiries to answer them.	Identify differences, similarities or changes related to simple scientific ideas and processes; accurately read scales; use standard units.
Knowledge revisited	Flowering plants; elements required for growth; importance of water.	Parts of the human body; five senses; skeleton; healthy lifestyles.	Basic properties of an object.
Skills revisited	Identify differences and similarities; record findings using scientific language.	Labelling; observing changes	Compare and classify by properties.
Year 4			
Unit(s)	<p><i>Where does all the water in the world come from?</i></p> <p>States of Matter</p> <p><i>What if there was no more rainforest?</i></p> <p>Living Things and their Habitats</p>	<p><i>Is it important that our achievements are remembered?</i></p> <p>Animals including Humans</p> <p><i>Are all European cities alike?</i></p> <p>Electricity</p>	<p><i>What did the Romans do for us?</i></p> <p>Sound</p>
Key Concepts			
Knowledge Introduced	<p>States of Matter</p> <p>Identify everyday solids, liquids, and gases by their properties; changes of state via melting and freezing; measuring temperature in degrees Celsius; water cycle; evaporation and condensation.</p> <p>Reading Reconsidered focus: Humphry Davy</p>	<p>Animals including Humans</p> <p>Functions of the human digestive system; different types of teeth in humans and their functions; construct and interpret food chains, identifying producers, predators, and prey.</p> <p>Reading Reconsidered focus: Marie Maynard Daly</p>	<p>Sound</p> <p>How sounds are made through vibration; explore how sounds travel in solids, liquids, and gases; differences between pitch and volume; relationship between sounds and distance; anatomy of the ear</p> <p>Reading Reconsidered focus: Alexander Graham Bell; James West</p>



	<p>Living Things and Their Habitats: Animals & Plants</p> <p>Sort animals according to their habitat; classification keys to group, identify and name a variety of living things in the local and wider environment; greenhouse effect; invasive species; pollution; endangered animals; environmental activism. Group plants into different categories; flowering plants (including grasses); non-flowering plants (ferns and mosses); changes to environments and possible effects; deforestation.</p> <p>Reading Reconsidered focus: Stuart Pimm; Greta Thunberg Rachel Carson</p>	<p>Electricity</p> <p>Common appliances that use electricity; mains and battery; construct a simple series circuit; identify and use cells, bulbs, switches, and buzzers; different ways of generating electricity; common conductors and insulators; potential electrical safety hazards in the home.</p> <p>Reading Reconsidered focus: Thomas Edison -</p>		
	<p>Skills introduced</p>	Using scientific evidence to answer questions and support findings; scaled scientific drawing	Use and create classification keys; present information using labelled graphs; using simple electrical equipment	Accurate annotations; suggest improvements to an investigation, using evidence; make predictions for new values
	<p>Knowledge revisited</p>	Conductors and insulators; properties of materials; effect of temperature; light; why materials change state; importance of water; flowering plants and their life cycles; effect of the local environment,	Parts of the human body; teeth; taste; impact of diet; food chains; carnivores, omnivores, and herbivores; habitats; changing environments; living things in the local environment.	States of matter; properties of materials; parts of the human body; five senses; protection of hearing,
	<p>Skills revisited</p>	Classifying and sorting; using standard units of measure; Set up practical enquiries; dissection of plants.	Report on findings, including oral and written explanations.	Report on findings, including oral and written explanations.
Year 5	<p>Unit(s)</p> <p><i>Should children be allowed to travel to space?</i></p> <p>Earth and Space</p> <p><i>What does it mean to be British?</i></p> <p>Properties and Changes of Materials</p>	<p><i>Should children be allowed to travel to space?</i></p> <p>Earth and Space</p> <p><i>What does it mean to be British?</i></p> <p>Properties and Changes of Materials</p>	<p><i>Is New York really the greatest city in the world?</i></p> <p>Animals including Humans</p> <p><i>How do the events of the past affect what we see around us today?</i></p> <p>Living Things and Their Habitats</p>	<p><i>What have the ancient Greeks left behind?</i></p> <p>Forces</p>
	<p>Key Concepts</p>			
	<p>Knowledge Introduced</p>	<p>Earth and Space</p> <p>Movement of the Earth and other planets, relative to the Sun; movement of the Moon, concept of spherical bodies; explain day and night.</p> <p>Reading Reconsidered focus: Ptolemy; Alhazen; Copernicus; Mae Jemison</p>	<p>Animals including Humans</p> <p>Life cycles of a mammal, an amphibian, an insect, and a bird; human development stages; life process of reproduction in some animals</p> <p>Reading Reconsidered focus: David Attenborough</p>	<p>Forces</p> <p>Describe different forces acting on an object; gravity; air resistance; water resistance; friction; forces in mechanisms (leavers, pulleys, and gears)</p> <p>Reading Reconsidered focus: Isaac Newton –</p>



		<p>Properties of Materials</p> <p>Compare and group everyday materials based on their properties and response to magnets; thermal conductors and insulators; electrical conductors.</p> <p>Reading Reconsidered focus: Spencer Silver.</p>	<p>Living Things and Their Habitats</p> <p>Life process of asexual and sexual reproduction in plants; compare life cycle of plants in the local environment with other plants around the world.</p> <p>Reading Reconsidered focus: Jane Goodall; Ernest Everett Just.</p>	
	Skills introduced	Everyday materials and their impact on the quality of sound; uses of everyday materials; dissolving and mixing; reversible changes; properties of materials.	Life cycles of plants and animals; impact of the local environment; human development; adaptation.	Magnetism; different forces on an object; friction; pushing and pulling.
	Knowledge revisited	Using classification keys; comparing and exploring a broad range of materials.	Dissection of plants; identify and classify common plants and animals.	Scaled drawing; using scientific equipment to take measurements, with increasing accuracy and precision.
	Skills revisited	Set up comparative and fair tests; evaluate the consequences of an unfair test	Form evidenced-supported arguments; refute ideas using evidence	Recognising and controlling variables
Year 6	Unit(s)	<p><i>Do we live in civilisation?</i></p> <p>Light and Electricity</p>	<p><i>How does the earth's movement affect lives?</i></p> <p>Animals including humans and Living things and their habitats</p>	<p><i>How did the world wars change the lives of women and children?</i></p> <p>Evolution and Inheritance</p>
	Key Concepts			
	Knowledge Introduced	<p>Light</p> <p>Light travels in straight lines; reflection and refraction of light; prisms; spectrum of light; shadows; seeing colours</p> <p>Reading Reconsidered: Albert Einstein</p> <p>Electricity</p> <p>Relationship between the brightness of a bulb with the number and voltage of cells in a circuit; recognise electricity symbols; reasons for variations in how circuits function.</p> <p>Reading Reconsidered focus: Michael Faraday; Benjamin Franklin –</p>	<p>Animals including humans</p> <p>Main parts of the human circulatory system, including heart, blood vessels and blood; healthy life styles; impact of diet; drugs and alcohol, including smoking; transportation of water and nutrients.</p> <p>Reading Reconsidered focus: British Nutrition Foundation; Charles Drew</p> <p>Living things and their habitats</p> <p>Characteristics of plants and animals, including microorganisms; classifying microorganisms based on their characteristics; Linnaean system.</p> <p>Reading Reconsidered focus: Karl Linnaeus; Emmett Chappelle –</p>	<p>Evolution and Inheritance</p> <p>Adaptation; inheritance; theory of evolution; fossils; evolution of humans; impact of human intervention on humans</p> <p>Reading Reconsidered focus: Charles Darwin; Alfred Wallace</p>



	Skills Introduced	Importance of the travel of light in everyday life (rear-view mirrors on cars, periscopes) Light sources; reflection; shadows; electrical insulators; series circuits; switches, bulbs, buzzers, and motors	Use secondary sources of information to support primary findings; evaluate the trustworthiness of sources	Identify patterns in data; separate opinion from fact
	Knowledge Revisited	Scaled drawing, with labels; identify common electrical circuit components	Main body parts and internal organs (skeletal, muscular, and digestive system)	Classification systems; grouping living things; fossils; how living things have changed over time.
	Skills revisited	Importance of the travel of light in everyday life (rear-view mirrors on cars, periscopes)	Create graphs, with labelled scales, of increasing complexity.	Group and classify; use and create classification keys.
Year 7		<p>Topic:</p> <p>Foundations - Science Skills</p> <p>Development of scientific theories, planning an investigation, taking measurements, reporting, displaying and analysing findings.</p> <p>Interleaving - KS2 Working Scientifically</p> <p>Foundations – Atoms 1</p> <p>Atomic model, atoms, elements, mixtures, compounds the periodic table, chemical formulae, metals, non-metals, conservation of mass, pure and impure substances, separating mixtures, chemical reactions.</p> <p>Interleaving - Year 5 - properties of materials</p> <p>Foundations – Energy 1</p> <p>Energy stores, pathways, law of conservation of energy, efficiency, power, renewable and nonrenewable energy resources.</p> <p>Interleaving - Year 6 light and electricity</p> <p>Foundations - Cells 1</p> <p>Plant and animal cells, using a microscopy, specialised cells, unicellular organisms, life processes, diffusion in cells.</p> <p>Interleaving - Year 6 - animals including humans</p>	<p>Topic:</p> <p>Foundations - Forces 1</p> <p>Contact and non-contact forces, force diagrams, resultant forces, balanced and unbalanced forces, air resistance investigation, mass and weight, Hookes law, work done</p> <p>Interleaving - Year 5 Forces</p> <p>Foundations - Particles 1</p> <p>Solids, liquids and gases, changes of state, dissolving, density, diffusion, chemical and physical changes, conservation of mass, the particle model, energy in matter</p> <p>Interleaving - Cycle 1 - atoms</p> <p>Organisation 1</p> <p>Digestive system, nutrition, digestion, enzymes, circulatory system, respiratory system, breathing, gaseous exchange, muscular-skeletal system</p> <p>Interleaving - Year 6 - animals including humans, cycle 1 cells</p>	<p>Topic:</p> <p>Bioenergetics 1</p> <p>Respiration, effects of exercise, photosynthesis, structure of leaves, minerals and starch investigation</p> <p>Interleaving - Year 5 - plant reproduction, year 6 living things and their habitats, cycle 1 atoms - chemical reaction</p> <p>Forces 2 - Space</p> <p>The universe, the big bang theory, the solar system, gravity, day, night, seasons and the history of space exploration</p> <p>Interleaving - Year 5 Earth and Space and cycle 2 Forces</p> <p>Organisation 2 - Reproduction</p> <p>Puberty, reproductive systems, reproduction, fertilisation, menstrual cycle, pregnancy, plant reproduction, flowers, germination, seed dispersal</p> <p>Interleaving - cycle 1 - cells, cycle 2 - organisation</p>
Year 8		<p>Topic:</p> <p>Ecology 1</p> <p>Competition in ecosystems, adaptations of plants and animals, food chains and</p>	<p>Topic:</p> <p>Infection and Response 1</p> <p>Pathogens, immune system, discovery and use of antibiotics, discovery and</p>	<p>Topic:</p> <p>Inheritance, Variation and Evolution 1</p> <p>DNA and genetics, environmental and</p>



	<p>webs, pollinators, pyramids of numbers, bioaccumulation and classification</p> <p>Interleaving - Year 7 - energy, respiration and photosynthesis</p> <p>Chemical Changes 1 - Acids and alkalis</p> <p>pH scale, indicators, neutralisation reactions, indigestion tablet investigation, reactions of acids and making salts</p> <p>Interleaving - Year 7 – atoms and particles</p> <p>Energy 2 - Waves</p> <p>Transverse and longitudinal waves, light waves, reflection, refraction, dispersion, colour, the eye, sound waves, the ear.</p> <p>Interleaving - year 7 - energy</p>	<p>use of vaccinations, healthy life choices, smoking, drugs and alcohol Interleaving - year 7 organisation</p> <p>Energy 3 - Electricity and Magnetism</p> <p>Static electricity, circuit diagrams, series and parallel circuits, current and voltage, magnets, magnetic fields and electromagnets</p> <p>Interleaving - year 7 energy and waves</p> <p>Chemical Changes 2 - Metals</p> <p>Properties of metals, reactions and reactivity series, oxidation and displacement reactions, extraction of metals from ores and recycling metals</p> <p>Interleaving - Year 7 atoms, respiration and photosynthesis, year 8 acids and alkalis</p>	<p>inherited variation, natural selection and extinction</p> <p>Interleaving - year 7 cells and reproductive system</p> <p>Forces 3 - Speed and Pressure</p> <p>Speed calculations, distance-time graphs, pressure in solids, liquids and gases, moments</p> <p>Year 7 forces, space and particles</p> <p>Earth Science 1</p> <p>Composition and structure of the Earth, the rock cycle, use of resources, the Earth's atmosphere, water cycle, carbon cycle, global warming and acid rain</p> <p>Interleaving - cycle 1 ecology, year 7 acids and alkalis and cycle 2 metals</p>
Year 9	<p>Atoms 2 - C1</p> <p>Development and current model of the atom, group 1, 7 and 0 elements, properties of metals and non-metals, separating mixtures</p> <p>Interleaving – year 7 – atoms and particles, year 8 chemical changes 2 - metals</p> <p>Energy 4 - P1</p> <p>Stores and pathways, law of conservation, efficiency, power, energy resources</p> <p>Interleaving – Year 8 energy 2 and 3</p> <p>Cells 2 - B1</p> <p>Structure of eukaryotic and prokaryotic cells, cell division, stem cells, microscopy and cell transport (diffusion, active transport and osmosis)</p> <p>Interleaving – year 7 cells, organisation and particles</p>	<p>Particles 2 - P3</p> <p>States of matter, changes of state, density, internal energy, energy transfers and gas pressure</p> <p>Interleaving – Year 8 forces – pressure and cycle 1 – P1</p> <p>Organisation 3 - B2</p> <p>Organ systems in plants and animals</p> <p>Interleaving – B1</p> <p>Atoms 3 - C2 Bonding and Structure</p> <p>Ionic, covalent and metallic bonding and properties of substances</p> <p>Interleaving – C1</p>	<p>Infection and Response 2 - B3</p> <p>Pathogens, spread and prevention of infection, immune response and treatment of infectious diseases</p> <p>Interleaving – B1 and B2</p> <p>Atoms 4 - P4 Atomic structure</p> <p>Model of an atom, radioactive decay and nuclear radiation</p> <p>Interleaving – C1 and year 8 – Energy 2 - waves</p> <p>Bioenergetics 2 - B4</p> <p>Respiration and photosynthesis</p> <p>Interleaving – B1 and 2</p> <p>Earth Science 2 - C9 Chemistry of the Atmosphere</p> <p>Composition and evolution of the Earth's atmosphere, greenhouse gases and pollutants</p> <p>Interleaving – year 8 Earth Science, B4</p>
Year 10	<p>Energy 5 - P2 Electricity</p>	<p>Chemical Changes 4 - C5 Energy Changes in Reactions</p>	<p>Earth Science 3 - C7 Organic Chemistry</p>



	<p>Circuits, resistance, power, the national grid, energy resources Interleaving – P1 and P3</p> <p>Organisation 3 - B5 Homeostasis and Response Regulation of internal conditions, nervous and endocrine systems and hormones and fertility Interleaving – B2 and 3 Chemical Changes 3 - C4 Reactivity of metals and acids, pH and electrolysis Interleaving – C2</p>	<p>Exothermic and endothermic reactions Interleaving – C2 and B4</p> <p>Atoms 4 - C3 Quantitative Chemistry Chemical measurement, conservation of mass, chemical calculations and concentration Interleaving C1 Forces 4 - P5 Scalars and vectors, types of forces, resultant forces, work done, Hooke's law, Newton's laws, speed, acceleration, motion graphs, stopping distances and momentum Interleaving – P1, 3 and P4</p>	<p>Crude oil, hydrocarbons, fractional distillation and cracking Interleaving – C9 and C5</p> <p>Ecology 2 - B7 Adaptation, interdependence, competition, biodiversity and human effects on the environment Interleaving – B4 and C7 Earth Science 4 - 10 Using Resources Potable water, life cycle assessments and recycling Interleaving – B7, C9 and C1 (separating mixtures)</p>
Year 11	<p>Chemical Changes 5 - C6 Rate and Extent of Chemical Change Rate of reaction, catalysts, reversible reactions and dynamic equilibrium Interleaving – C2, C3 and C4</p> <p>Inheritance, Variation and Evolution 2 - B6 Reproduction, meiosis, DNA, inheritance, variation, evolution, selective breeding, genetic engineering, extinction, classification Interleaving – B1, B3 and B5 Energy 6 - P6 Waves Transverse and longitudinal waves, properties of waves, uses and applications of electromagnetic waves Interleaving P1, 4 and 5</p>	<p>Atoms 5 - C8 Chemical Analysis Purity, formulations, chromatography and gas tests Interleaving – C1 and 2 Forces 5 - P7 Magnetism and Electromagnetism Permanent and induced magnetism, magnetic forces and fields, motor effect Interleaving – P2 and 5</p> <p>Revision</p>	<p>Revision</p>
Year 12 Biology	<p>Biological molecules, enzymes and DNA Cells - structure, division, transport, recognition and immunity</p>	<p>Organisms - exchanges and mass transport DNA, genes and chromosomes, protein synthesis, genetic diversity and adaptations</p>	<p>Species and diversity, biodiversity and community, investigating diversity Revision of AS content</p>
Year 12 Chemistry	<p>Atomic structure, amount of substance, bonding, energetics, kinetics</p>	<p>Equilibrium and REDOX Periodicity, group 2 elements, group 7 elements Organic chemistry - alkanes</p>	<p>Organic chemistry - haloalkanes, alkenes, alcohols, organic analysis Revision of AS content</p>
Year 12 Physics	<p>Matter and radiation, quarks and structure, quantum phenomena</p>	<p>Newtons laws of motion, force and momentum, work, energy and power, materials</p>	<p>Revision of AS content</p>



		Waves and optics Forces and equilibrium	Electrical current, DC circuits Physics mathematical skills	
Year 12 Applied Science		Chemistry Understanding the electronic structure of atoms, balancing equations, moles, ionic, covalent and metallic bonding, intermolecular forces, chemical reactions, physical properties Biology Cell structure and function, specialisation, tissue structure and function	Physics Working with waves, waves in communication, electromagnetic waves in communication Unit 3 - Science Investigation Skills	Unit 3 - Science Investigation Skills Revision of year 12 content Resit intervention Unit 2 - Practical skills coursework introduction
Year 13 Biology		Photosynthesis, respiration and energy in ecosystems Survival and response, receptors, control of heart rate, nervous control Skeletal muscles	Homeostasis, control of blood glucose concentration, control of blood water concentration Inheritance, populations, populations in ecosystems Control of gene expression, regulation of transcription and translation, gene expression and cancer	Using genome projects, recombinant DNA technology, DNA probes, genetic fingerprints Revision
Year 13 Chemistry		Thermodynamics, rate equation, equilibrium constant, electrode potential, acids and bases Period 3, transition metals	Transition metals, rates of reaction Optical isomers, aldehydes, ketones, carboxylic acid, aromatics, amines, polymers, amino acids, organic synthesis	NMR, chromatography Revision
Year 13 Physics		Simple harmonic motion, thermal physics, gases Gravitational fields, electrical fields	Electrical fields, capacitors, magnetic fields, electromagnetic induction Radioactivity, nuclear energy	Astrophysics Revision
Year 13 Applied Science		Unit 2 - Practical skills coursework Standard laboratory equipment and techniques - titration, colorimetry, calorimetry, chromatography, calibration procedures and laboratory safety Revision for resit exams	Unit 2 cont. Unit 9 - Homeostasis - nervous control of the cardiovascular and respiratory systems, the homeostatic mechanisms in the body and the hormonal control of the reproductive system.	Unit 9 cont.

*A powerful, knowledge-rich curriculum teaches both declarative knowledge (facts; knowing that something is the case; what we think about) and non-declarative or procedural knowledge (skills and processes; knowing how to do something; what we think with). There are no skills without bodies of knowledge to underpin them. In some subjects, a further distinction can be made between substantive knowledge (the domain specific knowledge accrued eg knowledge of the past) and disciplinary knowledge (how the knowledge is accrued eg historical reasoning).

Please refer to the DAT Curriculum Principles, published on our website, for further information about how we have designed our all-through curriculum.

