

CoDA Curriculum

Science

Why study Science

Science develops an understanding of the world and hypothesise about their experiences and provides It helps students gain knowledge, understanding and decisions in their lives and help them play an active



its inhabitants. It inspires students to question and them with tools to seek out answers and explanations. skills which will enable them to make informed role in the communities to which they belong.

At Key Stage 3 students will follow the national

curriculum

Science Curriculum Intent Year 7 and Year 8

Our intent is to engage and interest students in science and help them understand fundamental ideas which will underpin their learning at key stage 4 and beyond. Where possible, there is a focus on practical work to engage and inspire students, and to try to provide them with practical experiences they may not have had. Our students have vastly different backgrounds and experiences of life and science when they join us. The spiral nature of our curriculum aims to welcome, engage and support all students, regardless of their background or at what point they join us.

Note: both when studying a topic for the first time and when revisiting topics, our curriculum plan may change due to the needs and requirements of students.

Year 7 /8 Adapted Curriculum (eg SEND)

All students will study all topics, though the level to which they achieve the end points will vary. This allows some students to re-enter main teaching groups and will place no limits on their future achievements. Teaching will place additional emphasis on practical skills, literacy and fundamental ideas. Fact tests have been adapted to make them more accessible and exam question tests are structured to increase in demand through the test.

Science Curriculum Intent Year 9

Students will consolidate their work from Years 7 and 8, complete the KS3 National Curriculum and begin to study some topics from KS4. Our students have vastly different backgrounds and experiences of life and science when they join us. The spiral nature of our curriculum aims to welcome, engage and support all students, regardless of their background or at what point they join us.

Note: both when studying a topic for the first time and when revisiting topics, our curriculum plan may change due to the needs and requirements of students.

Year 9 Adapted Curriculum (eg SEND)

All students will study all topics, though the level to which they achieve the end points will vary. This allows some students to re-enter main teaching groups and will place no limits on their future achievements. Some students will need to do / re-visit work from Year 7 and Year 8 to ensure they are secure in the fundamental knowledge, understanding and skills. Fact tests have been adapted to make them more accessible and exam question tests are structured to increase in demand through the test.

At key stage 4 students will follow the specification: AQA Combined Science Trilogy

Science Curriculum Intent Year 10 and Year 11

Our intent is to inspire students to achieve their best possible grade in science, alongside developing their understanding of the world and how science works.

Note: both when studying a topic for the first time and when revisiting topics, our curriculum plan may change due to the needs and requirements of students.

Year 10 and Year 11 Adapted Curriculum (eg SEND)

All students will study for GCSE science, though the level to which they achieve the end points will vary. Some students will need to do / re-visit work from Year 9 (and sometimes Year 7 and 8) to ensure they are secure in the fundamental knowledge, understanding and skills. Fact tests have been adapted to make them more accessible and exam question tests are structured to increase in demand through the test.

Science Year 7 (Biology Topics)

Topic	Introduction to science	Cells	Reproduction	Ecology
<p>End points - Knowledge</p>	<p><i>This is the first topic studied by Year 7 students. It follows on from 'working scientifically' at KS2</i></p> <p>Students are introduced to working safely in science and basic practical skills (naming equipment, diagrams, taking and recording measurements and setting up a Bunsen burner.</p> <p><i>Fundamental skills which will be used throughout science in all years</i></p>	<p>Students learn animals and plants are made of cells and how tissues, organs and organ systems build organisms. They learn the parts of the cells, functions of these parts and how some cells are specialised for their function. The functions of the skeleton and muscles are also studied.</p> <p><i>Fundamental idea which is used in most biology topics. Leads to elements of all biology topics and directly to Year 9 Cells</i></p>	<p><i>This topic follows on from 'living things and their habitats' from the Year 5 programme of study (life cycles, reproduction) and 'animals, including humans' (puberty)</i></p> <p>Students will learn how humans, as an example of mammals, and flowering plants reproduce sexually. This will include learning the structures and functions of parts of human reproductive systems and flowers, how sperm/pollen are transferred and where fertilisation occurs. Birth and seed dispersal will also be studied. Learning from Year 7 cells topic will be developed as students consider how egg and sperm cells are adapted to their functions.</p> <p>(Maternal effects on the foetus is done in the Year 8 health topic)</p> <p><i>Leads to Year 11 Inheritance</i></p>	<p><i>This topic follows on from 'evolution and inheritance' from the Year 6 programme of study (adaptations)</i></p> <p>Students will begin to learn about interdependence in ecosystems by learning about food webs and the predator-prey relationship. Work on food chains will be extended by constructing pyramids of number. Students will use pooters as an example of a sampling technique. How to describe and explain adaptations will be introduced, with a focus on minibeasts, predators and prey animals.</p> <p><i>Leads to Year 9 Ecology</i></p>
<p>End Points - Skills</p>	<p>Practical skill: Risk assessments, variables, conclusion, evaluation Maths skill: reading scales</p>	<p>Practical skill: method (making slides and using microscope)</p>	<p>Practical skill: Dissection Maths skill: Bar chart</p>	<p>Practical skill: Variables, conclusion & evaluation Maths skill: Bar chart</p>
<p>Key Vocabulary</p>	<p>Equipment Diagram Variable</p>	<p>Organism Function Stain</p>	<p>Reproduction Fertilisation Dissection Dispersal</p>	<p>Producer Sample Adaptation</p>

SMSC Links	Safety in a science lab	How the body works – skeleton and muscles	Sex, fertilisation, pregnancy, birth, menstrual cycle and puberty as biological processes in living organisms	Understanding of the natural world and humans role in int
Assessment	Each topic: Fact Test to focus on recall of information Each Term: Exam question test on topics studied to form the basis of a predicted grade (in term 1 this will be a baseline assessment)			
Career Links	5 Employability skills are: Communication, Teamwork, Resilience, Creativity, Independence			

Science Year 7 (Chemistry Topics)

Topic	Introduction to science	Particles	Acids	Earth
End points - Knowledge	<p>Students are introduced to working safely in science and basic practical skills (naming equipment, diagrams, taking and recording measurements and setting up a Bunsen burner.</p> <p><i>Fundamental skills which will be used throughout science in all years</i></p>	<p><i>This topic follows on from 'properties and changes of materials' from the Year 5 programme of study (properties, dissolving, separation)</i></p> <p>Students are introduced to the particle model of matter and will use this to explain the properties of each state and changes in state. The concept of diffusion will be introduced. Students will learn what happens when a solid dissolves and use the terms soluble and insoluble. This will help them explain how filtering and evaporation are used to separate mixtures. Chromatography will be introduced, as a method to separate a mixture of inks.</p> <p><i>Fundamental idea for many chemistry and physics topics. Directly leads to Year 8 Heating, Year 8 Reactions, Year 9 Particles</i></p>	<p>Students are introduced to acids and alkalis. They will learn everyday examples of these and how to test for them using indicators. Students will learn how acids and alkalis react to make neutral solutions. They will look at real life examples of neutralisation and how neutralisation makes a salt. They will also conduct a neutralisation investigation</p> <p><i>Leads to Year 9 Reactions</i></p>	<p><i>This topic follows on from 'Earth and space' from Year 5 programme of study (movement of Earth and Moon, day and night)</i></p> <p>Students learn the structure of the Earth and how the different types of rock within the crust are linked through the rock cycle. They will learn what the Earth's atmosphere is like and how it evolved over time. The cause of days, nights, seasons and years will be explained. Students will then learn about the solar system, galaxy and universe.</p> <p><i>Leads to Year 9 Atmosphere</i></p>
End Points - Skills	<p>Practical skill: Risk assessments, variables, conclusion, evaluation Maths skill: reading scales</p>	<p>Practical skill: Variables, conclusion & evaluation Maths skill: Bar chart</p>	<p>Practical skill: Variables, conclusion & evaluation Maths skill: Bar chart</p>	<p>Practical skill: Models</p>
Key Vocabulary	<p>Equipment Diagram Variable</p>	<p>Matter Dissolve Separate</p>	<p>Scale Neutral Indicator</p>	<p>Molten Cycle Orbit</p>

SMSC Links	Safety in a science lab	Appreciation of complexity of universe	Uses of neutralisation, e.g. treating stings and acid lakes	Understanding of our place in the universe
Assessment	Each topic: Fact Test to focus on recall of information Each Term: Exam question test on topics studied to form the basis of a predicted grade (in term 1 this will be a baseline assessment)			
Career Links	5 Employability skills are: Communication, Teamwork, Resilience, Creativity, Independence			

Science Year 7 (Physics Topics)

Topic	Introduction to science	Forces	Energy	Electricity
End points - Knowledge	<p>Students are introduced to working safely in science and basic practical skills (naming equipment, diagrams, taking and recording measurements and setting up a Bunsen burner.</p> <p><i>Fundamental skills which will be used throughout science in all years</i></p>	<p><i>This topic follows on from 'forces' from the Year 5 programme of study (gravity, forces between moving surfaces, levers)</i></p> <p>Students will extend their knowledge of forces from 'pulls and pushes' to identify, label and describe specific forces, including non-contact forces (gravity, between magnetics, due to static electricity) Students will learn how the forces acting on an object can be balanced or unbalanced and the effects. Students will use paper spinners to investigate air resistance. Students will calculate speed and use distance –time graphs to help them compare relative motion.</p> <p><i>Leads to Year 8 Forces</i></p>	<p>Students learn to identify and describe energy stores and transfers. They are introduced energy changes and the law of conservation of energy. Students will compare energy and power ratings and learn how energy use in the home is measured. Students will do an investigation to compare energy content of snacks. Students will be introduced to non-renewable and renewable energy resources</p> <p><i>Leads to Year 9 Energy</i></p>	<p><i>This topic follows on from 'electricity' from the Year 6 programme of study (brightness of bulbs, loudness of buzzers, switches, simple circuit symbols)</i></p> <p>Students will learn how to draw circuit diagrams and how to use these to build series and parallel circuits. They will be introduced to definitions of current and potential difference, how to measure them and how to use them to calculate resistance. Students will investigate the cause and effects of static electricity. They will be introduced to basic ideas in magnetism by investigating how magnets interact, plotting magnetic fields and making an electromagnet</p> <p><i>Leads to Year 9 Electricity and Year 11 Magnets</i></p>
End Points - Skills	<p>Practical skill: Risk assessments, variables, conclusion, evaluation Maths skill: reading scales</p>	<p>Practical skill: Variables, conclusion & evaluation Maths skill: bar chart and equations</p>	<p>Practical skill: Variables, conclusion & evaluation Maths skill: Bar chart and equations</p>	<p>Practical skills: diagrams Maths skill: calculations</p>
Key vocabulary	<p>Equipment Diagram Variable</p>	<p>Resistance Stationary Motion</p>	<p>Thermal Kinetic Renewable</p>	<p>Component Circuit Series</p>
SMSC Links	<p>Staying safe in a science lab</p>	<p>Working together in investigations</p>	<p>Use of energy resources to generate electricity</p>	<p>Working together in investigations</p>

Assessment	Each topic: Fact Test to focus on recall of information Each Term: Exam question test on topics studied to form the basis of a predicted grade (in term 1 this will be a baseline assessment)
Career Links	5 Employability skills are: Communication, Teamwork, Resilience, Creativity, Independence

Science Year 8 (Biology topics)

Topic	Food	Variation	Plants	Health
End points - Knowledge	<p>Students will learn the components of a balanced diet and consequences of unbalanced diets. They will learn how to do qualitative food tests. Building on the work done in Year 7 cells, students will learn the locations and functions of organs in the digestive system and how these work together to digest food, absorb the soluble products and remove waste. Students will be introduced to the role of enzymes in digestion. (the importance of bacteria will be done in the Year 8 health topic)</p> <p style="text-align: right;"><i>Leads to Year 10 Humans</i></p>	<p><i>This topic follows on from 'living things and their habitats' and 'evolution and inheritance from the Year 6 programme of study (classification, fossils, variation in offspring, adaptations) and 'evolution and inheritance</i></p> <p>Building on work from year 7 cells, students will learn how genetic material is organised inside a nucleus. They will then consider causes and types of variation. Classification into kingdoms is introduced. Students will learn that evolution is a gradual change in a species over time, and that fossils provide evidence for this and show extinct species. Reasons for extinction will also be learnt.</p> <p style="text-align: right;"><i>Leads to Year 11 Inheritance</i></p>	<p>Building on work from Year 7 cells, students will extend their understand of organism organisation to include plants. Photosynthesis will be introduced, and students will use pondweed to investigate how light intensity affects the rate. Parts of the leaf and transport tissues (xylem and phloem) will be identified, and their functions described (including the role of stomata).</p> <p style="text-align: right;"><i>Leads to Year 10 Plants</i></p>	<p><i>This topic follows on from 'animals, including humans' from the Year 6 programme of study (effects of diet, exercise and drugs on the body)</i></p> <p>Building on work from Year 7 Cells and Year 8 Food, this topic introduces students to the breathing system and aerobic respiration. The concept of 'health' is introduced and students will learn about the effects of smoking, alcohol and drugs on the body (including how maternal behaviour can affect a foetus).</p> <p style="text-align: right;"><i>Leads to Year 9 Humans and Year 10 Disease</i></p>
End Points - Skills	<p>Practical skill: Risk assessment and methods Maths skill: Recording data</p>	Maths skill: Graphs	<p>Practical skill: variables, conclusion & evaluation Maths skill: line graphs</p>	<p>Practical skill: variables, conclusion & evaluation Maths skill: line graphs</p>
Key vocabulary	<p>Diet Digest Absorb</p>	<p>Codes Characteristics Process</p>	<p>Pigment Intensity Tissue</p>	<p>Addicted Withdrawal Risk factor</p>
SMSC Links	Heathy diet	Understanding the natural world and our place in it	Importance of plants for life	Effects of drugs on the body and on people's lives

Assessment	Each topic: Fact Test to focus on recall of information Each term: Exam question test on topics studied to form the basis of a predicted grade
Career Links	5 Employability skills are: Communication, Teamwork, Resilience, Creativity, Independence

Science Year 8 (Chemistry topics)

(less chemistry is studied in year 8, more studied in year 9)

Topic	Elements	Reactions
<p>End points - Knowledge</p>	<p><i>This topic follows on from 'properties and changes of materials' from the Year 5 programme of study (properties of materials)</i></p> <p>Building on work from Year 7 particles, students will learn there are different types of particle and substance (atom, molecule, element, compound). Students will begin learning about elements and how these are organised in the Periodic Table. Students will begin using the term 'property' when explaining the uses of metals, polymers, ceramics and composites. Work on the Periodic Table will focus on location of metals/ non-metals and properties of elements in groups 1,7 and 0. Students will be able to identify the most reactive element in groups 1 and 7 and state that group 0 do not react.</p> <p><i>Fundamental ideas for many chemistry topics. Directly leads to Year 9 Atoms and Year 9 Reactions</i></p>	<p><i>This topic follows on from 'properties and changes of materials' from the Year 5 programme of study (irreversible changes, burning and acid + bicarb)</i></p> <p>This topic is linked to work from Year 7 Acids and from Year 8 elements. Students will learn how to tell when a chemical change has happened (and how this differs from a physical change) and will write word equations for the reactions they study. They will learn about different types of reaction (exothermic, endothermic, combustion, thermal decomposition). They will then use their observations from metals reacting with water, oxygen and acid to build a reactivity series of metals. Students will be introduced to the idea of displacement reactions.</p> <p><i>Leads to Year 9 Reactions</i></p>
<p>End Points - Skills</p>	<p>Practical skill: Observation Maths skill: bar graphs</p>	<p>Practical skill: Observation Maths skill: reading scales</p>
<p>Key vocabulary</p>	<p>Element Property Observation</p>	<p>Reaction Product Volume</p>
<p>SMSC Links</p>	<p>Reflect on the wonder of the universe</p>	<p>Working together in investigations</p>
<p>Assessment</p>	<p>Each topic: Fact Test to focus on recall of information Each Term: Exam question test on topics studied to form the basis of a predicted grade</p>	

Career Links

5 Employability skills are: Communication, Teamwork, Resilience, Creativity, Independence

Science Year 8 (Physics topics)

Topic	Forces	Heating	Waves
<p>End points - Knowledge</p>	<p>Building on work done from Year 7 Forces, students will learn the difference between the terms 'weight', 'mass' and 'gravity' and how these are related. Students will investigate Hooke's law as an example of forces stretching an object. Students will learn the role of forces in creating pressure and enabling work to be done. Moments, as turning effects of a force and uses in levers will be considered.</p> <p style="text-align: center;"><i>Leads to Year 10 Forces</i></p>	<p>Building on work from Year 7 Particles, students will extend their understanding of matter and state changes by constructing and interpreting a heating curve for water. Building on work from Year 7 Energy, students will investigate heat transfer via conduction, convection and radiation. They will investigate the use of different materials as insulators.</p> <p style="text-align: center;"><i>Leads to Year 9 Particles and Year 9 Energy</i></p>	<p><i>This topic follows on from 'light' from the Year 6 programme of study (light travels in straight lines, how we see, shadows)</i></p> <p>Students will be introduced to the idea that waves can transfer energy and information. They will look at the difference between transverse and longitudinal waves. Students will learn how sound is produced, transmitted and heard, and will consider the auditory range of humans and other animals. Students will investigate how light is reflected and refracted and how colours are seen. The basic structure of the eye is included and students will draw on their understanding to explain how mirrors, lens and pin hole cameras work.</p> <p style="text-align: center;"><i>Leads to Year 11 waves</i></p>
<p>End Points - Skills</p>	<p>Practical skill: variables, conclusion & evaluation</p> <p>Maths skill: Line graphs</p>	<p>Practical skill: variables, conclusion & evaluation</p> <p>Maths skill: Bar charts</p>	<p>Practical skill: variables, conclusion & evaluation</p> <p>Maths skill: Measuring angles, line graphs</p>
<p>Key vocabulary</p>	<p>Stationary Matter Elastic</p>	<p>State (in terms of solid, liquid, gas) Arrangement (wrt particles) Material</p>	<p>Luminous Reflection Perpendicular</p>

SMSC Links	Working together in investigations	Role of insulation in reducing energy losses, e.g. homes	Basic understanding of how we hear and see
Assessment	Each topic: Fact Test to focus on recall of information Each term: Exam question test on topics studied to form the basis of a predicted grade		
Career Links	5 Employability skills are: Communication, Teamwork, Resilience, Creativity, Independence		

Science Year 9 (Biology topics)

Topic	Cells	Humans	Ecology
End points - Knowledge	<p>Building on work from Year 7 Cells and Year 8 Variation, students will extend their understanding of cells to unicellular organisms and organisation of genetic material.</p> <p>Microscope work will include calculating magnification. Students will be introduced to stem cells. Diffusion will be introduced as a method by which substances can enter/ leave a cell.</p> <p><i>Fundamental ideas for most biology topics. Leads directly to Year 10 Cells</i></p>	<p><i>This topic follows on from 'animals, including humans' from the Year 6 programme of study (circulatory system)</i></p> <p>Building on work from Year 8 Health and Year 8 Digestion, this topic extends understanding of human organ systems to include the circulatory system. The focus is on identifying and naming structures (parts of the breathing system, blood vessels, blood components, parts of the heart) and the function of these structures. Causes of coronary heart disease and the use of stents to treat it will be studied. Students will be introduced to anaerobic respiration and will explain changes that occur when we exercise.</p> <p><i>Leads to Year 10 Humans</i></p>	<p>Building on work from Year 7 Ecology, students will extend their understanding of interdependence to include competition and the effect of bioaccumulation on food chains. Understanding of adaptations will be developed by learning about polar bears, camels and cacti. Students will learn what decay is and its role in returning nutrients to the environment. The focus for sampling work will be the use of quadrates to estimate population size. The impacts of humans on ecosystems, both positive and negative, will be considered.</p> <p><i>Leads to Year 11 Ecology</i></p>
End Points - Skills	<p>Practical skills: RPA Microscopes Stem cells – ethical issues</p> <p>Maths skills 2.h Order of magnitude, 3.b Change the subject of the equation, 5.b Visualise 2D and 3D forms,</p>	<p>Practical skills: Dissection – risk assessment</p> <p>Maths skills: 4 Plot and interpret graph</p>	<p>Practical skills: Sampling - conclusions</p> <p>Maths skills: 2.d Sampling, 4 Plot and interpret graphs, 5.c Area and volume</p>
Key vocabulary	Adaptation Magnification Concentration	Organism Component Lumen	Ecosystem Adaptation Sample
Career Links	Biomedical scientist	Heart surgeon / nurse	Conservationist
SMSC Links	Ethical considerations of stem cell uses	Causes and treatments of heart disease	Effect of humans on the environment (positive and negative)

Assessment	Each topic: Fact Test to focus on recall of information Each term: Skills Tasks from RPAs Each term: Exam question test/ exam on topics studied to form the basis of a predicted grade
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Science Year 9 (Chemistry topics)

Topic	Atoms	Reactions	Analysis and Resources	Atmosphere	Rates of Reaction
End points - Knowledge	<p>Building on work from Year 8 Elements, students will be introduced to the structure of the atom, including the locations, charges and masses of protons, neutrons and electrons. The organisation of elements in the Periodic Table will be extended by linking element location to atomic structure. Students will describe trends in reactivity and melting/boiling point in groups 1,7 and 0. Students will begin to relate electronic structure to reactivity, by learning why elements in group 0 do not react.</p> <p><i>Fundamental ideas used in lots of chemistry topics. Leads to Year 10 Atoms</i></p>	<p>Building on work from Year 8 Reactions and Year 7 Acids and Alkalis, students will extend their understanding of chemical reactions. Students will make quantitative measurements of temperature changes during reactions. Metal reactions will be extended to include predicting and explaining metal displacement reactions. The definition of acid and alkali will be extended to reference ions* and making salts will be extended to include choice of reactants.</p> <p>*NOTE – ions will be considered fully in Year 10 Ionic bonding</p> <p><i>Leads to Year 10 Reactions.</i></p>	<p>Building on work from Year 7 Particles, students will be introduced to ‘pure’ substances and formulations. They will revisit separation techniques, extending their chromatography work by considering the mobile and stationary phases. Students will learn about different types of water, how potable water is made and how waste water is treated. Finally, students will consider the importance of recycling to support sustainable use of resources and learn how to conduct LCA.</p> <p><i>Leads to Year 11 Analysis and Resources</i></p>	<p>Building on work done in Year 7 Earth, students will learn how the composition of the atmosphere evolved, with a specific focus on changing carbon dioxide levels. Students will learn how human activities produce atmospheric pollutants and the effects of these. Causes and impacts of global climate change will be studied.</p> <p><i>Leads to Year 11 Atmosphere</i></p>	<p>This topic builds on work from Year 9 Reactions and will introduce students to the factors which affect reaction rate. They will complete practical work to investigate these factors and will describe and explain how these factors affect reaction rate.</p> <p><i>Leads to Year 11 Rates of Reaction</i></p>
End Points - Skills	<p>Maths skills: 4 Plot and interpret graphs, 5.b Visualise 2D and 3D forms</p>	<p>Practical skills: Temperature changes – Planning Making salt - Planning</p> <p>Maths skills: 4 Plot and interpret graphs, 3.c Substitute values into equation</p>	<p>Practical skills: Chromatography – planning, conclusions Potable water - Conclusions</p> <p>Maths skills: 3.c Substitute numbers in to equations</p>		<p>Practical skills: Rates of reaction – Planning, evaluation, graphs</p> <p>Maths skills: 4 Plot and interpret graphs</p>
Key vocabulary	<p>Subatomic Relative</p>	<p>Reactant</p>	<p>Boiling point Test (as in chemical test)</p>	<p>Atmosphere</p>	<p>Collision Concentration</p>

	Observation	Concentration Displacement	Soluble	Pollutant Impact	Precipitate
Career Links	Pharmacist	Hairdresser	Forensic scientist	Meteorologist	Pharmaceutical Chemist
SMSC Links	Appreciation of how scientists from around the world contribute to the Periodic Table	Working together in investigations	Understanding water use and impacts of resource use on the environment	Humans role and responsibility in changing the atmosphere	Working together in investigations
Assessment	Each topic: Fact Test to focus on recall of information Each term: Skills Tasks from RPAs Each term: Exam question test/ exam on topics studied to form the basis of a predicted grade				

Science Year 9 (Physics topics)

Topic	Particles	Energy	Electricity	Forces and motion
End points - Knowledge	<p>Building on work from Year 7 Particles and Year 8 Heating, students will use the particle model to explain the differences in density between solids, liquids and gases. Students will be introduced to the density equation and learn how to find the density of regular solids, irregular solids and liquids. They will extend their work on heating curves to other substances and to cooling curves. Students will learn what causes gas pressure, factors that affect gas pressure and why atmospheric pressure changes with height.</p> <p style="text-align: center;"><i>Leads to Year 10 Particles</i></p>	<p>Building on work done in Year 7 Energy, students will extend their understanding of electricity generation with a focus on how turbines are turned. Energy resources will be compared. Work on energy transfers will be extended to include efficiency of transfers and how energy losses can be reduced. Students will be introduced to the definition of power and will use the $E=Pt$ equation to calculate energy and power.</p> <p style="text-align: center;"><i>Leads to Year 10 Energy</i></p>	<p>Building on work done in Year 7 Electricity, students will extend their understanding of resistance by investigating how the length of a wire affects resistance in a circuit. They will extend their understanding by comparing current and potential difference in series and parallel circuits and investigating the effect of resistors in each type of circuit. Students will be introduced to AC and DC and learn how plugs are wired and their safety features</p> <p style="text-align: center;"><i>Leads to Year 11 Electricity</i></p>	<p>Building on work done in Year 7 and Year 8 Forces students will extend their understanding of the effects of forces on motion. Students will study how motion can be represented by distance-time graphs and velocity-time graphs. This will include how to calculate acceleration. Students will be introduced to the idea of 'terminal velocity'. Students will then consider factors that affect stopping distance.</p> <p style="text-align: center;"><i>Leads to Year 11 Forces and motions</i></p>
End Points - Skills	<p>Practical skills: Density – Evaluation, conclusions</p> <p>Maths skills: 3.b Change the subject of the equation, 3.c Substitute values into equations, 3.d Solve algebraic equations, 5.b Visualise 2D and 3D forms, 5.c Area and volume</p>	<p>Practical skills: Energy resources - evaluation</p> <p>Maths 1.c Use fractions and percentages, 2.h Order of magnitude, 3.b Change the subject of the equation, 3.c Substitute values into equations, 3.d Solve algebraic equations</p>	<p>Practical skills: Resistance of wire – planning, conclusions</p> <p>Maths: 1.a Use decimals, 3.b Change the subject of the equation, 3.c Substitute values into equations, 3.d Solve algebraic equations,</p>	<p>Maths: 1.a Use decimals, 3.b Change the subject of the equation, 3.c Substitute values into equations, 3.d Solve algebraic equations</p> <p style="text-align: center;">4 Plot and interpret graphs,</p>
Key vocabulary	<p>Arrangement (wrt particles)</p> <p>Volume</p> <p>Regular (wrt shapes)</p>	<p>Generate</p> <p>Renewable</p> <p>Device</p>	<p>Component</p> <p>Resistance</p> <p>Filament (as in filament lamp)</p>	<p>Velocity</p> <p>Acceleration</p> <p>Distance</p>

	Irregular (wrt shapes)			
Career Links	Builder	Electrician (solar panels, car chargers)	Electronic engineer	Car engineering
SMSC Links	Working together in investigations	Environmental impacts of electricity generation methods	Understanding safety features of plugs	Factors affecting stopping distance (road safety)
Assessment	Each topic: Fact Test to focus on recall of information Each term: Skills Tasks from RPAs Each term: Exam question test/ exam on topics studied to form the basis of a predicted grade			

Biology Year 10

Topic	Cells	Human Organ Systems	Disease	Plants
<p>End points - Knowledge</p>	<p>Building on work from Year 9 cells, students will learn why and how cells divide by mitosis. The use of stem cells will be developed to include therapeutic cloning. Microscope calculations will introduce students to micrometers and re-arrangements of the magnification equation. Students will be introduced to the concept of surface area to volume ratio, and its impact on organisms. Students will extend their understanding of how substances enter and leave cells by learning about osmosis and active transport.</p> <p><i>Fundamental ideas which will be used in lots of biology topics.</i> <i>Direct links to Year 11 Inheritance</i></p>	<p>Students will build on work from Year 8 Digestion to explain the lock and key model for enzyme action and to describe the role of digestive enzymes. The effect of pH on enzyme activity will be considered in detail, including how and why pH changes in the digestive system. Building on work from Year 9 Humans and Year 10 cells (surface area to volume ratio) students will explain how parts of the digestive system, breathing system and circulatory system are adapted for their functions. Students will extend their knowledge of heart treatments, to include replacement valves, statins and transplants. The term metabolism will be introduced and aerobic and anaerobic respiration will be compared. Students will then link key ideas together to explain changes that occur during exercise. Higher Tier students will learn the fate of lactic acid and a definition for oxygen debt.</p> <p><i>Links to Year 10 Disease</i></p>	<p>Building on work from Year 8 Health, students will learn the difference between communicable and non-communicable disease. They will learn risk factors for common non-communicable diseases and compare benign and malignant tumours. Examples of communicable diseases caused by a range of pathogens will be studied, to include symptoms, transmission and ways to reduce transmission. Body defences, including the role of white blood cells, will be studied. Students will then learn how medical interventions can prevent and treat disease, and the stages involved in testing new drugs. This topic will complement work done in Year 10 Human Organ Systems (heart conditions, role of blood in defence)</p> <p><i>Can link to all other biology topics</i></p>	<p>Building on work done in Year 8 Plants, students will extend their understanding of photosynthesis. The focus will be on how and why factors affect rate and interpreting graphs. Students will extend the pondweed investigation by investigating the effect of light intensity on algal cells in alginate beads. Understanding of plant transport will be extended to include how the xylem and phloem are adapted to their function and the role of transpiration in moving water through a plant. Understanding the role of meristem cells and specialised plant cells supports the work done in Year 10 Cells (which includes animal stem cells). Higher Tier students will explain that limiting factors interact, explain graphs of multiple factors, use the inverse square law and relate their understanding to the</p>

				economics of growing plants in greenhouses. <i>Links to Year 11 Ecology</i>
End Points - Skills	<p>Practical skills: RPA Osmosis – Planning, Graphs Stem cells – ethical issues</p> <p>Maths skills 1.b Standard form, 2.h Order of magnitude, 3.b Change the subject of the equation, 4 Plot and interpret graphs, 5.b Visualise 2D and 3D forms, 5.c Area and volume</p>	<p>Practical skills: Food tests – Conclusions Enzymes – Planning, graphs, conclusions</p> <p>Maths skills: 2.d Sampling,</p>	<p>Practical skills: Peer reviewing results</p> <p>Maths skills: 2.c Interpret charts and data</p>	<p>Practical skills: Algae balls – Evaluation Pondweed – Graphs, conclusions</p> <p>Maths skills: 4 Plot and interpret graphs</p>
Key Vocabulary	Differentiation Concentration Permeable	Organism Reagent Optimum Component	Disease Symptom Engulf Herd	Intensity Algae Limiting
Career Links	Biochemist	Dietician	Health visitor	Horticulturalist
SMSC Links	Ethical consideration of stem cell use in therapeutic cloning	Risk factors and treatments for heart disease	Risk factors for non-communicable diseases, transmission methods and strategies to reduce transmission of communicable diseases. Role of medicine in preventing and treating disease. How drugs are tested	Importance of plants for life
Assessment	<p>Each topic: Fact Test to focus on recall of information</p> <p>Each term: Skills Tasks from RPAs</p> <p>Each term: Exam question test/ exam on topics studied to form the basis of a predicted grade</p>			

Chemistry Year 10

Topic	Atoms	Reactions	Ionic & electrolysis	Covalent & metallic	Quantitative
End points - Knowledge	<p>Students will recap atomic structure and periodic table organisation work from Year 9 Atoms. Groups 1,7 and 0 will be revisited, with the focus being on explaining trends in reactivity and melting/ boiling point.</p> <p>Halogen displacement reactions will be studied and explained. Students will see that ideas change over time, by learning how our model of the atom has developed and how the Periodic table was developed. Students will be introduced to the term 'relative formula mass' and learn how to calculate it. Higher Tier students will explain the limitations of the particle theory for explaining state changes</p> <p><i>Fundamental ideas used in lots of chemistry topics. Some common content with Year 10 Radiation. Links to Year 10 Ionic & Electrolysis,</i></p>	<p>Students will recap reactions work from Year 9 Reactions and then these ideas will be extended. Reasons why mass may appear to not be conserved will be considered. Reaction profiles for exothermic and endothermic reactions will be included. The reactivity series will be extended to include hydrogen and carbon, and will be used to explain different methods for metal extraction. Students will learn how to calculate the concentration of a solution.</p> <p>NOTES: 1. electrolysis will be fully studied in Year 10 Ionic Bonding and Electrolysis topic. 2. Higher tier students</p> <p style="text-align: center;"><i>Leads to Year 11 Rates</i></p>	<p>Building on work from Year 10 Atoms, students will be introduced to the idea of atoms bonding to get full outer electron shells. They will learn why and how atoms become ions (limited to 'gain/loss of electrons' and 'to get full electron shells') and use this to explain how ionic bonds are made. Students will then describe and explain the properties of ionic compounds, with an emphasis on when they can conduct electricity. Having learnt how ionic bonds are made, students will learn how electrolysis is used to break ionic structures. This will include molten and aqueous electrolytes. Predicting the products for aqueous electrolytes will use ideas from Year 10 Reactions (reactivity series). Higher Tier students will write balanced half equations</p>	<p>Building on work from Year 10 Atoms and extending ideas from Year 10 Ionic and Electrolysis, students will learn about other types of bond. They will learn why and how atoms form covalent bonds and will describe and explain the properties of simple covalent substances. Students will learn how the bonding in giant and nano carbon structures explains their properties and uses. Metallic bonding will be used to explain properties of metals and why alloys are often more useful. The structure of polymers will be introduced.</p>	<p>This topic is only studied by students expecting to take the higher tier papers.</p> <p>When the topic is studied will depend on the progress and confidence of the groups.</p> <p>Students will learn how to calculate moles and how to use these to calculate masses of reactants/ products and balance equations. Students will explain oxidation and reduction with respect to loss/ gain of electrons and apply these ideas to metals reacting with acids and electrolysis. Students will learn the differences between 'dilute', 'concentrated', 'strong' and 'weak' with respect to acids and how the pH scale links to</p>

	<i>Year 10 Covalent, Year 10 Reactions</i>				hydrogen ion concentration. Students will learn how bond energies can be used to determine energy changes for reactions. Students will write balanced half equations and ionic equations where appropriate.
End Points - Skills	Practical skills: Scientific theories over time and getting data from graphs Maths skills: 5.b Visualise 2D and 3D forms	Practical skills: Temperature changes – Planning Making salt - Planning Maths skills: 4 Plot and interpret graphs, 3.c Substitute values into equation	Practical skills: Electrolysis – planning (hypothesis) Maths skills: 5.b Visualise 2D and 3D forms	Practical skills: Maths skills: 5.b Visualise 2D and 3D forms	Maths skills: 3.b Change the subject of the equation, 3.c Substitute values into equations, 3.d Solve algebraic equations,
Key vocabulary	Subatomic Relative Trend	Series Displacement Extract	Ion Property Molten Aqueous	Structure Property (again) Giant	Mole Limiting Dissociation
Career Links	Science journalist	Lab technician	Geologist	Jet engineer	Analytical chemist
SMSC Links	How scientific ideas change over time (development of atomic model and periodic table)	Working together in investigations	Use of electrolysis to extract metals	Reflect on how bonding creates vastly different structures	
Assessment	Each topic: Fact Test to focus on recall of information Each term: Skills Tasks from RPAs Each term: Exam question test/ exam on topics studied to form the basis of a predicted grade				

Physics Year 10

Topic	Particles	Forces	Energy	Radiation
End points - Knowledge	<p>Building on work done in Year 10 Particles, students will recap the particle model, changes of state, gas pressure, heating and cooling curves and density. They will extend their understanding of heating by learning the differences between specific heat capacity and specific latent heat. They will use equations for these quantities, including equation re-arrangements. Students will learn how find the specific heat capacity of material.</p>	<p>Building on work done in Year 8 Forces, students will describe contact and non-contact forces. They will use Newton's laws to explain how forces act in pairs, effect objects and calculate force/ acceleration/ mass. Calculations using equations, for example weight and work done, will include changing units and equation re-arrangements. The effect of forces on springs will be extended to include: compression, what happens at the limit of proportionality and the use of equations $F=ke$ and elastic potential energy in a spring. Higher Tier students will use free body diagrams to describe examples where several forces lead to a resultant force and use vector diagrams to resolve forces, determine the resultant force's magnitude and direction. They will be introduced to the term 'inertia' and explain what 'inertial mass' is.</p> <p style="text-align: center;"><i>Links to Year 11 Forces</i></p>	<p>Building on work done in Year 9, students will recap work done on energy resources, efficiency and power. Understanding of gravitational potential energy, kinetic energy and elastic potential energy will be extended through consideration of the equations used calculate them. Calculations using equations will include changing units and equation re-arrangements. Higher Tier students will describe ways to increase the efficiency of energy transfers</p>	<p>This builds on work done in Year 10 Atoms, with atomic structure and development of the atomic model as common content. Following a recap of this, students will learn that nuclear radiation is emitted by unstable nuclei. They will learn names, 'structures' and properties of alpha, beta, gamma and neutron radiation. Nuclear decay equations will be used to show how alpha and beta radiation change the nucleus. The concept of half life will be introduced, and students will interpret half life graphs. The difference between irradiation and contamination will be explained. Higher Tier students will calculate net decline in radioactive emission.</p>
End Points - Skills	Practical skills: Specific heat capacity - Graphs	Practical skills: Hooke's law – Planning, graphs	Practical skills:	

	Maths skills: 3.b Change the subject of the equation, 3.c Substitute values into equations, 3.d Solve algebraic equations, 5.b Visualise 2D and 3D forms, 5.c Area and volume	Maths: 1.a Use decimals, 2.h Order of magnitude, 3.b Change the subject of the equation, 3.c Substitute values into equations, 3.d Solve algebraic equations, 4 Plot and interpret graphs	Maths 1.c Use fractions and percentages, 2.h Order of magnitude, 3.b Change the subject of the equation, 3.c Substitute values into equations, 3.d Solve algebraic equations	Maths skills: 4 Plot and interpret graphs
Key vocabulary	Arrangement (wrt particles) Volume Regular (wrt shapes) Irregular (wrt shapes)	Magnitude Exert Deformed	Generate Replenish Potential	Development Sample Emit Detector
Career Links	Materials scientist	Engineer	Nuclear scientist	Radiographer
SMSC Links	Working together in investigations	Working together in investigations	Environmental impacts of electricity generation methods	Safety with respect to radiation
Assessment	Each topic: Fact Test to focus on recall of information Each term: Skills Tasks from RPAs Each term: Exam question test/ exam on topics studied to form the basis of a predicted grade			

Biology Year 11

Topic	Nerves and hormones	Inheritance	Evolution	Ecology
End points - Knowledge	<p>This topic extends students' understanding of the human body by introducing them to the nervous and endocrine systems. Work on the nervous system will focus on why reflex actions are important and how they happen. Students are introduced to the term homeostasis and will learn how blood glucose levels are controlled. Students will learn how hormones control the menstrual cycle and how hormonal and non-hormonal methods can be used to control fertility. Higher Tier students will learn the role of negative feedback, the roles of glucagon, adrenaline and thyroxine, how menstrual hormones interact with each other (including interpreting graphs) and how menstrual hormones can treat fertility.</p>	<p>This topic builds on work from Year 10 Cells, Year 7 Reproduction and Year 8 Variation. Students will learn how genetic material is organised and how this is passed on through asexual and sexual reproduction. Students will extend their understanding of cell division to include meiosis. Inheritance of the sex chromosomes and single genes will be studied, with a focus on genetically inherited conditions. Students will discuss the ethics of embryo screening. Higher Tier students will construct Punnett squares and use these to make predictions</p>	<p>This topic builds on work from Year 8 Variation, and draws on ideas from Year 11 Inheritance (link between alleles and phenotypes and inheritance of alleles) and Year 10 Disease (use of antibiotics to kill bacteria). Students will extend their understanding of classification by learning the taxa within a kingdom, why the domain model was developed and by comparing kingdom and domain classification. Students will learn how to interpret evolutionary trees and how variation leads to evolution via natural selection. Evidence for evolution will be extended to include selective breeding and antibiotic resistance bacteria. Genetic engineering, will be introduced, and students will consider the ethical issues surrounding this. Higher Tier students will learn the main steps in genetic engineering, including the role of vectors and when genes are introduced to transferred.</p>	<p>This topic builds on work from Year 9 Ecology and draws together ideas from Year 10 Humans (respiration), Year 10 Plants (photosynthesis) and Year 11 Evolution (adaptation) to help students understand ecosystems. The idea of interdependence will be extended to include abiotic / biotic factors and the carbon and water cycles. The focus for sampling will be on using transect lines to investigate distribution of organisms across an area.</p>
End Points - Skills	<p>Practical skills: Reaction time – planning, evaluation, conclusions</p>		<p>Practical skills: Genetic engineering – ethical issues</p>	<p>Practical skills: Sampling - conclusions</p>

	Contraception – ethical issues Maths 2.b: Finding means	Maths 1.c Use fractions and percentages Maths skills: 2.e Understand probability	Maths skills: 2.h Order of magnitude	Maths skills: 2.d Sampling, 4 Plot and interpret graphs, 5.c Area and volume
Key vocabulary	Homeostasis Stimulus Secrete Menstruation	Reproduction Inherit Probability	Classification Variation Resistance Yield	Ecosystem Process Sample Transect
Career Links	Midwife	Genetic counsellor	Dog breeder	Zoologist
SMSC Links	Risk factors and treatment of diabetes. Methods of contraception (Higher tier only – fertility treatments)	Ethical considerations of embryo screening	Ethical consideration of selective breeding and genetic engineering. Understanding need to stick to rules regarding antibiotic use	Human impacts on ecosystems (negative and positive)
Assessment	<p>Each topic: Fact Test to focus on recall of information</p> <p>Each term: Skills Tasks from RPAs</p> <p>Autumn term: 3 mock exams (biology, chemistry, physics). Questions will be from Year 10 topic that was not in the Year 10 June exam (plants, covalent & metallic, radiation) and first topic done in Year 11 (nerves, rates, electricity)</p> <p>Spring term: 3 mock exams (biology, chemistry, physics). These will be full paper 1 exams.</p>			

Chemistry Year 11

Topic	Rates of reaction	Organic chemistry	Atmosphere	Resources
End points - Knowledge	<p>This topic builds on work from Year 9 Rates of Reaction. Students will learn how and why reaction rate changes over the course of a reaction. They will learn how different factors can affect the rate of reactions and use collision theory to explain why. Students will investigate the effect of concentration on the rate of two types of reaction (one producing a precipitate and one producing a gas). Their understanding of types of reaction will be extended to include reversible reactions. Higher tier students will learn how to calculate the gradient of a tangent to measure rate at a specific point in time. They will also learn how to use Le-Chatelier's principle to predict and explain how changes in temperature, pressure and concentration will affect reversible reactions.</p>	<p>This topic draws on ideas from Year 9 Analysis and Resources (distillation) and Year 10 Covalent bonding to help students understand the composition of crude oil and how we can separate it for use. Students will learn about the structures and properties of alkanes and the products formed by their combustion. Students' understanding of distillation will be extended by learning how fractional distillation works. The reasons and methods for cracking will be considered, along with the structure of alkenes and how these differ from alkanes.</p>	<p>Building on work done in Year 9 Atmosphere, students will revisit how the composition of the atmosphere evolved, with a specific focus on changing carbon dioxide levels. Students will learn how human activities produce atmospheric pollutants and the effects of these. Causes and impacts of global climate change will be studied.</p> <p><i>NOTE: The Atmosphere topic will be taught in Year 9 for the first time in 2024-5, so students who were in Year 9 prior to this will not have done the atmosphere work in year 9. They will, however, have studied the atmosphere when they were in Year 8 (this topic is now not in Year 8, as it has been moved into Year 9)</i></p>	<p>Building on work from Year 7 Particles, students will be introduced to 'pure' substances and formulations. They will revisit separation techniques, extending their chromatography work by considering the mobile and stationary phases and calculation of R_f values. Students will learn about different types of water, how potable water is made and how waste water is treated. Finally, students will consider the importance of recycling to support sustainable use of resources and learn how to conduct LCA. Higher Tier students will study alternative methods of extracting metals, including phytomining and bioleaching.</p> <p><i>NOTE: The Resource topic was taught in Year 9 for the first time in 2023-4, so students who were in Year 9</i></p>

				<i>prior to this will not have done the resources work in year 9.</i>
End Points - Skills	<p>Practical skills: Rates of reaction – Planning, evaluation, graphs</p> <p>Maths skills: 4 Plot and interpret graphs, 4.e Tangent to a curve</p>	Maths skills: Visualise 2D and 3D forms	<p>Practical skill: Peer reviewing results & communicating</p> <p>Maths skills: 4 Plot and interpret graphs</p>	<p>Practical skills: Chromatography – planning, conclusions Potable water - Conclusions</p> <p>Maths skills: 3.c Substitute numbers in to equations</p>
Key vocabulary	<p>Rate</p> <p>Concentration</p> <p>Volume</p> <p>Reversible</p>	<p>Saturated</p> <p>Property</p> <p>Colourless</p>	<p>Atmosphere</p> <p>Toxic</p> <p>Emissions</p>	<p>Pure</p> <p>Potable</p> <p>Resource</p>
Career Links (Employability Skills, Career Opportunities)	Pharmaceutical Chemist	Oil trader	Meteorologist	Toxicologist
SMSC Links	Working together in investigations	Understanding use of crude oil	Human impacts on Earth's atmosphere and climate	Understanding water use and impacts of resource use on the environment
Assessment	<p>Each topic: Fact Test to focus on recall of information</p> <p>Each term: Skills Tasks from RPAs</p> <p>Autumn term: 3 mock exams (biology, chemistry, physics). Questions will be from Year 10 topic that was not in the Year 10 June exam (plants, covalent & metallic, radiation) and first topic done in Year 11 (nerves, rates, electricity)</p> <p>Spring term: 3 mock exams (biology, chemistry, physics). These will be full paper 1 exams.</p>			

Physics Year 11

Topic	Electricity	Forces and motion	Waves	Magnets
End points - Knowledge	<p>This topic builds on Year 9 Electricity and introduces the term electrical charge. Students will extend their understanding of electrical components to include different types of resistor (variable, thermistor, LDR) and diodes. Work on series and parallel circuits will be extended as students use data to predict and explain values for current and potential differences in circuits. The relationship between potential difference and current will be practically investigated to construct I-V graphs. Students will select and equations linking energy transfer and power to electrical quantities. Linking with work done in Year 10 Energy, students will use their understanding of the relationship between current and potential difference to explain the use of transformers in the National Grid.</p>	<p>This topic builds on Year 9 Forces and Motion. Students will use distance-time graphs and velocity-time graphs to describe and compare the motion of objects. They will be extend their understanding of terminal velocity by describing and explaining the changes in motion of a person during a parachute jump. Students will investigate factors that affect acceleration of a trolley on a ramp. Students will draw together ideas about forces and motion to describe and explain factors that affect stopping distance. Higher Tier students will explain how motion in a circle involves constant speed and changing velocity. They will extend the work on motion graphs by using tangents to work out the speed for an accelerating object on a distance time graph and by calculating the area under a velocity time graph to work out distance travelled. They will learn how to estimate the forces involved in deceleration of road vehicles. Higher Tier students will define momentum and conservation of momentum and use this to describe and explain momentum in an event.</p>	<p>This builds on Year 8 Waves and Year 8 Heating. Students will recap the differences between transverse and longitudinal waves and use equations to calculate wave speed and frequency and will revisit refraction of waves. Understanding of waves will be developed through observations of waves in a ripple tank and considering waves in a string. Knowledge about transverse waves will be extended to include waves in the electromagnetic spectrum and their uses. Students will investigate how surface colour and finish affects heat loss through radiation. Higher Tier students will study the properties of EM waves in more detail, including refraction diagrams, how radio waves are generated and why use type of EM wave is suitable for its uses.</p>	<p>This topic builds on Year 7 Electricity. Students will describe the interactions of magnetic poles and plot the magnetic field around a bar magnet, including the direction of field lines. They will learn the difference between permanent and induced magnets. The direction of field lines around a coil carrying current and a solenoid will be described and students will learn how electromagnets are made. Higher Tier students will learn and use Fleming's Left Hand Rule and explain the motor effect.</p>

End Points - Skills	<p>Practical skills: Resistance of resistors in series and parallel – planning, conclusions I-V graphs - graphs</p> <p>Maths: 1.a Use decimals, 3.b Change the subject of the equation, 3.c Substitute values into equations, 3.d Solve algebraic equations, 4 Plot and interpret graphs</p>	<p>Practical skills: Acceleration – Planning, evaluation</p> <p>Maths: 1.a Use decimals, 3.b Change the subject of the equation, 3.c Substitute values into equations, 3.d Solve algebraic equations, 4 Plot and interpret graphs, 4.f Area under a curve, 5.c Area and volume</p>	<p>Practical skills: Radiation – planning, evaluation, graphs, conclusions Measuring waves – selecting equipment</p> <p>Maths skills 1.b Standard form, 2.h Order of magnitude, 3.b Change the subject of the equation, 3.c Substitute values into equations, 3.d Solve algebraic equations, 5. a Angular measurements</p>	<p>Practical skills: Making an electromagnet - planning</p> <p>Maths skills: Visualise 2D and 3D forms</p>
Key vocabulary	Component Resistance Adjust	Accelerate Decelerate Terminal	Frequency Spectrum Ripple	Pole Permanent Core (wrt electromagnets)
Career Links	Robotics engineer	Pilot	Telecommunications technician / X-ray technician	Transport engineer
SMSC Links	Safety features of electric plugs	Safety when driving with respect to factors affecting driver reaction time and breaking distance	Role of EM waves in communication. Risks of high energy EM waves	Working together in investigations
Assessment	<p>Each topic: Fact Test to focus on recall of information</p> <p>Each term: Skills Tasks from RPAs</p> <p>Autumn term: 3 mock exams (biology, chemistry, physics). Questions will be from Year 10 topic that was not in the Year 10 June exam (plants, covalent & metallic, radiation) and first topic done in Year 11 (nerves, rates, electricity)</p> <p>Spring term: 3 mock exams (biology, chemistry, physics). These will be full paper 1 exams.</p>			

