

Terms	1 & 2				3 & 4			5 & 6		
Year 7	Transition	Cells & Systems	Matter, Atoms & Elements	Forces	Plants & Photosynthesis	Pure & Impure Substances	Electricity & Magnetism	Reproduction	Acids & Alkalis	Energy Stores & Pathways
Key learning	Students learn about health and safety in the Science laboratory and learn to use a variety of Science equipment including a Bunsen burner	Students learn about the structure of plant and animal cells. They learn to prepare slides and use a microscope. They also learn about muscles and the skeleton.	Students learn why solids, liquids and gases behave as they do. They learn to define atoms, elements, compounds and mixtures and are introduced to the Periodic table	Students learn how to represent forces and calculate resultant forces. They learn about moments and pressure. Students investigate how a spring stretches.	Students learn about photosynthesis and how leaves are adapted to their function. They learn about food chains, food webs and interdependence.	Students learn about separation techniques including filtration, evaporation, distillation and chromatography. They also learn about diffusion and dissolving	Students learn how to draw circuit diagrams and measure current and voltage. They learn to define and calculate resistance. They learn about static electricity and electromagnets	Students learn about reproduction in humans including the structure and function of the reproductive organs, fertilisation, gestation and birth.	Students learn about acids and alkalis and how to identify their pH using a range of indicators. They learn about neutralisation and making salts	Students learn about different energy stores. They learn about heat energy transfers through conduction, convection and radiation.
Assessment		Creating a Model Cell	Investigating Ice Cubes practical	Hooke’s Law recording results and drawing a graph	Predator Prey graphs	Describing methods for Separating techniques	Electricity & Magnetism end of topic test	Reproduction end of topic test	pHantastic Paper letter for making red cabbage indicator	Insulation investigation
Homework	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments
Terms	1 & 2			3 & 4			5 & 6			
Year 8	Nutrition & Digestion	Speed & Motion	Earth & Atmosphere	The Periodic Table	Waves, Light & Sound	Gas exchange & Respiration	Chemical Reactions	Inheritance, Chromosomes & Genes	Space Physics	
Key learning	Students will learn about the key nutrients required to maintain a healthy human diet along with the consequences of imbalances in the diet, how tissues and organs are adapted for their function within the digestive system and the importance of bacteria and enzymes in the human digestive system. They will also carry out food tests and how to determine the energy content in food	Students will learn about the quantitative relationship between average speed, distance and time. Students will be able to use the equation speed = distance ÷ time and represent a journey on a distance-time graph. Students will investigate and be able to explain the forces being needed to cause objects to stop or start moving, or to change their speed or direction of motion, in qualitative terms	Students will learn about the structure of the Earth and the differences between rock types, along with how they were formed. Students will be able to recall the key properties of different rock types and explain the events involved in the rock cycle. They will also learn about the differences between polymers, composites and ceramics-going on to why we use certain materials for certain tasks/applications	Students will learn about the history and development of the Periodic Table, including the arrangement of elements and their properties. Students will revisit atoms and elements and be introduced to the structure of the atom, including sub atomic particles. They will investigate the reactions of metals and the reactivity of metals along with how metals can be extracted	Students will learn about the properties of both sound and light waves and be able to use diagrams to represent the transmission of light through different objects and explain colour and the function of the eye. Students will investigate the speed of sound	Students will learn about the processes of breathing and respiration and how breathing rate is altered with exercise. Students will learn how the structures involved with these key processes are adapted for their function and how the rate of diffusion can be altered.	Students will learn to use word and symbol equations to represent reactions. Students will be able to explain how atoms are rearranged during chemical reactions. The will study combustion, oxidation and thermal decomposition reactions along with the reactions of metals and metal oxides and endothermic and exothermic reactions and how catalysts alter chemical reactions	Students will learn the structure of DNA and how characteristics are inherited. They will study human evolution and the classification system along with completion within and between the species. Students will learn about the reasons behind extinction and why conservation is important	Students will learn the structure of the solar system, how the universe was created and why we have day and night and seasons. Students will study eclipses and the phases on the moon and learn about the importance of scientific developments in relation to our understanding of the scale of the universe and is their life on other planets	
Assessment	Extended writing task on the stages, adaptations and process of digestion.	Car velocity investigation	Earth and Atmosphere assessment	The Periodic Table end of topic test	Speed of sound investigation	Extended writing task the journey of oxygen molecule	Chemical reactions end of topic test	Inheritance, Chromosomes & Genes end of topic test	Multiple choice assessment	
Homework	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments	Learning of key facts and key words. Preparation for assessments
Terms	1 & 2			3 & 4				5 & 6		
Year 9	Adaptation, interdependence and Competition	Atomic Structure	Molecules and Matter	Cell Biology	The Periodic Table	Energy Transfer by Heating	Cell Division	Organisation and the Digestive System	Structure and Bonding	Energy Resources
Key learning	Students will learn about the importance of communities and factors that affect communities. They will be able to measure the distribution	Students will learn about the history of the atom, evidence that supports the current model of the atom. They will learn the sub atomic particles	Students will learn about the properties of the states of matter and what is meant by melting and boiling point. They will learn	Students will learn the similarities & differences between prokaryotic & eukaryotic cells along with specialisation in	Students will learn about the history and development of the periodic table. They will be able to link electronic structures	Students will learn how energy is transferred and infrared radiation. They will learn how to reduce the rate of	Students will learn the role of chromosomes in cells, the importance of the cell cycle and how cells divide via	Students will be learn how cells are organised into tissues and tissues form organs. They will learn the structures	Students will be able to explain how atoms form ions and that melting and boiling point is dependant of the nature of particles	Students will learn about how energy demands are met and the fuels used to generate electricity. They will learn about

## SCIENCE IMPLEMENTATION PLAN

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## Key Stage 4 Biology - Separate Science

Terms	1 & 2		3 & 4		5 & 6	
Yr10 Units	B4 Organising Animals & Plants B5 Communicable Diseases	B6 Preventing & Treating Disease B7 Non-Communicable Diseases	B8 Photosynthesis B9 Respiration	B10 The Human Nervous System	B11 Hormonal Coordination	B12 Homeostasis in action
<b>Key learning</b>	Students will learn about the components of blood, how it flows around the body and the structure and function of the heart and human gas exchange system. They will be able to describe organ systems in a plant and how substances are transported in plants. Students will learn about the process of transpiration and the role of stomata and guard cells  Students will also learn about what health is and how pathogens are spread. They will be able to explain how bacteria multiply and how infection can be prevented. Students will be able to name examples of bacterial, viral, fungal disease and those caused by protists. Students will be able to explain the human and plant defence response	Students will learn how the immune system works and how the process of vaccination prevents disease. They will be able to explain the use of antibiotics and painkillers and the stages involved in developing new drugs. Students will learn how monoclonal antibodies are produced and be able to explain how they are used, including evaluating their advantages and disadvantages.  Students will learn about non communicable diseases and lifestyle factors, they will learn the difference between a benign and malignant tumour and how cancer spreads. They will learn about risk factors for disease and the treatments for cancer	Students will learn about the factors that affect the rate of photosynthesis and how to represent this process using equations. They will be able to explain how plants use glucose and how humans can both measure and manipulate the rate of photosynthesis.  Students will learn about the biochemistry of the process or aerobic and anaerobic respiration and why these processes are so important. They will be able to explain how the body responds to additional demands for energy and what metabolism is, including the role of the liver in this process	Students will learn why it is important to control the internal environment and the key elements of control systems. Students will be able state the structure of the nervous system and explain why it is needed. Students will be able to explain how reflexes work and why these are important to the body. Students will also be able to state the structure of the brain and how scientists are able to map the brain along with how the structure of the eye is related to its function and the problems associated with the eye	Students will learn the organs of the endocrine system and the role of the pituitary gland. Students will be able to name key hormones and how they affect the human body. Students will be able to explain how blood glucose level is controlled and the importance of negative feedback loops. Students will learn about the changes that occur at puberty, the control of the menstrual cycle and fertility treatments. Students will also learn about the plant hormones and responses and how plant hormones can be used commercially	Students will learn about how the body maintains eternal conditions, including temperature and water levels. Students will be able to describe how waste products are removed from the body and the function of the kidney. Students will be able to describe the use of dialysis and kidney transplants along with the advantages and disadvantages of these treatments
<b>Assessment</b>	B4 end of unit assessment Microbiology practical	Combined B6 and B7 end of unit assessment	Photosynthesis graphing task and B9 end of unit assessment	B10 The Human Nervous system end of unit assessment	B11 Hormonal Coordination assessment	Extended writing task on homeostasis
<b>Homework</b>	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments
Yr11 Units	B13 Reproduction	B14 Variation & Evolution	B15 Genetics & Evolution	B17 Organising an Ecosystem B18 Biodiversity & Ecosystems		
<b>Key learning</b>	Students will learn the differences between sexual and asexual reproduction and be able to describe the process of mitosis. Students will be able to state how fungi, plants and malaria parasites reproduce. Students will learn about DNA, its structure and how DNA controls protein synthesis. Students will learn about gene mutations, how inheritance works and how to represent genetic crosses. They will also learn about inherited disorders and how these are screened for	Students will learn about the factors that make individuals different from one another and the process of natural selection and evolution. They will learn about the processes of selective breeding and genetic engineering along with cloning. They will be able to discuss the ethical considerations associated with genetic technologies and the advantages and disadvantages of these techniques	Students will learn about the history of genetics and the theories of evolution. They will be able to discuss why ideas and theories were accepted or rejected and the evidence used to support the theory of evolution. Students will be able to describe fossil records and extinction along with antibiotic resistance. Students will also learn about the principles of the classification system and how these systems have changed with technological developments	Students will learn about feeding relationships and how materials are cycled within the community. They will learn about the water and carbon cycles along with the factor that affect the rate of decomposition. Students will learn about biodiversity and the effects of growth on the human population. They will be able to discuss the impact of human activity on the earth and how pollutants form. They will be able to state the causes and effects of global warming and impact of deforestation and destroying peat bogs. Students will be able to evaluate the effects of environmental change on the distribution of organisms and why it is important to maintain biodiversity. Students will be able to explain the transfer of biomass and create pyramids of biomass. Students will also learn about food security and making food production more sustainable		
<b>Assessment</b>	B13 Reproduction end of unit assessment	B14 Variation & Evolution end of unit assessment	B15 Genetics & Evolution end of unit assessment	B17 Organising an Ecosystem multiple choice questions B18 Biodiversity & Ecosystems end of unit assessment		

Homework	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments
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## Key Stage 4 Biology - Combined Science

Terms	1 & 2		3 & 4		5 & 6	
Yr10 Units	B4 Organising Animals & Plants	B5 Communicable Diseases	B6 Preventing & Treating Disease B7 Non-Communicable Diseases	B8 Photosynthesis	B9 Respiration B10 The Human Nervous System	B11 Hormonal Coordination
<b>Key learning</b>	Students will learn about the components of blood, how it flows around the body and the structure and function of the heart and human gas exchange system. They will be able to describe organ systems in a plant and how substances are transported in plants. Students will learn about the process of transpiration and the role of stomata and guard cells	Students will also learn about what health is and how pathogens are spread. They will be able to explain how bacteria multiply and how infection can be prevented. Students will be able to name examples of bacterial, viral, fungal disease and those caused by protists. Students will be able to explain the human defence response	Students will learn how the immune system works and how the process of vaccination prevents disease. They will be able to explain the use of antibiotics and painkillers and the stages involved in developing new drugs.  Students will learn about non communicable diseases and lifestyle factors, they will learn the difference between a benign and malignant tumour and how cancer spreads. They will learn about risk factors for disease and the treatments for cancer	Students will learn about the factors that affect the rate of photosynthesis and how to represent this process using equations. They will be able to explain how plants use glucose and how humans can both measure and manipulate the rate of photosynthesis	Students will learn about the biochemistry of the process or aerobic and anaerobic respiration and why these processes are so important. They will be able to explain how the body responds to additional demands for energy and what metabolism is, including the role of the liver in this process  Students will learn why it is important to control the internal environment and the key elements of control systems. Students will be able state the structure of the nervous system and explain why it is needed. Students will be able to explain how reflexes work and why these are important to the body	Students will learn the organs of the endocrine system and the role of the pituitary gland. Students will be able to name key hormones and how they affect the human body. Students will be able to explain how blood glucose level is controlled and the importance of negative feedback loops. Students will learn about the changes that occur at puberty, the control of the menstrual cycle and fertility treatments
<b>Assessment</b>	B4 end of unit assessment	Extended writing task on preventing infections	Combined B6 and B7 end of unit assessment	Photosynthesis graphing task	B10 The Human Nervous system end of unit assessment	B11 Hormonal Coordination assessment
<b>Homework</b>	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments
Yr11 Units	B12 Reproduction	B13 Variation & Evolution	B14 Genetics & Evolution	B16 Organising an Ecosystem B17 Biodiversity & Ecosystems		
<b>Key learning</b>	Students will learn the differences between sexual and asexual reproduction and be able to describe the process of mitosis. Students will learn about DNA and how inheritance works. Students will be able to use diagrams to represent genetic crosses. They will also learn about inherited disorders and how these are screened for	Students will learn about the factors that make individuals different from one another and the process of natural selection and evolution. They will learn about the processes of selective breeding and genetic engineering. They will be able to discuss the ethical considerations associated with genetic technologies and the advantages and disadvantages of these techniques	Students will be able to describe evidence for evolution and fossil records along with extinction and antibiotic resistance. Students will also learn about the principles of the classification system and how these systems have changed with technological developments	Students will learn how materials are cycled within the community. They will learn about the water and carbon cycles. Students will learn about biodiversity and the effects of growth on the human population. They will be able to discuss the impact of human activity on the earth and how pollutants form. They will be able to state the causes and effects of global warming and impact of deforestation and destroying peat bogs. Students will be able to explain why it is important to maintain biodiversity.		
<b>Assessment</b>	B12 Reproduction end of unit assessment	B13 Variation & Evolution end of unit assessment	B14 Genetics & Evolution end of unit assessment	B16 Organising an Ecosystem multiple choice questions B17 Biodiversity & Ecosystems end of unit assessment		
<b>Homework</b>	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments		

## Key Stage 4 Chemistry - Separate Science

Terms	1 & 2		3 & 4		5 & 6	
Yr10 Units	C4 Chemical Calculations	C5 Chemical Changes C6 Electrolysis	C7 Energy Changes	C8 Rates & Equilibrium	C9 Crude Oil & Fuels	C10 Organic Reactions C11 Polymers
<b>Key learning</b>	Students will learn what relative atomic mass is and how it is calculated. They will be able to calculate the formula mass of a compound, number of moles and mass in grams of a substance. Students will be able to balance equations, use equations to calculate the masses of reactants and products and balance equations using masses. Students will also be able to calculate chemical yield and atom economy. They will be able to express concentration, carry out a titration and complete associated calculations. Students will learn how to calculate the volume of gases	Students will learn about the reactivity series and to explain displacement reactions using ionic equations. They will learn about oxidation and reduction and the extraction of metals. They will learn about how salts are made and neutralisation reactions. Students will be able to use the pH scale and explain how pH is determined.  Students will be able to explain what happens in electrolysis and predict the products of electrolysis, using equations to represent these reactions. They will be able to explain why electrolysis is used and use half equations	Students will learn energy cannot be created or destroyed in a chemical reaction and how to distinguish between endothermic and exothermic reactions. They will be able to describe the uses of energy from endothermic and exothermic reactions and create and interpret reaction profiles. They will be able to define activation energy and complete bond energy calculations. Students will learn about chemical cells, batteries and fuel cells and be able to write half equations for the electrodes in fuel cells	Students will learn what is meant by the rate of reaction and how it is measured. They will be able to calculate the mean rate of reaction and use different methods to collect data on the rate of reaction. Students will be able to describe the factors that affect the rate of reaction, using collision theory. Students will learn about reversible reactions and dynamic equilibrium and how changing conditions affects reversible reactions.	Students will learn about what crude oil is made up of and how it is separated into fractions. They will be able to represent alkanes using chemical and display formulae and how chain length affects the properties of hydrocarbons. Students will learn about combustion reactions and how to test for the products of combustion. They will be able to describe the process of cracking and how alkanes differ from alkenes	Students will learn about the alkenes, alcohols, carboxylic and esters and how to represent these structures using displayed structural formulae. The students will learn about combustion and addition reactions of alkenes and the reactions and uses of alcohols.  Students will learn how to recognise and represent polymers. Students will learn the principles of condensation polymerisation and how polyesters are formed. They will also be able to describe natural polymers and the structure on DNA
<b>Assessment</b>	C4 Chemical Calculations practice questions	Writing a method to explain how to prepare a pure dry sample of a hydrated salt C5 Chemical Changes & C6 Electrolysis end of unit assessment	C7 Energy changes end of unit assessment	Rates of reaction practical  Multiple choice questions	C9 Crude oil and Fuels end of unit assessment	C10 Organic Reactions and C11 Polymers combined end of unit assessment
<b>Homework</b>	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments
Yr11 Units	C12 Chemical Analysis	C13 The Earth's Atmosphere	C14 The Earth's Resources	C15 Using our Resources		
<b>Key learning</b>	Students will learn what pure and impure substance are and how melting point data and chromatography can be used to distinguish these substances from one another. They will learn what a formulation is and how to determine R <sub>f</sub> values. They will be able to describe the positive test for gases and both positive and negative ions. Students will learn about how to interpret results from instrumental analysis	Students will learn how the theory of our atmosphere developed and the evidence used to support these theories. They will learn the key changes that have occurred in the atmosphere over time. Students will be able to describe global warming, the greenhouse effect and the impact of environmental pollutants	Students will be able to distinguish between finite and renewable resources and explain the process of water treatment. They will also learn how metals are extracted from their ores and how to carry out life cycle assessments. Students will be able to explain the importance of reusing and recycling materials	Students will learn about rusting and useful alloys along with the properties of polymers, glass, ceramics and composites. They will learn about the Haber process and how fertilisers can be made, both in the lab and on an industrial scale		
<b>Assessment</b>	Identifying an unknown substance	Multiple choice questions on C12 Chemical Analysis and C12 The Earth's Atmosphere	C13 The Earth's Atmosphere and C14 The Earth's Resources combined end of unit assessment	C15 Using our Resources end of unit assessment		
<b>Homework</b>	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments		



Key Stage 4 Chemistry - Combined Science

Terms	1 & 2		3 & 4		5 & 6	
Yr10 Units	C4 Chemical Calculations	C5 Chemical Changes	C5 Chemical Changes	C6 Electrolysis	C7 Energy Changes	C8 Rates & Equilibrium
Key learning	Students will learn what relative atomic mass is and how it is calculated. They will be able to calculate the formula mass of a compound, number of moles and mass in grams of a substance. Students will be able to balance equations, use equations to calculate the masses of reactants and products and balance equations using masses. They will also learn how to express concentration	Students will learn about the reactivity series and to explain displacement reactions using ionic equations. They will learn about oxidation and reduction and the extraction of metals.	They will learn about how salts are made and neutralisation reactions. Students will be able to use the pH scale and explain how pH is determined	Students will be able to explain what happens in electrolysis and predict the products of electrolysis, using equations to represent these reactions. They will be able to explain why electrolysis is used and use half equations	Students will learn energy cannot be created or destroyed in a chemical reaction and how to distinguish between endothermic and exothermic reactions. They will be able to describe the uses of energy from endothermic and exothermic reactions and create and interpret reaction profiles. They will be able to define activation energy and complete bond energy calculations	Students will learn what is meant by the rate of reaction and how it is measured. They will be able to calculate the mean rate of reaction and use different methods to collect data on the rate of reaction. Students will be able to describe the factors that affect the rate of reaction, using collision theory. Students will learn about reversible reactions and dynamic equilibrium and how changing conditions affects reversible reactions
Assessment	C4 Chemical Calculations practice questions	Writing a method to explain how to prepare a pure dry sample of a hydrated salt	C5 Chemical Changes & C6 Electrolysis end of unit assessment		C7 Energy changes end of unit assessment	Rates of reaction practical  Multiple choice questions
Homework	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments
Terms	1 & 2		3 & 4			
Yr11 Units	C9 Crude Oil & Fuels	C10 Chemical Analysis	C11 The Earth’s Atmosphere	C12 The Earth’s Resources		
Key learning	Students will learn about what crude oil is made up of and how it is separated into fractions. They will be able to represent alkanes using chemical and display formulae and how chain length affects the properties of hydrocarbons. Students will learn about combustion reactions and how to test for the products of combustion. They will be able to describe the process of cracking and how alkanes differ from alkenes	Students will learn what pure and impure substance are and how melting point data and chromatography can be used to distinguish these substances from one another. They will learn what a formulation is and how to determine R <sub>f</sub> values. They will be able to describe the positive test for gases	Students will learn how the theory of our atmosphere developed and the evidence used to support these theories. They will learn the key changes that have occurred in the atmosphere over time. Students will be able to describe global warming, the greenhouse effect and the impact of environmental pollutants	Students will be able to distinguish between finite and renewable resources and explain the process of water treatment. They will also learn how metals are extracted from their ores and how to carry out life cycle assessments. Students will be able to explain the importance of reusing and recycling materials		
Assessment	C9 Crude oil and Fuels end of unit assessment	C10 Chemical Analysis multiple choice questions	Extended writing task	C11 The Earth’s Atmosphere & C12 the Earth’s resources end of unit assessment		
Homework	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments		

## Key Stage 4 Physics - Separate Science

Terms	1	2	3	4	5	6
<b>Yr10 Units</b>	<b>P1 Conservation and Dissipation of Energy</b>	<b>P4 Electric Circuits P5 Electricity at Home</b>	<b>P7 Radioactivity</b>	<b>P8 Forces in Balance</b>	<b>P9 Forces in Motion</b>	<b>P10 Forces and Motion</b>
<b>Key learning</b>	Students will learn how energy is stored and transferred. They will learn how to calculate the energy stored in a moving object or in an object when it is lifted or stretched.	Students will learn how to calculate the charge flow in an electric circuit. They will learn how to calculate the resistance and potential difference in circuits. Students will learn about mains electricity and how to calculate the power of an appliance	Students will learn about the structure of the atom and sub-atomic particles. They will learn how an unstable nucleus changes when it emits radiation and why the radiation it emits is harmful. Students will learn about nuclear fission and nuclear fusion	Students will learn the difference between a scalar and a vector quantity. They will learn how to find the resultant of two forces and how to resolve a force into perpendicular components. Students will learn about moments and how to find the centre of mass of an object	Students will learn the difference between speed and velocity and what we mean by acceleration. They will learn to draw and interpret distance-time and velocity-time graphs.	Students will learn how to investigate the relationship between force, mass and acceleration. They will learn what is meant by terminal velocity and the difference between mass and weight. Students will learn about the conservation of momentum and investigate how a spring behaves when it is stretched
<b>Assessment</b>	P1 end of topic assessment	Resistance of a wire practical P4 end of topic assessment	P7 end of topic assessment	P8 end of topic assessment	Hooke's Law practical	Paper 1 PPE covering P1-P7 P10 end of topic assessment
<b>Homework</b>	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments
<b>Yr11 Units</b>	<b>P11 Forces and Pressure P12 Waves Properties</b>	<b>P13 Electromagnetic Waves</b>	<b>P14 Light P15 Electromagnetism</b>	<b>P16 Space</b>		
<b>Key learning</b>	Students will learn about pressure on surfaces and pressure in fluids. Students will learn about transverse and longitudinal waves and how to describe them. They will learn about sound waves, ultrasound and seismic waves.	Students will learn about the electromagnetic spectrum. They will learn how these waves are used in communications and how they are used to form images.	Students will learn about the reflection and refraction of light and how lenses can be used to form images. Students will learn about magnetism and electromagnetic fields. They will learn about the motor effect, the generator effect and transformers.	Students will learn about the formation of the Solar System and the life history of a star. They will learn about the beginning and the future of the Universe.		
<b>Assessment</b>	P12 end of topic assessment	Absorption and Emission of Infra-red practical	P15 end of topic assessment			
<b>Homework</b>	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments		



## Key Stage 4 Physics - Combined Science

Terms	1	2	3	4	5	6
<b>Yr10 Units</b>	<b>P1 Conservation and Dissipation of Energy</b>	<b>P4 Electric Circuits</b>	<b>P4 Electric Circuits P5 Electricity at Home</b>	<b>P7 Radioactivity</b>	<b>P8 Forces in Balance</b>	<b>P9 Motion</b>
<b>Key learning</b>	Students will learn how energy is stored and transferred. They will learn how to calculate the energy stored in a moving object or in an object when it is lifted or stretched.	Students will learn how to calculate the charge flow in an electric circuit. They will learn how to calculate the resistance and potential difference in circuits. They will complete required practicals investigating resistance and different components	Students will learn about mains electricity and how to calculate the power of an appliance	Students will learn about the structure of the atom and sub-atomic particles. They will learn how an unstable nucleus changes when it emits radiation and why the radiation it emits is harmful.	Students will learn the difference between a scalar and a vector quantity. They will learn how to find the resultant of two forces and how to resolve a force into perpendicular components. Students will learn how to find the centre of mass of an object	Students will learn the difference between speed and velocity and what we mean by acceleration. They will learn to draw and interpret distance-time and velocity-time graphs.
<b>Assessment</b>	P1 end of topic assessment	Resistance of a wire practical	P4 end of topic assessment	P7 end of topic assessment	P8 end of topic assessment	Paper 1 PPE covering topics P1-P7
<b>Homework</b>	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments
<b>Yr11 Units</b>	<b>P10 Forces and Motion</b>	<b>P12 Waves Properties</b>	<b>P13 Electromagnetic Waves</b>	<b>P15 Electromagnetism</b>		
<b>Key learning</b>	Students will learn how to investigate the relationship between force, mass and acceleration. They will learn what is meant by terminal velocity and the difference between mass and weight. Students will investigate how a spring behaves when it is stretched	Students will learn about transverse and longitudinal waves and how to describe them. They will learn about sound waves and ultrasound.	Students will learn about the electromagnetic spectrum. They will learn how these waves are used in communications and how they are used to form images.	Students will learn about magnetism and electromagnetic fields. They will learn about the motor effect and the electric motor.		
<b>Assessment</b>	P10 end of topic assessment	P12 end of topic assessment	P13 end of topic assessment	P15 end of topic assessment		
<b>Homework</b>	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments	GCSE exam questions, learning key facts and formulae, revision for assessments		