

Long-term planning (LTPs) - Planning how the key concepts, knowledge, skills identified in the Progression map will be delivered termly per year group

Ensuring that end points & NC/spec are covered

Identifying what assessments are planned and when

Allowing for whole academy intent priorities to be planned for

Year 10 Trilogy					
	Autumn 1	Autumn 1	Autumn 1	Autumn 1	Autumn 1
Unit title:	B5 Communicable diseases	B6 Preventing and treating disease	B7 Non-communicable disease	C5 Chemical changes	C6 Electrolysis
Unit length:	7 lessons	4 lessons	5 lessons	8 lessons	4 lessons
Key concepts:	Pathogens can be spread The human immune system has lines of defence	The body has natural defences Technology can be used to prevent or reduce the effects of disease	Non communicable diseases have a range of risk factors How risk factors can be reduced	Metals have differing reactivities which can be used in their extraction What Oxidation and reduction mean in context to extraction and electrolysis Acidity, alkalinity (+ bases) and neutralisation linked to ions	Ionic liquids and solutions can be split/decomposed using dc current Extraction of metals more reactive than carbon requires electrolysis
Knowledge/ Skills:	Key The ways that names pathogens can be transmitted The differences between communicable and non-communicable disease Core Some Pathogens can only be addressed using specific medication The role and action of vaccines Vaccines are constantly under development as are antibiotics and anti-virals Powerful Links to Digestion, non-communicable disease and	Key The role of pathogens in disease (including measuring zones of inhibition as in the required practical). The ways technology can be used to treat disease Core Exercise and drug use can affect health and the body systems Use a range of data on diet, alcohol use, health and disease at all scales The role of obesity on health Powerful Biotic factors in Ecology	Key How exercise and drug use can affect health and the body systems Interpret a range of data on diet, alcohol use, health and disease at all scales Understand the role of obesity on health Core The consequences of imbalances in diet The impact of exercise and drug use the human gas exchange system The effects if recreational drugs on health Powerful Biotic factors in Ecology	Key How to use ionic equations to represent neutralisation How the concentration of hydrogen ions can be used to give a pH value To interpret displacement and acid + metal reactions in terms of oxidation and reduction Core How to use pH to measure acidity and alkalinity About displacement reactions and of acids and metals and how they make a salt and hydrogen That acids + alkalis produce salts and water Combustion and rusting are oxidation reactions	Key Ions are subject to electrostatic forces when subject to electric fields Elements produced at electrodes depend on reactivity Core How the concentration of hydrogen ions can be used to give a pH value To interpret displacement and acid + metal reactions in terms of oxidation and reduction Powerful Electrostatic forces in Physics Electrolytes in Biology

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				That reactions can be endothermic or exothermic Powerful Links to Physics Links to osmosis/diffusion, homeostasis in biology	
End points covered:	Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Appreciation of the function of multicellular organisms	Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Appreciation of the function of multicellular organisms	Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Appreciation of the function of multicellular organisms	The understanding that different elements interact in predictable ways to form compounds. Appreciating that they do this in predictable ways, with predictable energy, "amounts" and rates of reaction	Appreciate that the evolution of the Earth's atmosphere has been and remains an ongoing due to a number of processes which provide resources we use today
NC/Spec coverage:	2.2.5 , 3.1.1, 1.1.6 , 3.1.2 , 3.1.3, 3.1.4, 3.1.5, 3.3.1, 3.3.2	3.1.7, 3.1.8, 3.1.9, 3.2.1, 3.2.2	2.2.6, 2.2.7	4.1.1, 4.1.2 , 4.1.3 , 4.1.4 , 4.2.1, 4.2.2, 4.2.3, 4.2.4 , 4.2.6	4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5 H
Cross-curricular links:	Links to food hygiene in Catering, H&SC and Child development.	History of medicine in History H&SC, Child development Mathematics for the calculations/ graph work	History of medicine in History H&SC, Child development Mathematics for the calculations/ graph work	Aspects of economic geography	Links to Physics
Assessments:	Formally Marked Work (FMW) tasks Exam	FMW tasks Exam	FMW tasks Exam		
<i>Other academy intent priorities</i>					
Curriculum Careers - Gatsby 4	Microbiologist, nurse, doctor, surgeon, horticulturalist, care worker hygienist, dentist, dental nurse etc.	Nurse, doctor, surgeon, teacher, chef, waiter, food hygienist, microbiologist, forensic scientist	Nurse, doctor, surgeon, teacher, chef, waiter, food hygienist, microbiologist, forensic scientist	Chemist, research chemist, forensic scientist, pharmacist, metallurgist, materials scientist, nurse, doctor, cleaner	Chemist, research chemist, forensic scientist, pharmacist, metallurgist, materials scientist
Culturally rich – broadening horizons	Opportunities to: - Discuss health care and healthcare needs in other cultures - Discussion of environments and cities in other countries and how these environments affect disease risk	Opportunities to: - Discuss changing ideas over time and cooperation between scientists - Discuss health care and healthcare needs in other cultures	Opportunities to: - Discuss health care and healthcare needs in other cultures - Discussion of cuisine and diet in other cultures and how these can influence the risks of communicable disease	Opportunities to: - Discuss changing ideas over time and cooperation between scientists - Discuss mineral resources and occurrence in different countries linked to their cultural heritage	

Year 10				
	Autumn 2	Autumn 2	Autumn 2	Autumn 2
Unit title:	B12 Reproduction	B13 Variation and evolution	C4 Quantitative chemistry	C9 Crude oil and fuels
Unit length:	7 lessons	5 lessons	4 lessons	4 lessons
Key concepts:	Variation is caused by genetic differences The differences between sexual and asexual / mitosis and meiosis	Genetic diversity /biodiversity drives variation – natural selection and evolution Evolutionary processes have been discovered due to changing understanding over time How humans are able to use variation for their own ends	Relative atomic/formula mass relates to the mass of a mole of substance Calculations can be used (alongside balanced symbol equations) to calculate moles/ yield etc	Ancient biomass, under anoxic conditions and the correct temperatures and pressures can become hydrocarbons Hydrocarbons are made of H and C only Crude oil is made of alkanes which can be fractionally distilled Cracking can produce higher value and use short chained alkanes from lower value long chains (and produce alkenes)
Knowledge/ Skills:	Key The structure of DNA Alleles and their significance Genomes Meiosis in gamete production	Key The structure of DNA Alleles and their significance Meiosis in gamete production How information is inherited and make predictions of what will be inherited Selective breeding Evolution as an example of the progress of scientific thought	Key How chemical symbols and formulae can be used to represent elements and compounds How to represent reactions using formulae How patterns in reactions are predictable (using the periodic table) The properties of metals and non-metals Conservation of mass How the particle model can be used to illustrate the change in state	Key Explain how catalysts change the rate of reaction in terms of activation energy and reaction profiles How fractional distillation is used to separate different fractions from the mixture of hydrocarbons in crude oil The products of complete and incomplete combustion of fuels from crude oil The use of thermal decomposition in cracking How to draw the different homologous series in displayed formulae The different types of bonding between monomers and how these affect the properties of a polymer
Key Core Powerful	Core The nucleus of animal and plant cells and the DNA structures of bacteria About mitosis and meiosis Reproduction as a process Inheritance and variation How scientific ideas develop Powerful Genetics, DNA, Ecology	Core The similarities and differences between mitosis and meiosis The process of reproduction as a process The definition and mechanisms of inheritance and variation Powerful Biology – reproduction, ecology etc	Core Explain the formulae of compounds Use atomic structure to explain patterns in reactivity Explain the differences between metals and non-metals based upon their atomic structure and bonding Carry out calculations using balanced symbol equations to predict the amounts	Core What a catalyst does Simple methods for separating mixtures Some examples of combustion and thermal decomposition reactions

			of reactants and products in a reaction (including moles and concentrations) How to describe changes in state Powerful Concentration / osmosis / diffusion in Biology Pressure in physics	The structure of some simple molecular substances That polymers are long molecules and are made of repeated units Powerful Links to particle theory chemistry and physics Links to ecology/ biomass in biology
End points covered:	Understanding of how organisms interact with each other and with their environment Appreciation of the function of multicellular organisms	Understanding of how organisms interact with each other and with their environment	Use calculations and data analysis	Understand that Carbon compounds give rise to homologous series which have specific properties and structures
NC/Spec coverage:	6.1.1, 6.1.2, 6.1.3, 6.1.4, 6.1.5, 6.1.6, 6.1.7, 6.1.8, 6.2.4	6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.5	AQA spec link: 3.1.2, 3.2.1, 3.2.3, 3.2.4, 3.3.1, 3.3.2, 3.2.5, 3.4, 3.5, 4.2.5	7.1.1, 7.1.2, 7.1.3, 7.1.4
Cross-curricular links:	PSHE/lifeskills Child development Psychology	Other areas of Biology as above Sports science and health and social care	Physics Maths	Links to sedimentology in geography
Assessments:	FMW tasks Exam	FMW tasks Exam	FMW tasks Exam	FMW tasks Exam
<i>Other academy intent priorities</i>				
Curriculum Careers - Gatsby 4	Fertility nurse/doctor, counsellor, midwife, zoologist, palaeontologist, ecologist, palaeobiologist	Geneticist, nurse, virologist, immunologist, doctor, fertility nurse, zoologist, ecologist, environmental biologist	Chemist, research chemist, forensic scientist, pharmacist, metallurgist, materials scientist	Chemist, research chemist, forensic scientist, pharmacist, metallurgist, materials scientist, vet, electricity generation engineer, motor engineer, petroleum scientist
Culturally rich – broadening horizons	Opportunities to: <ul style="list-style-type: none"> - Links to cultural ideas of contraception, gender etc 	Opportunities to: <ul style="list-style-type: none"> - Discuss changing ideas over time and cooperation between scientists - Discussion of the reasons for differing amounts of melanin in different countries 	Opportunities to: <ul style="list-style-type: none"> - Discuss changing ideas over time and cooperation between scientists of different cultures 	Opportunities to: <ul style="list-style-type: none"> - Discussion of natural resources in different countries and how they are exploited both within and without - Discuss changing ideas over time and cooperation between scientists

Year 10				
	Spring 1	Spring 1	Spring 1	Spring 1
Unit title:	C12 The Earth's resources	B10 The human nervous system	B11 Hormonal coordination	
Unit length:	6 lessons	3 lessons	8 lessons	
Key concepts:	The earth contains resources that are needed to sustain populations Many resources are finite How resources can be maximised	Nerves carry impulses Nervous response is controlled by the brain / CNS There are different kinds of neurones Neurotransmission is affected by drugs and / or hormones	Hormones are produced by glands and are transported by blood, affecting target organs Hormones control blood sugar, the menstrual cycle and fertility etc.	
Knowledge/ Skills: Key Core Powerful	Key A wider range of chemical tests to identify unknown substances/ions and how technology can be used How the atmosphere developed to the composition that it has today How climate change is caused by increases in the levels of greenhouse gases and how this can be addressed How to analyse data on finite resources, including the use of orders of magnitude Carry out LCA's to determine the impact of making new materials Core About the difference between pure substances and mixtures and how some can be identified The composition of the atmosphere That carbon dioxide is released by human activities and the impact of this upon climate How the earth's resources are finite and the importance of recycling Some of the properties of composite polymers and ceramics How carbon can be used to extract some metals Powerful	Key The similarities and differences between motor and sensory neurones including with regards to their roles About the nervous system and its interrelationships e.g. the eye Core Basic neurone function and structure That tissues can be organised into organs with specific functions Powerful Homeostasis – Biology Lenses - Physics	Key The involvement of hormones in reproduction, contraception and assisted fertility Core Some of the hormones and their roles in reproduction / puberty Powerful Biology – nervous system Physics reaction times/ stopping distances	Key Core Powerful

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	Chemistry – natural resources, metal extraction, greenhouse effect/global warming etc Biology – resources (biotic and abiotic)			
End points covered:	Appreciate that the evolution of the Earth’s atmosphere has been and remains an ongoing due to a number of processes which provide resources we use today	Appreciation of the function of multicellular organisms	Appreciation of the function of multicellular organisms	
NC/Spec coverage:	8.2.1, 8.2.2, 8.2.3, 8.2.4, 10.1.1, 10.1.2, 10.1.4, 10.2.1	5.2.1 , 5.2.2	2.2.1, 4.2.3, 5.3.1, 5.3.2, 5.3.4, 5.3.5, 5.3.6, 5.4.1 , 5.4.2	
Cross-curricular links:	Geography	Biology – homeostasis, hormonal vs nervous control, reaction times (and physics)	H&SC, Some links to sports science, Child development, Psychology	
Assessments:	FMW tasks	FMW tasks	FMW tasks	
<i>Other academy intent priorities</i>				
Curriculum Careers - Gatsby 4	Chemist, research chemist, forensic scientist, pharmacist, metallurgist, materials scientist, vet, electricity generation engineer, motor engineer, petroleum scientist, mining engineers, geologists, botanists, palaeobotanists, palaeontology, environmentalist, recycler	Sports science, physiotherapy, nursing, doctors, surgeon, neurologist, psychology, optician	Fertility nurse/doctor, nurse, doctor, sports scientist, paediatrician, psychologist, horticulturalist, farmers	
Culturally rich – broadening horizons	Opportunities to: <ul style="list-style-type: none"> - Discussion of the resources in different countries - Can be linked to issues of exploitation and or formation of areas of cultural heritage 	Opportunities to: <ul style="list-style-type: none"> - Discuss changing ideas over time and cooperation between scientists 	Opportunities to: <ul style="list-style-type: none"> - Discuss changing ideas over time and cooperation between scientists - Discussion of contraception and fertility treatment in cultural context 	

Year 10				
	Spring 2	Spring 2	Spring 2	Spring 2
Unit title:	B14 Genetics and evolution	P8 Forces	P9 Motion	
Unit length:	6 lessons	6 lessons	4 lessons	
Key concepts:	Understand the development of understanding Understand fossilisation and its role in understanding evolution Understand and can explain bacterial resistance	Understand the different types of forces as contact and non contact Understand the different types of quantities as vector and scalar Understand turning and resultant forces	Motion can be described either in terms of speed (scalar) or velocity (vector) Acceleration is speeding up (or slowing down)	
Knowledge/ Skills: + practical time Key Core Powerful	Key and genetic engineering Evolution as an example of the progress of scientific thought Core The nucleus of animal and plant cells and the DNA structures of bacteria About mitosis and meiosis Reproduction as a process Inheritance and variation How scientific ideas develop Powerful Biology – reproduction, ecology etc	Key The differences between vector and scalar quantities and how these can be represented How calculate resultant force and know how to resolve a force into its perpendicular components The different between speed and velocity and can explain acceleration An understanding of terminal velocity and why falling objects in gases and liquids/solutions reach it Understand conservation of momentum and when to use this rule An understanding of elasticity and how to measure the stiffness of a spring How to calculate weight from given masses and gravitational field strengths Core Forces are measured in Newtons with a Newtonmeter An object is in equilibrium when the forces acting on it are in balance The unit of speed is m's Drag and frictional forces resist the movement of moving objects Whenever objects interact they exert forces on each other Tension is the force on a stretched object, more force=greater extension	Key The differences between vector and scalar quantities and how these can be represented How calculate resultant force and know how to resolve a force into its perpendicular components The different between speed and velocity and can explain acceleration An understanding of terminal velocity and why falling objects in gases and liquids/solutions reach it Understand conservation of momentum and when to use this rule An understanding of elasticity and how to measure the stiffness of a spring How to calculate weight from given masses and gravitational field strengths Core Forces are measured in Newtons with a Newtonmeter An object is in equilibrium when the forces acting on it are in balance The unit of speed is m/s Drag and frictional forces resist the movement of moving objects Whenever objects interact they exert forces on each other Tension is the force on a stretched object, more force=greater extension	Key Core Powerful

		That the weight of an object depends upon the gravitational force exerted upon its mass Powerful Kinetic theory in chemistry	That the weight of an object depends upon the gravitational force exerted upon its mass. Powerful Forces and Space in Physics Parts of adaptation, drag in biology Particle theory in chemistry	
End points covered:	Understanding of how organisms interact with each other and with their environment	Understanding of how all interactions in the Universe are reliant on forces being exchanged between two or more bodies, and that these force interactions are inextricable from the corresponding energy and momentum conservation within systems	Understanding of how all interactions in the Universe are reliant on forces being exchanged between two or more bodies, and that these force interactions are inextricable from the corresponding energy and momentum conservation within systems	
NC/Spec coverage:	6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.6, 6.3.7, 6.4	5.1.1, 5.1.2, 5.1.3, 5.1.4, 5.4	5.6.1.1, 5.6.1.2, 5.6.1.3, 5.6.1.4, 5.6.1.5	
Cross-curricular links:	Sports science, Health and social care	Sports science Kinetic theory in chemistry Resistance / drag in biology DT	Sports science Resistance / drag in biology DT	
Assessments:	FMW tasks Exam	FMW tasks Exam	FMW tasks Exam	
<i>Other academy intent priorities</i>				
Curriculum Careers - Gatsby 4	Geneticist, nurse, virologist, immunologist, doctor, fertility nurse, palaeontologist, ecologist, zoologist	Engineer, mechanic, sports scientist, safety tester, materials scientist, sedimentologist, physical geographer, surveyor, architect	Engineer, mechanic, sports scientist, safety tester, materials scientist, sedimentologist, physical geographer, surveyor, architect	
Culturally rich – broadening horizons	Opportunities to: <ul style="list-style-type: none"> - Discuss changing ideas over time and cooperation between scientists - Discussion of animals and plant life associated with different parts of the world, including humans 	Opportunities to: <ul style="list-style-type: none"> - Discuss changing ideas over time and cooperation between scientists - Discussion linked to forces during cultural events, e.g. caber toss, husafell stone etc. 	Opportunities to: <ul style="list-style-type: none"> - Discuss changing ideas over time and cooperation between scientists - Discussion linked to forces during cultural events, e.g. caber toss, husafell stone etc. 	

Year 10				
	Summer 1	Summer 1	Summer 1	Summer 1
Unit title:	P10 Forces and motion	EP1 (enquiry processes)		
Unit length:	5 lessons	5 lessons		
Key concepts:	Motion is a factor of force and resistance Forces interact and so influence speed and direction of movement			
Knowledge/ Skills: Key Core Powerful	<p>Key Forces are measured in Newtons with a Newtonmeter An object is in equilibrium when the forces acting on it are in balance The unit of speed is m/s Drag and frictional forces resist the movement of moving objects Whenever objects interact they exert forces on each other That the weight of an object depends upon the gravitational force exerted upon its mass</p> <p>Core The differences between vector and scalar quantities and how these can be represented How calculate resultant force and know how to resolve a force into its perpendicular components The different between speed and velocity and can explain acceleration An understanding of terminal velocity and why falling objects in gases and liquids/solutions reach it An understanding of elasticity and how to measure the stiffness of a spring How to calculate weight from given masses and gravitational field strengths</p> <p>Powerful</p>	<p>Key Core Powerful</p>	<p>Key Core Powerful</p>	<p>Key Core Powerful</p>

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	Links to forces and motion units in physics			
End points covered:	Understanding of how all interactions in the Universe are reliant on forces being exchanged between two or more bodies, and that these force interactions are inextricable from the corresponding energy and momentum conservation within systems			
NC/Spec coverage:	5.6.2.1, 5.6.2.2, 5.1.3, 5.6.3.1, 5.6.3.2, 5.6.3.3, 5.6.3.4, 5.7.1, 5.7.2, 5.7.3			
Cross-curricular links:	Sports science Kinetic theory in chemistry Resistance / drag in biology DT			
Assessments:	FMW tasks	FMW tasks		
<i>Other academy intent priorities</i>				
Curriculum Careers - Gatsby 4	Engineer, mechanic, sports scientist, safety tester, materials scientist, sedimentologist, physical geographer, surveyor, architect			
Culturally rich – broadening horizons	Opportunities to: <ul style="list-style-type: none"> - Discuss changing ideas over time and cooperation between scientists - Discussion linked to forces during cultural events, e.g. caber toss, husafell stone etc. 			

Year 10				
	Summer 2	Summer 2	Summer 2	Summer 2
Unit title:	B15 Adaptation, interdependence and competition		SC1 project work	
Unit length:	8 lessons		TBA	
Key concepts:	All organisms rely on each other for a range of biotic and abiotic factors All organisms have evolved through natural selection, gaining adaptations which increase their chances of survival Species compete with each other (and between themselves) for resources			
Knowledge/ Skills: Key Core Powerful	Key How to estimate biodiversity and population size The links between adaptation, competition and survival in a range of environments Key That resources are finite and in short supply Core That resources cycle through environments Powerful That decomposition is an important factor in the survival of organisms Core Individual animals and plants needing different resources from the environment Darwin's theory "survival of the fittest" Plants need the reactants of photosynthesis and mineral ions Organisms are adapted to compete in their environments How organisms reproduce Powerful Links to Photosynthesis and other Biology units Links to energy transfers (physics)		Key Core Powerful	

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End points covered:	Understanding of how organisms interact with each other and with their environment		
NC/Spec coverage:	7.1.1, 7.1.2, 7.1.3, 7.2.1, 7.1.4		
Cross-curricular links:	Geography Maths		
Assessments:	FMW tasks Exam		FMW tasks
<i>Other academy intent priorities</i>			
Curriculum Careers - Gatsby 4	Ecologist, zoologist, palaeontologist, botanist, zookeeper, conservationism, planning officer		
Culturally rich – broadening horizons	Opportunities to: <ul style="list-style-type: none"> - Discussion of natural resources in different countries linked to the adaptations of their flora and fauna 		