

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 11 Triple					
	Autumn 1	Autumn 1	Autumn 1	Autumn 1	Autumn 1
Unit title:	B18 Biodiversity and ecosystems	C12 Chemical analysis	P8 Forces in action	P9 Motion	P11 Force and pressure
Unit length:	12 lessons	6 lessons	9 lessons	4 lessons	4 lessons
Key concepts:	Humans and their rising populations have an impact upon biodiversity The impact of humans taking the resources they need have long term implications which must be managed	Different anions and cations can be identified using chemical tests Complimentary tests need to be used The uses and reasons for using technology	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)	Density, force and area influence pressure The pressure on a surface is an equilibrium if the surface is not moving (paired forces) The difference between weight and mass (and how to calculate them using a GFS of 9.8N/kg)
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 That resources are finite and in short supply That resources cycle through environments That decomposition is an important factor in the survival of organisms The maintenance of food security Core Individual animals and plants needing different resources from the environment Darwin's theory "survival of the fittest"	Key There is are a range of chemical tests to identify unknown substances/ions and how technology can be used Core 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	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	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	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

	<p>Plants need the reactants of photosynthesis and mineral ions Organisms are adapted to compete in their environments How organisms reproduce</p> <p>Powerful Biology – reproduction and genetics</p>	<p>Powerful Links to chemical reactions Links to EM and energy transfers on physics</p>	<p>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 That the weight of an object depends upon the gravitational force exerted upon its mass</p> <p>Powerful Kinetic theory in chemistry</p>	<p>How to calculate weight from given masses and gravitational field strengths</p> <p>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 That the weight of an object depends upon the gravitational force exerted upon its mass.</p> <p>Powerful Forces and Space in Physics Parts of adaptation, drag in biology Particle theory in chemistry</p>	<p>How to calculate weight from given masses and gravitational field strengths</p> <p>Core 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 That the weight of an object depends upon the gravitational force exerted upon its mass</p> <p>Powerful Kinetic theory in chemistry Resistance / drag in biology</p>
<p>End points covered:</p>	<p>Understanding of how organisms interact with each other and with their environment</p>	<p>The understanding that matter is organised into different categories based upon structure, how the different elements are arranged and that these give rise to distinctive properties.</p>	<p>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</p>	<p>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</p>	<p>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 matter is made up of tiny particles, significantly smaller</p>

WFA Long Term Plan

					than the cells studied in biology. The particles are always moving, have spaces between them, and adding heat to them makes them move faster. How the particles are arranged and move dictates the state and properties of the macroscopic substances we interact with every day.
NC/Spec coverage:	7.3.1, 7.3.2, 7.3.3, 7.3.4, 7.3.5, 7.3.6, 7.2.4, 7.4.1, 7.4.2, 7.4.3, 7.5.1, 7.5.2, 7.5.3, 7.5.4	8.1.1, 8.1.2, 8.1.3, 8.2.1, 8.2.2, 8.2.3, 8.2.4, 8.3.1, 8.3.2, 8.3.3, 8.3.4, 8.3.5, 8.3.6, 8.3.7	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	5.5.1.1, 5.5.1.2, 5.5.2
Cross-curricular links:	Geography Maths	Physics	Sports science Kinetic theory in chemistry Resistance / drag in biology DT	Sports science Resistance / drag in biology DT	Sports science DT
Assessments:	Formally marked work (FMW) Exam	FMW tasks Exam	FMW tasks Exam	FMW tasks Exam	FMW tasks Exam
Other academy intent priorities					
Curriculum Careers - Gatsby 4	Ecologist, zoologist, palaeontologist, botanist, zookeeper, conservationism, planning officer, zoologist, palaeobiologist	Chemist, research chemist, forensic scientist, pharmacist, metallurgist, materials scientist, vet, electricity generation engineer, motor engineer, petroleum scientist, mining engineers, geologists, botanists, palaeobotanists, palaeontology	Industrial / research Physics Architect, Builder/ buildings inspector, Vehicle design	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: - Discuss the indigenous flora and fauna of different countries as examples	Opportunities to: - Discuss changing ideas over time and cooperation between scientists - Discuss how different tests might be needed when identifying resources from other countries/cultures	Opportunities to: - 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: - 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: - Discuss changing ideas over time and cooperation between scientists - Discussion of landmarks in other countries which account for pressure, e.g. dams

Year 11				
	Autumn 2	Autumn 2	Autumn 2	Autumn 2
Unit title:	B13 Reproduction	P12 Wave properties	P10 Force and motion	
Unit length:	10 lessons	7 lessons	8 lessons	
Key concepts:	Variation is caused by genetic differences The differences between sexual and asexual / mitosis and meiosis	Waves have definable properties There are 2 wave types, longitudinal and transverse, each having specific characteristics	Forces can result in movement, compression, tension etc.. Understand that momentum is affected by mass and velocity Have an understanding that mass and weight are different	
Knowledge/ Skills: Key Core Powerful	Key The structure of DNA Alleles and their significance Genomes Meiosis in gamete production 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	Key How wave speed wavelength and frequency are related to each other How to measure sound wave speed in air and in a solid How the electromagnetic spectrum can carry information and images Refraction being the change in direction a wave takes as it goes from one transparent/translucent medium of one density to another, this change in direction being due to a change in speed) Core The top of a wave is the crest and the bottom is a trough Light waves are much faster than sound waves and can also travel through a vacuum The light spectrum is continuous and shifts across ROYGBIV There are different kinds of waves but they have properties such as refraction in common Powerful Chemistry – Chemical analysis Physics – energy transfers, waves	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 Resistance / drag, reaction times 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 that energy can be transferred through media in the form of waves, with no net transfer of matter. Waves can interact with matter and with one another in a multitude of ways with predictable, if unintuitive, outcomes.	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:	6.1.1, 6.1.2, 6.1.3, 6.1.4, 6.1.5, 6.1.6, 6.1.7, 6.1.8, 6.2.4	6.1.1 6.1.2, 6.2.1, 6.2.2, 5.6.1.2, 6.1.2, 6.1.4, 6.1.5	5.1.3, 5.6.2.1, 5.6.2.2, 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, 5.3	
Cross-curricular links:	PSHE/lifeskills Child development Psychology	Photography	DT Sports science	
Assessments:	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	Engineer, mechanic, sports scientist, materials scientist, photographer, cinematographer, physical geographer, surveyor, architect, seismologist, forensic scientist, artist	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"> - Links to cultural ideas of contraception, gender etc 	Opportunities to: <ul style="list-style-type: none"> - Discuss amplitude and wavelength in terms of Hawaiian surfing waves (stress tht “water” waves mustn’t be used as examples of a transverse wave). 	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 11				
	Spring 1	Spring 1	Spring 1	Spring 1
Unit title:	B14 Variation and evolution	B15 Genetics and evolution	P13 EM Waves	P14 Light
Unit length:	7 lessons	10 lessons	5 lessons	6 lessons
Key concepts:	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	Understand the development of understanding Understand fossilisation and its role in understanding evolution Understand and can explain bacterial resistance	Light is part of a broader spectrum which is subdivided based on wavelengths The properties of EM depend on wavelength and give rise to their uses and hazards	Light interacts with surfaces in 3 ways, absorption, reflection and refraction Reflection can be in different forms The uses of the properties of light
Knowledge/ Skills:	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 and genetic engineering Evolution as an example of the progress of scientific thought	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 and genetic engineering Evolution as an example of the progress of scientific thought	Key How wave speed wavelength and frequency are related to each other How to measure sound wave speed in air and in a solid How the electromagnetic spectrum can carry information and images Refraction being the change in direction a wave takes as it goes from one transparent/translucent medium of one density to another, this change in direction being due to a change in speed)	Key How wave speed wavelength and frequency are related to each other How to measure sound wave speed in air and in a solid How the electromagnetic spectrum can carry information and images Refraction being the change in direction a wave takes as it goes from one transparent/translucent medium of one density to another, this change in direction being due to a change in speed)
Key Core Powerful	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 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	Core The top of a wave is the crest and the bottom is a trough Light waves are much faster than sound waves and can also travel through a vacuum The light spectrum is continuous and shifts across ROYGBIV There are different kinds of wave but they have properties such as refraction in common Powerful Biology – the eye and receptors in the nervous system Chemistry – global warming	Core The top of a wave is the crest and the bottom is a trough Light waves are much faster than sound waves and can also travel through a vacuum The light spectrum is continuous and shifts across ROYGBIV There are different kinds of wave but they have properties such as refraction in common Powerful Biology – the eye and receptors in the nervous system

End points covered:	Understanding of how organisms interact with each other and with their environment	Understanding of how organisms interact with each other and with their environment	Understanding that energy can be transferred through media in the form of waves, with no net transfer of matter. Waves can interact with matter and with one another in a multitude of ways with predictable, if unintuitive, outcomes. Understanding that the atoms that contribute to particle theory are themselves composed of even smaller particles. The compositions and arrangements of these smaller particles dictates the chemical properties of substances, and changing these can lead to drastic and unexpected energy changes.	Understanding that energy can be transferred through media in the form of waves, with no net transfer of matter. Waves can interact with matter and with one another in a multitude of ways with predictable, if unintuitive, outcomes.
NC/Spec coverage:	6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.5	6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.6, 6.3.7, 6.4	6.1.2, 6.2.1, 6.2.2, 6.2.3, 6.2.4	6.1.3, 6.2.2, 6.2.4, 6.2.5, 6.2.6
Cross-curricular links:	Other areas of Biology as above Sports science and health and social care	Sports science, Health and social care	Photography	Links to aspects of Biology and physics, .c. electrical cells
Assessments:	FMW tasks Exam	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, zoologist, ecologist, environmental biologist	Geneticist, nurse, virologist, immunologist, doctor, fertility nurse, palaeontologist, ecologist, zoologist	Engineer, mechanic, sports scientist, materials scientist, photographer, cinematographer, physical geographer, surveyor, architect, seismologist, forensic scientist, artist.	Engineer, mechanic, sports scientist, materials scientist, photographer, cinematographer, physical geographer, surveyor, architect, seismologist, forensic scientist, artist.
Culturally rich – broadening horizons	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 - 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 of the reasons for differing amounts of melanin in different countries 	Opportunities to: <ul style="list-style-type: none"> - Discuss use of snow goggles by ancient (and modern) eskimo - Discuss the issues when spear fishing as a result of refraction

Year 11				
	Spring 2	Spring 2	Spring 2	Spring 2
Unit title:	Exam prep			
Unit length:				lessons
Key concepts:				
Knowledge/ Skills: + practical time Key Core Powerful	Key Core Powerful	Key Core Powerful	Key Core Powerful	Key Core Powerful
End points covered:				
NC/Spec coverage:				
Cross-curricular links:				
Assessments:	FMW tasks Exam	FMW tasks Exam	FMW tasks Exam	FMW tasks Exam
<i>Other academy intent priorities</i>				
Curriculum Careers - Gatsby 4				
Culturally rich – broadening horizons				

Year 11				
	Summer 1	Summer 1	Summer 1	Summer 1
Unit title:				
Unit length:				
Key concepts:				
Knowledge/ Skills:	Key	Key	Key	Key
Key Core Powerful	Core Powerful	Core Powerful	Core Powerful	Core Powerful
End points covered:				
NC/Spec coverage:				
Cross-curricular links:	=			
Assessments:				
<i>Other academy intent priorities</i>				
Curriculum Careers - Gatsby 4				

Culturally rich – broadening horizons				
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Year 11				
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	Summer 2	Summer 2	Summer 2	Summer 2
Unit title:				
Unit length:				
Key concepts:				
Knowledge/ Skills:	Key Core Powerful		Key Core Powerful	
Key Core Powerful				
End points covered:				
NC/Spec coverage:				

Cross-curricular links:		
Assessments:		
<i>Other academy intent priorities</i>		
Curriculum Careers - Gatsby 4		Petroleum geologist
Culturally rich – broadening horizons		