Curriculum Information - Science

Long Term Curriculum Planning - Year 7		
	Stimulus/ Unit	**Description**
Autumn	Cells and Systems (1)	Movement:- Students will learn about levels of organisation and the skeleton. Cells:- Students will learn about plant, animal and specialised cells, and how substances move in and out of cells.
	Forces (1)	Students will learn about balanced and unbalanced forces, speed, distance-time graphs and gravity.
	Particles (1)	Particle Model:-Students will learn about the particle model of matter and how it applies to changes of state. Gas Pressure:- Students will learn about gas pressure and density Separating Mixtures: - Students will learn different techniques to separate the components of mixtures.
Spring	Reproduction	Human reproduction:- Students will learn about the changes that occur during puberty and the stages of human reproduction from fertilisation through to the developed fetus. Plant reproduction:- Students will learn the anatomy of the plant male and female reproductive systems and how they reproduce.
	Electricity	Students will learn about potential difference, resistance, circuits and current.
	Reactions (1)	Metals and Non-metals:-Students will learn about the key properties of metals and non-metals. They will also study oxidation reactions, displacement reactions and the reactivity series for metals. Acids and Alkali:-Students will learn about acids, alkali, indicators and the pH scale. They will also learn about salt making reactions.
Summer	Ecology	Variation:- Students will learn how variation happens, the different types of variations and how organisms adapt to change. Food webs and competition :– Students will learn about how food chains can be disturbed and how the ecosystem is disturbed and restores balance.
	Sound	Sound:-Students will learn how sound travels, properties of a sound wave and how these affect; pitch, volume and the frequency of a wave.
	Planet Earth (1)	Earth Structure:-Students will learn about the structure of the Earth and how the different types of rocks are recycled through geological time. Universe:-Students will learn how planets orbit our Sun and about our Solar System and what lies beyond.

Curriculum Information - Science

Long Term Curriculum Planning - Year 8		
	Stimulus/ Unit	**Description**
Autumn	**Cells and Systems (2)**	**Breathing:- Students will learn how gas is exchanged, how we breath and how smoking, alcohol and drugs may affect our health. Digestion:- Students will learn about human food requirements and our digestive systems.**
	Forces (2)	**Contact forces:- Students will learn about friction, drag, squashing and stretching and turning forces. Pressure:- Students will learn about pressure in different states.**
	Particles (2)	**Elements:-Students will learn about how the elements can form molecules and different compounds. They will construct chemical equations using words and chemical formulae. Periodic Table: - Students will learn to use the periodic table to find out information about elements. They will learn about the trends in the periodic table**
	Magnetism	**Students will learn about magnets and magnetic fields, electromagnets and the use of these.**
Spring	**Bioenergetics**	**Aerobic and anaerobic respiration:-Students will learn the reason for respiration and the differences between aerobic, anaerobic and fermentation. Photosynthesis: - Students will learn the adaptations of the leaf, limiting factors of photosynthesis and why plants need minerals.**
	Energy	**Energy stores. Dissipation. Work, energy and energy transfer.**
	Reactions (2)	**Chemical Energy:-Students will learn about the energy changes that occur in exothermic and endothermic reactions. They will also learn about the role of catalysts in reactions. Types of reactions: - Students will study combustion and thermal decomposition reactions. They will also learn about the law of conservation of mass.**
Summer	**Natural selection**	**Variation:- Students will learn about natural selection and conservation. Human reproduction:- Students will learn about Inheritance and the role that genetics plays in this.**
	Light	**Students will learn about how light travels and why we see things we do in the real world. They will also study how light waves transfer energy, how they interact with surfaces they hit and the mediums they travel through.**
	Planet Earth (2)	**Climate:-Students will learn that all the materials we use come from the Earth, the oceans, or the atmosphere. They will also look at the causes and effects of global warming. Earth resources:-Students will learn how we extract metals from the Earth, and how we can prevent vital resources running out.**

Curriculum Information - Science

Long Term Curriculum Planning - Year 9		
	Stimulus/Unit	**Description**
Autumn 1	**Getting ready for GCSE**	**Biology/Chemistry/Physics/Maths in Science fundamentals.**
Completed on a rotaion basis (dependant on class)	**B 1 - Cell Biology**	**Cell structure** **Microscopy** **Cell division** **Diffusion/Osmosis/Active transport**
	C 1 - Atomic structure and the periodic table	**The structure of atoms** **The periodic table and patterns within it** **The properties of key groups of elements within the periodic table.**
	C 2 - Bonding, structure and the properties of matter	**Why and how elements bond together.** **The different ways in which elements can combine and how this gives rise to different structures and properties.**
	P 1 - Energy	**Energy stores and systems** **Conservation and dissipation of energy** **National and global energy resources**
	P3 - Particle model of matter	**Changes of state and the particle model.** **Internal energy and energy transfers.** **Particle model and pressure.**
	P4 - Atomic structure	**Atoms and isotopes.** **Atoms and nuclear radiation.**

Long Term Curriculum Planning - Year 10 & 11

		Description
YEAR 10 Biology, Chemistry and Physisc taught simultaneously. Timings of when specific modules of work are being taught will vary between classes.	B 2 - Organisation	Animal tissues, organs and systems. Animal tissues, organs and systems.
	B3 - Infection and response	Communicable (infectious diseases) Human defence systems Vaccination The development of drugs Plant diseases and defence responses
	B4 - Bioenergetics	Photosynthesis Respiration Responses to exercise
	C3 - Quantitative chemistry	Chemical measurements Conservation of mass Chemical equations
	C4 - Chemical changes	Reactivity of metals Reactions of acids Electrolysis
	C5 - Energy changes	Exothermic and endothermic reactions Reaction profiles Energy changes
	C6 - The rate and extent of chemical change	Rate of reaction Collision theory Reversible reactions and dynamic equilibrium
	P2 - Electricity	Current, potential difference and resistance. Series and parallel circuits. Domestic uses and safety. Energy transfers.
	P5 - Forces	Forces and their interactions. Forces and motion. Momentum.
YEAR 11 Biology, Chemistry and Physisc taught simultaneously. Timings of when specific modules of work are being taught will vary between classes.	B5 - Homeostasis and response	Homeostasis The human nervous system Hormonal coordination in humans Plant hormones (separate Biology only)
	B6 - Inheritance, variation and evolution	Sexual and asexual reproduction Meiosis DNA Genetic inheritance Variation Evolution
	B7 - Ecology	Adaptations, interdependence and competition Organistaion of an ecosystem Biodiversity and the effect of human interactions on an ecosystem
	C7 - Organic chemistry	Crude oil Fractional distillation Cracking
	C8 - Chemical analysis	Purity Formulations Chromatography Identification of common gases
	C9 Chemistry of the atmosphere	The Earth's early atmosphere Greenhouse gases Global climate change Atmospheric pollutants and their sources
	C10 - Using resources	The Earth's resources and sustainable development Potable water Recycling
	P6 - Waves	Waves in air, fluids and solids. Electromagnetic waves.
	P7 - Magnetism and electromagnetism	Permanent and induced magnetism. Magnetic forces and fields.
	P8 - Space physics (separates only)	Solar system Stability of orbital motions Satellites Red-shift