Key Stage 4 BIOLOGY: Year 9

Overall Curriculum Goals – to develop an understanding of cells as the building blocks of life, and the processes by which substances can move in and out of biological molecules.					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
				B1: Cells	
Key Vocabulary/Concepts/Ideas		**Key Vocabulary/Concepts/Ideas**		**Key Vocabulary/Concepts/Ideas**	
				• Microscopy skills • Organelles and their functions • Classifying cells • Mitosis & stem cells • Diffusion and osmosis	
CIAG		**CIAG**		**CIAG**	
				Life scientist **Medicine** **Biomedical scientist**	

Key Stage 4 BIOLOGY: Year 10

Overall Curriculum Goals – To understand how organisms get energy for life, how they function and keep healthy, and how multiple organisms interact in an ecosystem					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
B2 Organisation		**B3 Plant Biology**	**B4 Respiration**	**B5 Infection and Response**	**B6 Ecosystems**
Key Vocabulary/Concepts/Ideas		**Key Vocabulary/Concepts/Ideas**		**Key Vocabulary/Concepts/Ideas**	
• Organs and organ systems of the human body • Lifestyles and health • Coronary heart disease and cancer • Enzymes and digestion		• Plant tissues • Transpiration and translocation • Photosynthesis	• Aerobic and anaerobic respiration	• Bacterial and viral disease • Immunity • Antibiotics & drug development	• Interdependence in ecosystems • The carbon cycle and the water cycle
CIAG		**CIAG**		**CIAG**	
Medicine Dietician Biochemist Drug development Sports scientist		Agriculture Conservation Sports scientist Personal trainer		Public Health Medicine / dentistry Drug development Conservation Agriculture Pharmacy	

Key Stage 4 BIOLOGY: Year 11

Overall Curriculum Goals – To understand the role of hormones as control mechanisms, and how species change over time through inheritance and evolution					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
B7 Humans and environment	**B8 Homeostasis**	**B9 Inheritance**	**B10 Evolution**	**Revision, consolidation, terminal assessment**	
Key Vocabulary/Concepts/Ideas		**Key Vocabulary/Concepts/Ideas**		**Key Vocabulary/Concepts/Ideas**	
• Biodiversity, pollution and global warming • Food security	• Controlling temperature, blood glucose, water balance • Hormones and the menstrual cycle	• Sexual and asexual reproduction • DNA and protein synthesis • Genetics	• Evolution • Classification • Genetic engineering		

CIAG	CIAG	CIAG
Conservation	Public health	
Agriculture	Medicine	
Medicine	Conservation	
Sports scientist	Drug development	
Dietician	Biomedical scientist	

Key Stage 4 CHEMISTRY: Year 9

Overall Curriculum Goals – to develop an understanding of atoms as the building blocks of matter, and how properties of materials can be used to classify them					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
				C6 Energy Changes	**C7 Rates of Reaction**
Key Vocabulary/Concepts/Ideas		**Key Vocabulary/Concepts/Ideas**		**Key Vocabulary/Concepts/Ideas**	
				• Exothermic and endothermic reactions	• Measuring rate of reaction • Collision theory
CIAG		**CIAG**		**CIAG**	
				Chemical plant technician Chemical engineer	

Key Stage 4 CHEMISTRY: Year 10

Overall Curriculum Goals – To explore the behaviour of substances on a microscopic scale, including how the molecular structure of materials influences their properties					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
C1: Atomic Structure and the Periodic Table	**C2 Structure and Bonding**		**C3 Organic Chemistry**	**C4 Chemistry of the Atmosphere**	**C5 Quantitative Chemistry**
Key Vocabulary/Concepts/Ideas		**Key Vocabulary/Concepts/Ideas**		**Key Vocabulary/Concepts/Ideas**	
• Elements, compounds and mixtures • Atomic structure and electron configuration • Evolving models of the atom • Periodic Table • Metals	• Chemical Reactions • Atomic structure • Ionic bonding & structures • Covalent bonding & structures • Metallic bonding	• Chemical Reactions • Atomic structure • Ionic bonding & structures • Covalent bonding & structures • Metallic bonding	• Alkanes & Alkenes • Combustion & Fractionating • Alcohols & Carboxylic acids	• Earth's atmosphere • Greenhouse effect Pollutants	• Relative formula mass • Moles • Concentration • Percentage yield
CIAG		**CIAG**		**CIAG**	
Science teacher / communicator Radiation scientist		Synthetic chemist (pharmaceuticals, cosmetics, etc) Food scientist Perfumer		Chemical plant technician School technician Chemical engineer Analytical chemist Climate scientist Environmental scientist	

Key Stage 4 CHEMISTRY: Year 11

Overall Curriculum Goals – To explore the behaviour of substances on a macroscopic scale, including production, testing and wider environmental impact					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
C8 Reactions of acids **C9 Electrolysis**	**C10 Reversible Reactions** **C11 Chemical Analysis**	**C12 Resources & Potable Water**	**Revision, consolidation, terminal assessment**		
Key Vocabulary/Concepts/Ideas		**Key Vocabulary/Concepts/Ideas**		**Key Vocabulary/Concepts/Ideas**	
• pH and neutralisation • Strong and weak acids • Electrolysis	• Examples and uses of reversible reactions • Dynamic equilibrium • Chromatography & R_f values • Gas tests	• Sustainable development • Potable water • Reduce, Reuse, Recycle			
CIAG		**CIAG**		**CIAG**	

Analytical chemist Inorganic chemist Electrologist Jeweller Forensic scientist	Water treatment scientist Farmer Environmental scientist	

Key Stage 4 PHYSICS: Year 9

Overall Curriculum Goals – To develop an understanding of the development of atomic theory, and how subatomic particles interact					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
				P4: Atomic Structure	
Key Vocabulary/Concepts/Ideas		**Key Vocabulary/Concepts/Ideas**		**Key Vocabulary/Concepts/Ideas**	
				• Structure of the atom • History of atomic structure • Radiation • Uses of radiation	
CIAG		**CIAG**		**CIAG**	
				Radiographer Medical physics Nuclear engineer Radiation protection officer	

Key Stage 4 PHYSICS: Year 10

Overall Curriculum Goals – To use the concept of conservation of energy, and energy dissipation, to quantify, predict and explain physical phenomena					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
P3: Particle model and matter		**P1 Energy**		**P2 Electricity P7 Electromagnetism**	
Key Vocabulary/Concepts/Ideas		**Key Vocabulary/Concepts/Ideas**		**Key Vocabulary/Concepts/Ideas**	
• States of matter • Cooling curves Latent heat		• Energy stores • Energy calculations – kinetic, gravitational potential, elastic potential • Energy transfers in heating • Efficiency		• Current, potential difference and resistance • Series and parallel circuits • Power • Electricity in the home • Magnets • Electromagnets • Uses of electromagnets	
CIAG		**CIAG**		**CIAG**	
		Renewable energy sector Engineer		Electrical engineer National grid	

Key Stage 4 PHYSICS: Year 11

Overall Curriculum Goals – To explain the motion of objects in terms of the forces acting upon them, and to use the wave-model of light to explain physical phenomena					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
P5 Forces		**P6 Waves**		**Revision, consolidation, terminal assessment**	
Key Vocabulary/Concepts/Ideas		**Key Vocabulary/Concepts/Ideas**		**Key Vocabulary/Concepts/Ideas**	
• Speed • Distance-time graphs • Newton's laws of motion • Moments		• Wave properties • Light • Reflection and refraction • EM spectrum			
CIAG		**CIAG**		**CIAG**	
		X-ray technician Laser technician			