KEY STAGE 4 CURRICULUM MAP 2022-23

SUBJECT: Science

CURRENT YEAR 11

		KNOWING WHAT (information, facts & content)			KNOWING HOW (methods and processes)
Prior Knowledge	Content from Y09	Biology 1. Cell Biology 2. Biodiversity 3. Adaptation and classification 4. Nutrient cycles	Chemistry 1. Atomic structure 2. Periodic table 3. Atmospheric Chemistry 4. Structure and bonding (first half)	Physics 1. Particle model of matter 2. Magnetism and electromagnetism 3. Energy resources	Throughout all science units students will be developing skills around: Using scientific vocabulary, terminology, and definitions. Recognise the importance of scientific quantities and understand how they are determined. Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations. Explain everyday and technological applications of science; evaluate associated personal, social, economic, and environmental implications; and make decisions based on the evaluation of evidence and arguments.
	Content from Y10	1. Adaptation and classification (recap) 2. Respiration 3. Nervous system 4. Hormones 5. Homeostasis 6. Photosynthesis	1. Structures and bonding 2. Quantitative 3. Chemical changes 4. Energy changes	1. Energy 2. Atomic structure 3. Space*	

	Term 1			Term 2			Term 3		
	Biology 1	**Chemistry 1**	**Physics 1**	**Biology 2**	**Chemistry 2**	**Physics 2**	**Biology 3**	**Chemistry 3**	**Physics 3**
	Cells and Cell Transport Material Cycles Infection and Response	Rates of reaction & Equilibrium Organic	Space* Forces	DNA & the genome/ Inheritanace and variation Cloning, protein synthesis and Mendel* Evolution Speciation*	Chemical analysis Using resources	Waves	Revision based on PPES		
KNOWLEDGE focus	AQA 8461 Specification points: 4.1.3 Cell Transport 4.3 Infection and Response	AQA 8462 Specification points: 4.6 The rate and extent of chemical change 4.7 Organic chemistry	AQA 8463 Specification points: 4.5 Forces	AQA 8461 Specification points: 4.6 Inheritance variation and evolution	AQA 8462 Specification points: 4.8 Chemical analysis 4.10 Using resources	AQA 8463 Specification points: 4.6 Waves			
METHODS focus	• Evaluate risks related to use of blood products. • Evaluate methods of treatment bearing in mind the benefits and risks associated with the treatment. • Interpret data about risk factors for specified diseases.	• Recognise and use expressions in decimal form. • Use ratios, fractions, and percentages. • Make estimates of the results of simple calculations. • Translate information between graphical and numeric form. • Drawing and interpreting appropriate graphs from data to determine rate of reaction. • Determine the slope and intercept of a linear graph. • Draw and use the slope of a tangent to a curve as a measure of rate of change. • Make models of alkane molecules using the molecular modelling kits.	• Recognise and use expressions in decimal form. • Recognise and use expressions in standard form • Use an appropriate number of significant figures. • Change the subject of an equation.	• Interpret a diagram of DNA structure but will not be required to reproduce it. • Interpret information about genetic engineering techniques and to make informed judgements about issues concerning cloning and genetic engineering, including GM crops • Explain the benefits and risks of selective breeding given appropriate information and consider related ethical issues. • Use the theory of evolution by natural selection in an explanation. • Appreciate that embryo screening and gene therapy may alleviate suffering but consider the ethical issues which arise.	• Recognise and use expressions in decimal form. • Use ratios, fractions and percentages. • Make estimates of the results of simple calculations • Translate information between graphical and numeric form. • Interpret LCAs of materials or products given appropriate information • Use ratios, fractions and percentages. • Make estimates of the results of simple calculations. • Use an appropriate number of significant figures. • Translate information between graphical and numeric form.	• Recognise/draw/interpret diagrams of waves • Plan experiments or devise procedures to make observations and collect data and minimise hazards • Recognise and use expressions in decimal form. • Recognise and use expressions in standard form • Use an appropriate number of significant figures. • Change the subject of an equation.			
Planned ASSESSMENT opportunities	• In class marked task • In class formative assessment • End of topic test • PPE 1 – Paper 1	• In class marked task • In class formative assessment • End of topic test • PPE 1 – Paper 1	• In class marked task • In class formative assessment • End of topic test • PPE 1 – Paper 1	• In class marked task • In class formative assessment • End of topic test • PPE 2 – Paper 2	• In class marked task • In class formative assessment • End of topic test • PPE 2 – Paper 2	• In class marked task • In class formative assessment • End of topic test • PPE 2 – Paper 2			

Content marked in the specifications for "Biology Only", "Chemistry Only" and "Physics Only" will only be taught to separate science students.
*Content marked within this document with a * will only be taught to separate science students.*