Curriculum Map - Science

Intent

Through a well thought out curriculum and well executed lessons we hope to play a part in creating confident and courageous young people who are liberated through the knowledge we teach them to be critical evaluators in an ever changing world.

We hope to inspire all students to feel passionately about the science of everyday life to see how the big ideas of science have developed throughout time and are a continuum of ideas and theories that at times involve paradigm shifts in our cultures and beliefs. We hope that in doing so we are preparing our young people to question and embrace further developments and to use scientific fact to differentiate from the fake news and scaremongering that is all around us.

Lastly, we want to instil in our students a sense of pride in their achievements and the achievements of others as we provide opportunities for all students to experience success and to provide information on the exciting career pathways that science can lead them to.

TERM		Autumn		Spring		Summer	
Y7	T1	Matter - Solids, Liquids & Gases	Matter - Atoms, Elements & Compounds	Waves - Sound & Light		Matter - Types of Reaction	Ecosystems - Interdependence
	T2	Forces - Balanced & Unbalanced	Organisms - Cells & Microscopy	Organisms - Organisation		Forces - Gravity & Space	
	Lit	Autumn Literacy & Numeracy		Spring Literacy & Numeracy		Summer Literacy & Numeracy	

Y8	**T1**	Matter - Separating Mixtures	Forces - Forces at Work	Genes - Human & Plant Reproduction	Genes - Variation, Evolution & Inheritance	Earth - Structure, Climate & Resources
	T2	Energy - Energy Stores & Transfers	Electromagnets - Voltage, Resistance & Current	Reactions - Acids & Alkalis	Reactions - Energy in Reactions	Electromagnets - Magnetism, Electromagnets & Generating Electricity
	Lit	Autumn Literacy & Numeracy	Spring Literacy & Numeracy		Summer Literacy & Numeracy	
Y9	**T1**	4.1 Cell Biology	6.1 Energy		4.4 Bioenergetics	
	T2	5.1 Atomic Structure & Periodic Table	5.2 Structure & Bonding		6.3 Particle Model of Matter	
Y10	**Bi**	4.2 Organisation	4.3 Infection & Response		4.7 Ecology	
	Ch	5.4 Chemical Changes	5.5 Energy Changes		5.6 Rates of Reaction	
	Ph	6.2 Electricity	6.3 Particle Model of Matter (Triple Only)	6.4 Atomic Structure	6.5 Forces	

Y11	Bi	4.5 Homeostasis			4.6 Inheritance, Variation & Evolution			Revision & Exams		
	Ch	5.6 Equilibrium	5.7 Organic		5.8 Chemical Analysis	5.9 Chemistry of the Atmosphere		5.10 Using Resources	Revision & Exams	
	Ph	6.6 Waves			6.7 Magnetism & Electromagnetism		6.8 Space (Triple Only)		Revision & Exams	
Y12	Bi	T1	3.1 Biological Molecules			3.3 Organisms Exchange Substances with their Environment				
		T2	3.2 Cell Biology					3.4 Genetic Information, Variation and Relationships between Organisms		
	Ch	T1	Atomic Structure	Amount of substance	Energetics	Chemical equilibria	Equilibrium constant	Oxidation, reduction and redox	Periodicity and group 2	Halogens
		T2	Electronic Structure	Bonding	Introduction to Organic	Alkanes	Halogenoalkanes	Kinetics and Rate Equation	Alkenes	Alcohols	Organic Analysis
	Ph	T1	Mechanics		Particles & Radiation / EM Radiation & Quantum Phenomena		Further Mechanics		Option Unit - First Half		Revision & Exam Practice

		T2	Practical Skills	Waves	Electricity	Materials	Nuclear Physics - First Half	Revision & Exam Practice	
	Env	**GBW**							
		JTS							
		AGL							
Y13	**Bi**	**T1**	3.5 Energy transfers in and between organisms (photosynthesis)		3.5 Energy transfers in and between organisms (respiration)		3.6 Organisms respond to changes in their internal and external environments	Revision	
		T2	3.7 Genetics, populations, evolution and ecosystems			3.5.3/4 (Part 3 - Ecology) Energy transfers in and between organisms	3.8 The Control of Gene Expression	Essays & Revision	
	Ch	**T1**	Thermodynamics Born Haber cycles	Thermodynamics Gibbs and entropy	Equilibrium Kp	Electrode potentials and cells	Acids and bases	Properties of Period 3 elements and their oxides	Transition metals	Revision	

		T2	Optical isomerism	The carbonyl group	Aromatic chemistry	Amines	Polymers, amino acids and DNA	Organic synthesis, NMR spectroscopy and chromatography	Revision	
	Ph	**T1**	Option Unit - Second Half	Gravitational, Magnetic & Electric Fields	Capacitors	Revision				
		T2	Nuclear Physics	Thermal Physics	Revision					
	Env	**GBW**								
		JTS								
		GBW								

Below are the assessments for both GCSE and A level:

AQA Combined Trilogy GCSE each paper is 1hr 15:
Biology Paper 1 Cell Biology, Organisation, Infection and response, Bioenergetics

Biology Paper 2 Homeostasis & response, Inheritance, variation and evolution, Ecology

Chemistry Paper 1: Atomic Structure and the Periodic Table, Bonding, Structure and Properties of Materials, Quantitative Chemistry, Chemical Changes, Energy
Chemistry Paper 2: The Rate and Extent of chemical change , Organic chemistry, Chemical Analysis, Chemistry of the Atmosphere, Using Resources

Physics Paper 1: Energy, Electricity, Particle Model of Matter, Atomic Structure
Physics Paper 2: Forces, Waves, Magnetism & Electromagnetism

AQA Triple Science GCSE each paper is 1hr 45:
Biology Paper 1 Cell Biology, Organisation, Infection & Response, Bioenergetics
Biology Paper 2 Homeostasis & Response, Inheritance, Variation & Evolution, Ecology

Chemistry Paper 1: Atomic Structure and the Periodic Table, Bonding, Structure and Properties of Materials, Quantitative Chemistry, Chemical Changes, Energy Changes
Chemistry Paper 2: The Rate and Extent of chemical change, Organic chemistry, Chemical Analysis, Chemistry of the Atmosphere, Using Resources

Physics Paper 1: Energy, Electricity, Particle Model of Matter, Atomic Structure
Physics Paper 2: Forces, Waves, Magnetism & Electromagnetism, Space Physics

AQA Biology A' Level:

- **Paper 1:** Biological Molecules, Cell Biology, Organisms Exchange Substances with their Environment , Genetic Information, Variation and Relationships between Organisms, including relevant practical skills
- **Paper 2:** Energy transfers in and between organisms, Organisms respond to changes in their internal and external environments, Genetics, populations, evolution and ecosystems, The Control of Gene Expression, including relevant practical skills
- **Paper 3:** Any content from topics 1–8, including relevant practical skills PLUS Synoptic essay

AQA Chemistry A' Level:

- **Paper 1:** Physical and Inorganic
- **Paper 2:** Physical and Organic
- **Paper 3:** Synoptic including practical skills

AQA Physics A' Level:

- **Paper 1:** Particles and radiation. electromagnetic radiation and quantum phenomena, Waves, Mechanics and further mechanics, materials, electricity, further mechanics
- **Paper 2:** Thermal physics, gravitational fields, electric fields, magnetic fields, capacitors, nuclear physics
- **Paper 3a:** Practical skills covering all eight units
- **Paper 3b:** Optional unit [currently engineering].

AQA Environmental Science A' Level:

- **Paper 1 (180 mins)** The physical environment, Energy resources, Pollution, Research methods
- **Paper 2 (180 mins)** The living environment, Biological resources, Sustainability, Research methods