**GCSE Combined Science: Curriculum Intent**

The aims of the curriculum are to:

GCSE study in combined science provides the foundations for understanding the material world. Scientific understanding is changing our lives and is vital to the world’s future prosperity, and all students should be taught essential aspects of the knowledge, methods, processes and uses of science. They should be helped to appreciate how the complex and diverse phenomena of the natural world can be described in terms of a small number of key ideas relating to the sciences which are both inter-linked, and are of universal application.

* develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
* develop understanding of the nature, processes and methods of science, through different types of scientific enquiries that help them to answer scientific questions about the world around them
* develop and learn to apply observational, practical, modelling, enquiry and problem-solving skills, both in the laboratory, in the field and in other learning environments
* develop their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitatively

These aims will be realised through all students who have chosen this option studying the full programme of study for GCSE Combined Science.

In addition, the extra time available during Key Stage 4 will be used to go beyond the course requirements to:

* Develop strong foundations for knowledge in Year 9 by students studying a foundation term at the start of Year 9 where they will acquire the working scientifically skills necessary to enable them to apply this to later study. The foundation knowledge (facts, skills and understanding) needed for the course will be studied throughout Year 9 to provide the necessary core knowledge needed to access later studies. The literacy and numeracy skills needed for future study and to work in the Science sectors will be gained in this first year of study.
* Enhance, enrich and enjoy learning in Year 10 by using time to study the key areas of knowledge in depth, connect different areas of study together, have regular opportunities to apply knowledge to solve real life problems, undertake visits to Science sector workplaces, external speakers form industry will provide real world workshops for students in small groups.
* Get ready for next steps in Year 11 by focusing on the knowledge needed to secure high grades and also the key knowledge needed to study A Level Biology, Chemistry and Physics and for using Science in work and life.

**GCSE Combined Science : Curriculum Overview**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Aut 1** | **Aut 2** | **Spr 1** | **Spr 2** | **Sum1** | **Sum 2** |
| **Year****9** | * Biology
	+ Cell biology 1- Cell structure
* Chemistry
	+ Atomic structure 1 – Atoms, elements and compounds
* Physics
 | * Biology
	+ Cell biology 2 - Cell transport
* Chemistry
	+ Atomic structure 1 – Atoms, elements and compounds
* Physics
	+ Particles 1 – Solids, liquids and gases
	+ Energy 1 – Types of energy and resources
 | * Biology
	+ Cell biology 2 - Cell transport
* Chemistry
	+ Using resources – Sustainable resources
	+ Chemical change 1 – Metals and acids
* Physics
	+ Energy 1 – Types of energy and resources
	+ Forces 1 – Types of forces
	+ Electricity 1 – Electricity in the home
 | * Biology
	+ Organisation 3 - Plant organisation
	+ Bioenergetics 1 – Photosynthesis
	+ Ecology 1 - Communities
* Chemistry
	+ Bonding 1 – Types of bonds
	+ Atmosphere -Earth and the atmosphere
* Physics
 | * Biology
* Chemistry
	+ Bonding 1 – Types of bonds
	+ Quantitative 1 – Relative formula mass and percentages
	+ Atmosphere -Earth and the atmosphere
* Physics
 | * Biology
* Chemistry
* Physics
	+ Forces 1 – Types of forces
	+ Electricity 1 – Electricity in the home
 |
| **Year 10** | * Biology
	+ Organisation 2 – Heart
	+ Bioenergetics 2 - Respiration
* Chemistry
	+ Atomic structure 2 –Periodic table
* Physics
	+ Atomic structure – Radiation
 | * Biology
* Chemistry
	+ Rate of reaction Atomic structure 1 rate of reaction
* Physics
	+ Energy 2 Kinetic, Gravitational, elastic energy
	+ Electricity2 – Principles of electricity
 | * Biology
	+ Infection and response 1 – Microorganisms and defence of disease
	+ Homeostasis 1 – Nervous response
* Chemistry
	+ Energy changes – Exothermic and endothermic
* Physics
	+ Electricity2 – Principles of electricity
 | * Biology
	+ Cells 3 – Mitosis and stem cells
	+ Inheritance 1 – Principles of genetics
* Chemistry
	+ Chemical analysis – Gas tests and chromatography
	+ Organic chemistry – Hydrocarbons
* Physics
 | * Biology
	+ Infection and response 2 – immunity and drug development
* Chemistry
	+ Quantitative 2 – Moles
* Physics
	+ Particles 2 – Internal energy
 | * Biology
	+ Infection and response 2 – immunity and drug development
* Chemistry
* Physics
	+ Forces 2 – Elasticity and Newtons Laws energy
 |
| **Year 11** | * Biology
	+ Homeostasis 2 – Hormonal control
* Chemistry
	+ Bonding 2 –Structure and bonding
* Physics
 | * Biology
* Chemistry
	+ Chemical change 2 –Electrolysis
* Physics
 | * Biology
	+ Inheritance 2 – Uses of genetics and evolution
* Chemistry
	+ Rate of reaction 2 – Equilibria
* Physics
	+ Waves
 | * Biology
	+ Ecology 2 – Human effect on biodiversity
* Chemistry
	+ Revision
* Physics
	+ Forces 3 – Distance time & Velocity time graphs , momentum
	+ Magnetism
 | * Biology
	+ Revision
* Chemistry
	+ Revision
* Physics
	+ Revision
 | * Exams
 |