

CoDA Curriculum

SCIENCE



Improving the life chances of all students

Most students in Year 10 and 11 study the following specification(s):

AQA Level 1/Level 2 GCSE (9-1) in Combined Science: Trilogy (worth 2 GCSEs)

Some students study three separate Science subjects:

AQA Level 1/Level 2 GCSE (9-1) in Biology

AQA Level 1/Level 2 GCSE (9-1) in Chemistry

AQA Level 1/Level 2 GCSE (9-1) in Physics

Why study SCIENCE?

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

SCIENCE Curriculum INTENT Y7-9 (based upon the National Curriculum, 2013)

The Science Curriculum aims to ensure that all students:

- 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 science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

WORKING SCIENTIFICALLY	BIOLOGY	CHEMISTRY	PHYSICS
<ul style="list-style-type: none"> • Scientific attitudes • Experimental skills and investigations • Analysis and evaluation • Measurement 	<ul style="list-style-type: none"> • Structure and function of living organisms <ul style="list-style-type: none"> • Cells and organisation • The skeletal and muscular systems • Nutrition and digestion • Gas exchange systems • Reproduction • Health • Material cycles and energy <ul style="list-style-type: none"> • Photosynthesis • Cellular respiration • Interactions and interdependencies <ul style="list-style-type: none"> • Relationships in an ecosystem • Genetics and evolution <ul style="list-style-type: none"> • Inheritance, chromosomes, DNA and genes 	<ul style="list-style-type: none"> • The particulate nature of matter • Atoms, elements and compounds • Pure and impure substances • Chemical reactions • Energetics • The Periodic Table • Materials • Earth and atmosphere 	<ul style="list-style-type: none"> • Energy <ul style="list-style-type: none"> • Calculation of fuel uses and costs in the domestic context • Energy changes and transfers; changes in systems • Motion and forces <ul style="list-style-type: none"> • Describing motion • Forces • Pressure in fluids • Balanced forces; forces and motion • Waves <ul style="list-style-type: none"> • Observed waves • Sound waves; light waves; energy and waves • Electricity and electromagnetism <ul style="list-style-type: none"> • Current electricity; static electricity; magnetism • Matter <ul style="list-style-type: none"> • Physical changes; particle model; energy in matter • Space physics

SCIENCE Curriculum INTENT Y10-11 (AQA GCSE Combined Science – “Trilogy”; AQA GCSE Biology, Chemistry, Physics)

Students will be taught to...

- 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

Students will be taught and assessed on their ability to...

AO1	Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures.
AO2	Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures.
AO3	Analyse information and ideas to: interpret and evaluate; make judgments and draw conclusions; develop and improve experimental procedures.

	Autumn	Spring	Summer
Y7	Science skills Particles Forces Acids and alkalis OR cells	Acids and alkalis OR cells Electricity Reproduction	Energy Ecology The Earth
Y8	Food and digestion Forces Elements Breathing and drugs	Plants Waves Heating & cooling OR reactions	Heating & cooling OR reactions Earth's resources Variation
Y9	Cells Atoms Humans OR particles	Humans OR particles Reactions OR energy	Reactions OR energy Plants Electricity
Y10	Biology 1: Cells Biology 2: Human organ systems Physics 1: Particles Physics 2: Energy	Biology 3: Disease Biology 4: Plants Chemistry 1: Atoms & Periodic Table Chemistry 2: Ionic bonding Chemistry 3: Covalent bonding	Biology 3: Disease Biology 4: Plants Chemistry 1: Atoms & Periodic Table Chemistry 2: Ionic bonding Chemistry 3: Covalent bonding
Y11	Biology 5: Nerves & hormones Biology 6: Inheritance Physics 5: Forces Physics 6: Forces & movement	Biology 7: Evolution Biology 8: Ecology Chemistry 5: Reactions Chemistry 6: Organic Chemistry 7: Atmosphere	Chemistry 8: Using resources Physics 7: Magnets Physics 8: Waves

Please refer to "Fact Sheets" for each topic for more detail.