

SCIENCE



Curriculum Aims, Delivery & Content

Curriculum Aims

An inspiring science education provides the foundations for understanding the wonders of the natural world and amazing achievements of humans through the specific disciplines of biology, chemistry and physics. Students need a good grounding in the essential aspects of the knowledge, methods, processes and uses of science. They are encouraged to develop a sense of excitement and curiosity about natural phenomena and to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Years 7, 8 & 9 (KS3)

In year 7, students master the building blocks of the three major elements of science. Throughout years 7 students are introduced to a wide range of practical opportunities, encouraging them to develop their working scientifically skills. This encompasses: Development of scientific thinking; Experimental skills and strategies; Analysis and evaluation; and scientific vocabulary, quantities, units, symbols and nomenclature.

In year 8, students continue to explore the foundational concepts of science, expanding their knowledge by going into greater breadth and depth, and developing their understanding of more complex scientific theories and models. The practical work that students conduct in this year provide opportunities for students to consolidate and enhance the working scientifically skills they were introduced to in year 7.

In year 9, students revisit many of the building blocks they began exploring in years 7 and 8 in a greater level of depth and detail, enabling them to develop greater fluency in understanding the more complex aspects of these concepts. Students are also introduced to a number of new and challenging topics to ensure greater readiness for the rigours of Key Stage 4.

Alongside the knowledge-rich curriculum, a key aim of year 9 is for students to develop greater finesse in working scientifically skills. Students are introduced to 'Required Practicals' in order to practice their skills in planning, implementing, analysing and evaluating experimental work. Students complete Year 9 with an increasingly detailed knowledge of a wide range of concepts, a developing ability to apply their knowledge to unfamiliar contexts, and a repertoire of fundamental working scientifically skills.

<p>Curriculum Content Year 7 In Year 7, students have 5 lessons of science per fortnight</p>	<p>Curriculum Content Year 8 In Year 8, students have 6 lessons of science per fortnight</p>	<p>Curriculum Content Year 9 In Year 9, students have 7 hours of science a fortnight</p>
<p>Biology</p> <ul style="list-style-type: none"> • Cell biology • Homeostasis and Response • Organisation • Bioenergetics <p>Chemistry</p> <ul style="list-style-type: none"> • Properties of matter • Chemical matter <p>Physics</p> <ul style="list-style-type: none"> • Particle model of matter • Energy • Electricity and magnetism • Forces 	<p>Biology</p> <ul style="list-style-type: none"> • Ecology • Organisation and Bioenergetics • Inheritance, variation and evolution <p>Chemistry</p> <ul style="list-style-type: none"> • Atomic structure and the periodic table • Chemical changes • Atmosphere and using resources <p>Physics</p> <ul style="list-style-type: none"> • Energy • Electricity and magnetism • Forces 	<p>Biology</p> <ul style="list-style-type: none"> • Cell biology • Organisation • Infection and response • Bioenergetics <p>Chemistry</p> <ul style="list-style-type: none"> • Atomic structure and the periodic table • Bonding, structure and properties of matter • Quantitative chemistry • Chemical changes • Energy changes <p>Physics</p> <ul style="list-style-type: none"> • Energy • Electricity • Particle model of matter • Atomic structure



Bottisham Village College

Achievement through Inspiring, Caring, Enriching

Curriculum aims Years 10 & 11

The theme of developing breadth and depth of knowledge continues into KS4 with students studying a wide variety of branches of each science specialism and understanding increasingly more abstract concepts.

There is an emphasis on utilising the numeracy and literacy skills that students are developing in their core subjects; along with their working scientifically skills, this enables students to effectively interpret and communicate scientific ideas in an assured manner in both familiar and unfamiliar contexts.

By the end of Year 10 students are able to explain 'Paper 1' concepts in detail, apply understanding to some unfamiliar contexts and write with greater scientific accuracy. Students can make a range of links between the topics in each science specialism.

By the end of Year 11 students have a detailed understanding of science that enables them to articulate their scientific understanding of concepts using a range of numeracy, literacy and working scientifically skills. Students are able to link ideas between topics and across science specialisms.

Curriculum delivery KS4

In years 10 and 11, students who follow the combined science route will have 9 hours of science a fortnight, whereas, those who follow the separate science route will have 5 lessons a fortnight for each of the three sciences.

All students will sit 3 sets of mock examinations:

- Year 10: April
- Year 11: October and March

Final Examinations take place in June of year 11.

Curriculum Content Years 10 & 11

AQA GCSE Combined Science : Trilogy

**This qualification is worth 2 GCSEs and students will gain a dual grade.
Biology, chemistry and physics will all be studied.**

Paper 1

Biology - Cell Biology, Organisation, Infection and response, Bioenergetics.
Chemistry - Atomic Structure and the periodic table, Bonding, structure and the properties of matter, Quantitative chemistry, Chemical changes, Energy changes.

Physics - Energy, Electricity, Particle model of matter, Atomic Structure

Paper 2

Biology - Homeostasis and response, Inheritance, variation and evolution,

Ecology.

Chemistry - the rate and extent of chemical change, Organic chemistry, Chemical analysis, Chemistry of the atmosphere, Using resources
Physics - Forces, Waves, Magnetism and electromagnetism.

AQA GCSE Science: Separate Sciences

The separate science content extends on these subject areas. In addition to this GCSE Physics includes the topic Space physics.

Students studying the separate sciences will take GCSEs in Biology, Chemistry and Physics. They will gain 3 GCSEs.