

# SCIENCE

## Statement of Intent

Science is the study of how the world works - it covers the biological world of living organisms and vital processes, the chemical structure and properties of substances and their reactions and the physical elements of matter and energy and their interactions. Students will study all aspects of science and carry out many practicals that enable them to apply their knowledge. Students will also develop working scientifically skills, which encompasses practical work, data analysis and evaluation. Our curriculum is designed to engage students, show how science is used all around us, all the time whilst developing skills and understanding vital for life after school.

## Key Stage 3 Curriculum

At KS3 students have four lessons of science a week. The year is split into topics that cover all three sciences, Biology, Chemistry and Physics. Each topic will cover the fundamental theory and key language as well as practical investigations that are an essential element to all science. Homework is set once a week and the expected completion time is 30 minutes.

## Key Stage 4 Curriculum

### **AQA Trilogy Combined Science**

At KS4, the majority of students study the AQA Trilogy Combined Science course. Students have four lessons of science a week. The year is split into topics that cover all three sciences, Biology, Chemistry and Physics. Each topic will cover the fundamental theory and key language as well as practical investigations that are an essential element of the GCSE. Homework is set each week and the expected completion time is 60 minutes. The AQA Trilogy Combined Science course is assessed at the end of year 11 in 6 x 1 hour 15 minute exams that cover all content and practical work studied. These exams are evenly weighted in generating the two GCSE grades students are awarded.

### **AQA Biology, Chemistry and Physics**

At KS4, the top scientists can opt to complete the AQA Biology, Chemistry and Physics courses. Students have seven lessons of science a week which are split into individual sciences. Each science will cover the fundamental theory and key language as well as practical investigations that are an essential element of the GCSE. Homework is set each week and the expected completion time is 90 minutes. The AQA Biology, Chemistry and Physics courses are assessed at the end of year 11 in 6 x 1 hour 45 minute exams that cover all content and practical work studied. These exams are evenly weighted in generating the three GCSE grades students are awarded.

## Key Stage 5 Curriculum

### **AQA Biology**

Students will complete the AQA Biology A level which covers animal and plant biology alongside microbiology, genetics and gene technologies. During the course students have 5 lessons a week that will allow the teaching of the fundamental theory and key language as well as practical investigations that are an essential element of the A level. Homework, with an expected completion time of 5 hours, is set throughout the week. Students are assessed at the end of year 13 in 3 x 2 hour exams. Topics are assessed through a mixture of short and long answer questions as well as a comprehension task, an in-depth practical review and an essay.

## **AQA Chemistry**

Students will complete the AQA Chemistry A level which covers physical, inorganic and organic chemistry in depth. During the course students have 5 lessons a week that will allow the teaching of the fundamental theory and key language as well as practical investigations that are an essential element of the A level. Homework, with an expected completion time of 5 hours, is set throughout the week. Students are assessed at the end of year 13 in 3 x 2 hour exams. Topics are assessed through a mixture of short and long answer questions as well as a multiple choice section in paper 3.

## **AQA Physics**

Students will complete the AQA Physics A level which covers the fundamentals of physics and astrophysics in depth. During the course students have 5 lessons a week that will allow the teaching of theory and key language as well as practical investigations that are an essential element of the A level. Homework, with an expected completion time of 5 hours, is set throughout the week. Students are assessed at the end of year 13 in 3 x 2 hour exams. Topics are assessed through a mixture of short and long answer questions as well as multiple choice sections in both paper 1 and 2.

## **Edexcel Applied Science BTEC Level 2 and Level 3**

Students will complete the Edexcel Applied Science BTEC which covers fundamental theory across all three sciences and practical investigation work. During the course students have 5 lessons a week that will allow the teaching of the exam theory and the practical work required for assignments. Homework, with an expected completion time of 5 hours, is set throughout the week. Students are assessed throughout year 12 and 13 with two exams and two coursework assignments.

## **Extended Learning**

What we offer to extend the learning of our students

We have a range of exciting extra-curricular options for students. Currently we offer:

- KS3 Science club that includes practical work that does not normally fit into the classroom
- KS3 STEM club where students explore the cross-curricular discipline through practicals and construction
- STEM projects throughout the year have involved construction of aircraft (in partnership with BECSLink and the Smallpeice Trust)
- Challenge weeks which extend students' learning beyond the curriculum and into relevant, topical areas of Science
- KS4 revision and intervention sessions
- KS5 A-Level Biology, Chemistry and Physics Olympiads – an international academic competition
- KS5 A-Level Biology residential which focuses on ecology, practical methods and data analysis and evaluation.
- KS5 Lecture Series competition where students extend their learning beyond the curriculum on a topic that they are passionate and curious about.

What can parents do to support extended learning in this subject

To support extended learning, parents could:

- encourage conversations about how and why everyday processes happen
- encourage students to develop their problem-solving skills
- visit science exhibitions, museums and shows
- encourage students to watch scientific discovery programmes
- read books with a scientific theme