

## Why is Science important?

Science helps answer all those tough questions students ask, like 'Why is the sky blue?' and 'Where do stars come from?'

**Science teaches students about life** - Science involves a lot of talking and listening to others; it develops patience. Add to the mix are skills for life such as perseverance, problem-solving and researching. Science can teach students to form their own opinions, rather than taking those of others for granted. Science teaches about the way the world works e.g. how clothes are made or why volcanoes erupt.

It can spark ideas in student's minds that they, too, may one day be capable of creating solutions to big problems such as reducing poverty through the improvement of seed genetics to grow stronger crops. Who knows what one of our students may go on to achieve in the future?

**Science jobs for the future** - There will be plenty of exciting jobs for students who study science in the future. When we look at science and the discoveries that come through, we've only scratched the surface. Jobs in renewable energies such as solar and hydropower are increasing rapidly. Then there is the conversation that goes with it in terms of preserving plants and animals. There is always going to be the study of different habitats as well as the increase in technology in renewable energies. Medical research is also going to escalate. Even now, scientists are developing the 'shoulders' that future scientists will stand on in terms of cures for diseases.



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## Key Stage 3

### Course outline

The Key Stage 3 science curriculum is delivered using carefully selected and developed resources by expert teaching staff. These high-quality lesson plans and resources are used in conjunction with exciting practical work to give our Key Stage 3 students an engaging start to science which develops key fundamental skills which are vital before they progress into Key Stage 4. The scheme of work is structured so students will complete the Key Stage 3 curriculum in two years.

### How we deliver the course

At key stage 3, students have 3 hours of science each week. It is structured so each student will have one hour per week of each of the sciences (biology, chemistry and physics). Students will usually have three teachers which are teaching within their specialism (biology, chemistry or physics). Over the year students will be taught two units from each science so will complete six units in each year. Throughout the course students have many opportunities to develop their practical skills, scientific thinking, numeracy, oracy and literacy.

### How we assess and when

Students complete tests on each unit taught. Tests take place at a mid-point in the unit and at the end of the unit. Revision guides are made available for students to buy periodically throughout the year. Teachers will also deliver lessons on revision skills during the units.

Students are frequently encouraged to reflect the progress which they are making using assessment trackers. They are also made clear of the flightpath which they are working at. In addition to this, students will receive:

- Tests with feedback sections built in for self-reflection and improvement work
- Marking for literacy is incorporated into test and book marking
- Weekly homework which we use to monitor student effort and progress
- Frequent book marking with achievements highlighted and improvement tasks set

### **Setting**

Students are set after the first half term in year 7. This is done based on target and any assessment data which we have. As students enter year 8 sets are also reviewed based on target and progress made. Any misplaced students will be looked on an individual basis.

### **Science weeks**

At three points in the year teaching of the normal science curriculum is suspended and pupils take part in an exciting and engaging scenario based project to allow them to apply scientific knowledge and principles in a real world context.

## **Key Stage 4**

The GCSE courses offered by the department follow the AQA schemes of work. The courses are accessed on two levels;

1. Separate science students will study 3 separate GCSEs, Biology, Chemistry and Physics.
2. Combined science students follow a course which is equivalent to two GCSEs.

We also offer a level 2 BTEC course in animal husbandry. This is a vocational course which develops skills in animal handling in a work based context. This is mainly assessed by coursework but does also have one exam.

### **Assessment**

All students will take the final examinations in GCSE science at the end of year 11. This is comprised of six exams, two for each science. Students can either sit the exams at foundation or higher level. Students are also expected to complete a number of required practical's which will also be assessed within the exams.

Mid unit and end of unit tests will be taken at a convenient point after the completion of each section and mock examinations will be used as a revision tool in the run up to the external examinations.

The level of entry into the GCSE examinations will be decided as late as possible taking into consideration all the end of unit tests and mock examination data.

### **Examination Preparation**

Revision guides, practice papers and revision schedules can all be accessed online through the VLE and we encourage parents and carers to make themselves familiar with this content to support the students with their studies. In addition to this weekly exam paper workshops are run to support students.

### **Setting information**

Sets for the start of the course are decided based on target data and the pathway which the students are following.

### **Feedback**

Students receive tests with feedback sections built in. The feedback process of each assessment gives each student an opportunity to carry out improvement work based on gaps in knowledge which have been highlighted in the assessment.

## Key Stage 5

### Biology

Pupils follow the AQA Advanced Subsidiary GCE in Biology specification in Year 12. In Year 13 the AQA Advanced GCE Biology course is followed. Examinations are taken in May or June of each year. In addition to this students complete required practical's which are the coursework element of the course.

### Chemistry

Pupils follow the AQA Advanced Subsidiary GCE in Chemistry specification in Year 12. In Year 13 the AQA Advanced GCE Chemistry course is followed. Examinations are taken in May or June of each year. In addition to this students complete required practical's which are the coursework element of the course.

### Physics

Pupils follow the AQA Advanced Subsidiary GCE in Physics specification in Year 12 and the AQA Advanced GCE in Physics specification in Year 13. Examinations are taken in May or June of each year. In addition to this students complete required practical's which are the coursework element of the course.

### Applied science

Pupils follow the BTEC Edexcel level 3 course in applied science. This is a two-year programme. After two year's students can achieve an extended certificate which is broadly equivalent to one full A-Level. However, students can opt to drop the course at the end of year 12 and achieve a level 3 certificate which is broadly worth 0.5 of an A-Level. Assessments are coursework based though one unit does require students to pass a written examination.

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## Outside the Classroom

Regular STEM activities are run throughout the year. This is facilitated by our STEM co-ordinator Torrie Sullivan. These activities provide many enrichment activities for our students and are enjoyed by students of all ages.

In addition to this we also work closely with the Life Centre in Newcastle. We regularly run trips to Newcastle but also have the Life Centre coming in to school to run workshops for our students.

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## Department Teaching Staff

- Mel Ling: Chemistry / BTEC level 3 Applied science/ Curriculum leader/ Lead Practitioner
- Alison Wright: Chemistry / Second in Science Department
- Chris Sproat: Biology/ Head of Biology
- Chris Anders: Physics/ Head of Physics/ BTEC level 3 Applied science
- Torrie Sullivan: Biology/ Physics/ STEM co-ordinator
- John Carlin: Biology
- Lynsey Stewart: Biology/ BTEC level 3/ BTEC level 2 Animal husbandry
- Lisa Reed: Chemistry
- Kevin Philips: Physics
- Lewis Garner: Chemistry
- Simon Ling: Biology/ BTEC level 3 Applied science/ BTEC level 2 Animal husbandry
- Meya Kahli: Chemistry/ BTEC level 3 Applied science
- Conrad Hayward: Biology
- Isabel Forrester: Physics