



SCIENCES

BIOLOGY

CHEMISTRY

PHYSICS

BTEC APPLIED SCIENCES

BTEC FORENSICS AND

CRIMINAL INVESTIGATION



A LEVEL BIOLOGY

What are the entry requirements?

You will need GCSE grade 6, 6 or higher in Combined Science (or GCSE 6 in Biology plus one other Science 6 grade). You will also need a grade 5 or above in GCSE Mathematics and English. You will need to show a high level of interest and enthusiasm in class and be capable of independent study.

What does the course involve?

Year 1

Core content: *Biological molecules, cells, how organisms exchange substances with their environment and genetic information, variation and relationships between organisms.*

AS Biology is assessed by two 1.5 hour exams taken in June. Each exam contributes 50% of the AS grade and will include questions on practical aspects of the course.

Year 2

Core content: *Energy transfers in and between organisms, how organisms respond to changes in their internal and external environments, genetics, populations, evolution and ecosystems and the control of gene expression.*

A Level Biology is assessed by three 2 hour exams taken in June. The first 2 exams each contribute 35% of the final grade and the third exam contributes 30% of the final grade.

In both Year 1 and year 2 Biology students are required to complete 6 key practical tasks that form part of the final examinations.

Progression

Studying A Level Biology will prepare you to study any Biology or Biological Sciences related courses in further or higher education. A-Level Biology can also prepare you for a career in medicine, veterinary medicine, genetics, forensic science or agriculture. Even if you don't end up as a scientist, the skills you develop will be relevant to a wide range of careers.



A LEVEL BIOLOGY

Anything else I need to know?

Maths, Physics and Chemistry are all good partners to Biology.

We've specifically chosen the AQA course as it allows a seamless transition from GCSE Science into Year 1 (AS level) and has the best quality resources and support. Meadowhead Biology teachers have many years' experience of delivering the course and a track record of academic success.

The course encourages an application of new Biological knowledge that will, in one way or another, affect every person on Earth. Students studying this course will have the opportunity to gain an understanding of these advances and to develop the skills essential to make responsible use of practical aspects of Biology.

The course aims to promote scientific approach to studying life and living processes, and to show how the knowledge and understanding of different aspects of Biology are interconnected. Throughout each module we believe the AQA course is current, accessible and most of all enjoyable.

Where can I find out more?

Mr Stephenson, Mrs Markham, Miss Moore.



A LEVEL CHEMISTRY

What sort of things will I study?

Meadowhead students take the AQA Chemistry course. You will study organic, inorganic and physical Chemistry. This includes:

- Revising and looking more deeply at atoms and electrons
- Asking why chemical reactions happen and how we control them
- More about the periodic table and how different substances behave
- Understanding the reactions of many different organic compounds and how exactly they react

What are the entry requirements?

The minimum entry requirements are two grade 6s in GCSE Sciences. This could be in separate Sciences, or Combined Science. You will also need at least a 5 in Maths.

How much Maths is there?

You do not need to be doing A Level Maths. However, there is more Maths content in the new A Level Sciences than in previous courses, and good GCSE Maths skills are important – we recommend 6 grade or above.

Who will teach me?

A Level Chemistry is currently taught by Mrs Mason, Mr Hill and Mrs Rallowal.

Progression

Chemistry is probably the most important science! It links together many different areas of science and is therefore very highly valued by universities. Most universities insist that applicants to Medicine or Veterinary Science have taken Chemistry. Getting A Level Chemistry shows that you are intelligent, logical, practical and imaginative. Even if you don't end up as a scientist, the skills you develop will be relevant to a wide range of careers and courses.

What other subjects should I take?

Maths, Physics and Biology are all good partners to Chemistry. Equally, if you are thinking of only doing one science at A level, Chemistry could also be a good choice.

Where can I find out more?

Any of the Chemistry teachers! If you have any questions at all then talk to us – whether you're completely undecided or just have a few questions, we'll do our best to help.



A LEVEL PHYSICS

Why Physics?

Physics encompasses the study of the universe from the largest galaxies to the smallest subatomic particles. Physics is crucial to understanding the world around us, the world inside us, and the world beyond us. Moreover, it's the basis of many other sciences, including Chemistry, Oceanography, Seismology, and Astronomy (and can be applied to Biology or Medical Science). All are easily accessible with an education in Physics. Physics challenges our imaginations with concepts like relativity and string theory, and it leads to great discoveries, like computers and lasers, that lead to technologies which change our lives—from healing joints, to curing cancer, to developing sustainable energy solutions.

What are the entry requirements?

The minimum entry requirements are two grade 6s in GCSE sciences. This could be in separate Sciences, or Combined Science. You will also need at least a 5 in Maths.

What does the course involve?

At Meadowhead School the course of study is OCR A Level Physics A .

(<http://www.ocr.org.uk/qualifications/as-a-level-gce-physics-a-h156-h556-from-2015/>)

There will be 3 exams at the end of A Level (Y13) but there is the possibility of 2 AS exam papers at the end Y12. (Below are the details of what is covered in any particularly exam).

What will I be taught?

The following topics will be taught and the information in brackets tells you when it will be assessed.

- Module 1: Development of practical skills
- Module 2: Foundations of Physics
- Module 3: Forces and motion
- Module 4: Electrons, waves, and photons.
- Module 5: Newtonian world and astrophysics
- Module 6: Particles and Medical Physics



A LEVEL PHYSICS

Progression

Anything anywhere – physics is the most sought after A-Level by universities and employers alike. This is not surprising as it was rated the joint hardest A Level along with Chemistry. Physicists are problem solvers. Their analytical skills make physicists versatile and adaptable so they work in interesting places. You can find physicists in industrial and government laboratories, on college campuses, in the astronaut corps, and consulting on TV shows.

An education in Physics is also a great foundation for careers in:

- Journalism
- Law
- Finance
- Medicine
- Engineering
- Computer Science
- Astronomy
- Biology

Anything else I need to know?

Taking A Level Maths will help you with the more mathematical aspects of Physics. We also recommend taking Maths because if you want to study any aspects of Engineering or

Physics at university, then A Level Maths will be essential.

Where can I find out more information?

Please speak to Mr Bates

BTEC LEVEL 3

National Extended Certificate in Applied Science -1 A Level

Meadowhead School
Academy Trust



What are the entry requirements?

You will need a grade 5 in Science or a Merit grade at BTEC Science level 2. You will also require at least a grade 5 in Maths and English. You will need to show a good level of interest and enthusiasm. Students will need to have a keen interest in general science and industry applications of the three main disciplines of Biology, Chemistry and Physics. You must have good time management, organisation and an ability to work independently in order to succeed on this course.

Level and Size of qualification:

Extended Certificate – 1 A Level equivalent (5 hours a week for 2 years)

What does the course involve?

The course involves a combination of internally and externally assessed components. The first year includes written assignments, these are based around a variety of scientific practical techniques. There are three formal exams one in Chemistry, one in Biology and one in Physics. The second year will include an externally assessed exam (completed in lesson time) based on a variety of practical skills and techniques. There will also be another unit of written assignments based on a variety of aspects of human physiology. The units are listed below:

Unit 1: Principles and Applications of Science I

Unit 2: Practical Scientific Procedures and Techniques

Unit 3: Science Investigation Skills.

Unit 8: Physiology of Human Body Systems

How will I be assessed?

A combination of internally assessed assignments and externally assessed exams. For each unit a Pass, Merit or Distinction grade can be achieved.



BTEC LEVEL 3

National Extended Certificate in Applied Science

Progression

You will gain a wide array of lab practical skills that are directly transferable into the work place. BTEC level 3 courses offer the equivalent UCAS points as A-Level subjects. This qualification can therefore offer higher education opportunities in a variety of professions such as nursing, veterinary nursing, pharmacy, zoo biology and radiography as well as the food and drink industry or environmental health. Skills would also be gained that could lead to employment in a hospital laboratory, research laboratory or college.

Anything else I need to know?

This course offers students the opportunity to develop a wide range of practical skills that are valuable in the work place. If you wish to study or work in any part of the science industry then this course offers the appropriate experience and skills. Students will need to be well organised and good at working to deadlines. As this is a vocational course, there will be opportunities to take part in external visits and workshops including a field trip to Padley Gorge and university lab sessions.

Where can I find out more?

Speak to Mr O'brien to get more details and to find out if it will be suitable for you.



BTEC LEVEL 3 NATIONAL DIPLOMA IN FORENSIC AND CRIMINAL INVESTIGATION- 2 A Levels

What are the entry requirements?

You will need a grade 5 in Science or a Merit grade at BTEC Science Level 2. You will also require at least a grade 5 in Maths and English. You will need to show a good level of interest and enthusiasm. Students will need to have a keen interest in general science and industry applications of the three main disciplines of Biology, Chemistry and Physics. You must have good time management, organisation and an ability to work independently in order to succeed on this course.

Level and Size of qualification:

Diploma – 2 x A Level equivalent (10 hours a week for 2 years)

What does the course involve?

The course involves a combination of internally and externally assessed components. The first year includes two units of written assignments, these are based around a variety of scientific and forensic practical and investigative techniques. Unit 1 consists of three formal exams one in Chemistry, one in Biology and one in Physics. Unit 6 learners will complete key vocational tasks, including presenting in a mock courtroom trial as a professional witness, and develop an understanding of the Criminal Justice System (CJS).

The second year will include two external assessments. One exam is based on a variety of practical skills and techniques. The other is based on applications of criminology. There will also be another two units of written assignments based on a variety of aspects of human physiology including the use of insects to estimate time of death. The units are listed below:

Year 1

Unit 1: Principles and Applications of Science

Unit 2: Practical Scientific Procedures and

Techniques Unit 4: Forensic Investigation

Procedures in Practice Unit 6: Criminal Investigation

Procedures in Practice

Year 2

Unit 3: Science Investigation Skills.

Unit 5: Applications of Criminology

Unit 8 Physiology of Human Body Systems

Unit 9: Environmental Forensics



BTEC LEVEL 3 NATIONAL DIPLOMA IN FORENSIC AND CRIMINAL INVESTIGATION

How will I be assessed?

The course involves a combination of internally and externally assessed components. The first year includes two units of written assignments, a set task based around the Criminal Justice System and presenting evidence in court and three formal exams one in Chemistry, one in Biology and one in Physics.

The second year will include two external assessments, one based on scientific investigation skills and the other based on aspects of criminology, and two units of written assignments. For each unit a Pass, Merit or Distinction grade can be achieved. Unit 1, Unit 3 and Unit 5 are externally assessed.

Unit 6: Criminal Investigation Procedures in Practice learners will complete key vocational tasks, including presenting in a mock courtroom trial as a professional witness, and develop an understanding of the Criminal Justice System (CJS). Learners will also develop an understanding of the legal framework that criminal investigators must work to in order to protect individual rights, as well as the adversarial system where prosecution and defence set out evidence in court to determine guilt or innocence. Learners will draw together their knowledge and understanding from across the qualification in order to appreciate the role of criminal investigators. Learners complete the tasks using knowledge and understanding from their studies of the sector and apply both transferable and specialist knowledge and skills.

Progression

The qualification may be complemented with other BTEC Nationals or A Levels to support progression to higher education courses in forensics and criminology. The additional qualification(s) studied allows learners either to give breadth to their study by choosing a contrasting subject, or to give their studies more focus by choosing a complementary subject. You will gain an array of lab practical skills which are directly transferable into the work place. BTEC level 3 courses offer the equivalent UCAS points as A-Level subjects. This qualification can therefore offer higher education opportunities in a variety of professions such as nursing, veterinary nursing, pharmacy, zoo biology and radiography as well as the food and drink industry or environmental health. Skills would also be gained that could lead to employment in a hospital laboratory, research laboratory or college. The requirements of the qualification will mean learners develop the transferable and higher-order skills that are highly regarded by both higher education and employers. Skills include carrying out practical laboratory tasks, planning investigations, evaluating case studies/sources of information to draw arguments together and produce forensic reports for use in court hearings. The qualification is intended to carry UCAS points and is recognised by higher education providers as contributing to admission requirements for many relevant courses.



BTEC LEVEL 3 NATIONAL DIPLOMA IN FORENSIC AND CRIMINAL INVESTIGATION

Progression (Contd)

Taken on its own, the National Diploma in Forensic and Criminal Investigation will offer learners the opportunity to progress to some applied degree courses. Taken alongside other qualifications, it will prepare learners for progression to a wider range of degree programmes. For example, if taken alongside an A Level in Psychology, learners can progress to Psychology courses or an A Level in Sociology, learners can progress to Criminology courses. This course provides the transferable knowledge and skills that prepare learners for progression to university.

Anything else I need to know?

This course offers students the opportunity to develop lab practical skills which are valuable in the work place. If you wish to study or work in the science industry then this course offers the appropriate experience and skills. Assignments will involve both independent and collaborative work. Students will need to be good at working to deadlines and be well organised to keep work up to date. As this is a vocational course, there will be opportunities to take part in external visits and workshops.

Where can I find out more?

Speak to Mr O'Brien to get more details and to find out if it will be suitable for you.