

SCIENCE at GCSE

What will I Study? - A Description of the Course

Science may be studied as a 'Double Award' GCSE, or as Separate Science GCSEs

Double Award Science

AQA Certificate in Science: Double Award Specification 8404

This counts as *two* GCSE subject choices. It is taught by specialist Biology, Chemistry and Physics teachers over a total of twelve periods per cycle (four per science subject).

Assessment and Examination

There are two Biology, two Chemistry and two Physics examination papers of 1 hour each. All papers are taken at the end of the course. There is no internally assessed coursework.

Separate Sciences

AQA Certificate in Biology Specification 8401

AQA Certificate in Chemistry Specification 8402

AQA Certificate in Physics Specification 8403

Each subject takes up six periods per cycle and each is assessed and examined independently.

As with Double Award, the separate science subjects are taught by specialist teachers.

Assessment and Examination

For each subject there are two examination papers of 1 hour and 30 minutes each. Both papers are taken at the end of the course. There is no internally assessed coursework.

Differences between Double Award Science and Separate Science subjects

- In Double Award Science, Biology, Chemistry and Physics continue to be studied and taught separately. The content in each subject is proportionally less than that in each separate science which reflects the reduced time allocation. Consequently this leads to two GCSE grades that cover all three science subjects, whereas studying separate sciences leads to a full GCSE in each of the sciences you choose.
- Separate Sciences are examined at Higher tier only (A*-G) whereas Double Award papers are also available at Foundation tier (C-G).
- It is important to note that AS level courses in Biology, Chemistry and Physics use the Double Award Science content as the basis upon which the specifications are designed. Hence a student studying Double Award rather than Separate Sciences is **not** disadvantaged when it comes to studying sciences at AS and A level.

HOW TO MAKE YOUR CHOICE

- The majority of boys choose to study all 3 sciences, either separately or as Double Award, as this offers the most flexibility of choice after your GCSEs.
- Should you wish to pursue a Science career it makes no difference whether you choose Double Award Science or separate sciences.
- Some boys choose Double Award as they are strong in sciences but equally strong in lots of other areas and would like to continue other subjects of interest and keep

their options open. Other boys might benefit from the reduced content of Double Award and the possibility to sit a foundation tier paper in one or more of the sciences.

- Double Award counts as 2 choices. If you choose to study separate sciences this uses 1, 2 or 3 choices. Bear in mind that if you do not study a particular science at GCSE it cannot be studied at AS and it may affect the HE courses available to you. Ensure you research thoroughly.

Some HE requirements on your choices

If you have ambitions to study, for example:

Environmental Sciences or Biological Sciences: Double Award Science or GCSE Biology and Chemistry are required.

Physical Sciences / Engineering: Double Award Science or GCSE Physics and Chemistry are required

Biology, Chemistry or Physics: The chosen subject plus another science, or Double Award Science may be required.

Medicine or Veterinary Science: Double Award Science or all three separate sciences are required.

BIOLOGY

What will I Study? - A Description of the Course

Whether you follow the Double Award or GCSE Biology, the techniques you use and the skills you acquire are the same. The courses build on the foundations you have built in Years 7-9 and both offer a route to the study of Biology at an advanced level.

We continue to extend your knowledge and understanding in Biology from the cell level, through whole organisms to the global environment and the impact humans are having on it. We investigate how organisms are adapted to their lifestyle and how these adaptations arise and are passed on – inheritance and evolution. The full Biology course has extra topics which broaden the understanding. The aim is to excite pupils about Biology and understand its contribution to scientific knowledge. Learning, where possible, involves hands-on activities, interactive learning and the development of sound practical skills.

What could I go on to do? - Benefits of the Course & Qualification

Direct links with Biology: medicine, veterinary science, dentistry, biochemistry, agriculture, sports science, physiotherapy, nutrition, pharmacy, pharmacology, marine biology and biotechnology.

Indirect links with applied areas such as catering, land management, environmental and social sciences and bio-engineering.

CHEMISTRY

What will I Study? - A Description of the Course

GCSE Chemistry develops and builds on the solid foundations laid down in Years 7, 8 and 9. Whether you choose to follow the GCSE Double Award Science or the Separate Chemistry, the work is similar. You will study topics such as atomic structure and bonding, Metals, acid and bases, crude oil, electrolysis, and analytical chemistry.

You will always need chemistry for the colours that you see, the food you eat and the clothes that you wear, and our raw materials from which everything is made are the air, earth or water. As you continue to study materials and their properties a clearer insight into how objects for which there is little use can be transformed into useful ones will be more apparent.

The implications of the impact of chemistry in a range of domestic, industrial and environmental contexts will add to the enjoyment of its study. Skills will be developed to enable the application of acquired scientific knowledge and understanding to evaluate the benefits and drawbacks to society of scientific and technological developments.

Skills in practical work are important in all the Sciences and an assessment of the skills involved takes place during routine practical work.

What could I go on to do? - Benefits of the Course & Qualification

Biological Sciences, Accountancy, Business Studies/Management, Law, Computing, Chemical Sciences, Medicine, Dentistry, Agriculture, Food, Veterinary Science, Anatomy, Chemical Engineering.

PHYSICS

What will I Study? - A Description of the Course

Whether you choose to study Physics as part of Double Award Science or as a separate GCSE, the work is similar and is a continuation of the course that you have been following through Years 7 - 9.

We continue to develop some familiar topics like Forces, Energy and Electricity and come across new areas like Nuclear Physics, Basic Astronomy and Optical Instruments. The ideas become a little more quantitative so a firm grasp of mathematics is useful but not essential at this stage.

Skills in practical work are important in all the Sciences and these skills are assessed in the final examinations. You will also find that practical work becomes an integral part of your study both helping to explain ideas presented to you, and as a means of investigating new ideas.

What could I go on to do? - Benefits of the Course & Qualification

The areas where having studied Physics is either essential or beneficial are numerous, including Engineering & Technology, Electronics, Computer Science, Material Science, Biophysics and Bio-engineering, Geophysics, Astronomy, Medical Physics – the list goes on!

