A Future in Chemistry
Your options at
14-16
Around the age of 14 you will start to make important decisions about your future studies.

If you like chemistry and are considering taking it further, the best advice is to do as much science as you can.
Why study chemistry?

There’s much more to chemistry than white coats, laboratories and mixing chemicals together. If you’ve a passion for discovering how things work, using logic and analysis skills, then chemistry is the subject for you!

Chemistry has a significant impact on everyday life. We all use chemical knowledge on a daily basis and chemists play a vital role in developing many of the everyday products that we take for granted and developing the new technologies of the future. As a result there is a significant demand for chemists.

For more information on different routes into university, talk to university admissions tutors or visit the Access to HE website www.accesstohe.ac.uk
What science courses are there?

This depends on where you are; GCSEs are offered in England, Wales and Northern Ireland (although there are some differences, such as in the way that they are assessed) and in Scotland you will take National Qualifications.

All of the qualifications can be studied with varying levels of content. For an introduction to the three sciences, you can study Single GCSE. To study chemistry, biology and physics in more depth you would need to take either triple science or additional and further additional science. In Scotland, an introduction to each of the Sciences is given by National 4 courses whilst those considering taking the subject further would follow a more demanding National 5 course. The more science you study will keep your options for the future wide open.

Some schools offer international qualifications called IGCSEs, which are mainly exam based and often used to prepare students for the International Baccalaureate.

Certain schools and institutions offer more vocational programmes. If you prefer a more practical approach to learning and assessment, then these courses may appeal to you. They all still have a formal exam but it only makes up between 20–25% of the overall course. Whilst these qualifications can be useful for certain careers in science, it’s worth checking that they will be acceptable for any higher-level courses you may consider.

What do I need to do?

- Find out what science courses are available at your school.
- Ask your teachers what the different courses involve.
- If you are interested in a career using chemistry, or would just like to study it further, you will need good grades in sciences, and maths is also an important subject. If you decide not to continue with chemistry in the future, it is useful for a wide range of careers, even outside the area of science.
Where can I get help with my choices?

Your teachers can tell you more about the science or chemistry courses at your school and careers advisors can help answer some of your broader career questions.

Try to find out whether there are any special events that will give you information about careers in chemistry, such as options evenings or career talks.

For information on which GCSE/National subjects you will need for any careers that interest you, see:

- National careers service [https://nationalcareersservice.direct.gov.uk](https://nationalcareersservice.direct.gov.uk)
- Skills Development Scotland [http://www.skillsdevelopmentscotland.co.uk](http://www.skillsdevelopmentscotland.co.uk)
If you enjoy studying chemistry or science in general, or know that you will need chemistry qualifications for your career, there are various ways you can continue with the subject post-16.
Academic qualifications

If you like academic study and are happy to continue learning in the classroom, then these are some of the qualifications to consider:

- A-levels – offered in England, Northern Ireland and Wales
- Scottish Highers followed by Advanced Highers
- International Baccalaureate Diploma
- Cambridge Pre-U.

These qualifications usually take two years to complete and are assessed by exams, along with practical assessments and coursework in some cases. They are well-recognised by the leading universities in the UK.

An alternative might be the Welsh, Scottish or AQA Baccalaureate; these programmes consist of a package of qualifications like A-levels or Scottish Advanced Highers in combination with an extended project or other core activities.
Subject choices

There are benefits to studying maths alongside chemistry. The two subjects complement one another, with maths becoming more important if you intend to study chemistry at university. A-level maths is one of the entry requirements for some chemistry degree courses.

You might want to choose a second or third science alongside chemistry. Chemistry, biology, physics and maths are some of the subjects that appear most often in university entry requirements for a variety of courses. So if you’re undecided about your future plans then studying chemistry can keep your options open.

Chemistry is often referred to as the central science, linking with all the other sciences and underpinning branches of technology. If you are thinking about university, the image to the right shows the preferred A levels, or equivalent qualifications, in order of importance for a range of subjects. You can see why chemistry is a good choice even if you’re unsure of the specific course at the moment.
### Subjects preferred, listed in order of importance

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<th>Chemical sciences</th>
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<td>Marine and freshwater biology</td>
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<td>Plant science</td>
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<td>Food science</td>
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<td>Pathology and microbiology</td>
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Vocational qualifications

If you’d rather spend time learning how to apply your scientific knowledge to practical situations, then you might prefer a vocational qualification. These can be studied full-time, for one or two years and you can mix vocational and academic qualifications.

Vocational qualifications tend to be linked to a specific job sector, for example pharmaceutical science or dental technology. This is a more specialised route and can restrict your options for further study.

You’ll still be spending time in the classroom and laboratory, but you’ll find that your assessments are based around coursework and assignments rather than 100% exams. Some of the qualifications that focus on vocational learning include:

- BTEC Certificates and Diplomas (England, Wales, Northern Ireland).
- National Certificates (Scotland).

You may also want to consider Tech Levels and Applied General qualifications which will be taught in England from September 2014; these are vocational or technical qualifications that are considered to be of high quality.

Vocational qualifications can be used as an entry route to many universities, as well as into work. If you’re interested in applying to a leading university or studying a competitive subject at university, then you may find an academic qualification will be preferred.
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- Explore course options and careers in chemical science.
- Attend unique events, careers talks and industry visits.

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A Future in Chemistry
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