The Next Step

chemistry qualifications for post-16 students

the essential guide

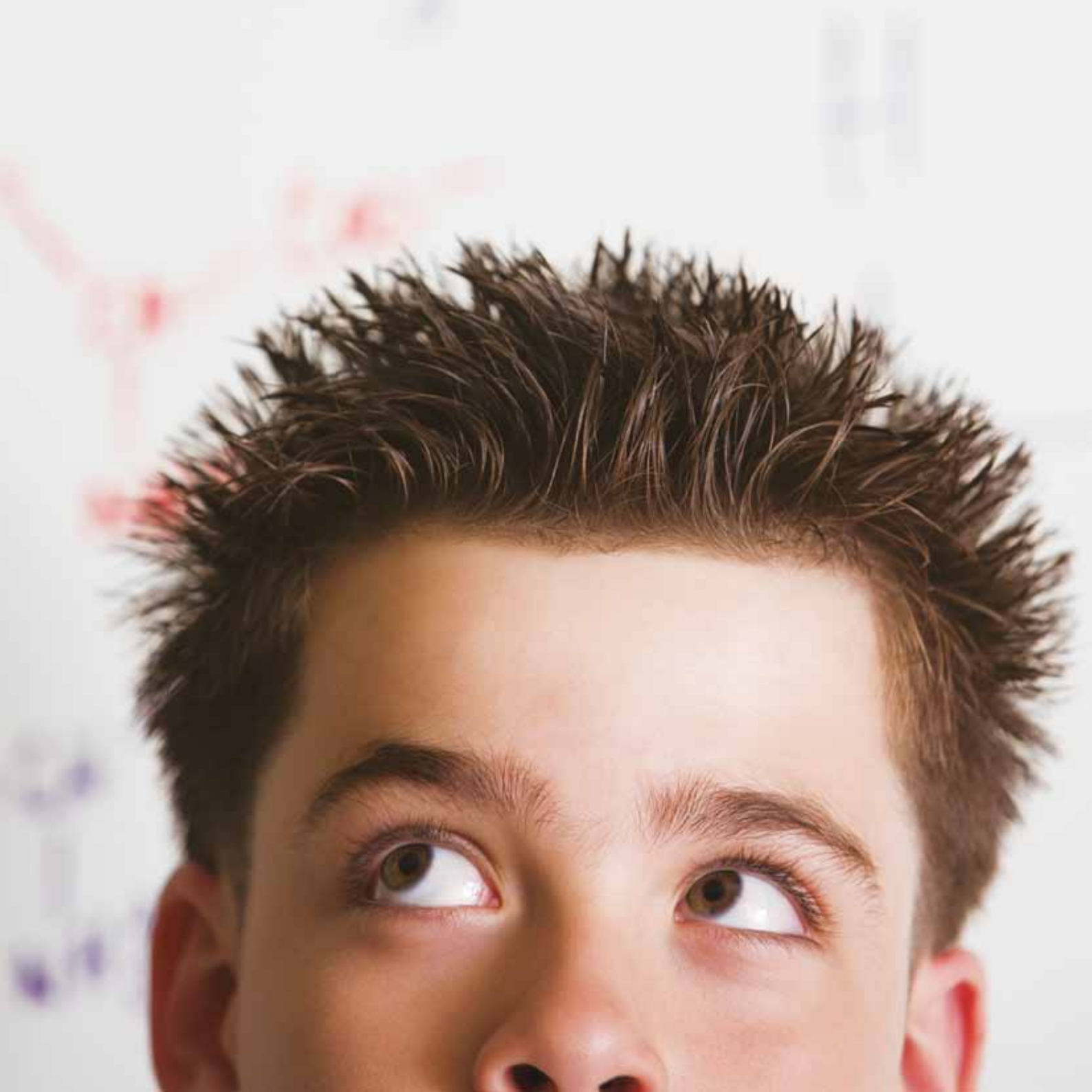
RSC | Advancing the Chemical Sciences

www.rsc.org/studentzone

Why study chemistry?

From the moment you are born, and throughout your life, you are surrounded by chemistry – the air you breathe, the food you eat and the clothes you wear – they're all chemistry. Chemistry is the study of substances; what they are made of, how they interact with each other and the role they play in living things. Whether you want to care for penguin colonies in Antarctica or work in a dynamic business environment, chemistry can help you achieve your goals.

From research in space, to the depths of the oceans, chemistry helps you understand the world around you and opens up lots of career opportunities. A chemistry qualification can take you almost anywhere.



As a chemist you could:

- Make medicines to fight cancer
- Develop exciting new ice cream flavours
- Create new make-up and hair products
- Design marketing campaigns
- Make new materials for faster computers and more complex mobile phones
- Protect the environment

There are loads of interesting and rewarding science-based jobs in the lab, outdoors and in other areas you might not have thought of, such as science journalism, patent law and publishing.

The skills you develop while studying chemistry mean that you can do a whole range of other jobs as well, such as management, sales and marketing, ICT and finance.

Things you can do:

- Speak to your chemistry teacher
- Speak to your careers adviser
- Visit your school careers library
- Look at the websites:

www.rsc.org/studentzone
www.futuremorph.org
www.direct.gov.uk
www.connexions-direct.com

Find out which qualifications are offered at the school or college you want to attend by reading prospectuses and attending open days. Not all institutions offer the same courses.

Where do you go from here?

You may already have a good idea of what you want to do next or you may need advice to help you decide. Either way, it is important that you think about what you want to do after school or college, and which qualifications you will need to do it.

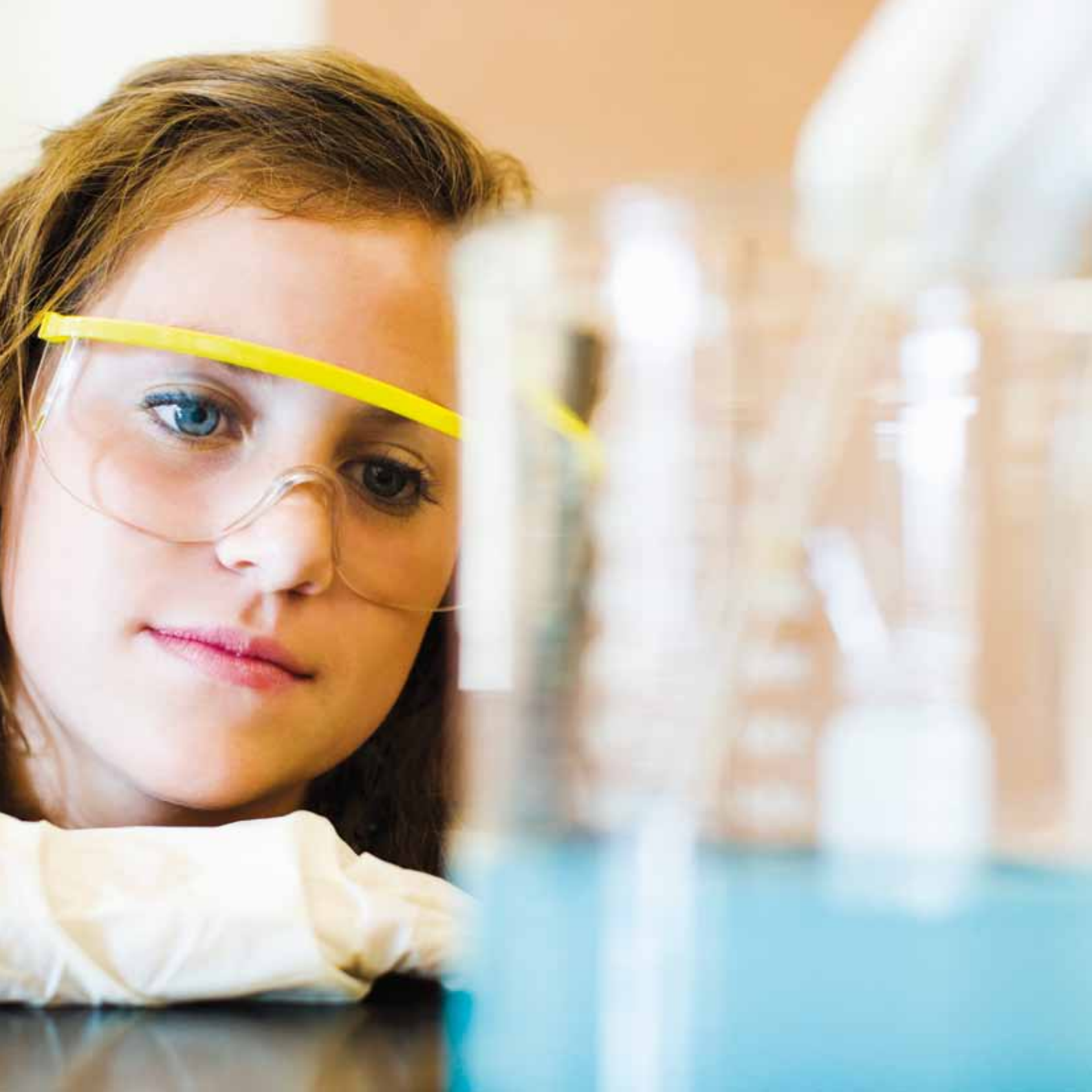
If you want to do a specific degree (perhaps a chemistry degree) at university find out which subjects you will need to study beforehand and at what level. You can find this information on the UCAS website: www.ucas.com

Check the entry requirements for courses before choosing your options to make sure the decisions you make now don't prevent you from studying what you want to do later on.

Should you take maths?

If you want to do a degree in chemistry you should seriously consider taking maths. Although you don't need it for entry on to all chemistry degree courses, maths plays such an important role in many aspects of chemistry that having a good grounding in the subject definitely makes life easier. Not taking maths will limit your university choice.





Your options at 16

You could stay in full-time education, at school or college, or continue to learn through work-based training. Whichever option you choose, it pays to keep learning. Employers are always looking for people with more skills and qualifications.

Qualifications you can take:

- AS and A-levels (England, Wales and Northern Ireland)
- Highers and Advanced Highers (Scotland)
- International Baccalaureate (IB) Diploma (Worldwide)
- Scottish Baccalaureate (Scotland)
- Welsh Baccalaureate (Wales)
- AQA Baccalaureate (England, Wales and Northern Ireland)
- BTECs (England, Wales and Northern Ireland)
- Apprenticeships (nationwide)
- National/Scottish Vocational Qualifications (NVQs/SVQs)

Some qualifications, such as A-levels or Highers, are more academically-focused and are generally used as a path into higher education. They can be studied in a wide range of subjects and are taken at school or college.

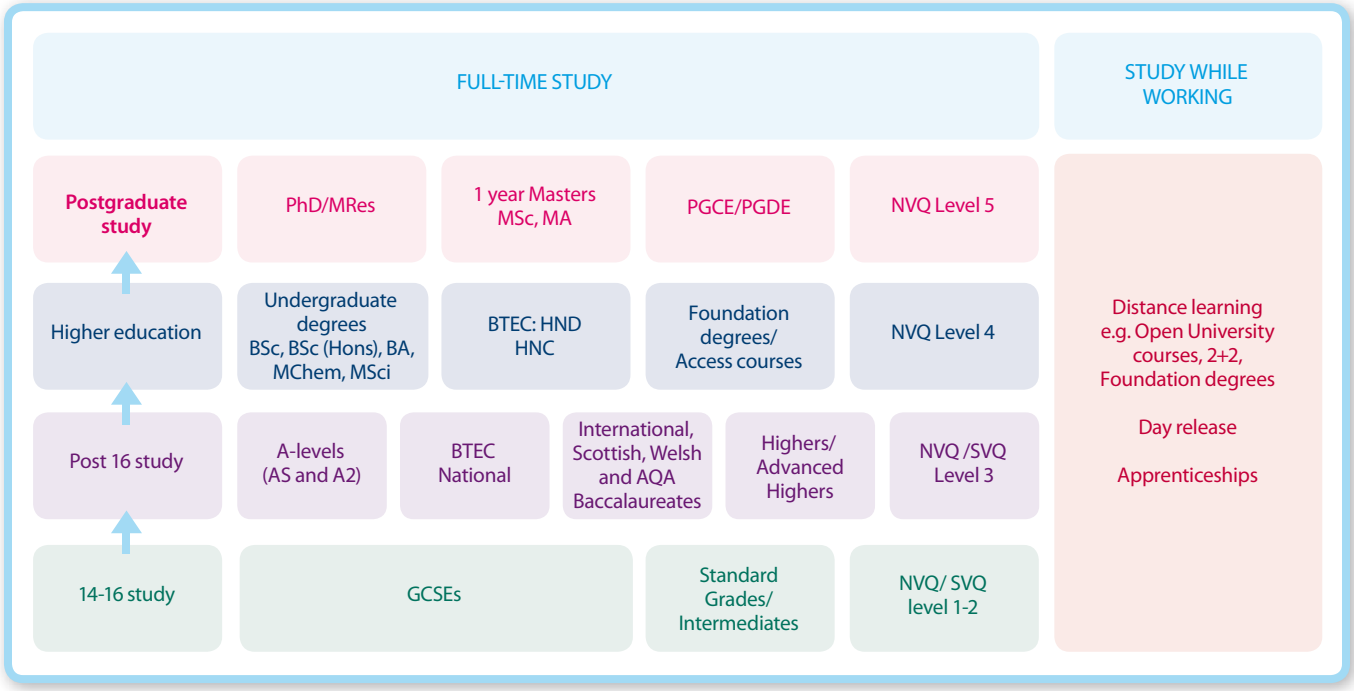
Some qualifications relate to the world of work and give you the skills and knowledge relevant to a particular job sector. These include BTECs, NVQ/SVQs and Apprenticeships. They can be taken at school, college or work and can also lead on to higher education.

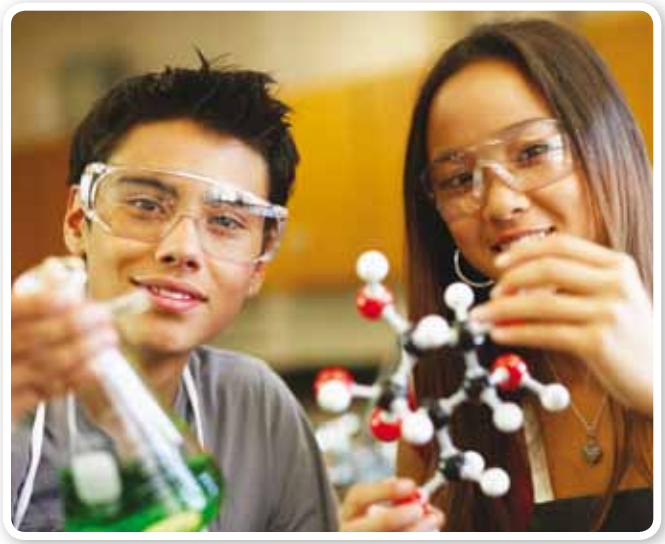
If, for whatever reason, you choose not to follow the route of A-levels/Highers into higher education, don't worry. There will always be other opportunities if you change your mind in the future, although these might take a little longer. There are now more routes into higher education than ever before.

For more information visit the Access to Higher Education website: www.accesstohe.ac.uk

Routes to study chemistry

These are just some of the routes you can follow to study from the age of 16 onwards. It is important you think about what is right for you and follow the route that takes you to where you want to go. Many full-time study options are available for you to follow part-time while working, but these will take longer.





AS and A-levels

England, Wales and Northern Ireland

These qualifications are the main route for entry to university. They take two years to complete full-time and you can choose from a wide range of academic subjects, including chemistry, physics, maths and biology, as well as some work-related subjects, like applied science.

A-levels are made up of two parts – AS and A2, each worth 50 per cent of the overall grade. The AS can be taken as a free-standing qualification (one year full-time).

On your course you will learn about a range of topics using modern contexts, including nanotechnology, green chemistry and climate change. You also learn about how society makes decisions about scientific issues.

Highers and Advanced Highers

Scotland

Highers and Advanced Highers focus on traditional study skills and are the main route for entry to university for Scottish students. Both qualifications take one year to complete full-time and you can choose from a wide range of academic subjects, including chemistry, physics, mathematics and biology.

When you start S6 you may choose to study more Highers or you may choose to take Advanced Highers in some of the subjects you studied at S5. Advanced Highers are designed to develop your subject knowledge and teach you to work more independently, which is good preparation for university.

www.sqa.org.uk
www.ucas.com

Choosing your A-levels and Highers

If you think you would like to study a science course (such as chemistry) at university but you are not sure which one it is best if you take at least two and ideally three of chemistry, biology, maths and physics. Some pairings of these subjects go particularly well together: e.g. chemistry and biology, chemistry and physics. Maths goes very well with any science and is an entry requirement for many chemistry courses.



BTECs

England, Wales and Northern Ireland

BTECs are vocational (work-related) qualifications that train you in a particular job sector. Many have been designed in collaboration with industry, to equip you with the knowledge and skills that employers in that field are looking for. They are available in a variety of subjects, including applied science.

BTEC Nationals are equivalent to A-levels and are available as:

- BTEC National Award (equivalent to one A-level)
- BTEC National Certificate (equivalent to two A-levels)
- BTEC National Diploma (equivalent to three A-levels)

If you enjoy chemistry, there are a range of science BTEC Nationals available, including:

- Applied science (applied chemistry)
- Applied science (laboratory and industrial science)
- Polymer processing and materials technology
- Environmental science
- Pharmacy services

BTEC Nationals can be a route into higher education to study for qualifications like an HNC, HND or foundation degree, or they can lead straight into a job.

www.edexcel.org.uk/quals/nat/science
www.direct.gov.uk
www.connexions-direct.com

NVQs and SVQs

National Vocational Qualifications (NVQs)
England, Wales and Northern Ireland
Scottish Vocational Qualifications (SVQs) Scotland

NVQs/SVQs are work-related qualifications that teach you practical, work-related tasks designed to give you the knowledge and skills required to do a particular job effectively.

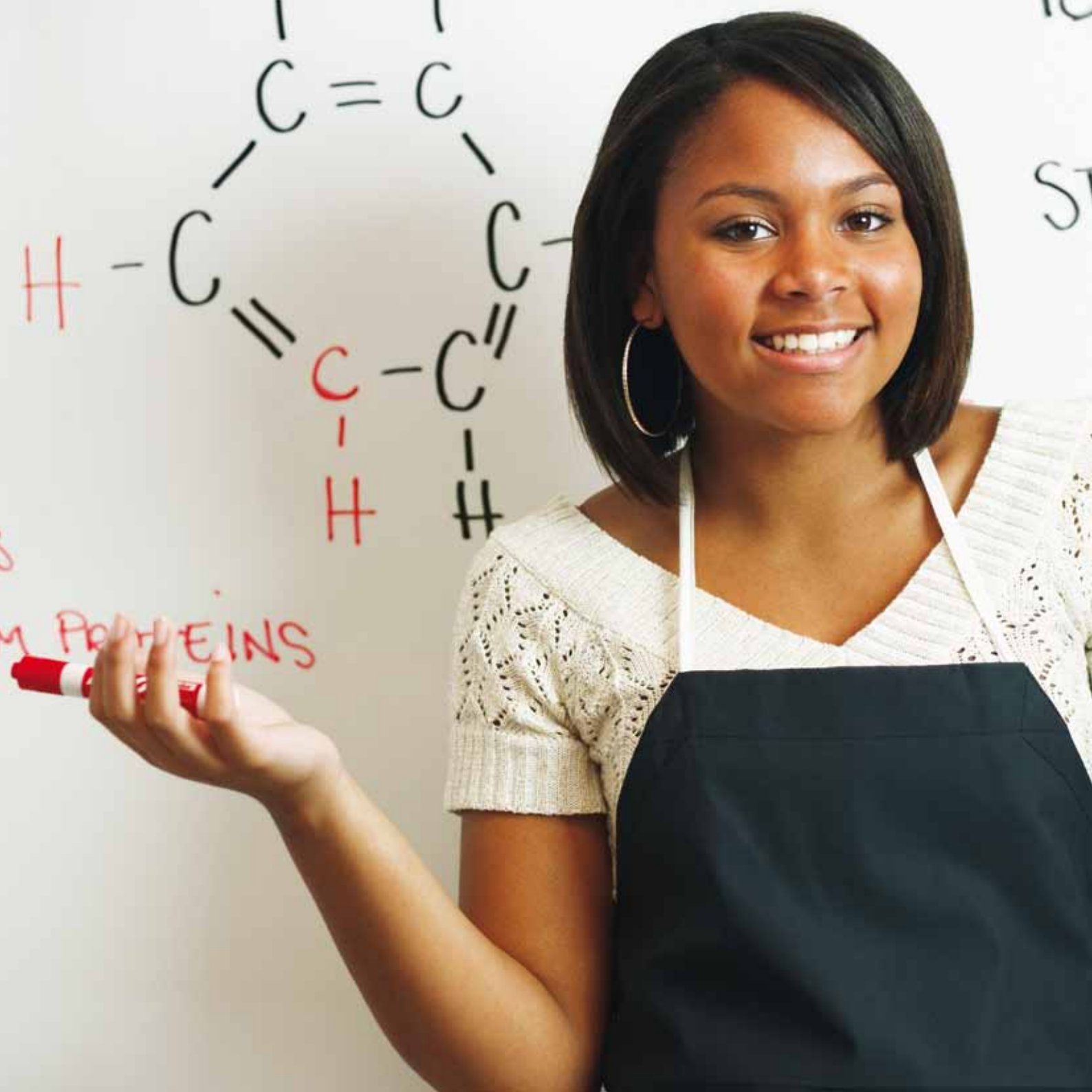
NVQs are available at different levels – from 1 to 5. Level 3 is broadly equivalent to A-levels or Highers and can be used as a route to a higher education course - such as an HND, HNC or foundation degree – in a related area of work.

If you enjoy chemistry there are a range of NVQs you may be interested in, including:

- Clinical laboratory support
- Environmental conservation
- Healthcare
- Pharmacy services
- Manufacturing, production and engineering

NVQs can also be taken as part of an Apprenticeship in England.

www.qcda.gov.uk
www.sqa.org.uk/svq



International Baccalaureate (IB) Diploma

Worldwide

The IB Diploma is an internationally recognised qualification based on the academic study of a wide range of subjects including science, maths and languages. It's a two year full-time course leading to a single qualification, rather than separate qualifications in each subject.

It is made up of a compulsory 'core' of learning, plus six other subjects which you have some choice over.

Compulsory core

- Theory of knowledge
- Creativity, action and service
- Extended essay

Optional subjects

You select one subject from each of the following six areas (normally you study three of these at standard level and three at higher level, which involves more teaching hours):

- First language
- Second language
- Experimental sciences (biology, chemistry, physics, design technology)
- Mathematics and computer science
- The arts (visual, music and theatre)
- Individuals and society (history, psychology, geography)

www.ibo.org
www.ucas.com

Scottish Baccalaureate in Science

In Scotland, if you choose to study science and maths Highers and are expecting high marks then you may wish to study for the Science Baccalaureate, which is an advanced qualification made up of: two different eligible science courses, at least one at Advanced Higher.

The mandatory components of the Science Baccalaureate are:

- An Interdisciplinary Project Unit at Advanced Higher (in S6)
- Two eligible courses at Advanced Higher
- One eligible course at Higher

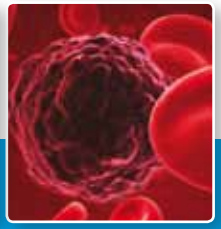
One of the above courses must be maths (or applied maths) at Higher or Advanced Higher.

www.sqa.org.uk

Other Science Baccalaureates

The Welsh Baccalaureate combines personal development skills with qualifications such as A levels and NVQs to give a wider award.
www.welshbaccalaureate.org.uk

The AQA baccalaureate is available to any student studying at least three A-levels. It adds to core A-level subjects through broader study, the Extended Project Qualification and enrichment activities.
web.aqa.org.uk/qual/bacc.php


Apprenticeships

United Kingdom

Apprenticeships are work-based training programmes, available in a wide variety of occupations, which lead to a recognised industry qualification. They can also lead to higher education. Apprenticeships offer you the opportunity to work for an employer, learn on the job, develop your knowledge and skills and gain qualifications. Plus you can earn money at the same time!

If you enjoy chemistry there are a range of Apprenticeships you may be interested in, including:

- Chemical, pharmaceutical, petrochemical, manufacturing and refining industries
- Food and drink manufacturing
- Laboratory technician
- Polymer processing

Traditionally an Apprenticeship is made up of:

- Functional skills (including communication, numeracy, team work, problem solving and ICT)
- An NVQ
- A technical certificate (such as a BTEC National Diploma)

www.apprenticeships.org.uk

ChemNet

If you continue to study chemistry, you might want to join ChemNet – a network for young people interested in chemistry.

www.rsc.org/chemnet

Useful websites

www.ucas.com
www.futuremorph.org
www.rsc.org/chemnet
www.rsc.org/studentzone
www.sqa.org.uk
www.ibo.org
www.wbq.org.uk
web.aqa.org.uk
www.edexcel.org.uk/quals/nat/science
www.direct.gov.uk
www.connexions-direct.com
www.qcda.gov.uk
www.sqa.org.uk/svq
www.apprenticeships.org.uk
www.accesstohe.ac.uk
www.welshbaccalaureate.org.uk

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