



My Learning My Future

Where can studying Chemistry take you?

Introduction

At The Careers & Enterprise Company, our mission is to help every young person find their best next step.

My Learning, My Future is a suite of resources that has been developed by The Careers & Enterprise Company in partnership with Skills Builder to help you speak confidently about careers related to your subject.

This guide has been updated with new content to reflect the changing pathways and skills needed by employers.

Benchmark 4

Linking curriculum learning to careers. Bring your subject to life by providing real-life examples from the world of work to help motivate and inspire students.

[Learn more](#)

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How to use this guide

In this guide and supporting documents, you'll find resources to engage your students in curriculum learning, supporting work towards Benchmark 4, by highlighting the relevance of your subject to future careers and opportunities.

Explore the five key areas of the guide to inspire your students about where your subject can take them in the future.

Essential Skills

Learn how you can engage with Skills Builder to help students identify and develop essential skills linked to your subject.

Why study Chemistry?

Access key resources that link to your subject area that can be used in your lessons to help your students explore future careers.

Activity ideas

Create some 'buzz moments' in every lesson by highlighting relevant careers stories, or relating topics or essential skills from your subject to future opportunities.

Pathways

Take a look at a wide variety of resources that focus on the pathways a young person can follow to a career linked to the subject.

Careers in the curriculum

Discover resources and inspiration to link careers to the curriculum, employer engagement and extra-curricular opportunities.



Why study Chemistry?





Why study Chemistry?

This is your chance to share the passion you have for your subject. Here's five popular reasons teachers give as to why Chemistry should be in the school curriculum:

- Chemistry is useful in preparing us for the real world by helping us understand the nature of chemicals and chemical processes
- Chemistry helps you develop your ability to reason and solve problems
- Chemistry is essential for meeting our basic needs of food, clothing, shelter, health, energy, and clean air, water, and soil. Using it we can create bubbles, change chemical states, change colour and watch things glow in the dark.
- Chemistry could be seen as the central science because it joins together physics and mathematics, biology and medicine, and the earth and environmental sciences
- Chemistry offers excellent careers such as Agricultural Chemist, Brew Master, Chemical Engineer, Chemical Oceanographer, Dentist, Entrepreneur, Food Scientist, Forensic Chemist, Toxicologist, and many more

This section will connect you with key resources and links for students to explore opportunities linked to your subject area with the aim of motivating and inspiring your students about the world of work and pathways to a career using Chemistry.

There are a number of examples of roles and activities to support your students to explore opportunities.

[Click here](#)

Access a student facing PowerPoint slide deck which will support you in highlighting the relevance of your subject with content taken from this guide.



Resources to highlight the relevance of your subject

- Download [Where Can Science Take You](#) Poster by National Apprenticeship Service
- [Why it Matters: Science](#) have been designed by Loughborough University to help students to understand where studying different subjects (both post 16 and post 18) might lead
- [Why Science is for me](#) video and poster
- The 'Science, [Why Bother?](#)' Resource aims to help teaching staff show students the explicit links between the science curriculum and the world of work
- Royal Society of Chemistry: [explaining the benefits of a Chemistry career](#) presentations and resources

BBC Bitesize Careers

[Explore jobs in the Science sector](#)

Have your questions answered

- How many people work in the science sector?
- How much can you earn in different roles?
- How can you get into jobs in science?
- What do people currently working in the sector think of their roles?

OAT Futures

Check out how students have used their [Chemistry](#) in the real world

Prospects

Explore [subject related job sectors and job profiles](#)

- Responsibilities
- Salary
- Qualifications
- Skills
- Work experience
- Career prospects
- Related jobs and course

PwC Postcards

- [Read about how students have used Science in their work](#)

Labour Market Information

- The [LMI for All](#) portal provides high-quality, reliable labour market information (LMI) to inform careers decisions
- Help your students to find out what a job involves and if it is right for them with [National Careers Service](#)
- National Careers Week [Future of Work Guide](#)
- Help KS3 students find out more about jobs and careers in [Chemistry](#)
- Inspire KS4 students with the world of work through careers in [Chemistry](#)
- [LMI and study routes into STEM careers](#)



Explore a career as a...

There are many more roles and careers linked to STEM and this guide contains the resource and support to explore many more opportunities. A small selection highlighted below and more information can be found via [STEM Learning's careers resources](#).

▶ Pharmacologist

Pharmacologists study the effects of drugs and other chemical substances on cells, animals, humans and the environment

[See case study](#)

[Visit National Careers Service to learn more](#)



▶ Chemist

Chemists look at the chemical makeup of substances and investigate how they behave under different conditions

[See case study 1](#)

[See case study 2](#)

[Visit National Careers Service to learn more](#)

▶ Research and Development

Research Scientists plan, lead and carry out experiments and investigations in a wide range of industries

[See case study 1](#)

[See case study 2](#)

[Visit National Careers Service to learn more](#)





▶ Biochemist

Biochemists investigate the chemical processes that take place inside all living things, from viruses, bacteria and people.

[See case Study 1](#)

[See case Study 2](#)

[See case Study 3](#)

[Visit National Careers Service to learn more](#)

▶ Chemical Engineer

Chemical Engineers develop ways to turn raw materials into everyday products

[See case study 1](#)

[See case study 2](#)

[Visit National Careers Service to learn more](#)



▶ Nuclear Chemical Technician

Nuclear Chemical Technicians analyses radioactive samples in a laboratory but nuclear technicians can also maintain equipment and monitor radiation levels in nuclear power stations

[See case Study 1](#)

[See case Study 2](#)

[Visit National Careers Service to learn more](#)

Why not encourage your students to become a teacher?

Teaching 
Every Lesson Shapes a Life

As you know teaching is a career like no other, where your voice, passion, background and how you view the world is used to inspire young people.

Here are a couple of case studies to inspire you to share your story with your students. You might also then select one to share with your students.

- [See case study: Shaniqua's story](#)
- [See case study: Vijendra's story](#)

Why teach?

Share these reasons for teaching with your students and frame them in your own words...you might start with the ones that enticed you into teaching yourself:

1. Helping shape young minds, help shape the future.

As a teacher you'll instil attitudes and beliefs that will help shape the next generation and the future. It's your chance to make an impact.

2. Turn your passion into a career.

If you love something, you'll love teaching it. There's nothing better than seeing people being inspired by the things you're passionate about.

3. The reward is always worth the challenge.

As a teacher you'll be challenged and rewarded every day. And nothing is more rewarding than knowing you've made a difference.

4. More time for what you love.

Teaching gives you more holiday than most careers, which means you have more time to explore your own interests.

5. Start on at least £25k, or £32k in inner London.

Where you take your career from there is up to you.

Why is STEM important in the wider world?

- It boosts soft skills through thinking through problems and finding solutions
- It focuses curiosity by developing more scientific questions that turn into investigations
- It helps you to see and understand the world around you
- It helps children become future entrepreneurs

What makes a great teacher?

Here's what some Year 10 students think makes a great teacher – do your students agree?

[What makes a great teacher?](#)

Salary and benefits

The next generation of teachers will be entitled to a competitive salary, generous holidays, and a substantial pension.

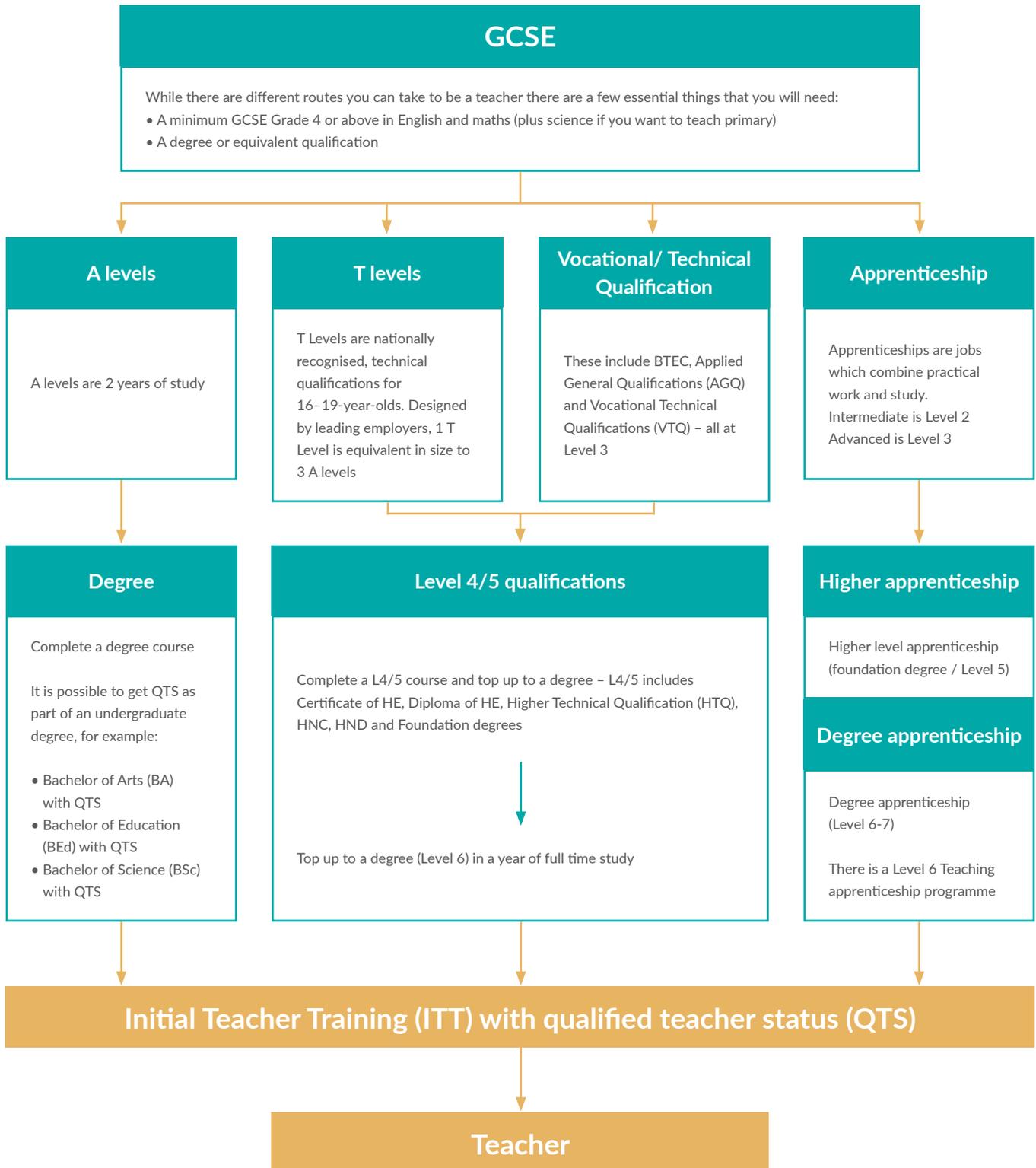
You'll get more days holiday than people in many other professions. In school, full-time teachers work 195 days per year.

For comparison, you'd work 227 days per year (on average) if you worked full time in an office.

[Find out more: Teaching salaries and benefits](#)

Be mindful that when you share your route into teaching, you need to balance with the other options.

Here is an infographic resource to share with your students which shows the options and journey they could take.





Pathways



Pathways

Whether students know where they are headed to in the future or not, knowing the work and study choices available to them is a great place to start.

Get the Jump: Skills for Life is a campaign to help young people make their next step in education and training. It raises awareness and understanding of all the different education and training pathways open to young people at post-16 and post-18.

Many young people may feel confused or daunted by the post-16 or post-18 choices landscape and the campaign signposts students to further information around all potential options.

Here are two visual displays you may also find helpful:

Framework of Qualifications: This is a useful visual display which shows where different levels of qualifications sit with each other.

Options map: This is a useful visual display of the different pathways.



Resources to highlight pathways from your subject

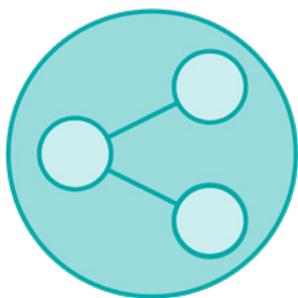
- [Download My Learning, My Future student facing presentation deck](#)
- [Download Where Can Science Take You Poster](#) by National Apprenticeship Service
- [Posters and flyers promoting careers in STEM](#)
- [Linking Careers to a STEM Curriculum Guide for teachers](#): Provide information on STEM-specific further study routes, careers and the labour market

Example Key Sector Bodies:

- [The Royal Society of Chemistry](#)
- [The Royal Society of Chemistry Education: inspiring your teaching and learnings](#)

Get the Jump: Skills for Life

There are three types of routes students can consider:



Combine study and work

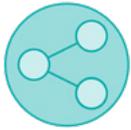


Study



Work





Combine study and work

<p><u>Apprenticeships</u></p> <p>Apprenticeships are real jobs that allow young people to earn a wage while they learn.</p> <p>They can take between 1 and 5 years to complete, depending on the level.</p> <p>To start an apprenticeship, students will need to:</p> <ul style="list-style-type: none"> • Be 16 or over • Live in England • Not be in full-time education <p>Students can apply for an apprenticeship while they are still at school.</p>	<p>Watch this video on ideas for Apprenticeships in Science. Here are some possible apprenticeships available to study:</p> <ul style="list-style-type: none"> • Metrology Technician • Laboratory Scientist • Food Industry Tech Professional • Forensic Practitioner • Pharmacologist Technician • Ecologist • Laboratory Analyst • Biochemist • Chemical Engineering <p>You may find more ideas for apprenticeships here</p>
<p><u>T Levels</u></p> <p>A T Level is a nationally recognised qualification for 16–19-year-olds that lasts for two years. Leading businesses and employers have helped design T Levels to give young people the knowledge and skills they need for work or further study.</p>	<p>Here are the T Levels aligned with your subject:</p> <ul style="list-style-type: none"> • T Level Education and Childcare • T Level Health • T Level Healthcare Science • T Level Science • T Level Engineering, Manufacturing, Processing and Control • T Level Management and Administration • T Level Agriculture, Land management and Production
<p><u>Vocational Technical Qualifications (VTQs)</u></p> <p>VTQs are practical qualifications for over 16s. They're designed to help students get the skills they need to start their career or go on to higher levels of education. There are a few different types and levels of VTQs, including:</p> <ul style="list-style-type: none"> • BTECs: level 1 to 7 qualifications • Cambridge Nationals: level 1 and 2 qualifications (from Sept 2022) • Cambridge Technicals: level 2 and 3 qualifications • T Levels: level 3 qualifications 	<p>Your students may be able to study:</p> <ul style="list-style-type: none"> • Applied Science • Chemistry • Health and Social Care • NHS Careers



Study

<p><u>Higher Technical Qualifications (HTQs)</u></p> <p>HTQs are technical qualifications that are approved by employers. There are many different types and are usually taught in the classroom at colleges, universities or independent training providers.</p> <p>To start a HTQ, they will need to be:</p> <ul style="list-style-type: none"> • Aged 18 or over • Live in England <p>There are many different types of HTQs, such as:</p> <ul style="list-style-type: none"> • <u>Higher national diplomas</u> • <u>Higher national certificates</u> • <u>Foundation degrees</u> • <u>Higher education diplomas</u> <p>Other HTQs will be available in the future.</p>	<p><u>You may find courses on the following:</u></p> <ul style="list-style-type: none"> • Chemical Engineering • Applied Chemistry • Applied Sciences: Chemistry
<p><u>A levels</u></p> <p>Subject-based qualifications usually assessed by exams. They can lead to further study, training or work. You usually study A levels over 2 years.</p>	<p><u>You may find courses on the following:</u></p> <ul style="list-style-type: none"> • Chemistry • Applied Science
<p><u>Higher education</u></p> <p>Higher education is the name for qualifications and courses young people can take after 18. There are many different types of higher education qualifications, such as:</p> <ul style="list-style-type: none"> • Diplomas • Bachelor degrees • Foundation degrees and foundation years • <u>HTQs</u> • <u>Degree level apprenticeships</u> 	<p><u>Explore undergraduate courses in Chemistry:</u></p> <ul style="list-style-type: none"> • Chemical Engineering • Energy Engineering • Chemistry • Medicinal Chemistry • Physical Chemistry • Environmental Chemistry • Biochemistry • Ecology • Forensics • Dentistry • Chemical process and energy • Applied Chemistry • Chemistry with Management • Chemistry with Industrial Placement • Chemistry with study year abroad (various countries) • Chemistry with a second subject (Biology, Physics, maths, Languages)



Work

<p><u>Supported internships with an education, health and care plan</u></p> <p>An unpaid work-based study programme that usually lasts for one year. It includes an extended work placement that lasts for at least 6 months.</p> <p>This will help young people take the first step from education into the workplace while gaining the skills they need to get a paid job.</p>	<p>Watch Saul's story: here</p>
<p><u>School leaver schemes</u></p> <p>Some companies offer school leaver schemes to young people who have completed A Levels. The schemes allow them to learn and train with a large company while earning a wage.</p>	<p>Young people need to check each company's website to see if they offer a school leaver scheme and how to apply.</p>

[Get the Jump: Skills for Life website](#)

Interested in University league tables?

You can see at a glance the university ranking for Chemistry

The [table](#) allows you to filter the top university by each category:

- Overall score
- Entry standards
- Student satisfaction
- Research quality
- Research intensity
- Graduate prospects

More information on Universities: Interested to see course level data?

[Discover Uni](#) includes official statistics about higher education courses taken from national surveys and data collected from universities and colleges about all their students. You can search, save and compare courses using the course comparison tool.

The data includes:

- Entry information, highlighting the qualifications held and UCAS Tariff point values students had when they were accepted onto the course
- Continuation rates for courses and a breakdown of what students are doing after one year on the course
- Data from the [National Student Survey \(NSS\)](#) showing experiences at university or college
- Data from the [Graduate Outcomes survey](#) showing employment outcomes and earnings which we publish along with earnings data for graduates 3 and 5 years after graduation from the Longitudinal Education Outcomes (LEO) dataset
- Graduates' perceptions of their work after graduating



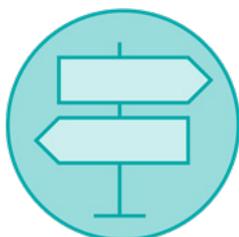
Careers in the curriculum



Careers in the curriculum

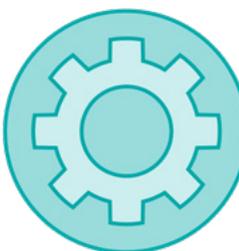
Young people critically need support to see and understand their future and ensuring that careers learning is delivered in all subjects has benefits clearly aligned to the priorities of schools and colleges and to positive outcomes for students. There are three different approaches to careers in the curriculum to consider:

1|



Highlight the relevance of your subject to future careers and opportunities.

2|



Set curriculum learning within the context of careers and the world of work.

3|



Deliver curriculum learning through employer encounters, experiences of work and/or extra-curricular opportunities.

Embed careers in curriculum teaching and learning

There are some excellent examples of how curriculum teaching can be put into the context of careers and the world of work

- Here is a link to teaching resources to embed careers in your subject for GCSE classes [Causeway and STAR Academies GCSE](#)
- Discover how to adapt your curriculum [Linking Careers to STEM Curriculum Guide for Teachers](#)
- [Secondary and A level Science Resources from STEM Learning](#)
- Increase your awareness of STEM-related careers and employability skills by engaging with [STEM Ambassadors](#)
- Here is ReAgent and their [Chemistry Education resources](#) which cover GCSE, A level, Degree, Apprenticeships, Fields of Chemistry
- [CLIC](#) is an education project funded by the Royal Society of Chemistry and delivered by Northumbria University. It localised chemistry-focused, careers-linked activities but additionally there are many useful resources on their website for all ages.
- [A collection of video teaching resources](#) to help you bring Chemistry careers learning to life

Case studies linked to your subject:

- STEM person of the Week is a set of five carefully chosen STEM role models that reflect diversity in the skills needed in the STEM workforce and the people who work in STEM. These resources comprise: printable postcards; printable posters and a PowerPoint presentation.
- NHS Careers A - Z:
Biomedical Scientist
Phlebotomist
Pathologist
- Hear from young people about their apprenticeships
- Here is a case study of a Biogeochemist
- Read about Glaxosmithkline, a giant in the world of chemicals
- Read about Proctor and Gamble, another huge multinational company developing products

Other Resources

- Overview of the UK's Science-related sectors: Prospects.ac.uk
- Explore icould: Take a closer look at selected subjects and issues, with a selection of videos, guides and advice
- Be inspired by this Careers Guide by Youth Employment UK
- Here is an Apprenticeship Poster in Science
- Nustem careers worksheets

- A collection of video teaching resources to help you bring Science careers learning to life.
- Find an engaging subject Chemistry poster from Planit - "Shrink oversized pages" before you print to A4.

Extra-curricular Inspiration

Here is some inspiration to enhance student engagement in your subject:

- Try these nustem resources
- Loughborough University HE Unboxed Chemistry: This box aims to give students a hands-on activity which looks at the science used in everyday cosmetics. Learners will explore the science behind bath bombs by looking at the chemical equation and neutralisation reaction which takes place in the bath, whilst creating their own bath bombs in the lesson.
- Step into the NHS for KS3: An exciting resource and competition in KS3, designed to help raise career aspirations and awareness of the breadth of 350 careers available in the NHS.
- CANDOO®* is a fun and engaging card game designed to get your students thinking about and discussing careers.

*NB - there may be costs associated with some of these resources



Activity ideas

Create careers 'buzz moments' in every lesson

Young people experience 'buzz moments' when an idea hooks their attention and imagination.

Highlighting relevant careers stories, or relating topics or essential skills from your subject to future opportunities is easy to embed and can be really powerful. This should help support a culture that inspires young people about their future.

Here are some ideas to get you started:



- 1 | Encourage students to identify a job related to your subject that they will be doing in ten years' time and ask them to present the pathway they took to that role



- 2 | Encourage students to research local options at 16/18 in pathways related to your subject that interest them



- 3 | Encourage students to research and present on roles of interest



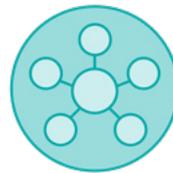
- 4 | Share your own careers story



- 5 | Spotlight non-obvious careers related to your subject



- 6 | Challenge self-limiting beliefs and stereotypes around your subject



- 7 | Know all the pathways from your subject



- 8 | Highlight essential soft skills linked to specific lessons and to your subject in general

Find all eight activities (and more) ready in the slide deck for you to use with your students [here](#)

Employer engagement

You may wish to invite someone from the world of work in to support you in highlighting the relevance of your subject to careers. Use the below guidance to help you.

Key Questions	Guidance
<p>What are you looking to achieve?</p> <p>Try and be as clear and purposeful as possible when framing an 'ask' of employers.</p>	<p>What are the planned outcome(s)? i.e.</p> <ul style="list-style-type: none"> • For students and parents/carers to understand the relevance of your subject to careers • To encourage students to consider pursuing your subject to GCSE level • For students to have an insight into <u>key labour market information</u>
<p>What benefits would there be to the employer for supporting?</p>	<p>For emotional reasons:</p> <ul style="list-style-type: none"> • Personal connection, e.g. they have family at the school or a relative works at the school or college • History, e.g. they are an alumni of the school or college • Locality, a local employer wants to give something back to the local area <p>For commercial reasons:</p> <ul style="list-style-type: none"> • Skills shortages – to attract young people into their industry • To help change perceptions of certain industries • Corporate Social Responsibility (CSR) positioning – being seen to give something back
<p>How to engage an employer?</p>	<p>Speak to your Careers Leader to access contacts that already exist in the school. Try:</p> <ul style="list-style-type: none"> • Staff networks (e.g. family, friends, Governors) • Student networks (parents, relatives) • Alumni network • Supply chains (IT, Catering, Maintenance) • If your school or college has an Enterprise Adviser, they may have wider employer links or suggestions • Social media appeal with a clear ask
<p>Format</p>	<p>Articulate where, when and how the encounter will take place.</p> <p>Would you like someone to create a video/take part in a recorded Q&A or is this is a physical invitation into a lesson?</p>
<p>Recording and Evaluation</p>	<p>How will you evaluate the session and get a temperature check of value from students and the employer?</p> <p>Remember to communicate activity and student register to Careers Leader as this supports Gatsby Benchmark 4 and potentially 5/6.</p>



Essential Skills



Essential Skills



Good careers provision includes building students' essential employability skills. These are the skills that you need for almost any job and they make learning easier too. Students will probably already be using these skills in your lessons, but are they able to talk about them confidently?

The [Skills Builder Universal Framework](#) was developed by CEC, Skills Builder, Gatsby Foundation and others to provide a common language for these 8 essential skills. It breaks down each skill into 16 teachable steps.

In Chemistry, students are likely to use these 3 essential skills:



The ability to set clear, tangible goals and devise a robust route to achieving them

[Overview video](#)

[Key stage 3](#)

[Key stage 4](#)

[Post 16](#)



The use of imagination and the generation of new ideas

[Overview video](#)

[Key stage 3](#)

[Key stage 4](#)

[Post 16](#)



The ability to use tactics and strategies to overcome setbacks and achieve goals

[Overview video](#)

[Key stage 3](#)

[Key stage 4](#)

[Post 16](#)

To access the short lessons and many other resources, create a free account on the [Skills Builder Hub](#) here.

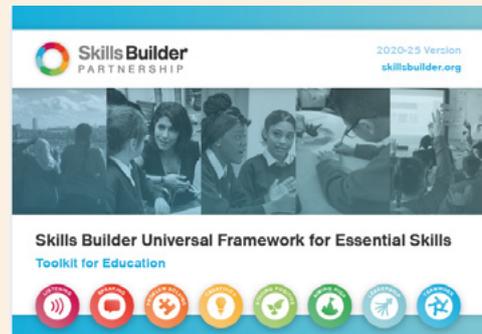


Working with students with additional needs?



You can find many resources to support learners with additional needs in our [Inclusive Learning Resource Pack](#) here.

You can also use our [Expanded Universal Framework](#), which breaks each skill step down into smaller stepping stones.





Acknowledgements

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- Amazing Apprenticeships
- BBC Bitesize
- Education & Employers, icould
- Forum Talent Potential
- LMI for All
- Loughborough University
- National Careers Service
- National Careers Week
- Skills Builder Partnership
- Success at School
- PwC UK
- Ormiston Academies Trust
- Prospects
- LLEP
- GOV.UK Get the Jump: Skills for Life campaign
- First Careers
- E Nundy, teacher of science
- NHS Careers Royal Society of Biology
- UKSTEM
- Royal Society of Chemistry
- ReAgent
- STEM Learning
- NUSTEM
- NHS Careers





My Learning My Future

If you have any questions about this guide,
contact us at:

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All the resources, all in one place:
[CEC Resource Directory](#)

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