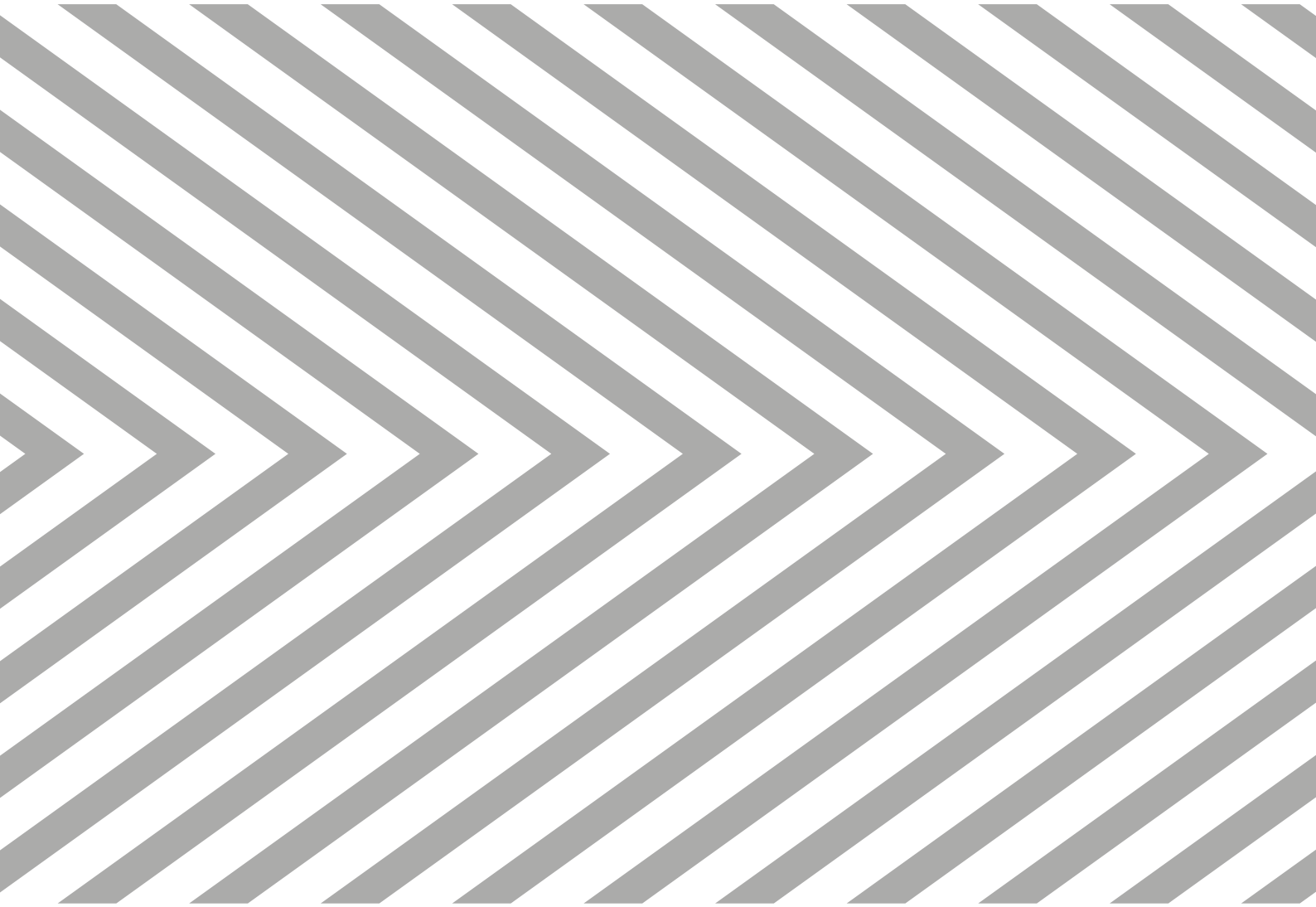
Skills Builder PARTNERSHIP

THE CAREERS & ENTERPRISE COMPANY



My Learning
My Future

Where can studying Engineering 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.

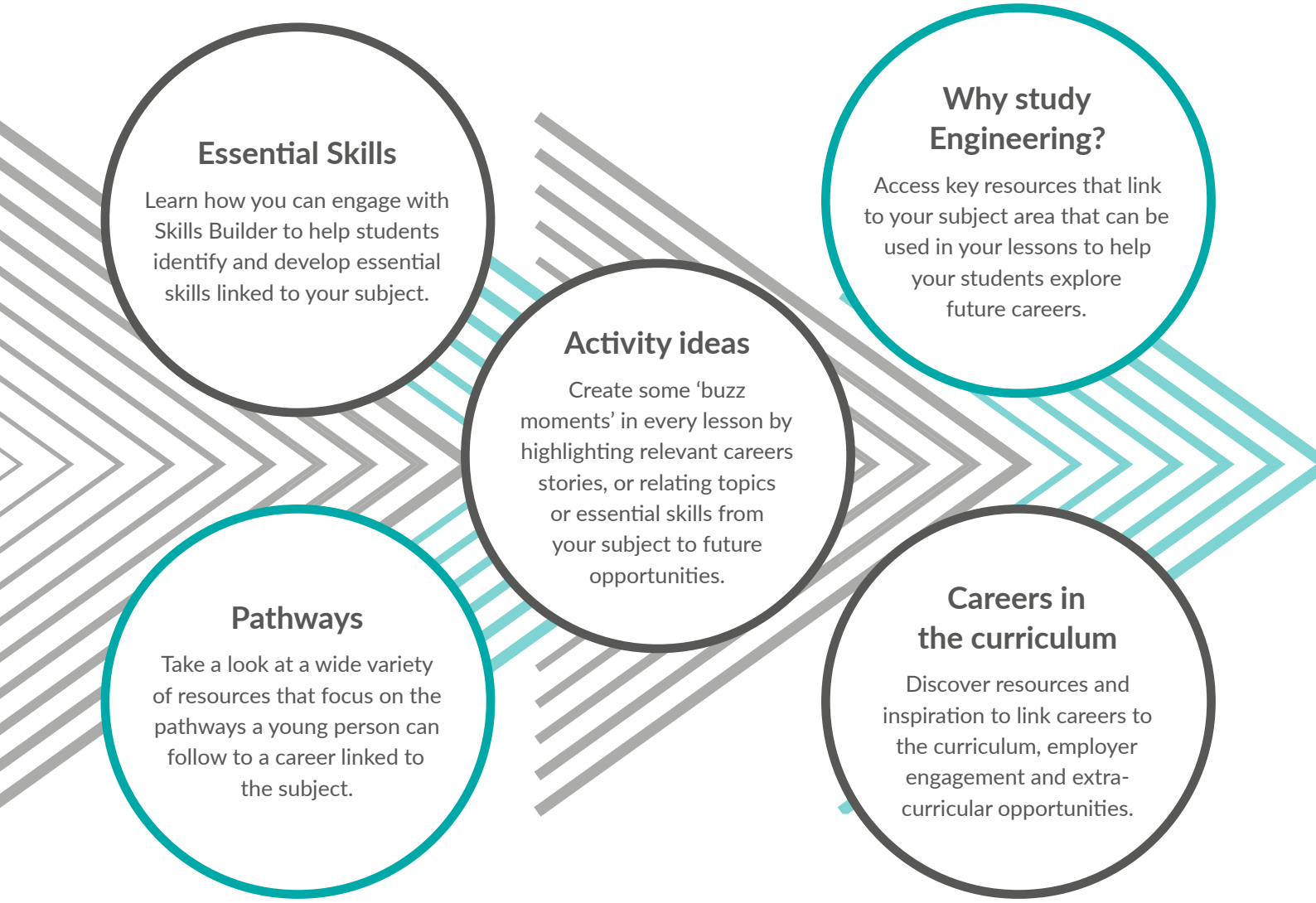
Learn more

Contents

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.



Why study Engineering?

Why study Engineering?

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

- Engineering is a highly paid profession
- Engineers get to use their creativity to invent new products and improve how things are done; making a real difference to people's lives
- Engineers are in high demand, so the opportunities are endless not just in the UK but around the world.
- Engineering covers a vast array of disciplines – from hip replacements to rockets to mobile technology
- Engineers get to apply their skills and knowledge to generate solutions to complex issues

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 Engineering.

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.

Click here

to access a KS3 My Learning, My Future homework task (insert link) you can set for your students, which encourages them to research and explore roles linked to your subject.

Resources to highlight the relevance of your subject

- Download This is Engineering Posters to inspire future Engineers by Neonfutures:
- Why it Matters: Engineering and Design designed by Loughborough University to help students to understand where different subjects both post 16 and 18 might take them
- Download this 4 page overview of how to talk to students about engineering careers
- Download this useful PowerPoint presentation to explain the opportunities presented by a career in engineering to students:

BBC Bitesize Careers

Jobs in the Engineering sector

Have your questions answered:

- How many people work in the engineering sector?
- What can you earn in different roles?
- What routes can you take to get in?
- Is the demand for engineers expected to grow in the future?

Prospects

Explore Engineering related job sectors and job profiles.

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

Postcards

- Download these useful postcards to find your route in Engineering

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 Engineering
- inspire KS4 students with the world of work through careers in Engineering

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.

Aerospace Engineer

Aerospace Engineers design, build and maintain planes, spacecraft and satellites

See case study 1

See case study 2

See case study 3

Visit National Careers Service to learn more

Biomedical Engineer

Biomedical/Clinical Engineers apply engineering principles to research, design and development of healthcare products and equipment

See case study 1

See case study 2

See case study 3

Visit National Careers Service to learn more

Software Engineer (Robotics/Network Engineer)

Software Engineers write the programme code which runs on computer devices which can often be embedded in items such as smart phones, tablets and central heating controllers. Robotics Engineers design and build machines to do automated jobs in industries like manufacturing, aerospace and medicine.

See case study 1

See case study 2

See case study 3

Visit National Careers Service to learn more

Marine Engineer/ Naval Architect

Marine Engineers design, build, test and repair boats, ships, underwater craft, offshore platforms and drilling equipment

See case study 1

See case study 2

See case study 3

Visit National Careers Service to learn more

Electrical Engineer

Electrical Engineers design, build and maintain electrical systems, machinery and equipment in places such as power stations and manufacturing plants

See case study 1

See case study 2

See case study 3

Visit National Careers Service to learn more

Civil Engineer

Civil Engineers design and manage construction projects, from bridges and buildings to transport links and sports stadiums

See case study 1

See case study 2

See case study 3

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.

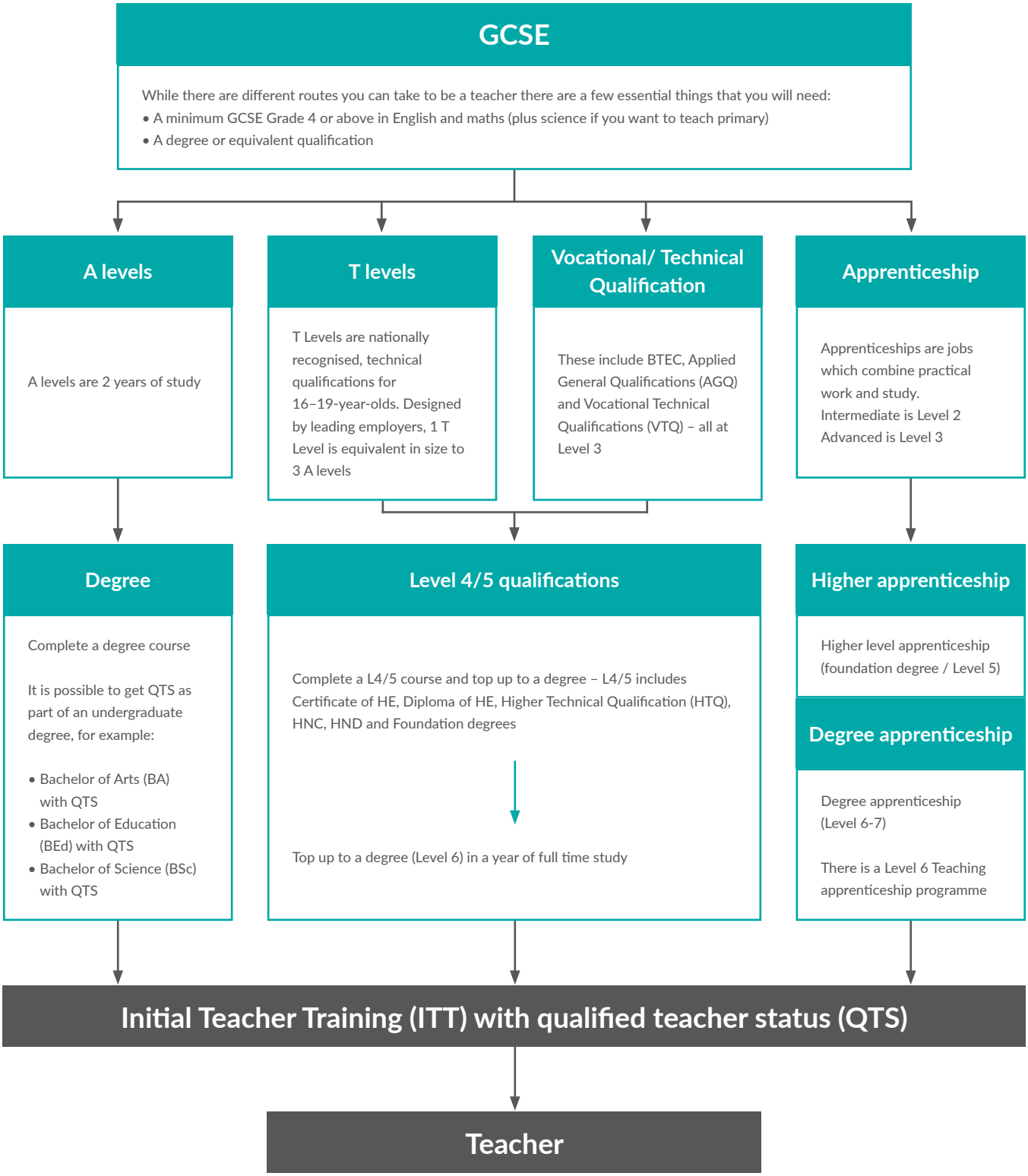
You'll get more days holiday than people in many other professions. In school, full-time teachers work 195 days per year.

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 an overview of apprenticeship opportunities in Science, Technology and Engineering.
- Discover Creative Careers: Bringing together careers information and opportunities from creative organisations in one explorable directory
- Explore careers in Engineering
- Download this useful poster 100 jobs in stem:
- Here is a fabulous booklet on the 12 different Engineering disciplines from neon

Example Key Sector Bodies:

- The institution of Engineering and Technology
- STEM Learning resources at the Royal Academy of Royal Engineering
- Look at the neon platform for activities, resources and case studies to help inspire students to consider careers in Engineering:

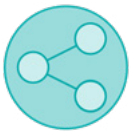
Get the Jump: Skills for Life

There are three types of routes students can consider:

Combine study and work

Study

Work



Combine study and work

Apprenticeships Apprenticeships are real jobs that allow young people to earn a wage while they learn. They can take between 1 and 5 years to complete, depending on the level. To start an apprenticeship, students will need to: • Be 16 or over • Live in England • Not be in full-time education Students can apply for an apprenticeship while they are still at school.	Watch this video on ideas for Apprenticeships in Engineering. Here are some possible apprenticeships available to study: • Metrology Technician • Food Industry Technician • Acoustics Engineer • Electrical: Electronic Technical Support Engineer • Mechanical Engineering • Manufacturing – Building Services Design and Engineering; Construction Technical and Professional • Civil Engineering – Technician, Site Management • Environmental Engineering • Railway Engineer Design Technician • Nuclear Technician
T Levels 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.	Here are the T Levels aligned with your subject: T Level Building Services Engineering for Construction T Level Design, Surveying and Planning for Construction T Level Digital Production, Design and Development T Level Onsite Construction T Level Science T level Design and Development for Engineering and Manufacturing T level Engineering, Manufacturing, Processing and Control T Level Maintenance, Installation and Repair for Engineering and Manufacturing T Level Agriculture, Land Management and Production
Vocational Technical Qualifications (VTQs) 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: • 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	Your students may be able to study: • Engineering Design and Technology • Engineering Design • Creative iMedia • Digital Media • Engineering

Get the Jump: Skills for Life website

Study

Higher Technical Qualifications (HTQs) 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. To start a HTQ, they will need to be: • Aged 18 or over • Live in England There are many different types of HTQs, such as: • Higher national diplomas • Higher national certificates • Foundation degrees • Higher education diplomas Other HTQs will be available in the future.	You may find courses on the following: • General Engineering • Construction and the Built Environment (Civil Engineering) • Electrical and Electronic Engineering • Aeronautical Engineering • Embedded Electronic Systems • Mechanical Engineering • Computing and DevOps Engineering • Aircraft Engineering • Chemical Engineering • Building Services Engineering • Mechatronics and Robotics • Construction Management • Product Design Engineering
A levels Subject-based qualifications usually assessed by exams. They can lead to further study, training or work. You usually study A levels over 2 years.	You may find courses on the following: • Electronics • Design and Technology • Engineering
Higher education 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: • Diplomas • Bachelor degrees • Foundation degrees and foundation years • HTQs • Degree level apprenticeships	Explore undergraduate courses in Engineering • Aerospace Engineering • Agriculture and related Sciences • Architecture, Building and Planning • Chemical Engineering • Civil Engineering • Electrical and Electronic Engineering • Engineering and Technology • Materials Science and Engineering • Mechanical Engineering • Medicine and allied subjects • Radiology and Medical Technology • Software Engineering

Get the Jump: Skills for Life website

Work

Supported internships with an education, health and care plan 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. 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.	Watch Saul's story: here
School leaver schemes 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.	Young people need to check each company's website to see if they offer a school leaver scheme and how to apply.

Get the Jump: Skills for Life website

Interested in University league tables?

You can see at a glance the university ranking for Engineering

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?

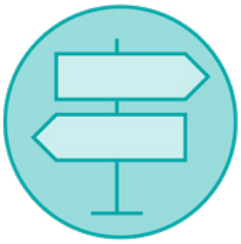
- Discover Uni includes official statistics about higher education courses taken from national surveys and data collected from universities and colleges about all their students. You can search, save and compare courses using the course comparison tool
- The data includes:
- Entry information, highlighting 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

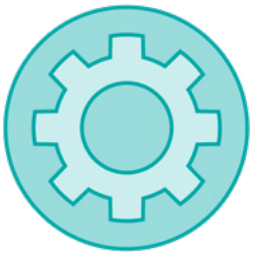
Young people critically need support to see and understand their future and ensuring that careers learning is delivered in all subjects has benefits clearly aligned to the priorities of schools and colleges and to positive outcomes for students. There are three different approaches to careers in the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

- Here is a link to Technology related resources from The Co-op Academy Trust
  The Co-op Academy Trust Resource for Design Technology
- Discover how to adapt your curriculum
  Linking Careers to STEM Curriculum Guide for Teachers
- Secondary and A level Engineering in Design Technology Resources from STEM Learning
- Inspiring future engineers (teacher notes) will help you with key points about engineering careers to talk about with your students
- Study routes into STEM careers
  Labour market information and study routes into STEM careers | STEM

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:
  Reconstruction Scientist
  Diagnostic Radiographer
  Sterile Services Technician

Other Resources

- Look at Neon for case studies on a vast range of Real Engineers
- Ruth Amos: Becoming an Engineer
- DT Association What is DT and here can it take you posters
- Hear from women working in Engineering about their amazing careers and the different routes they took into their roles
- Follow the case studies from This is Engineering:

Other Resources

- Overview of the UK's Engineering and Manufacturing sector: Prospects.ac.uk
- Explore icould: Take a closer look at selected subjects and issues, with a selection of videos, guides and advice
- Find an engaging subject Engineering Science poster from Planit - "Shrink oversized pages" before you print to A4.
- Be inspired by this Careers Guide by Youth Employment UK
- DT Association What is DT and here can it take you posters
- A short, fun quiz for students, to help them identify their skills and interests and match these to future Engineering careers:
- The Royal Academy of Engineering produce some excellent resources to support students in KS2 and KS3. Here are 10 resources, each covering a decade of the RAF, looking at STEM behind the design of aircraft:
- Neon resources for STEM
- Inspirational booklet on Women into Manufacturing and Engineering

Extra-curricular Inspiration

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

- Wisecampaign take the quiz. This is a great quiz which links your personality type with jobs
- Loughborough University HE Unboxed Engineering: Architecture* This box aims to bring out students' creativity by challenging them to design a concept for a pavilion on Loughborough University's campus. Through an interactive activity, participating students will develop an understanding of the architectural design process, from conceptualising ideas, through to creating working models and 'pitching' their chosen concepts.

*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

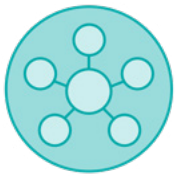
2| Encourage students to research local options at 16/18 in pathways related to your subject that interest them

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

These ideas have been provided by Leicester and Leicestershire Enterprise Partnership's (LLEP) Careers Hub World of Work series.

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
What are you looking to achieve? Try and be as clear and purposeful as possible when framing an 'ask' of employers.	What are the planned outcome(s)? i.e. • 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 key labour market information
What benefits would there be to the employer for supporting?	For emotional reasons: • 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 For commercial reasons: • 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
How to engage an employer?	Speak to your Careers Leader to access contacts that already exist in the school. Try: • 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
Format	Articulate where, when and how the encounter will take place. 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?
Recording and Evaluation	How will you evaluate the session and get a temperature check of value from students and the employer? Remember to communicate activity and student register to Careers Leader as this supports Gatsby Benchmark 4 and potentially 5/6.

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 Engineering, students are likely to use these 3 essential skills:

The use of imagination and the generation of new ideas

Overview video

Key stage 3

Key stage 4

Post 16

The ability to find a solution to a situation or challenge

Overview video

Key stage 3

Key stage 4

Post 16

Working cooperatively with others towards achieving a shared goal

Overview video

Key stage 3

Key stage 4

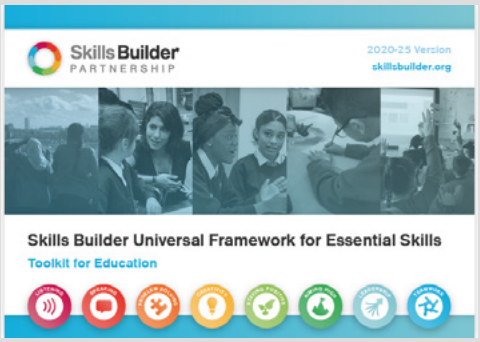
Post 16

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.



Quick Win

Add the Skill Icons for your subject's key skills onto your teaching slides and lesson resources

Quick Win

Display the Skill Posters for your subject's key skills and refer to them whilst teaching

Quick Win

Reward skill successes with the Skill Certificates – be as specific as possible!

Acknowledgements

With special thanks to the following organisations for their support and insight into developing the My Learning, My Future resources:

- 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
- The Parents Guide to
- PwC UK
- Ormiston Academies Trust
- Prospects
- LLEP
- GOV.UK Get the Jump: Skills for Life campaign
- Neonfutures.org.uk
- Greenporthull.co.uk (WiMe)
- Engineeringuk.com
- Wisecampaign.org.uk
- NUSTEM
- The Institute of Engineering and Technology
- The Royal Academy of Engineering
- Phillips66

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If you have any questions about this guide, contact us at:
education@careersandenterprise.co.uk

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