Skills Builder PARTNERSHIP

THE CAREERS & ENTERPRISE COMPANY

My Learning My Future

Where can studying Mathematics 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.

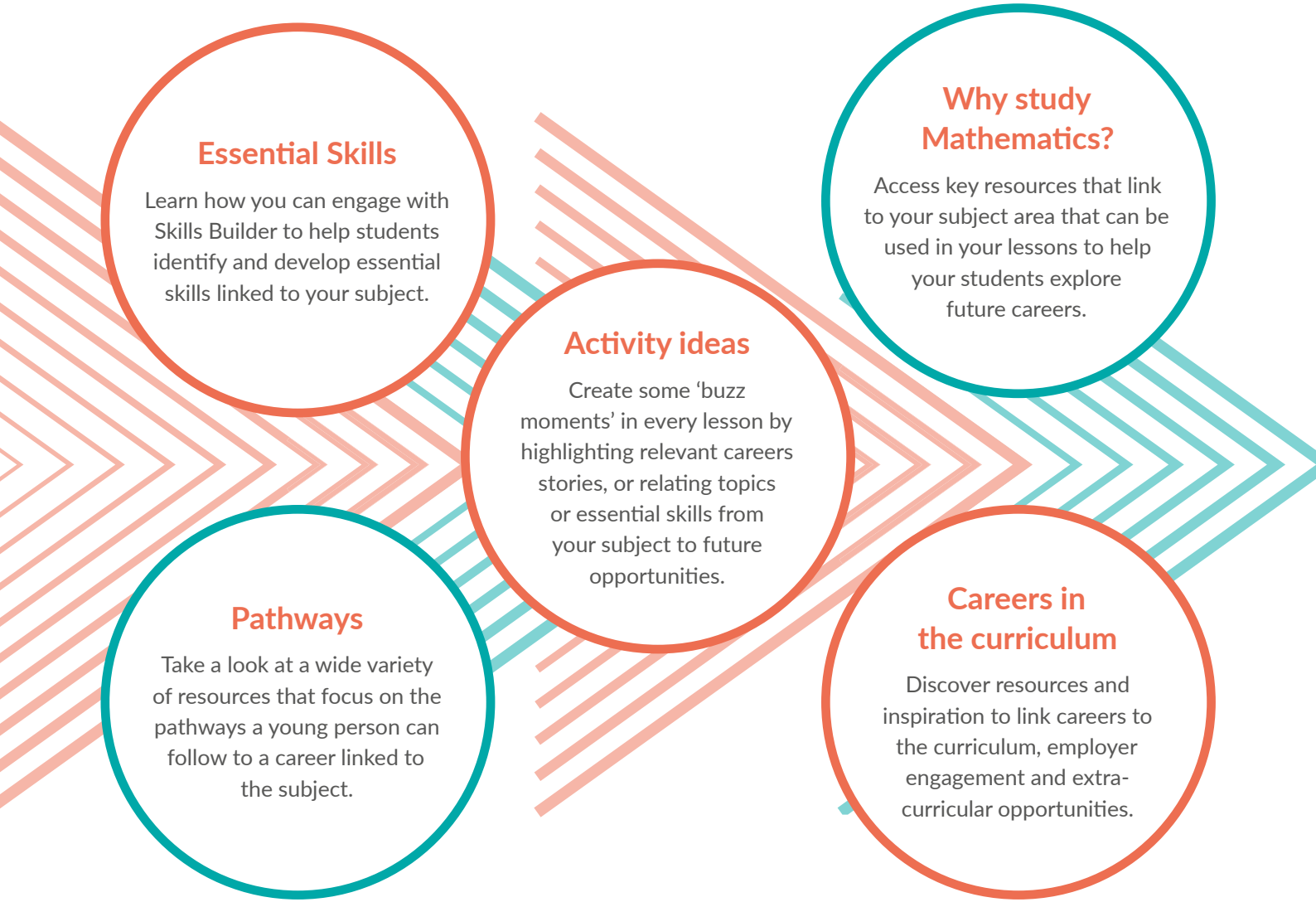
Learn more

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 Mathematics?

Why Mathematics?

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

- Maths is a core subject and helps to develop key skills in demand by employers such as research, analysis, problem solving, logic and reasoning
- Maths is essential for all jobs so leads to a huge range of careers: finance & accountancy, teaching, medicine, engineering & construction, IT and games development, scientific work and complements many other important subjects such as physics, engineering and economics
- Maths is invaluable for everyday financial management so you understand the financial reality of life (income and spending; taxes and loans, mortgages, budgeting etc)
- Maths is needed for every apprenticeship and job at least to a functional level
- Maths uses its own language, made up of numbers, symbols and formulas, to explore the rules we need to measure or identify essential problems like distance, speed, time, space, change, force and quantities. Those who go on to study maths further often attract higher salaries and are in high demand

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 Mathematics.

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

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 Where Can Mathematics Take You Poster by National Apprenticeship Service
- Why it Matters: Mathematics resources have been designed by Loughborough University to help students to understand where studying different subjects (both post 16 and post 18) might lead
- The 'Maths, Why Bother?' Resource aims to help teaching staff show students the explicit links between the maths curriculum and the world of work.
- DT Association what is DT and where can it take you posters
- Inspire students with this short video on Why Study Maths from successatschools
- Where Maths meets the world of work: AMSP have created a suite of resources, which allow Maths teachers to link curriculum learning to careers. Included is an exciting set of videos, which showcase the maths elements in different careers. Each video is paired with a resource, for students to get a real taste of what the job may entail.

BBC Bitesize Careers

Explore jobs in the Finance sector and Engineering sector

Have your questions answered

- How many people work in these sectors?
- How much can you earn in different roles?
- Is the number of jobs expected to grow?
- What skills/routes would be helpful to get you there?

OAT Futures

Check out how students have used their Maths in the real world

Prospects

Explore subject related job sectors and job profiles

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

Pwc Postcards:

- Read about how students have used Maths in their work:
- Download these postcards from nustem

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 Maths
- Inspire KS4 students with the world of work through careers in Maths
- Labour market information 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.

Senior Systems Engineer

Manufacturing Systems Engineers design and install manufacturing equipment and assembly production lines.

See case study 1

Visit National Careers Service to learn more

Financial Trader/ Stockbroker

Stockbrokers manage their clients' investments by trading stocks, shares and other financial products to get the best return.

See case study 1

See case study 2

Visit National Careers Service to learn more

Quantity Surveyor

Quantity Surveyors oversee construction projects, managing risks and controlling costs.

See case study 1

See case study 2

Visit National Careers Service to learn more

Accounting Technician

Accounting Technicians handle day-to-day financial matters in all types of busines

See case study 1

See case study 2

Visit National Careers Service to learn more

Games Designer

Computer Game Developers create video games for phones, tablets, PCs and consoles.

See case study 1

See case study 2

See case study 3

Visit National Careers Service to learn more

Sales Associate

Sales Representatives meet or ring customers to persuade them to buy products or services.

See case Study 1

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.

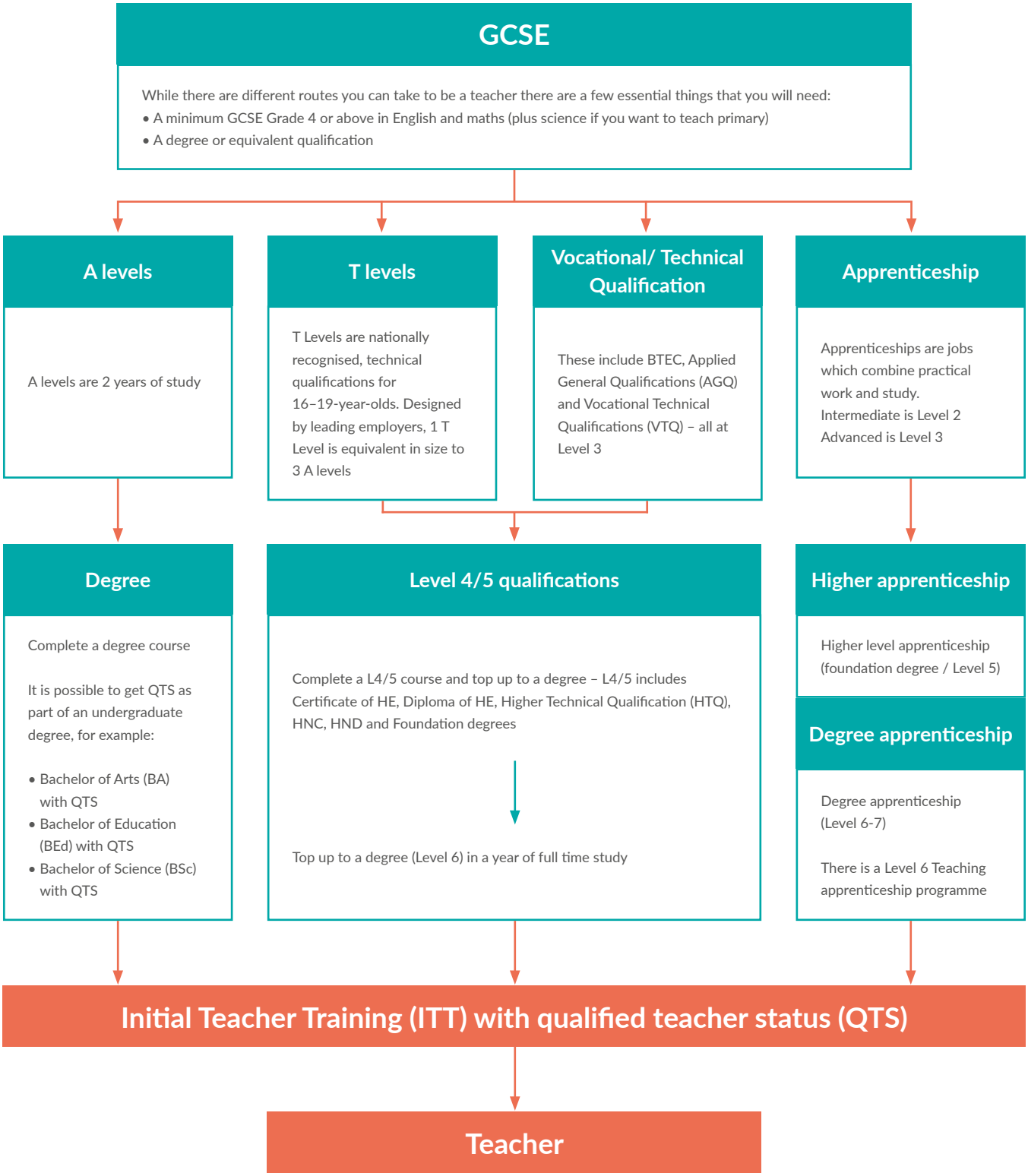
You'll get more days holiday than people in many other professions. In school, full-time teachers work 195 days per year.

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.

Get the Jump: Skills for Life

There are three types of routes students can consider:

Combine study and work

Study

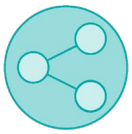
Work

Resources to highlight pathways from your subject

- Download My Learning, My Future student facing presentation deck
- Download Mathematics – we've got an apprenticeship for you poster from Amazing Apprenticeships
- Download the Where can Maths Take you? STEM bundle for teachers
- Linking Careers to STEM Curriculum Guide for Teachers
- Discover Creative Careers: Bringing together careers information and opportunities from creative organisations in one explorable directory
- Explore careers in Maths related sectors

Example Key Sector Bodies:

- Institute of Maths: Maths careers
- The Association of Teachers of Mathematics (ATM) was established in 1952, to encourage the teaching and learning of Mathematics by relating more closely to the needs of the learner.
- UK Maths Trust



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 Maths. Here are some possible apprenticeships available to study: • Economist • Clinical Coder • Aerospace Engineer • Accountant • Civil Engineer • Insurance Practitioner • Chartered Surveyor • Debt Adviser • First Officer Pilot • Senior investment Professional • Engineering 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 Business Services • T Level Accounting • T level Engineering, Manufacturing, Processing and Control • T level Finance
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 • Engineering Manufacture • Engineering programmable Systems • Enterprise and Marketing • Business • Core Maths

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: • Mathematics • Accounting and Finance • Aeronautical Engineering • Accounting • General Engineering • Accounting
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: • Mathematics • Further Mathematics • Statistics • Statistical problem Solving using Software • Economics • Accounting
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 Mathematics: • Actuarial Mathematics • Accounting • Mathematics • Accounting and Finance • Aeronautical Engineering • Banking and Finance • Finance, Investment & Risk • Agri-Business Management • Accounting with Data Science • Accounting with Economics • Accounting and Law

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 Mathematics

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:

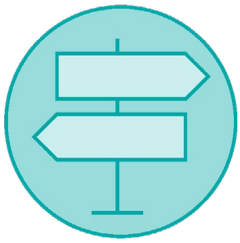
- Entry information, highlighting the qualifications held and UCAS Tariff point values students had when they were accepted onto the course
- Continuation rates for courses and a breakdown of what students are doing after one year on the course
- Data from the National Student Survey (NSS) showing experiences 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

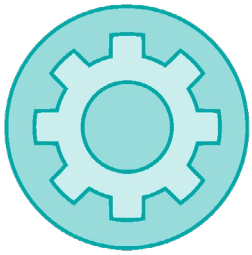
Young people critically need support to see and understand their future and ensuring that careers learning is delivered in all subjects has benefits clearly aligned to the priorities of schools and colleges and to positive outcomes for students. There are three different approaches to careers in the 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 teaching resources to embed careers in your subject for Y7, Y9 and GCSE classes

- Causeway and STAR Academies Y7
- Causeway and STAR Academies Y9
- Causeway and STAR Academies GCSE

- AET and Pinewood: Careers in Maths Resource: These resources have been created by AET and Pinewood Studios to engage and support students in learning by placing teaching points in the context of the world of work
- STEM person of the Week

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.

- 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
- STEM behind the design of aircraft: World-leading STEM education for all young people across the UK
- STEM Careers support
- Download this teacher bundle on Apprenticeships from the National Apprenticeship Service

Case studies linked to your subject

- NHS Careers A - Z:
  - Accountant
  - Director of Finance
  - Estates Manager
- Ann Cairns: Statistics to Engineering:
- Case studies linked to your subject from Forum Talent Potential: KS3 Maths, Circumference and Area of Circles.

Other Resources

- Study routes into STEM careers
- Find useful careers resources from FutureGoals related to Maths here:
- Find an engaging subject Mathematics poster from Planit - "Shrink oversized pages" before you print to A4.
- Neon brings together the UK's best engineering experiences and inspiring careers resources to help teachers bring STEM to life with real-world examples of engineering.
- Barclays Life Skills: Barclays Life Skills resources help the development of financial capability including money management.
- Maths4Girls aims to inspire and encourage girls, aged 11-14, to take maths beyond GCSE and even the gender playing field at A-levels and university. You can invite female role models - inspiring women from sectors such as finance, computing and science - to come into the classroom to talk to students about their own journey with maths and clearly link maths in the classroom with the real world. This will encourage both boys and girls to see the relevance of maths to the world of work.
- Download this Apprenticeships in Maths poster

Extra-curricular Inspiration

- Loughborough University HE Unboxed (Maths): The activity aims to encourage students to use their mathematical knowledge to work together and be creative to solve a problem. They will work in teams and will need to devise techniques to complete all the tasks within the timeframe.
- STEM Ambassadors increase your awareness of STEM-related careers and employability skills, helping you to embed this information into your teaching.
- Celebration events that promote STEM Careers.
- STEM Clubs are an enjoyable way to engage young people with STEM subjects and careers.
- The Grand Challenges programme aims to help young people develop the skills needed to bridge the gap between learning and career choices.
- Junior Mathematical Challenge

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

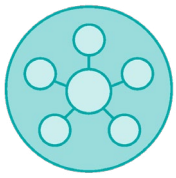
2| Encourage students to research local options at 16/18 in pathways related to your subject that interest them

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

Skills Builder PARTNERSHIP

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

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

Overview video

Key stage 3

Key stage 4

Post 16

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 ability to find a solution to a situation or challenge

Overview video

Key stage 3

Key stage 4

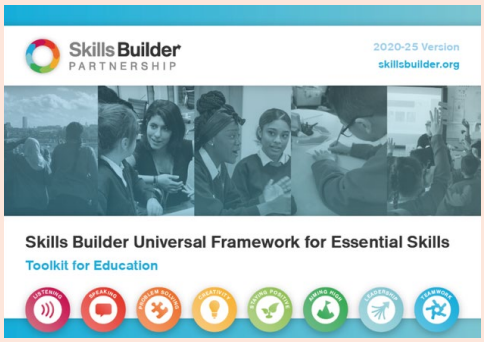
Post 16

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
- PwC UK
- Ormiston Academies Trust
- Prospects
- LLEP
- GOV.UK Get the Jump: Skills for Life campaign
- First Careers
- NHS Careers
- STEM Learning
- Royal Society of Mathematics
- planitplus.net
- Mathsweekengland
- UKMT
- Maths4Girls
- Barclays Lifeskills
- Neon
- STAR Academies
- FutureGoals

THE CAREERS & ENTERPRISE COMPANY

My Learning
My Future

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

All the resources, all in one place:
CEC Resource Directory

The Careers & Enterprise Company
120 Aldersgate St
London
EC1A 4JQ

careersandenterprise.co.uk

Follow us on Twitter: **@CareerEnt**