My Learning
My Future

Where can studying Mathematics take you?

Highlighting the relevance of Mathematics to future careers and opportunities

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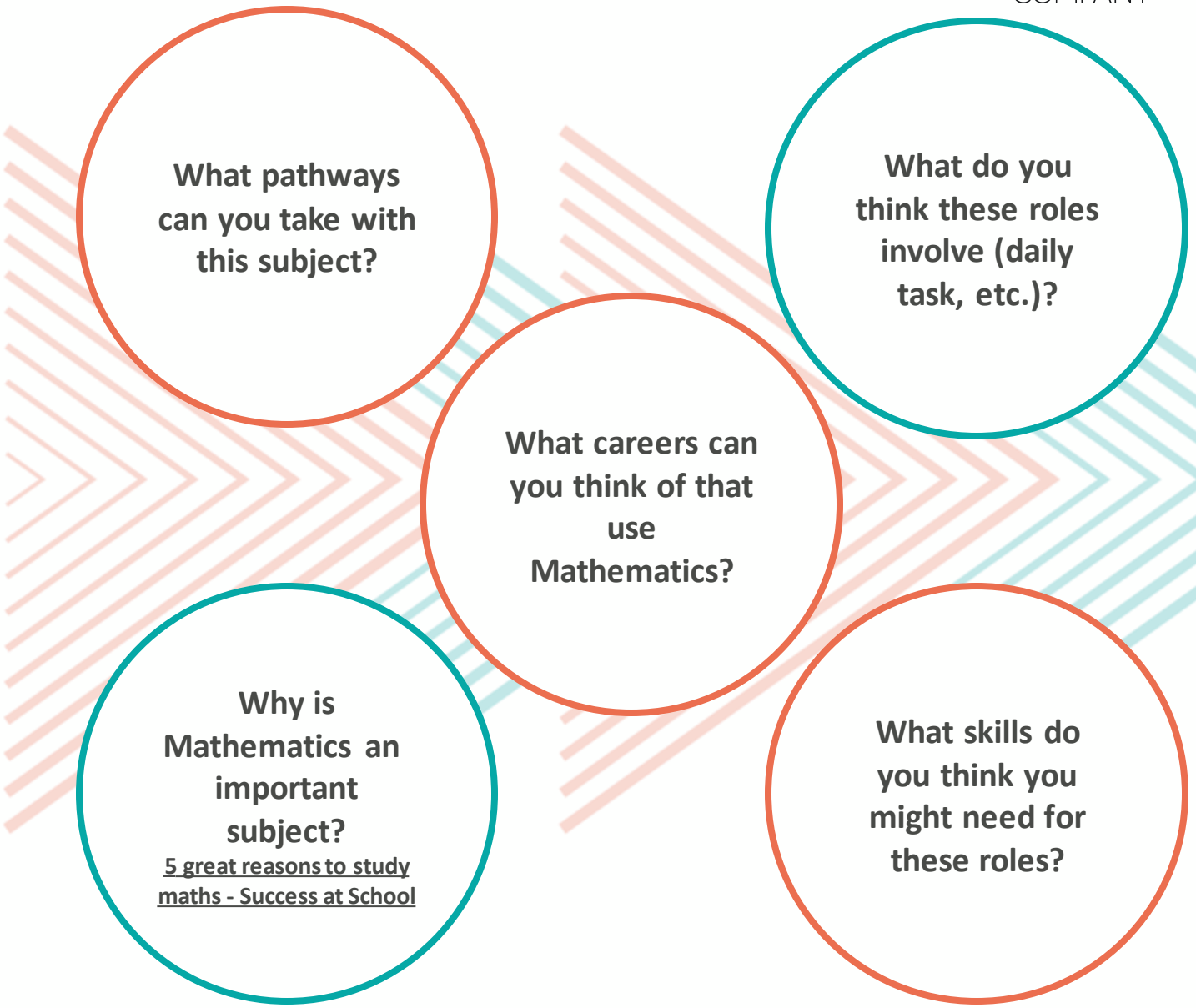
Why Mathematics matters

Have you ever considered where studying Mathematics can take you?

Today, we'll be exploring some of the career opportunities that are available to you, as well as the various pathways you can take to get there.



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Explore a career as a…

Here are some example roles and careers linked to

Mathematics

Senior Systems Engineer

BBC Bitesize case study

Financial trader/ Stockbroker

Prospect case study

icould case study

Quantity Surveyor

BBC Bitesize case study

icould case study

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Explore a career as a…

Here are some example roles and careers linked to

Mathematics

Accounting Technician

BBC Bitesize case study

Prosects case study

Games Designer

BBC Bitesize case study

Prospects case study

BBC Bitesize case study

Sales Associate

icould case study

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Discover more about the role

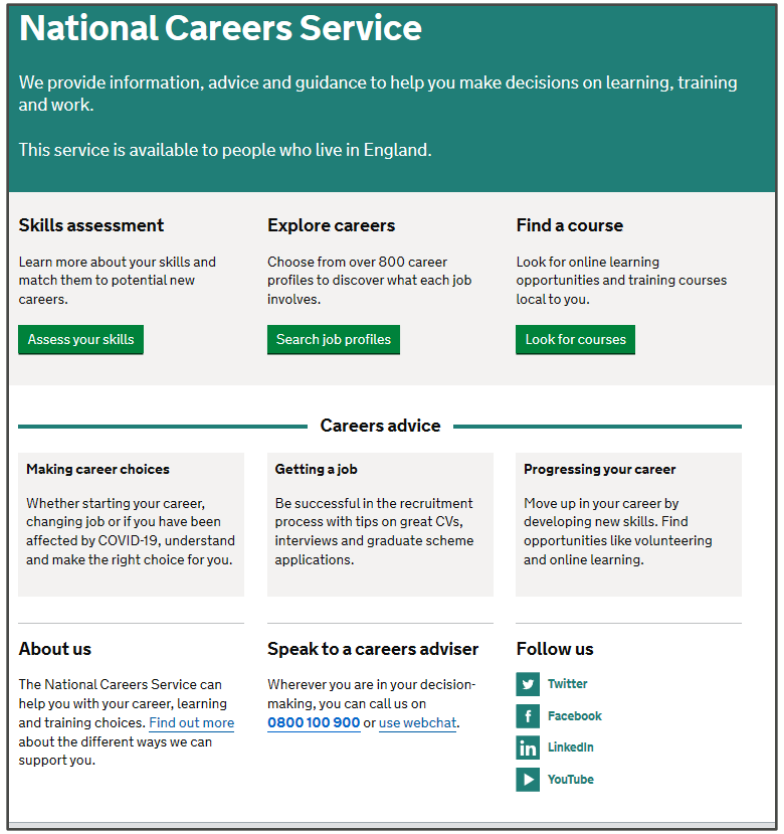
Explore careers using National Careers Service and find out about what jobs involve and how they are right for you

Includes:

- Average salary
- Typical hours
- Work patterns
- Pathways/How to become
- Essential Skills
- Daily tasks
- Career path and progression
- Current opportunities

Research Ideas:

Senior Systems Engineer
Stockbroker
Quantity Surveyor
Accounting Technician
Games Designer
Sales Associate



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Teaching
Every Lesson Shapes a Life

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Why not teach Mathematics?

Start in the classroom, where you go from there is up to you. Bring your passion for your subject, keep learning, and pass your knowledge onto others

- No two days are the same – and neither are the pupils
- Once qualified you can teach throughout your life
- You could teach abroad
- Progress your career into leadership and management
- Bring your outside interests into the classroom and your subject

Why is STEM important?

- It boosts essential skills such as problem solving and curiosity
- It helps you see and understand the wider world around you
- It helps young people become future entrepreneurs

Explore teaching

Vjendra's Story

Every Lesson Shapes a Life

The right skills to teach?

Love to keep learning?

Love to nurture imagination?

What makes a great teacher?

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Teaching
Every Lesson Shapes a Life

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GCSE

While there are different routes you can take to be a teacher there are a few essential things that you will need:
- **A minimum GCSE Grade 4 or above in English and maths (plus science if you want to teach primary)**
- **A degree or equivalent qualification**

A level

A levels are 2 years of study

T Level

T Levels are nationally recognised, technical qualifications for 16–19-year-olds. Designed by leading employers, one T Level is equivalent in size to 3 A levels

Vocational/Technical Qualification

These include BTEC, Applied General Qualifications (AGQ) and Vocational Technical Qualifications (VTQ) – all at Level 3

Apprenticeship

Apprenticeships are jobs which combine practical work and study. Intermediate is Level 2, Advanced is Level 3

Degree

Complete a degree course

It is possible to get QTS as part of an undergraduate degree, for example:

- Bachelor of Arts (BA) with QTS
- Bachelor of Education (BEd) with QTS
- Bachelor of Science (BSc) with QTS

Level 4/5 qualifications

Complete a L4/5 course and top up to a degree – L4/5 includes Certificate of HE, Diploma of HE, Higher Technical Qualification (HTQ), HNC, HND and Foundation degrees

Top up to a degree (Level 6) in a year of full-time study

Higher apprenticeships

Higher level apprenticeship (foundation degree / Level 5)

Degree apprenticeships

Degree apprenticeship (Level 6-7). There is a Level 6 Teaching apprenticeship programme

Initial Teacher Training (ITT) with qualified teacher status (QTS)

Teacher

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Why not teach activity?

Teaching
Every Lesson Shapes a Life

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- Pick a topic in Mathematics you think you would like to try and teach
- Agree your choice of topic with your teacher and the length of session (and with which group)
  (It may be the perfect opportunity to try this with a younger class lower down the school, or as a transition activity for Y6)
- Plan a short activity to cover the topic in a way you feel will be engaging and memorable for your peers as part of a lesson starter, main activity or plenary

Consider:

- What are you trying to achieve (teach)? Be clear what information you intend to impart
- How will you make it fun? How will you make it 'stick'? How long will this take?
- What type of activity will you plan for? (written/practical)
- How will you know others have learned it?
- How will you make sure everyone is stretched and challenged?
- What will the end-product be?

Once you have checked it with your teacher, try the lesson with a small group (as agreed by your teacher)
Try and get feedback during and after the session from those in the lessons and from the teacher

After, consider:

- What you enjoyed about the experience
- Whether this is something, with training, you would enjoy
- How you felt when others learned from you

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5| Non-obvious jobs using Mathematics: Ever thought about..?

- How to become a Catchment Officer: Liam's story
- How to become a Farmer: Aimee's story
- How to become a Corporate Social Responsibility coordinator: Ben's story

BBC Bitesize https://www.bbc.co.uk/bitesize/articles/zhst2sg

- Careers ideas and information - Maths

icould

- Credit Manager | Explore careers | National Careers Service
- Private Practice Accountant | Explore careers | National Careers Service
- Quantity Surveyor | Explore careers | National Careers Service

National Careers Service https://nationalcareers.service.gov.uk/explore-careers

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MYPATH Job of the week (Mathematics)

- Actuary
- Quantity Surveyor
- Financial Advisor

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MYPATH Maths: Why bother?

KS3:

2D Shapes
3D Shapes
Angles
Area
Averages
Data
Decimals
Distance
Estimation
Equations
Finance
Fractions
Graphs
Inequalities
Measurement
Multiples
Operations
Patterns
Percentages
Perimeter
Place Value
Positive and Negative Numbers
Powers and Roots
Probability
Proportion
Pythagoras
Ratio
Speed
Standard Form
Symmetry
Time
Transformations
Trigonometry

Please be aware MYPATH are adding new videos so keep checking here for additions

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MYPATH Maths: Why bother?

KS4:

2D Shapes
3D Shapes
Algebra
Angles
Approximation
Area
Circles
Data
Decimals
Finance
Fractions
Geometry
Graphs
Inequalities
Measurement
Multiples
Percentages
Probability
Problem Solving
Proportion
Quadratic Equations
Powers and Roots
Pythagoras
Ratio
Sequences
Simultaneous Equations
Standard Form
Statistics
Transformations
Trigonometry
Vectors
Whole Numbers

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Mathematics careers in a changing world: How can I future-proof my career pathway?

Sustainability means meeting our own needs without compromising the ability of future generations to meet their own needs.
(UN definition)

The world will be changing drastically in the next few years to cope with the impact of climate change and nature loss, and the need to lower greenhouse gas emissions and unsustainable practices. How might this steer your choice of career path using your Mathematics skills?

SUSTAINABLE FUTURES

WWF | Villiers Park Educational Trust | Founders4Schools

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Mathematics careers in a changing world

Every career can be sustainable

1. Use your skills and passion for sustainability to help businesses adapt
2. Work for a company with sustainable values
3. Innovate for a sustainable future

- **Climate Scientist**
- **Careers in Ethical Banking**
- **Consultant (Element Energy)**

SUSTAINABLE FUTURES

WWF | Villiers Park Educational Trust | Founders4Schools

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A spotlight on Technicians using Mathematics

THE CAREERS & ENTERPRISE COMPANY

6|

Discover here how the technical jobs related to Mathematics keep industries moving and the real difference technicians make in our lives.

R097 Logistics Technician

R103 Transport and Planning Technician

R007 Air Traffic Controller

R032 Data Technician

R051 Geospatial Survey Technician

R070 Nuclear Technician

GATSBY

Technicians
We make the difference

Visit the Gallery here

Find further resources here

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6|

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R071 Optical Technician

R092 Surveying Technician

R008 Aircraft Maintenance Technician

R011 Architectural Technician

R022 Civil Engineering Technician

R088 Space Engineering Technician

R024 Clinical Coder

GATSBY

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GET THE JUMP
SKILLS FOR LIFE

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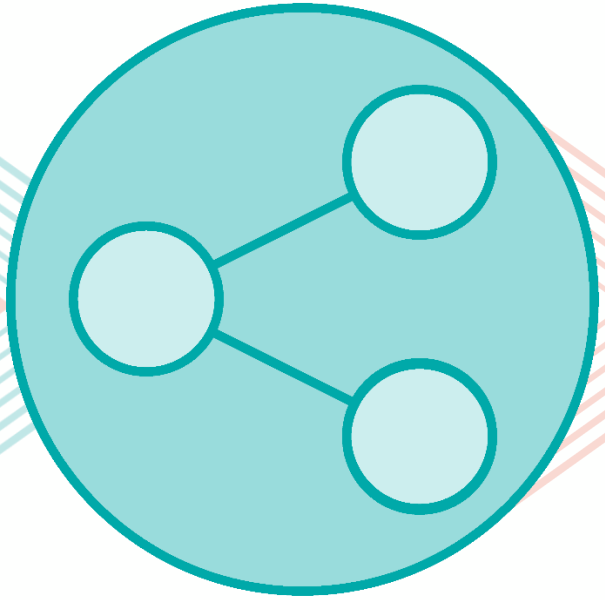
7 | Mathematics Pathways



Combine Study and Work

Study

Work

My Learning
My Future

7 | Combine Study and Work

Apprenticeships

- Economist
- Aerospace Engineer
- Clinical Coder
- Accountant
- Civil Engineer
- Insurance Practitioner
- Chartered Surveyor
- Debt Adviser
- First Officer Pilot
- Senior Investment Professional
- Engineering Technician

Find more >

T Levels

T Levels | National Careers Service
T Levels | Building Services Engineering for Construction
T Levels | Design, Surveying and Planning for Construction
T Levels | Digital Business Services
T Levels | Accounting
T Levels | Engineering, Manufacturing, Processing and Control
T Levels | Finance

VTQs

Vocational Technical Qualifications (VTQs) | National Careers Service

- Engineering Design
- Engineering Manufacture
- Engineering programmable Systems
- Enterprise and Marketing
- Business
- Core Maths

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7 | Study Pathways

HTQs (Higher Technical Qualifications)

Higher technical qualifications (HTQs) | National Careers Service

You might find courses in:

- Mathematics
- Accounting and Finance
- Aeronautical Engineering
- Accounting
- General Engineering

A levels

A levels | National Careers Service

You might find courses in:

- Mathematics
- Further Mathematics
- Statistics
- Statistical Problem Solving using Software
- Economics
- Accounting

Higher education

Higher education | National Careers Service
You can explore undergraduate courses in Mathematics

You might find courses in:

- Actuarial Mathematics
- Accounting
- Mathematics
- Accounting and Finance
- Aeronautical Engineering
- Banking and Finance
- Finance, Investment and Risk
- Agri-Business Management
- Accounting with data Science
- Accounting with Economics
- Accounting and Law

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7 | Work Pathways

Supported internships with an education, health and care plan

Supported internships | National Careers Service

Watch Saul's story

You might read about:

- Access to Work Funding (if you have a disability or health condition)
- Preparing for Adulthood
- Talking Futures (A parents' toolkit for career conversations)

School leaver schemes

School leaver schemes | National Careers Service

You might read about:

- How to fill in an application form
- How to write a CV
- Interview help
- Progressing your career (Careers Advice from NCS)

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Complete University Guide

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7 | University League Tables

See at a glance the university ranking for Mathematics

Mathematics Rankings (thecompleteuniversityguide.co.uk)

Filter by:

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

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Discover Uni

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Discover Uni

Have you ever considered if higher education is right for you?

1.Go to https://discoveruni.gov.uk/

2. Search for a course or subject
(You should get a page of search results, you can filter these by university or college, whether you want to study full or part time or perhaps you want to see that courses are near you)

Once you have had a look at a few different courses and subjects now it is time to compare some side by side

3. Check out this video which shows you how to use our comparison tool https://youtu.be/dBFzCQgTp8I - Pick 5 courses and add these as a saved course and then you can compare

4. Once you have your chosen five side by side, try to answer the following questions:

a. What kinds of qualifications do students on the course have when they start the course?

b. How many have a placement year?

c. How many courses let you study abroad?

d. Which has the highest student satisfaction rating? How do you know this?

e. What kinds of job do graduates from this course go on to?

f. Which course has the highest salary after three years? (higher/lower than national average)

g. Choose your favourite course and explain why you chose this course over the others?

discoveruni@officeforstudents.org.uk

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4. Once you have your chosen five side by side, try to answer the following questions:
Is the data I am looking at for a course or a subject?

a. What year, or years, does the data relate to?
b. How many students or graduates is this data based on?
c. Does the data represent all the students on the course or subject area?
d. Does the data include people like me?
e. What factors might impact the data?

discoveruni@officeforstudents.org.uk

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1 |

In 10 years time…

Job in 10 years time (related to Mathematics):

_____

What GCSEs helped you get this job:

_____ _____ _____ _____ _____ _____

What KS5 Pathways choice did you make and what did you study:

Apprenticeship T level A Level other L3 equivalent

_____

Post 18 pathways choices did you make: explain:

Study & Work Study Work

_____

Essential skills used in the job:

_____

Progression route:

_____

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2 |

My local options…

Subject chosen (related to Mathematics):

_____

Local college options:	Local apprenticeships options:	Other options:
_____	_____	_____
_____	_____	_____

The pros and cons of these options for me:

Pros:	**Cons:**
_____	_____

Consider how these will apply and explain:

Cost _____

Travel _____

Convenience _____

Aspirations _____

Personal circumstances _____

Other _____

Final choice – justify:

_____

Next steps:

_____

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3| Prepare a 3 - 5 minute talk to share with a small group on any role that interests you related to Mathematics

- What's the role
- Where has the interest come from
- What do you need to do to become one
- Where can you go to study and what level of study
- Where do you need to go to carry out the role
- What's the chances of getting this role
- Who do you look up to in this role
- What might a typical day look like

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4 |

My career path….

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8 |

Essential Skills

Here are three key skills needed for a career that uses

Mathematics

	Video	Skills Builder Resource KS3	Skills Builder Resource KS4	Skills Builder Resource Post 16
The ability to use tactics and strategies to overcome setbacks and achieve goals	Watch here	Short Lesson Staying Positive St ep 6-8	Short Lesson Staying Positive Step 8-10	Short Lesson Staying Positiv e Step 10-12
The ability to set clear, tangible goals and devise a robust route to achieving them	Watch here	Short Lesson Aiming High Step 6-8	Short Lesson Aiming High Step 8-10	Short Lesson Aiming High Step 10-12
The ability to find a solution to a situation or challenge	Watch here	Short Lesson Problem Solving Step 6-8	Short Lesson Problem Solving Step 8-10	Short Lesson Problem Solving Step 10-12

	Staying Positive	I can do this
Step 6	I keep trying when something goes wrong and encourage others to keep trying too	
Step 7	I look for opportunities in difficult situations	
Step 8	I look for opportunities in difficult situations, and share these with others	
Step 9	I look for opportunities in difficult situations, and adapt plans to use the opportunities	
Step 10	I look for opportunities in difficult situations, and create new plans to use the opportunities	
Step 11	I identify risks and gains in opportunities	
Step 12	I identify risks and gains in opportunities, and make plans to manage them	

My Strength (s)	My area (s) of Development

	Aiming High	Tick which apply
Step 6	I set goals informed by an understanding of what is needed	
Step 7	I set goals, ordering the prioritising tasks to achieve them	
Step 8	I set goals and secure the right resources to achieve them	
Step 9	I set goals and plan to involve others in the best way	
Step 10	I create plans that are informed by my skill set and that of others	
Step 11	I create plans that include clear targets to make progress tangible	
Step 12	I create plans that are informed by external views, including constructive criticism	

My Strength (s)	My area (s) of Development

	Problem Solving	I can do this
Step 6	I explore complex problems by identifying when there are no simple technical solutions	
Step 7	I explore complex problems by building my understanding through research	
Step 8	I explore complex problems by analysing the causes and effects	
Step 9	I create solutions for complex problems by generating a range of options	
Step 10	I create solutions for complex problems by evaluating the positive and negative effects of a range of options	
Step 11	I analyse complex problems by logical reasoning	
Step 12	I analyse complex problems by creating and testing hypotheses	

My Strength (s)	My area (s) of Development

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Homework

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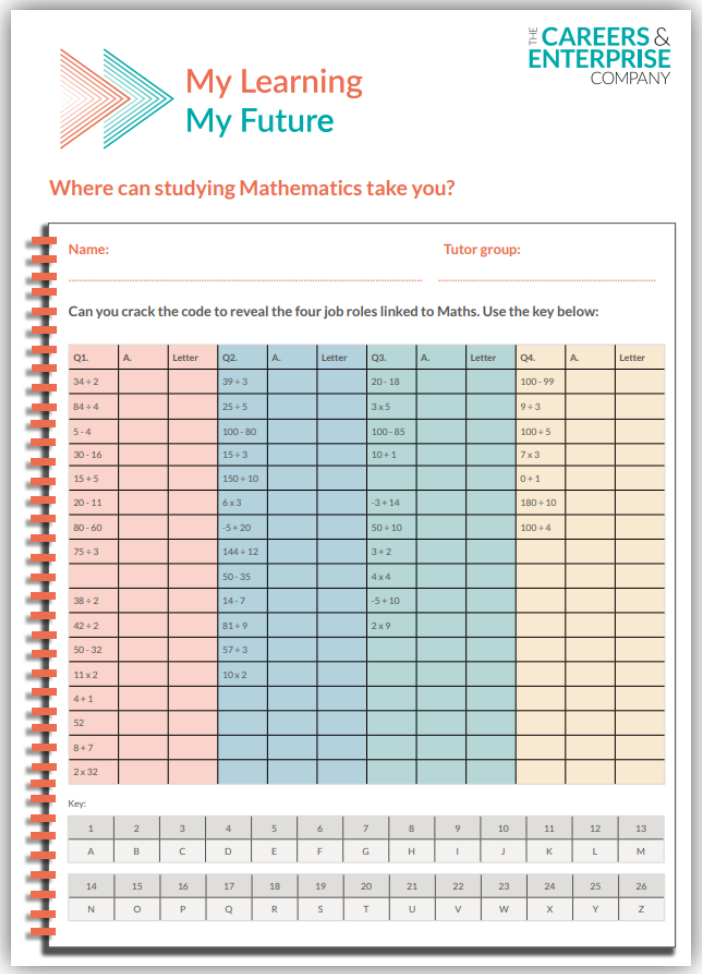

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Where can studying Mathematics take you?

Name: Tutor group:

Can you crack the code to reveal the four job roles linked to Maths. Use the key below:

Q1.	A.	Letter	Q2.	A.	Letter	Q3.	A.	Letter	Q4.	A.	Letter
34 ÷ 2			39 ÷ 3			20 - 18			100 - 99		
84 ÷ 4			25 ÷ 5			3 x 5			9 ÷ 3		
5 - 4			100 - 80			100 - 85			100 ÷ 5		
30 - 16			15 ÷ 3			10 + 1			7 x 3		
15 + 5			150 ÷ 10						0 + 1		
20 - 11			6 x 3			-3 + 14			180 ÷ 10		
80 - 60			-5 + 20			50 ÷ 10			100 ÷ 4		
75 ÷ 3			144 ÷ 12			3 + 2					
			50 - 35			4 x 4					
38 ÷ 2			14 - 7			-5 + 10					
42 ÷ 2			81 ÷ 9			2 x 9					
50 - 32			57 ÷ 3								
11 x 2			10 x 2								
4 + 1											
52											
8 + 7											
2 x 32											

Key:

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M

14	15	16	17	18	19	20	21	22	23	24	25	26
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Use the National Careers Service website to help. You can use their 'job profiles'.

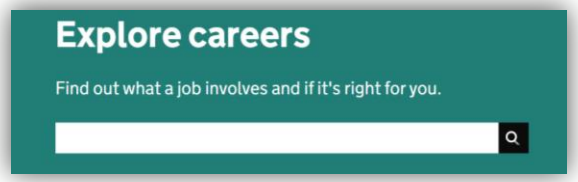
What is the role of the job revealed in question 1 and what is their average salary?

What is the role of the job revealed in question 2 and what is their average salary?

What is the role of the job revealed in question 3 and what is their average salary?

What is the role of the job revealed in question 4 and what is their average salary?

Creation of homework task accredited to Wolverley CE Secondary School, Worcestershire Careers hub.



Use the National Careers Service Explore careers tool to research for this homework

Explore here

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