


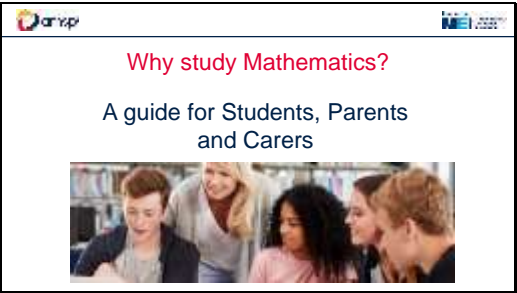
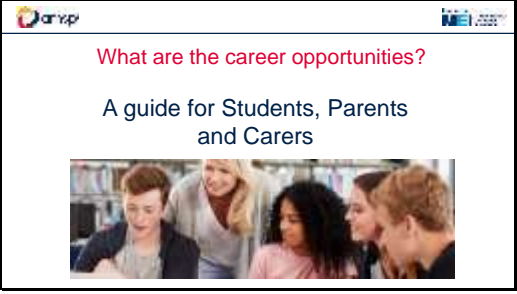
Why Study Maths?

Transcript for video - What are the career options?

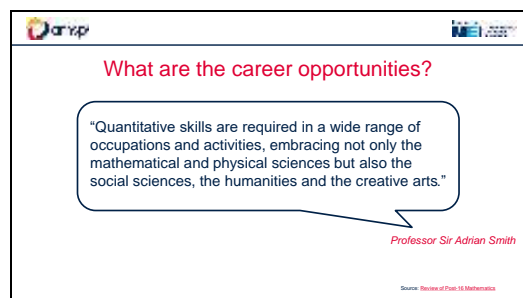
The transcript below is for you to use if you would like to record your own school specific version of the materials.

The contents of the video are based on the information in the comprehensive Why Study Maths? presentation. The presentation is available for you use and share with students and parents to promote level 3 maths courses. It can be downloaded from <https://amsp.org.uk/resource/why-study-maths>

For more details about the work of the AMSP visit www.amsp.org.uk. If you would like copies of the **Maths - Opening the door to your future** leaflet sent to your school, please contact the AMSP admin team: admin@amsp.org.uk

<p>Slide 1</p> 	<p>Hello and welcome</p>
<p>Slide 2</p> 	<p>In this short video from the Advanced Maths Support Programme we will be looking closely at some of the reasons for continuing with maths after GCSE by</p>
<p>Slide 3</p> 	<p>... focussing on the career opportunities doing so can bring. So what is the place of maths in the world of work?</p>

Slide 4



What are the career opportunities?

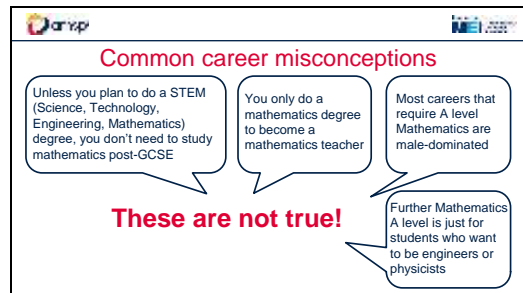
"Quantitative skills are required in a wide range of occupations and activities, embracing not only the mathematical and physical sciences but also the social sciences, the humanities and the creative arts."

Professor Sir Adrian Smith

Source: Review of Post-16 Mathematics

In his 2017 review of post-16 mathematics Professor Smith also goes on to say that *The majority of private sector organisations believe the use of data analytics will be the most important factor in increasing growth in UK businesses.* In a moment we are going to take a look at the wide range of careers that are open to you if you choose to study maths beyond GCSE but let's start by addressing some common misconceptions.

Slide 5



Common career misconceptions

Unless you plan to do a STEM (Science, Technology, Engineering, Mathematics) degree, you don't need to study mathematics post-GCSE

You only do a mathematics degree to become a mathematics teacher

Most careers that require A level Mathematics are male-dominated

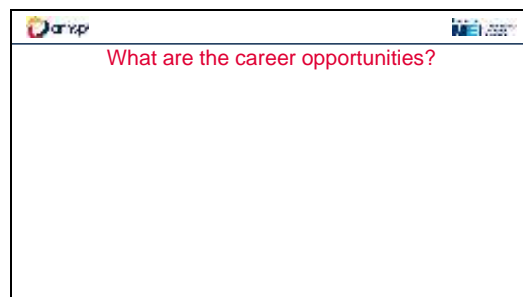
These are not true!

Further Mathematics A level is just for students who want to be engineers or physicists

Perhaps you have heard or even thought some of these before yourself.

Mathematics in particular is relevant to many different careers, apprenticeships and degrees, all of which now require better quantitative skills. We are going to take a look at some of those careers now.

Slide 6



What are the career opportunities?

What careers are you expecting to come up?

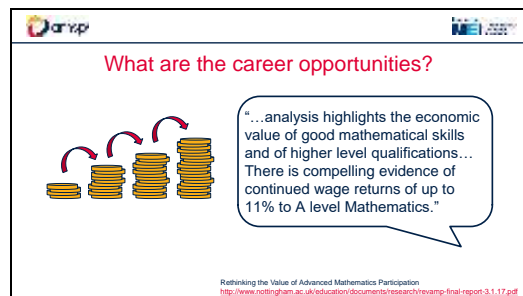
Slide 7



What are the career opportunities?

This, of course, is not an exhaustive list. Hopefully there are lots of jobs here that surprise you or make you want to find out more about them. Some of these jobs did not exist until recently and there are many future jobs that we still don't know about now. However, they are likely to require the flexible, problem solving skills of maths.

Slide 8



What are the career opportunities?

"...analysis highlights the economic value of good mathematical skills and of higher level qualifications... There is compelling evidence of continued wage returns of up to 11% to A level Mathematics."

Rethinking the Value of Advanced Mathematics Participation
<http://www.nottingham.ac.uk/education/documents/research/rewamp-final-report-3.1.17.pdf>

Image created on Powerpoint by TR

We are talking about future jobs, so let's get the issue of money out of the way! Research from Nottingham University tells us that having a maths A level means that you can earn more. The only other A level shown to have an attached wage premium is Computing.

Slide 9



Last year, data from a longitudinal study by the government showed the average salary of individuals six years after their A level exams by subject

Slide 10

Careers using Maths

There is a huge shortage of people with STEM skills needed to enter the workforce.

Applications of mathematics in technology:

- Medical
- Games Design
- Internet Security
- Financial Cryptography
- Programming
- Communications

Images: <https://pixabay.com/en/scifi-war-future-futuristic-robot-3617337/>
<https://pixabay.com/en/smartphone-screen-android-1957740/>

Lets take a look at some of the different career areas where maths is desired or essential in a little more detail

We'll start by looking at a rapidly growing sector that infiltrates all of our lives. Technology. It is mathematics that underpins all of these areas. A lot of the mathematics used would be considered discrete or decision maths.

Slide 11

Careers using Maths

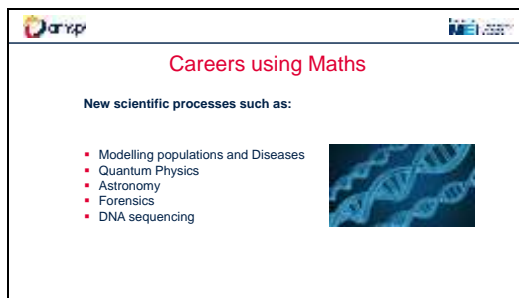
On-going applications in engineering, such as:

- Aircraft Modelling
- Fluid Flows
- Acoustic
- Software Development
- Electronics
- Civil Engineering.

<https://pixabay.com/en/curve-background-gradient-color-2822641/>

Engineering, as I am sure you will be aware, is not just about engines! It is such a vast field that there are engineering jobs in almost every sector. Many of them are design focused and require creative thinkers.

Slide 12



Careers using Maths

New scientific processes such as:

- Modelling populations and Diseases
- Quantum Physics
- Astronomy
- Forensics
- DNA sequencing

Images: <https://pixabay.com/en/dna-string-biology-3d-1811955/>

It would be impossible to prove theories in science without maths. Mathematics is an essential component of the scientific process (data collection and observation and hypotheses are sustained by relevant mathematical models) , and as Galileo once said “Mathematics is the language in which the Natural Physical World is written”

Slide 13



Careers using Maths

Applications relating to human behaviours and interactions:

- Data Science
- Psychology
- Law
- Economics
- Climate Change
- Environmental Modelling
- Political Science
- International Development

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Almost all social sciences rely on statistical methods to analyse data and to form hypotheses, and almost all of them use (to a greater or lesser extend) a range of mathematical methods to help us understand the social world. Mathematical modelling is widely used to produce insights and predictions about behaviour such as; Game Theory models used to study social phenomena and Network analysis is used to analyse social networks

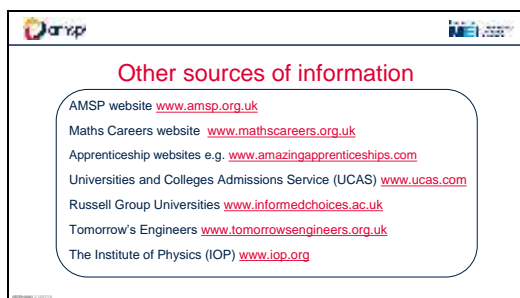
Slide 14



What are the career opportunities?

We'll end with another quick look at this slide – as there is so much to look at - and this final message. It is important to have a career that you enjoy, but job security is also important and maths skills are constantly in demand. Even sectors that don't make explicit use of maths respect the qualification as it demonstrates problem solving and tenacity (they will want you not because you find maths easy but because it is tricky but you carried on anyway).

Slide 15



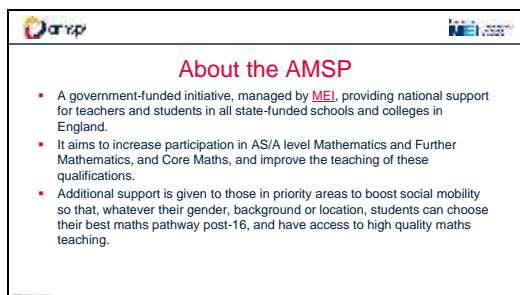
Slide 15 features the AMSP logo in the top left and the MEI logo in the top right. The title "Other sources of information" is centered in red. Below the title, a rounded rectangle contains a list of websites with red hyperlinks.

Other sources of information

- AMSP website www.amsponline.org.uk
- Maths Careers website www.mathscareers.org.uk
- Apprenticeship websites e.g. www.amazingapprenticeships.com
- Universities and Colleges Admissions Service (UCAS) www.ucas.com
- Russell Group Universities www.informedchoices.ac.uk
- Tomorrow's Engineers www.tomorrowsengineers.org.uk
- The Institute of Physics (IOP) www.iop.org

Here are some links to helpful websites with more information. We wish you well with your future studies and chosen career paths.

Slide 16



Slide 16 features the AMSP logo in the top left and the MEI logo in the top right. The title "About the AMSP" is centered in red. Below the title, a list of bullet points describes the initiative.

About the AMSP

- A government-funded initiative, managed by MEI, providing national support for teachers and students in all state-funded schools and colleges in England.
- It aims to increase participation in AS/A level Mathematics and Further Mathematics, and Core Maths, and improve the teaching of these qualifications.
- Additional support is given to those in priority areas to boost social mobility so that, whatever their gender, background or location, students can choose their best maths pathway post-16, and have access to high quality maths teaching.

Slide 17



Slide 17 features the AMSP logo in the top left and the MEI logo in the top right. The title "Contact the AMSP" is centered in red. Below the title, contact information is listed with corresponding icons.

Contact the AMSP

- ☎ 01225 716 492
- @ admin@amsponline.org.uk
- 🌐 amsponline.org.uk
- 🐦 Advanced_Maths