

Careers using maths: The ten best resources for maths teachers to inspire their students

All teachers have a role in helping students to prepare for their next steps in learning and work whether it is in further and higher education, apprenticeships or employment. They do this by providing students with information and advice about what they're good at, where the opportunities are and what skills they need to succeed such as career management, employability and enterprise skills.

Maths teachers can ensure that their students know about:

- What's involved in studying maths at the next level, e.g.:
 - at KS4
 - post 16
 - at degree level
- The general value of maths in careers and everyday life, e.g.:
 - Numeracy skills are needed in most jobs such as being able to do basic calculations, to make sense of data in graphs and charts, to have a basic understanding of probability
 - A qualification at level 2 such as GCSE maths A*-C is a general entry requirement for many courses and jobs
 - 'A' level maths is one of nine 'facilitating subjects' preferred or required for entry onto degree courses by leading universities in the UK
- The specific value of maths as a required or preferred subject for particular careers, e.g.:
 - Engineers and engineering technicians
 - Surveyors and surveying technicians
 - Systems analysts
 - Actuaries
 - Accountants
 - Operational researchers
 - Chemists
 - Software engineers
 - Statisticians
 - Mathematicians
- Useful subject combinations, e.g.:
 - Maths and physics for meteorology
 - Maths and chemistry for chemical engineering
 - Maths, statistics and a social science subject for social scientist/researcher
 - Maths and art and design for architecture
- Useful skill combinations, e.g.:
 - doing calculations, using ICT and relating well to people, e.g. for accountancy, banking, insurance, investment advice, clerical work

- teaching maths and relating well to children and young people, e.g. maths teaching
- handling quantitative data and physical skills, e.g. for construction, farming
- doing calculations, using ICT, planning and attending to detail, e.g. for transport and logistics
- doing mental arithmetic and treating customers well, e.g. for jobs in retail, hotel and catering,
- doing geometry and having creative flair, e.g. packaging and product design
- using logical reasoning and problem-solving and leading and organising people, e.g. for managerial jobs

The ten best resources

1. Maths Careers www.mathscareers.org.uk

Sponsored by the Bank of England and EDF Energy, the website has a wide array of resources to promote careers related to maths including the 'What's the point of...?' series of posters, STEM career profiles, 'I love maths', 'Who employs mathematicians?' and 'An overview of growth areas for mathematical jobs'. The site has sections for each key stage as well as information about the application of maths in the main employment sectors (the environment, health and society, business and money, entertainment, science and engineering and sport).

Maths Careers is managed by the Institute of Mathematics and its Applications <http://www.ima.org.uk/>

2. Further Mathematics Support Programme <http://www.furthermaths.org.uk/>

The website has information for schools and colleges on how to register online with the support programme for help in their region. The programme aims to support and promote the study of AS/A level Mathematics and Further Mathematics and to arrange Further Mathematics tuition for students when their schools and colleges cannot provide it themselves. The FMSP provides training and support to teachers of AS/A level Mathematics and Further Mathematics and KS4 Higher Tier Mathematics. The FMSP supports the development of Higher Level Problem Solving skills including support for teachers helping students prepare for STEP, AEA and MAT examinations. The website has useful resources for students and teachers relating to events, revision advice, careers in STEM, opportunities for girls, help for parents and access to higher education.

The government-funded Further Mathematics Support Programme is managed by Mathematics in Education and Industry, an independent charity <http://www.mei.org.uk/>. Its resources include M4 (a magazine for teachers) and Realistic Maths Education problem-solving activities.

More maths grads <http://www.moremathsgrads.org.uk/> (not in the top ten) is worth a look for its more limited information about studying maths at top universities plus its selection of maths games.

3. STEMNET – Science, Technology, Engineering and Mathematics Network

<http://www.stemnet.org.uk/>

The site has details of the STEM Ambassadors who come into schools to inspire young people and work alongside teachers <http://www.stemnet.org.uk/ambassadors/>

4. Inspiring the Future <http://www.inspiringthefuture.org/>

Education and Employers is a charity that runs Inspiring the Future to connect state schools and colleges with employers and people from the world of work. It co-ordinates a network of volunteers who are willing to come into schools to talk informally about their job, career and their educational route. The matching is done online. Volunteers provide information about areas of expertise that might be of interest to students such as apprenticeships, enterprise, maths, financial literacy, engineering and technology.

5. Millennium Mathematics Project <http://mmp.maths.org/>

The Millennium Mathematics Project (MMP) is a maths education and outreach initiative for ages 3 to 19 and the general public co-ordinated by the Faculties of Mathematics and Education at the University of Cambridge. It aims to enrich everyone's experience of mathematics and increase their understanding, confidence and enjoyment. The project organises face-to-face activities and events as well as developing curriculum resources such as 'maths and football' in collaboration with Arsenal in the Community.

The project has thousands of resources on its NRICH (enrich) website many relating to how maths is used in everyday and working life <http://nrich.maths.org/frontpage>.

The project also has an online mathematics magazine called Plus which has useful news, articles, podcasts, puzzles and ebooks <https://plus.maths.org/content/>

6. Royal Statistical Society <http://www.statslife.org.uk/careers>

The careers menu on the Royal Statistical Society website features job profiles, information on different types of jobs and advice for students at different career stages, e.g. 11-16, 16-19 and 19+.

The site has a section for teachers with a link to the International Centre for Statistical Education (ICSE) based at Plymouth University <http://www.icse.xyz/>

The site also has a useful link to the ESRC page on research-related and other careers in the social sciences <http://www.esrc.ac.uk/public-engagement/social-science-for-schools/Careers/>

7. Your Life <http://yourlife.org.uk/>

Your Life is an industry-led and government-supported campaign, which aims to promote career opportunities related to the study of Maths and Physics at A Level or equivalent. The industrial sponsors are AT Kearney, BAE Systems, Carillion, Ford, Nestlé, Johnson & Johnson, Rio Tinto and Shell. The website has details of resources and competitions.

8. Futuremorph – Career opportunities from science and maths

<http://www.futuremorph.org/>

The Science Council developed this resource to show that studying science and maths at school can help students no matter what job they go on to. It has a wealth of resources which can be searched in a number of ways (e.g. by subject, key stage or economic sector). It also has resources for teachers, careers advisers and parents/carers.

9. STEM Learning <https://www.stem.org.uk>

STEM Learning is the new website of the National STEM Centre, ESERO-UK and the National Science Learning Network. It has news, articles, resources and information about CPD events and groups for maths teachers. Many of the resources are careers-related such as video career profiles, case studies, articles and reports.

10. London Mathematical Society - Faces of Mathematics <https://www.lms.ac.uk/fom>

The London Mathematical Society is a learned society for mathematics which promotes study and research at the highest levels. Its 'Faces of Mathematics' page highlights the work and achievements of some of the people who've made major contributions in the world of mathematics.

This top ten does not include any of the excellent subscription-based online careers programs which include information, articles and profiles about maths-related careers. Contact your school or college careers adviser/co-ordinator for details of additional resources that they have purchased.

Regrettably, the Association of Teachers of Mathematics doesn't make it into the top ten! Among the free resources on the Association's website are two poster sets called 'Makers of Mathematics' and 'Mathematics in the Real World' which have the potential to grow into an impressive series, but there are only three posters in each series and they are dull to look at <http://www.atm.org.uk/Mathematics-Posters>.

Other resources to consider:

I'm good at maths <https://nationalcareersservice.direct.gov.uk/youngpeople/Pages/Dream%20Jobs/Good/Maths.aspx>

What can I do with my degree in maths? http://www.prospects.ac.uk/options_mathematics.htm

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