

Careers from Science

■ Richard Needham

Why careers?

There is a worldwide recognition that our future health and prosperity will depend on there being a well-educated workforce who can offer a broad range of technical and analytic skills. Many of these important skills are developed through science education. The *Careers from Science* message is that a scientific background is essential for a wide range of careers. It is not only scientists who need to be scientific.

The national picture

The STEM (Science, Technology, Engineering and Maths) agenda is highlighting the importance of science, technology, engineering and mathematics education to the future wellbeing of the UK. A key aspect of the STEM agenda is careers. Kate Bellingham has recently been appointed as National STEM Careers Co-ordinator (see pages 12 and 13) and a number of projects are underway to promote careers through STEM teaching. Much of this work is co-ordinated by the Centre for Science Education at Sheffield Hallam University, and includes research into the impact of Key Stage 3 (age 11-14) teaching on career choices, resources for teaching and Teachers TV programmes. One component of the STEM Careers programme is *Careers from Science*.

Careers and science teaching

Some science teachers may be unfamiliar with teaching aspects of careers. Traditionally, this has been left to a specialist careers teacher and visiting careers staff. Recent changes in the curriculum (and particularly those for the 11-14 age group) allow more flexibility in what we teach and how it should be taught. Along with these changes, in England there is now a requirement for Key Stage 3 pupils to consider career opportunities in science and other areas. The *Careers from Science* project supports teachers who may be

looking for ideas and resources that relate to careers and can exploit a more flexible approach to teaching and learning.

The *Careers from Science* project

Careers from Science is a Science Council project supported by ASE. It has resulted in the development of the Future Morph web site. The key message of this project is that if you take science and mathematics at school then you can become whatever you want in the future. In an increasingly technological world, pupils need to be confident and enthusiastic users of scientific and mathematical skills.

The Future Morph website

Future Morph is aimed at pupils, parents, teachers and careers professionals. It encourages children to think about careers they may follow that have not yet been invented. Learning a broad set of skills will enable people to move between careers and adapt to a changing and increasingly complex world. Scientific skills are in high demand, and this demand will increase with time. Rather than provide detailed factual information about existing jobs, Future Morph is designed to encourage pupils to think about their futures and areas of employment. Links are then provided to more factual information that exists in other websites, using the 'My Future Finder' tool.



The Future Morph website (www.futuremorph.org.uk) constantly has new content added

'My Future Finder'

The job market is constantly shifting. To appeal to young people's interests, 'My Future Finder' uses seven categories to describe a range of opportunities and potential areas of work, rather than focusing on specific jobs. Articles suggest ideas about what the future might look like, and link to hard information on current jobs in those areas.



'My Future Finder' categorises careers into seven broad areas.

Future Morph support for science teaching

A range of resources is provided to support science teachers. These can be downloaded without charge – visitors do not need to register with the site. Videos can be streamed 'live' from the site, or are provided as downloads. The resources under the 'Teachers' tab include:

- Video case studies of people using scientific skills in their careers
- Practical lesson activities for pupils
- Teachers' notes for each activity
- Assembly materials
- Teacher's list of different career contexts
- Presentation for use at options meetings

Video case studies

Each video case study features a different career that uses a range of scientific skills, although the career itself may not be considered scientific. The

clips are quite short – about three minutes – and are designed as an introduction to the practical activities. Some teachers prefer to use them at the end of a lesson to summarise the lesson and place it in a career context. The case studies include:

- Theatre technician – moving scenery with pulleys
- Glass artist – use of colour and fusing glass
- Conservation officer – calculating food availability for birds of prey
- Weather forecaster – use of measurement and modelling
- Bakery manager – measurement, quality control, packaging
- Club physiotherapist – physiological measurement, health and lifestyle
- Scientific journalist – communication skills
- Primary school teacher – impact of science on other curriculum areas
- Timber framer – properties of materials, measurement and forces
- Client development manager – data, recording and teamwork

The key message from the case studies is that the science we do in schools is useful, and some people use the same techniques in their jobs, although they do not necessarily consider themselves scientific.



Suresh Chawla, Theatre Technician, Salisbury Playhouse

Teaching activities

A practical activity is provided for each of the case studies. Most activities are the type that science teachers may already use in their teaching, but here the activity is put in the context of a specific job. The activities may teach a specific area of scientific content, such as measuring the properties of different materials (*Timber framer*), or an aspect of 'How Science Works', such as designing investigations (*Primary school teacher*). The aim is to draw out the importance of learning science to any future career – not just those considered 'scientific'.

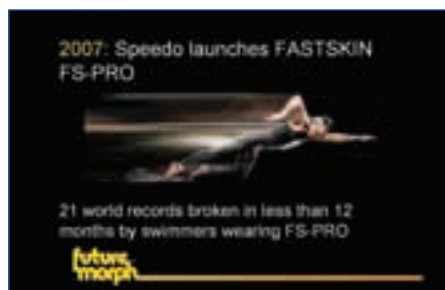
Each activity is designed to be modified and adapted for individual needs – suggestions are made for using the activities and case studies in a cross-curricular context. Extensive teachers' notes are provided for each activity.



Introduction from the *Timber framer* activity, looking at the properties of different materials

Assembly materials

Two assembly suggestions are provided that could be used as formal presentations to year groups or to provide role-play activities for form groups. *Sport Technology* is appropriate



A slide from the assembly presentation on swimsuit technology

for 11-14 year-olds, while *DNA and Forensics* is more suitable for post-16 pupils. Both deal with contemporary science issues, posing some 'big questions' for further debate on the social and ethical issues for science in society.

The assemblies help to place science in an everyday context, so that pupils recognise the part that science plays in our everyday lives. One of the aims is to help pupils understand that scientific literacy is important. As citizens, we need to be able to influence the pace and direction of scientific research.

Careers upd8

upd8 activities are being produced with a careers message, to add breadth to the careers resources available. The first of these is *Three Parents*, which features the transmission of inherited disease.



A page from the *Three Parents* upd8 activity

The careers aspect of this activity focuses on the skills needed to advise parents who risk passing genetic diseases on to their children. Secondary upd8 activities are available for free download from www.upd8.org.uk

Useful websites:

- www.futuremorph.org.uk
- www.upd8.org.uk
- www.sciencecouncil.org

The Future Morph materials are being constantly updated.

We would be very interested in hearing about your use of these materials and the responses of your pupils.

Please contact:

futuremorph@sciencecouncil.org with your comments, or to obtain further information.

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