Getting to grips with the STEM careers toolkits

The National STEM Learning Centre has launched its STEM careers toolkits to help primary and secondary phase teachers with embedding careers awareness in the curriculum. Curriculum embedding of careers is an important issue which means that these toolkits are more than just a resource for teachers of STEM subjects, they are relevant reading for every subject teacher, curriculum leader and careers adviser.

Although neatly broken down into separate files, the toolkits are long and this is a busy time of year in schools and colleges. So what can you get out of each toolkit and where do you start?

You'll find the six pdf files of the secondary STEM careers toolkit on the National STEM Learning Centre website at https://www.stem.org.uk/rx57e8

You'll also find the five pdf files of the primary STEM careers toolkit at https://www.stem.org.uk/rx57e5

First, you'll be prompted to register or sign into your account (It's free!) and then you can download all the files from the toolkit as a .zip. Do look at the primary toolkit if you are a secondary teacher and vice-versa! The lack of a joined up approach to STEM careers learning from primary through to secondary school is one of the reasons why so many young people lose their initial enthusiasm for STEM learning and careers.

Finding your way around the secondary toolkit

Open the Secondary STEM Careers Toolkit first. All the other files are really appendices that can be accessed from within the toolkit as and when you need them.

The secondary toolkit will help you think about what careers work is for (section one), why STEM-related careers work is important (section two) and resources for delivering STEM learning in the curriculum (section three). The promotional introduction emphasises the need to increase recruitment into the STEM sector, publicises the work of the STEM Learning Centre itself and celebrates the achievements of the European-wide inGenious project (2011-14) in boosting STEM education and careers (http://www.ingenious-science.eu/web/guest/home).

Highlights from Section 1: The careers agenda 11-19 include:

- an explanation of the careers role of all secondary school teachers (p.9, 20-21 and section 2 p.34)

- an overview of Linda Gottfredson's model of children's and young people's career development (p.10 and section 2 p.30)
- insights from the ASPIRES project at King's College London on the impact of stereotyping, low aspirations and deficits in 'science capital' on young people's take-up of STEM subjects (p.14-16)
- organisations that can help you develop your links with STEM employers (p.19)
- an overview of national policies on careers provision (p.18) including the link to guidelines on the inspection of careers in secondary and post-16 inspections in England, Northern Ireland, Scotland and Wales with implications for your practice (access the file from p.18 of the toolkit or directly by clicking https://www.stem.org.uk/rx57ea)

Highlights from Section 2: The STEM careers imperative include:

- an overview of the employability skills that children and young people gain from studying STEM subjects (p.24-27)
- sources of official labour market information (LMI) about STEM careers opportunities for teachers who need to probe detailed data for a specific purpose (p.24, 29-30) including the link to a guide to sources of LMI and national careers support organisations in the UK (access the file from p.30 of the toolkit or directly by clicking https://www.stem.org.uk/rx57du)
- an overview of the three main post-16 progression routes: apprenticeships, vocational education, A levels/Advanced Highers (p.32-33) including the link to a guide to UK qualifications frameworks (access the file from p.32 of the toolkit or directly by clicking https://www.stem.org.uk/rx57dz)

Highlights from Section 3: So what's next? Approaches and practices for secondary teachers of STEM subjects include:

- ways of motivating and engaging all students in STEM learning by raising their awareness of careers 'through' STEM as well as 'in' STEM (p.35)
- an overview of resources, consultancy and CPD support from the National STEM Learning Centre (p.36)
- examples of some of the best resources for embedding careers learning in the STEM curriculum (p.37-40) including the link to a guide to sources of STEM related resources (access the file from p.40 of the toolkit or directly from https://www.stem.org.uk/rx57dy)
- tips for developing your own resources (p.41-42)
- a list of the main national awareness events such as British Science Week around which you can organise celebration activities for your students (p.43)
- a suggested questionnaire for measuring the impact of your STEM careers teaching on your students (access the file from p.44 of the toolkit or directly from https://www.stem.org.uk/rx57e9).

Suggestions for building on what's in the toolkit and taking your practice further:

- track the destinations of your students and alumni/ae to collect evidence that your STEM careers interventions are making a contribution to better outcomes especially for disadvantaged young people
- make parental engagement a priority - Project STEM Book of Insights 2014: Research with young people, their parents and teachers explains why this is important (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/351433/BIS-14-899-STEM-book-of-insights.pdf)
- get insights into how the culture of celebrity affects children and young people's career aspirations from http://www.celebyouth.org/
- use a framework of careers-related learning outcomes for students to put your STEM careers learning objectives into context, e.g. the CDI Framework for careers, employability and enterprise education 7-19 (http://www.thecdi.net/New-Careers-Framework-2015)
- integrate STEM careers learning in your everyday subject teaching by identifying where and how you will deliver it, e.g. in a lesson starter, as a main activity, in a plenary, in a menu of homework activities, as part of an enrichment day
- work collaboratively with colleagues to build up a bank of resources in the department/faculty
- discuss with colleagues the need for someone to take on a leadership role for promoting STEM careers learning in your school/college (It could be you!) and how that role/individual could be integrated within the existing systems and relationships that make up the overall careers provision in your school/college.

Finding your way around the primary toolkit

Open the Primary STEM Careers Toolkit first. All the other files are really appendices that can be accessed from within the toolkit as and when you need them.

The primary toolkit will help you think about what careers work is for (section one), why STEM-related careers work is important (section two) and resources for delivering STEM learning in the curriculum (section three). The promotional introduction emphasises the need to increase recruitment into the STEM sector, publicises the work of the STEM Learning Centre itself and celebrates the achievements of the European-wide inGenious project (2011-14) in boosting STEM education and careers (http://www.ingenious-science.eu/web/guest/home).

Highlights from Section 1: The careers agenda 4-11 include:

- the importance of helping children to develop their own story (e.g. who I am now, who I could become) and personal resources (e.g. self-belief, adaptability) including being aware of how children's career thinking develops (based on Linda Gottfredson's model) (p.8-9)
- an explanation of the careers role of all primary school teachers (p.10, 12, 17)
- the ways of providing careers information and careers learning activities to engage children in exploring careers and the world of work (p.11)
- the importance of early careers education in challenging barriers to opportunity (p.13-15)

Highlights from Section 2: The STEM careers imperative include:

- an overview of the employability skills that children and young people gain from studying STEM subjects (p.19-21)
- sources of official labour market information (LMI) about STEM careers opportunities for teachers who need to probe detailed data for a specific purpose (p.18, 22) including the link to a guide to sources of LMI and national careers support organisations in the UK (access the file from p.22 of the toolkit or directly by clicking https://www.stem.org.uk/rx57du)

Highlights from Section 3: So what's next? Approaches and practices for primary teachers include:

- ways of motivating and engaging all children in STEM learning by raising their awareness of careers 'through' STEM as well as 'in' STEM (p.23)
- an overview of resources, consultancy and CPD support from the National STEM Learning Centre (p.24)
- examples of some of the best resources for embedding STEM careers learning in the primary curriculum (p.26-28) including the link to a guide to sources of STEM related resources (access the file from p.28 of the toolkit or directly from https://www.stem.org.uk/rx57dy)
- tips for developing your own resources and approaches (p.29-31)
- ideas for developing STEM careers learning through collaboration with other teachers and taking advantage of national awareness events throughout the year such as British Science Week to celebrate STEM careers (p.32-33)
- a suggested questionnaire for measuring the impact of your STEM careers teaching on your children (access the file from p.34 of the toolkit or directly from https://www.stem.org.uk/rx57e7).

Suggestions for building on what's in the toolkit and taking your practice further:

- follow the progress of the second phase of the ASPIRES project mentioned on p.13 which will continue to track the progress of the original cohort of ten-year-olds until they are 19 (http://www.kcl.ac.uk/sspp/departments/education/research/aspires/index.aspx)
- look out for Career Exploration and Development in Childhood: Perspectives from theory, research and practice edited by Mark Watson and Mary McMahon which will be published by Routledge in October this year in various formats (https://www.routledge.com/products/9781138926288)