

post-16 and FE (stem) LEARNING

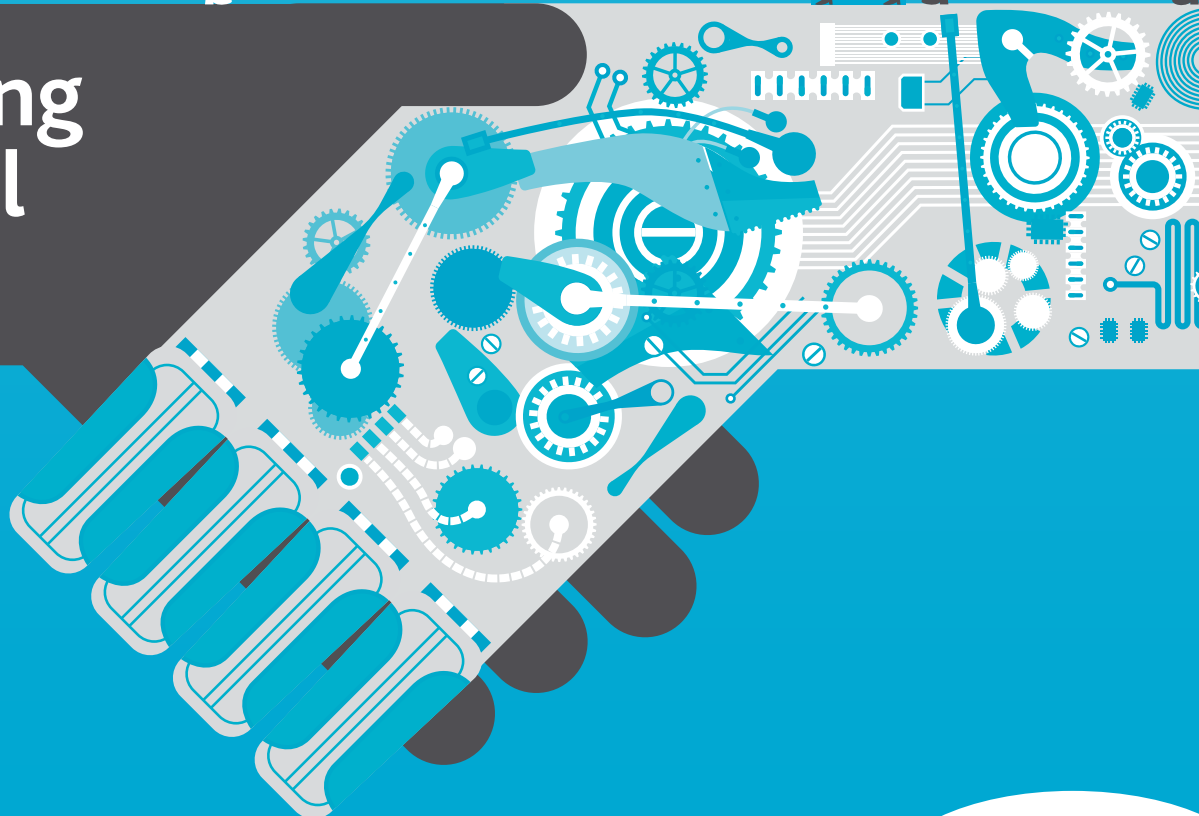
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Pioneering technical services

Make your technical
service more effective



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STEM Learning Ltd operates the National STEM Learning Centre and Network; providing support locally, through Science Learning Partnerships across England, and partners in Scotland, Wales and Northern Ireland; alongside a range of other projects supporting STEM education.

This is made possible by the generous support of the Wellcome Trust, Gatsby Charitable Foundation, Department for Education, our partners in Project ENTHUSE and other funders of related STEM projects.

Welcome



Welcome to the third edition of STEM Learning magazine.

It's been an exciting year for STEM – Tim Peake, a British ESA astronaut has flown to the International Space Station, gravitational waves in the fabric of space have been discovered, giving evidence for the collisions of black holes... and the summer is set to be filled with even more highlights.

One event I'm looking forward to is the Rio de Janeiro Olympics in Brazil. Think of the million and one jobs that go into preparing for the Olympics and how many of them are STEM related: the sport scientists understanding how to achieve peak performance; the engineers designing the innovative new stadiums, packed with swimming pools, running tracks and velodromes; the designers reducing every last millimetre of drag from the design of bikes, dinghies and helmets. Then there are the software designers creating websites, apps and booking systems for visitors attending the games; the technicians ensuring that all the sporting and broadcast equipment is working so we can see the action. Even the pilots and aero-nautical engineers creating and flying the planes that will bring athletes and visitors from across the world to the Games. With new technology and new discoveries being developed all the time, who knows what the Olympics of the future will look like, and which of your students will be involved?

As the world changes, one thing remains the same – the constant need for every country to inspire its young people in STEM so they have the skills to deal with an increasingly technological world and, for many of them, to become those advancing science, technology, engineering and mathematics for everyone's benefit. As Gill Collinson mentions in her article on page 10, it's predicted that over 14 million jobs will need to be filled between 2012 and 2022 in the STEM industries, so there is plenty of opportunity for all. So let's embrace these exciting events, and use them to help more young people understand the possibilities that pursuing STEM subjects can open up for them.

Yvonne Baker

YVONNE BAKER, CHIEF EXECUTIVE, NATIONAL STEM LEARNING CENTRE AND NETWORK

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Pioneering technical services

by **SIMON QUINNELL**
@Quinnell75

National Technician Lead, National STEM Learning Centre and Network

After engaging with thousands of technicians on hundreds of CPD activities over the last ten years, we wanted to share some of the things we have learnt which could make your technical service more effective.

The first step to improving the technical service is to look at why you're there: what service do you provide to the teachers, students and school? This gives you a reason to promote the technical service. For me, the biggest reason is that effective practical work is engaging, and could lead to increased attainment and retention in science.

The next step after knowing why you're there, is identifying what you want to maintain and where you want the service to go. This could be a simple vision statement that helps you sell the service to others and remind them why your role is important. This statement should be used to move your service forward with everything you do; it can also go up in the prep room or on emails so people outside the department know what you do.

To move the service forward you have to think about how you can change the technical service and, in some cases, how you work. We ask all our participants to reflect on what they do and think about other ways of doing things. It's good to bounce ideas off others, such as co-workers, participants on a course, through a local technician network or online group. By talking about and seeing what others do, it can really get you thinking about how to develop your own practice;

“ Effective practical work is engaging, and could lead to increased attainment and retention in science ”

sometimes just the realisation that what you're already doing is right can make a difference.

These changes could be relating to communication, requisitions, organisation techniques, teamwork, practical work, technical skills... the list is endless, but the biggest thing is to be reflective about what you do already. What could you improve? External viewpoints can really help you clarify changes you could make.

For me and the team at the National STEM Learning Centre and Network, the big focus for technicians is practical work. From organising supplies, to preparation and disassembling equipment, to research that leads to effective and engaging practical work, this is what the job should really be about. We are the practical experts and that's how we should be seen: educational scientists (maybe that should be the new job title).

So what can you do to make sure this is the case? Well, I think making teachers aware of your expertise in practical work is important; making sure they know that you can offer advice, support and guidance when needed, especially to PGCE, NQT and non-specialist teachers. In the last ten years, more technicians are now going into the lab and helping (time permitting and if you want to,

of course!) and in some cases it's helped them strengthen their practical role and increased their enjoyment.

The biggest change in the last ten years is that the technician profession has become a network. From online discussion groups, such as SciTech, to groups on Facebook, all these have been created by technicians who realised the need to communicate and network to share good practice. Alongside the vast range of CPD that has developed for technicians and brought people together nationally, our profession is now stronger and more supported.

Being part of the wider community and taking part in CPD can make you feel confident about what you do, so if you're not already taking part, make sure you do. It builds your skills and knowledge, reinforces the good practice already occurring and makes you feel like you belong to a profession.

HEaTED - A DEDICATED PROGRAM OF SUPPORT FOR TECHNICIANS

- Free networking events
- Dynamic community groups
- Hundreds of CPD activities hand-picked for technicians

Find out more at:
www.stem.org.uk/mf/HEaTED

BE A PIONEER

- Check out this inspiring resource on setting up your own technicians network:
www.stem.org.uk/rx34jt
- Get further inspiration on senior technicians accredited co-leaders in science:
www.stem.org.uk/ny600
- Find out more about technicians supporting practical work in the classroom:
www.stem.org.uk/rp600

SCIENCE

The new GCSE sciences are due to start in September 2016, with first examinations in 2018. The content has been known for a while, but the specifications from the awarding bodies are still to be accredited at the time of going to press.

Mathematics will play a larger part in the science GCSE, with mathematical skills making up 20% of the assessment in combined science, and in varying amounts in the separate sciences – 10% in biology, 20% in chemistry and 30% in physics.

Practical skills have also been brought to the fore, making up 15% of the assessment. There will be a minimum of 8 practicals for each of the separate sciences and 16 for combined science.

The reforms to A level science are already in place in schools and FE colleges, with the linear assessment for A level being one of the greatest changes. Many schools and colleges have opted to enter their students for the de-coupled AS examination to give them practice in the new assessment-style questions.

Assessment of practical skills is a compulsory requirement of A level science, and the result will appear as a separate reported grade (pass or fail) on the certificate. Students will be expected to undertake a minimum of 12 practical activities which are identified within each specification.

– Gill Gunnill
Professional Development Leader,
National STEM Learning Centre and Network

What you need to know about changes to A levels and GCSEs

With significant modifications across the curriculum, we bring you the key information you need to know about the changes to science, mathematics, computing and design and technology.

DESIGN AND TECHNOLOGY

The reforms to design and technology have been a hot topic of debate for subject specialists across the country. For GCSE, the existing qualifications that currently fit under a design and technology banner are to be discontinued and replaced with a new suite of qualifications:

Food preparation and nutrition is launching for teaching in September 2016, ready for exams in June 2018. This is the only qualification that will be available for those students looking to specialise in food at GCSE level.

Design and technology, engineering and electronics are the three GCSE's that are planned for a September 2017 launch, ready for exams in June 2019. Design and technology will bring together the various material areas of design and technology into one single GCSE. The engineering and electronics GCSE's will remain specific to their subject areas, but with reformed content and assessment. All GCSE's will have an increased focus on mathematics and science within the subject content and assessment. Draft specifications for these qualifications are due to be released in late May 2016.

For AS and A level, existing qualifications that sit within design and technology have again been either reformed, or removed completely. As of September 2017, the three remaining AS and A level routes will be:

- design and technology (product design)
- design and technology (fashion and textiles)
- design and technology (design engineering)

For those students looking to follow a more vocational route, technical qualifications at level 2 and level 3 will be available with new titles in development over the next year.

MATHEMATICS

The curriculum reforms in mathematics impact all key stages, making the curriculum more challenging. At key stage 3 the major change is the emphasis on fluency, mathematical thinking and problem solving. These themes continue at GCSE where only 40% of the marks at higher level will be awarded for using and applying standard techniques, 30% for reasoning, interpreting and communicating mathematically, and 30% for problem solving. The first teaching of the new mathematics GCSE specifications began in September 2015 with students being awarded the new 9 to 1 grades in mathematics and English in summer 2017.

At post-16 the picture is less straightforward. Students not gaining a grade C at GCSE already have to re-take

the exam, and students achieving at least a grade C, but not taking AS or A level mathematics, are encouraged to study 'Core Maths'.

The new AS and A level specifications for mathematics come into effect in September 2017. As with all other A level subjects the examinations will be linear. All specifications have to contain pure mathematics, statistics and mechanics, removing the choice offered in the modular system. There has been a marked increase in the numbers studying mathematics over the last decade; it is hoped that the changes will not discourage students from studying mathematics at AS or A level.

– Stephen Lyon
Mathematics Specialists,
National STEM Learning Centre and Network

COMPUTING

The aim in the realm of computing may perhaps be summed up in the phrase 'upping the ante'. GCSEs, AS and A levels must now be based on core content requirements. This is to minimise any confusion arising from the different topics covered by the various examination boards.

Another reform is to reduce the number of similar and overlapping qualifications. Following this, the DfE announced its proposal to discontinue the ICT qualification, as its subject matter would be covered elsewhere in the curriculum – a decision which led to a great deal of angst and the creation of an online petition.

The new computer science GCSE will be available from September 2016 for examination in summer 2018. The subject is now regarded as a science (hence the name change) and is therefore eligible – at GCSE – for inclusion in the EBacc. As such, there is a greater emphasis on mathematical understanding, and an ability to apply mathematical concepts to computing.

At A level, the permissible amount of coursework in computer science is reduced from 40% to 20%, although some boards have opted for 100% terminal examinations. However, AS is assessed purely by examination.

– Terry Freedman
Independent Consultant,
ICT & Computing in Education



– Gemma Taylor
Technology CPD Lead,
National STEM Learning
Centre and Network

A level biology practicals that work - with a little help from our friends!

by **DR CARYS HUGHES** Science Learning Partnership Lead, National STEM Learning Centre and Network

Practical work in biology is essential for students to get to grips with often complex techniques and to gain a deeper understanding of the biological concepts underpinning an investigation.

Making sure that you're using the optimal procedure is key to giving students a great experience of practical work and firing their enthusiasm for the subject. There is a wealth of information out there, but how do you know what will work? We've come up with a few suggestions of quality A level biology practicals that really work.

ROOT TIP SQUASH

This always seems to be on teachers' list of awkward practicals. Problems encountered with this practical include students not using the tip of the root and not spreading out the cells sufficiently. These problems are avoided by snipping just the tip into the stain and then teasing the root tip out on a slide followed by gently squashing the slide between paper towels. CLEAPSS have developed an updated protocol, 'Staining of root tip meristems to see mitosis' to reduce the hazards and increase reliability. There are two stains that can be used to observe chromosome structure; toluidine blue and acetic orcein. Acetic orcein is often not used due to the hazard of the carboxylic acid. However, it does give better definition and the updated protocol uses very small amounts in a container for each group to reduce the hazard.

USING POTOMETERS

This is a frequently requested practical at both teacher and technician events. Trying to manhandle the traditional potometer apparatus into what seem to be ever-shrinking lab sinks has led to development of a couple of variations on the traditional set-up. Simon Quinnell from National STEM Learning Centre and Network has demonstrated a very simple set up using a capillary tube, silicon tubing and a container of water and food colouring. This could be adapted for A level by using a graduated pipette. We found that the silicon tubing was key because it's more flexible than the rubber tubing and can be stretched over

the plant material. There is a great method using a baby food jar, which we've found works really well and was relatively easy to set up, once the correct sized bung had been sourced and appropriately sized hole drilled through it by Pete, our fantastic technician.

There are lots of resources, community groups and websites out there to help inspire you when planning your practicals. Both CLEAPSS and SAPS have some fantastic resources, as well as the thousands available on the STEM Learning website.

My current favourite practical is staining celery cross sections with toluidine blue to observe vascular bundles under the microscope. It has the wow factor and gets the group talking and taking photos. If you've got some ideas of your own for how to run a great practical, why not Tweet us a picture using the hashtag #practicalsthatwork.

■ For more CPD activities to get you inspired about practical biology visit page 19 for a full listing of our biology CPD.

A LEVEL SET BIOLOGY PRACTICALS >

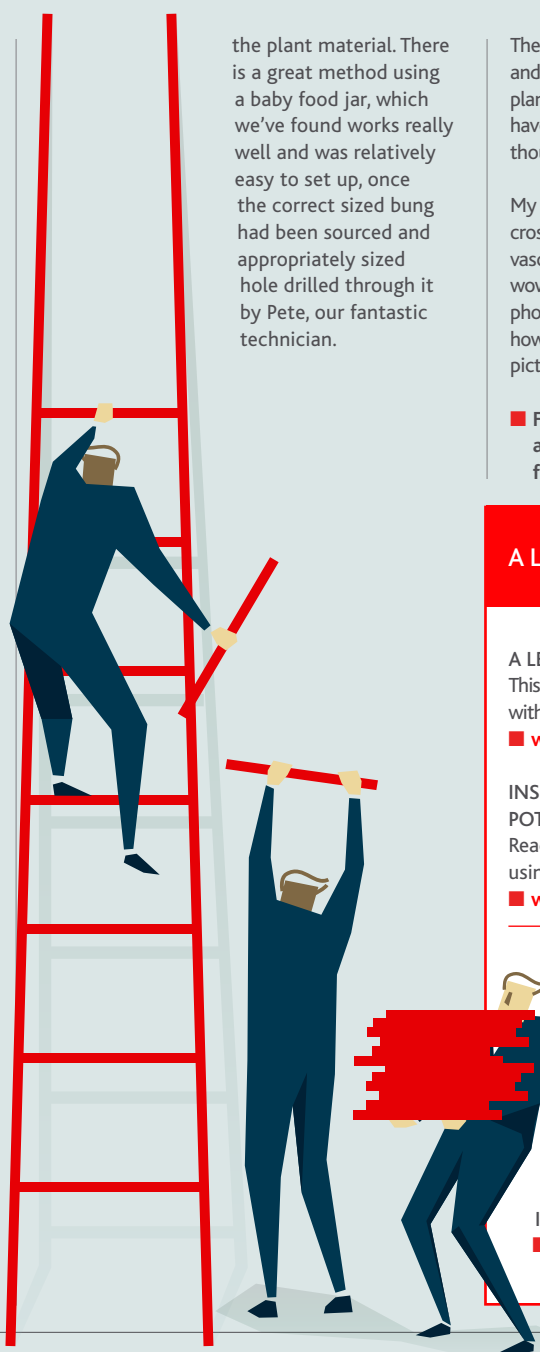
A LEVEL SET BIOLOGY PRACTICALS
This collection of activities from SAPS is packed with fantastic ideas for practical lessons
■ www.stem.org.uk/cx4kh2

INSPIRED BY THE IDEA OF USING POTOMETER?
Read Simon Quinnell's excellent blog on using potometers in practical experiments
■ www.stem.org.uk/mf/potometer

CPD TO GET YOU INSPIRED IN PRACTICAL BIOLOGY

INSPIRATIONAL POST-16 BIOLOGY
■ www.stem.org.uk/ny501

PREPARING FOR PRACTICAL TEACHING AND ASSESSMENT IN A LEVEL BIOLOGY
■ www.stem.org.uk/rp200



Investigating radiation from space

by **LAURA THOMAS** Educational Consultant, Institute for Research in Schools
@LFTSpace

Cosmic rays from the Sun, and other sources in our galaxy, regularly come into contact with the Earth. On the surface, protection from this high energy radiation is provided by the Earth's magnetic field and atmosphere. The magnetic field diverts a large amount of this radiation around the Earth. The cosmic rays that pass into the atmosphere can cause a particle shower that results in lower energy particles at the surface. However, the energy level of the radiation increases with altitude.

At four hundred kilometres above the surface, astronauts and cosmonauts living on board the International Space Station (ISS) can come into contact with much higher levels of radiation. There are various methods employed for monitoring this on the ISS. Since 2012 one of those methods has used detector technology developed at CERN. There are five Timepix silicon detectors on board constantly recording data. The detectors measure the type of radiation - for example alpha, beta or gamma - along with the direction and energy of the radiation.

Throughout British ESA astronaut Tim Peake's mission to the ISS, data on radiation will be released from detectors on board, and sent

back down to Earth. Thanks to a collaboration between NASA, the University of Houston and the Institute for Research in Schools, students can access this raw data, fresh from the ISS. Students are encouraged to carry out their own investigations and contribute to ongoing research into the study of radiation in space.

As well as the initial data set, there is also a research guide covering information on radiation from space, as well as a starter exercise is available to familiarise students with the format of the data and methods of analysis is available to download. You can also submit requests for specific measurements from a particular date, time and duration.

If your school or college participates we'd love you to share your approach and results with us. You may even get the opportunity to take part in a research symposium held in November 2016, along with other schools involved with the project.

TIMPIX PROJECT

This exciting is open to both schools and colleges.

■ To get started, register at:
www.researchinschools.org

ESERO-UK

For more ideas on how to get your class involved with British ESA astronaut Tim Peake's mission to the International Space Station.

■ To find more resources and projects relating to space, visit:
www.stem.org.uk/esero/tim-peake

KEEP UP WITH RECENT DEVELOPMENTS IN SPACE SCIENCE AND HOW YOU CAN LINK IT TO THE CURRICULUM

BRINGING CUTTING EDGE RESEARCH INTO THE CLASSROOM: ASTROPHYSICS
■ www.stem.org.uk/rp485



Photo by ESA via Getty Images

STEM leaders: inspire the next generation

by GILL COLLINSON > Head of Centre, National STEM Learning Centre and Network

The number of job opportunities across the UK over the next decade will be huge. The United Kingdom Commission for Employment and Skills (UKCES), predicts that over 14 million jobs will need to be filled between 2012 and 2022. Most of the 'hard to fill' vacancies are for people with strong STEM knowledge and skills.

In their annual skills survey in 2014, the CBI report that 39% of companies that currently recruit employees with STEM skills are reporting difficulties in recruiting staff with STEM qualifications. This figure is set to rise as the expansion of STEM industries accelerates and large numbers in the existing ageing STEM-skilled workforce retire in the next few years. This expansion will require a new generation of employees with a robust knowledge of STEM, with the skills and competencies to apply their knowledge in a wide range of employment settings.

There's no question about it, studying STEM subjects helps students to develop a wide range of skills. Some skills are specifically STEM based, such as mathematical reasoning and data collection, whilst others, such as communication, team working and curiosity, are more generic but still crucial for everyday life.

We all know that providing effective careers information, advice and guidance to all young people has a positive impact on their social identity and sense of self, their choices, opportunities, economic and social understanding and skills. Here's where you come in... one in five young people name teachers as the most important source of careers information, with the other two being parents (including carers) and friends. It is vital that teachers recognise and feel confident in their role in relation to careers support. Teachers need to be aware of the advances in industrial sectors and cutting edge research, and can apply this knowledge in their teaching practice.

Having read this far it is clear you think this is important. You recognise that you can play a leading role in helping to improve young people's aspirations and you want to engage young people in fulfilling their STEM potential. Providing STEM careers information, which is embedded in the

curriculum, makes STEM learning contextual and will support your students to see how their learning can lead to STEM careers.

At the end of the day no one expects you, as a teacher of a STEM subject, to be a careers expert. However, you are an expert in your subject and can enthuse your students about learning science, mathematics, computing, design and technology, and engineering. You can help them find information about learning routes and career opportunities and stimulate their aspirations by weaving careers throughout the curriculum. Careers awareness is a powerful concept – positioned at the heart of education we can together inspire the next generation, to help us all realise the scientific breakthroughs of the future.

Scientific breakthroughs continue to be part of our daily lives, from discoveries in space like the new planet Kepler-452b, to new anti-malarial vaccines and drugs to halt the progress of Alzheimer's disease. These breakthroughs capture the public imagination, our job as educators is to capitalise on these inspiring events and use them to propel our students into studying STEM subjects and going on to become future leaders.

GET A HELPING HAND >

We've created a package of information to assist you in embedding STEM careers-related information and examples into your everyday teaching.
■ www.stem.org.uk/mf/careers-toolkit

GET FIRST-HAND EXPERIENCE >

Get first-hand experience of pioneering STEM industries through our placement scheme. We offer placements throughout the year with universities and employers across the country.
■ Apply today at:
www.stem.org.uk/mf/placements

Bringing Cutting Edge Research into the Classroom

Designed to deliver the latest cutting edge research, knowledge, new contexts and practical activities to support teachers in delivering the curriculum in an accessible, enjoyable and stimulating way for students.

Teacher CPD delivered at venues across the UK. Leading researchers and scientists will explain the recent advances in the field and provide an insight into their own current research, linking cutting edge research with today's curriculum.

We have an extensive range of teaching and learning activities including interactive resources to engage and excite your students alongside inspiring professional development for teachers throughout their career.

Thanks to funding from the Research Councils UK (RCUK), all CPD which is part of the Bringing Cutting Edge Research into the Classroom programme qualifies for a bursary of up to £180 per day.



Find out more or book your place at:
www.stem.org.uk/mf/rcuk

Getting the most from your CPD

by **GILL GUNNILL** Professional Development Leader, National STEM Learning Centre and Network

How do you convince your line manager of the need for and benefits of engaging in CPD? You need to have your arguments ready.

We all know the benefits of networking with like-minded people, sharing ideas and good practice, and the upskilling in subject and pedagogical knowledge can have upon our confidence, enthusiasm and practice. However, the most compelling argument for many senior leaders is the impact that CPD has on the outcomes for students' attainment and progress. You need to be able to demonstrate the impact that CPD will have upon your practice and the benefits for yourself, your students and your colleagues.

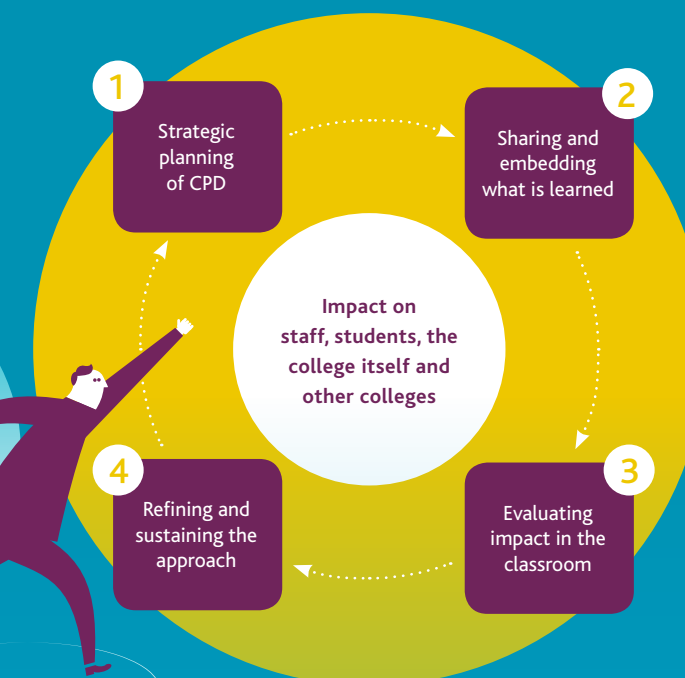
So, we've come up with some great strategies to get the most from your CPD.

The greatest selling point to your line manager will be the impact that the CPD will have on student outcomes. As head of department with recruitment issues, I found it was easy to develop a convincing strategy to engage with CPD to develop subject skills for non-specialist teachers to build capacity across the team, improving the progress and attainment of pupils. Next time you want to take up the opportunity of subject specific CPD, go armed with your arguments and a strategy for how you will make use of it to impact on the school or college.

Enthusiasm is infectious and if you and your students are more engaged, your colleagues will want to know what changes you have implemented. By cascading your increased subject and pedagogical knowledge, you will impact on the quality of teaching and learning throughout your school or college.

10 WAYS TO GET THE MOST OUT OF YOUR CPD:

- 1 Ensure the activity you have chosen addresses the priorities within the college
- 2 Think about the impact CPD will have on you, your students and your colleagues, and what outcomes you want to achieve from the training
- 3 Collect baseline data such as student voice and students' progress data to allow for comparison after the event to measure the impact it has had
- 4 Plan how you will measure the impact using your success criteria as a guide
- 5 Action plan how you will implement the changes in practice, and include milestone points when you will identify the changes which have taken place
- 6 Ensure there is enough time to embed your planning, implement and practise the changes
- 7 Enlist leadership support and encouragement to allow you to champion the changes
- 8 Cascade knowledge and skills to colleagues – ask if they can help monitor the changes in your practice and in your students' progress
- 9 Create a plan for how you will evaluate – identify what data you need, when you need it, how you will collect it and evidence of how your practice has changed
- 10 Collect data on short term impacts – this will give you the encouragement to continue



AVAILABLE RESOURCES

Find out more about how you can maximise the impact of CPD in your school:

■ www.stem.org.uk/rx3e22

For a full list of our CPD activities available throughout the autumn:

■ [Look at our listing on page 16](#)

Demonstrate the positive impact of your CPD with our recognition schemes:

■ www.stem.org.uk/mf/recognition

Our top picks for you to put in the calendar...

EDITOR'S
TOP
PICK
CHOICE



ENTHUSE CELEBRATION AWARDS 5 JULY

The ENTHUSE Celebration Awards are presented each year to recognise the impact that teachers, technicians and support staff have on their pupils, colleagues, schools, colleges and peers, as a result of ENTHUSE supported professional development.

Applications are now open to apply for the awards. The dinner and ceremony will be held on 5 July at the Wellcome Trust Building in London.

■ Sign up now at: www.stem.org.uk/mf/enthuse-celebration-awards

MAY 2016



ROLLS-ROYCE SCIENCE PRIZE 13 MAY

The application deadline for the Rolls-Royce Science Prize is 13 May 2016. This awards programme helps you to implement new science and mathematics teaching ideas in your school or college. Simply attend CPD through the National STEM Learning Centre and Network or fill out an application form to enter the competition!

■ Find out how to apply at: www.stem.org.uk/rolls-royce-science-prize

JUNE 2016



Photo by ESA via Getty Images

TIM PEAKE RETURNS JUNE

After spending six months on the International Space Station, completing a spacewalk and taking part in a number of scientific experiments and activities, Tim Peake will be returning to Earth in June!

There is still plenty of opportunity to use Tim Peake's mission to inspire students of all ages.

■ www.stem.org.uk/esero/tim-peake

FREE ONLINE CPD, DIFFERENTIATING FOR LEARNING 20 JUNE

Transform your classroom by differentiating lessons to benefit students' learning. Led by Dylan William and Christine Harrison, this CPD provides the opportunity to learn from two leading STEM education experts.

■ Register your interest: www.stem.org.uk/online-cpd

NATIONAL WOMEN IN ENGINEERING DAY 23 JUNE



Brought to you by the Women's Engineering Society, National Women in Engineering Day aims to raise the profile of women in engineering. This international awareness campaign takes place annually on 23 June.

■ Get involved: www.nwed.org.uk

AUGUST 2016



OLYMPIC GAMES 2016 5-21 AUGUST

As the Olympic Games approach, why not use these Olympic Games related activities to help engage and inspire students? Covering science, technology, engineering and mathematics, these resources can be used in individual lessons or as part of a cross-curricular Olympic theme.

■ www.stem.org.uk/cx5nz

2016 summer conferences

Want to improve your skills over the summer? Come along to one of our many subject specific conferences held at the National STEM Learning Centre in York. With everything from mathematics to a dedicated day for technicians, we have something for everyone. Get your creative juices flowing in our inspiring Centre and check out the physical resources we have available in our library.

USING STEM RESEARCH CONFERENCE: USING RESEARCH TO IMPROVE TEACHING AND LEARNING OF STEM SUBJECTS

We're giving you the opportunity to learn how to effectively use research to improve your lessons with evidence based teaching. Featuring keynote speakers like expert Professor Shirley Simon, interactive workshops, discussions and debates all based around academic papers and case studies provided by teacher participants. Don't miss out on your chance to maximise your impact on the teaching of STEM subjects.

• 20 May 2016: 2 day
■ www.stem.org.uk/ty259

COMPUTING CONFERENCE

Featuring sessions from leaders in computing education, CAS Master Teachers and higher education, this conference is an ideal opportunity to learn about computing at all phases of education and to share ideas.

• 29 Jun 2016: 1 day
■ www.stem.org.uk/ty007

ASE NATIONAL TECHNICIANS CONFERENCE

Enjoy a full day of practical ideas and activities at our technicians conference; including keynote and workshop sessions throughout the day for biology, chemistry and physics.

• 7 Jul 2016: 2 days
■ www.stem.org.uk/ny609

SUMMER SCHOOL FOR NEWLY AND RECENTLY QUALIFIED TEACHERS

Discover ways to enhance and apply new skills and knowledge in practical sessions, learn how to develop your technical service and explore the latest updates to the profession.

• 18 Jul 2016: 5 days
■ www.stem.org.uk/ny255

NEW TO TEACHING A LEVEL MATHEMATICS SUMMER SCHOOL

Improve your subject pedagogical knowledge and improve your teaching skills, to give you the confidence to teach for understanding and engagement. Inspire yourself and your students.

• 22 Aug 2016: 4 days
■ www.stem.org.uk/my500

Let's take a peek at what people have been tweeting:

@STEMLearningUK
Followers: 17.7K

@HEaTED
Followers: 420

@SciKathryn Learning about reversible and irreversible changes at @STEMLearningUK



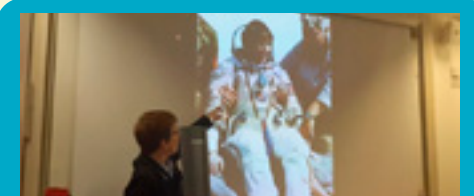
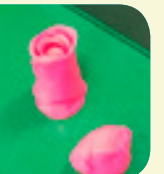
@sciencejo Very much looking forward to participating in the Teacher Academic Placement Scheme with the University of Birmingham @STEMLearningUK



@Mr_Garner1 A brilliant day @STEMLearningUK in York! Some amazing workshops & plenty of resources/ideas to incorporate in lessons!

@SciKathryn Ooh, I'm a bit late for Q1, but just HAD to mention residential courses at @STEMLearningUK #asechat. Value for money no head can argue with!

@MatthewTosh Delivering teaching & learning course for @HEaTEDtechs at @unisouthampton. The playground has come out #HEaTEDcourse



@HCharlwood Helen Sharman sharing her diverse range of technical roles... including astronaut! @HEaTEDtechs #heatedtechs

Follow us @STEMLearningUK and @HEaTEDtechs and let us know what STEM related things you're up to!

High quality professional development that makes an impact

You can access our CPD online, face-to-face locally through Science Learning Partnerships (SLPs) and on ENTHUSE Award bursary funded residential activities at the National STEM Learning Centre. We can also tailor our CPD to meet the individual needs of your department, school or network through our bespoke support.

The support we provide is grounded in up-to-date research evidence which reflects current issues in STEM education and can be mapped to national standards. Participants' feedback consistently rates our support as of the highest quality and most impactful experiences they have had during their teaching career.

We have chosen a selection of key themes and activities for you:

MAXIMISING PROGRESS AND OUTCOMES POST-16

- Supporting the teaching of A level computer science - Page 17
- Teaching data and data structures (A level computer science) - Page 17
- Preparing to teach the new A level mathematics curriculum - Page 17
- Getting to grips with A level physics - Page 20

HIGH QUALITY TEACHING

- Careers in STEM - Page 17
- Making a difference through effective feedback - Page 18
- Mathematics in science teaching - Page 18
- From good to outstanding: making learning visible - Page 18

SUPPORTING NEW ENTRANTS TO THE PROFESSION

- Building confidence as a newly qualified mathematics teacher - Page 17
- Responding to pupil needs in science - Page 18
- New to A level chemistry - Page 19
- Physics for non-specialists - Page 20

DEVELOPING QUALITY SUBJECT LEADERSHIP

- Established heads of science: strategic leadership of your team - Page 18
- Leading professional development in science education - Page 18
- Essential skills for new and aspiring science leadership - Page 18
- Senior technicians accredited co-leaders in science - Page 21

All fees and award values are valid for state funded schools and colleges, and are correct at the time of print (April 2016). See www.stem.org.uk for non-state funded schools and colleges and the latest information.

COMPUTING

INTENSIVE SUBJECT-SPECIFIC CPD

Accommodation and meals included

MATHS FOR A LEVEL COMPUTER SCIENCE

Examine tried and tested teaching methods that will develop your confidence and aid in tackling the trickiest topics.

- Your school receives: £600 ENTHUSE Award
- Activity fee: £600 (ex VAT)
- 8 Dec 2016 2 days
- www.stem.org.uk/cy211

SUPPORTING THE TEACHING OF A LEVEL COMPUTER SCIENCE

Gain experience in practical and investigative activities including a range of programming challenges; and deepen understanding of the underlying concepts of A level computer science.

- Your school receives: £600 ENTHUSE Award
- Activity fee: £600 (ex VAT)
- 18 Oct 2016 2 days
- www.stem.org.uk/cy202

TEACHING ALGORITHMS FOR A LEVEL COMPUTER SCIENCE

This day will develop your understanding of the abstraction of problems, examines procedural, functional and data abstraction.

- Your school receives: £300 ENTHUSE Award
- Activity fee: £300 (ex VAT)
- 15 Nov 2106 1 day
- www.stem.org.uk/cy206

TEACHING DATA AND DATA STRUCTURES (A LEVEL COMPUTER SCIENCE)

Learn to develop student competency using a range of data structures and types; explain how they are stored, processed and manipulated; and apply mathematical methods.

- Your school receives: £300 ENTHUSE Award
- Activity fee: £300 (ex VAT)
- 3 Nov 2016 1 day
- www.stem.org.uk/cy204

MATHEMATICS

INTENSIVE SUBJECT-SPECIFIC CPD

Accommodation and meals included

BUILDING CONFIDENCE AS A NEWLY QUALIFIED MATHEMATICS TEACHER

Explore what makes good mathematics teaching by considering questioning, promoting positive behaviour, planning for learning and giving feedback.

- Your school receives: £1,200 ENTHUSE Award
- Activity fee: £1,200 (ex VAT)
- 1 Nov 2016 4 days over 2 periods
- www.stem.org.uk/my205

DEVELOPING MATHEMATICAL UNDERSTANDING THROUGH REASONING AND PROBLEM SOLVING

Examine the importance of reasoning and problem solving for the new mathematics curriculum at key stages 3 and 4.

- Your school receives: £1,200 ENTHUSE Award
- Activity fee: £1,200 (ex VAT)
- 21 Nov 2016 4 days over 2 periods
- www.stem.org.uk/my206

EFFECTIVE FEEDBACK AND ASSESSING PROGRESS IN MATHEMATICS WITHOUT LEVELS

Consider the purpose of assessment, when and how assessment should take place, peer and self assessment, and what constitutes active assessment

- Your school receives: £600 ENTHUSE Award
- Activity fee: £600 (ex VAT)
- 26 Sep 2016 2 days
- www.stem.org.uk/my208

MOVING ON WITH MATHEMATICS TEACHING: BECOMING MORE ADVENTUROUS IN THE CLASSROOM

You will examine recent research in mathematics education and explore case studies of innovative practice.

- Your school receives: £1,050 ENTHUSE Award
- Activity fee: £750 (ex VAT)
- 19 Sep 2016 3 days over 2 periods
- www.stem.org.uk/my211

PREPARING TO TEACH THE NEW A LEVEL MATHEMATICS CURRIRULUM

Develop approaches to teaching that strengthen the overarching themes and aspects of the new content for the A level specifications.

- Your school receives: £1,400 ENTHUSE Award
- Activity fee: £1,000 (ex VAT)
- 5 Dec 2016 4 days over 2 periods
- www.stem.org.uk/my216

SCIENCE IN MATHS OR MATHS IN SCIENCE? ESTABLISHING SHARED UNDERSTANDINGS AND TEACHING APPROACHES

Identify common content, and explore ways of teaching that develop sufficient mathematical understanding whilst providing fluency in the skills required for science.

- Your school receives: £1,050 ENTHUSE Award
- Activity fee: £750 (ex VAT)
- 7 Nov 2016 3 days over 2 periods
- www.stem.org.uk/my214

TEACHING NEW MATHEMATICS GCSE CONTENT WITH UNDERSTANDING

Explore the new mathematics GCSE and gain an understanding of the importance of mathematical reasoning and problem solving.

- Your school receives: £1,200 ENTHUSE Award
- Activity fee: £1,200 (ex VAT)
- 16 Nov 2016 4 days over 2 periods
- www.stem.org.uk/my207

RESOURCING THE MATHEMATICS CURRICULUM

Explore resources designed to support improved teaching of the new curriculum with hands-on activities.

- Activity fee: £50 (ex VAT)
- 12 Oct 2016 1 day
- www.stem.org.uk/my202

**"Fantastic ideas to use
in the classroom, with hands
on experience."**

- Participant, 2015

SCIENCE

BEHAVIOUR MANAGEMENT IN SCIENCE

Supporting teachers new to the profession in considering ways of managing the behaviour of their students so that a positive, effective learning environment can be sustained.

- Various dates and venues online
- www.stem.org.uk/rp222

CAREERS IN STEM

Develop your understanding and support students in signposting career options.

- Various dates and venues online
- www.stem.org.uk/rp226

EFFECTIVE PREPARATION FOR EXAMINATIONS

Helping teachers in developing effective strategies for supporting students as they prepare for exams.

- Various dates and venues online
- www.stem.org.uk/rp211

ENGAGING AND ENSURING PROGRESS OF LOW ATTAINERS IN SCIENCE

Develop strategies to improve the progress made by low attaining students in science.

- Various dates and venues online
- www.stem.org.uk/rp229

ENHANCING LITERACY SKILLS IN SCIENCE

Supporting participants in responding to the increased literacy demands in examinations and help to provide students with the skills to be effective, independent learners.

- Various dates and venues online
- www.stem.org.uk/rp212

IMPROVING PROGRESS IN SCIENCE

In response to demand from teachers, this CPD activity is for those wishing to improve their students' progress and attainment in science.

- Various dates and venues online
- www.stem.org.uk/rp213

IMPROVING SUBJECT AND CURRICULUM KNOWLEDGE IN...

It is important to keep up-to-date with current science matters, including pure subject knowledge, topic specific developments and general pedagogical methods.

- Various dates and venues online
- www.stem.org.uk/rp224

MAKING A DIFFERENCE THROUGH EFFECTIVE FEEDBACK

Trial a range of strategies for gathering and using data, explore the research behind assessment for learning, and develop and test your own techniques in the classroom.

- Various dates and venues online
- www.stem.org.uk/rp203

MATHEMATICS IN SCIENCE TEACHING

Exploring the use and failure to use mathematics in science. It looks at typical weaknesses in mathematical that hinder students' ability to understand and solve scientific problems.

- Various dates and venues online
- www.stem.org.uk/rp210

RESPONDING TO PUPIL NEEDS IN SCIENCE

Develop strategies which personalise the science curriculum, in order to engage students of all abilities, widen engagement and participation, and increase progression to further science study.

- Various dates and venues online
- www.stem.org.uk/rp220

INTENSIVE SUBJECT-SPECIFIC CPD

Accommodation and meals included

FROM GOOD TO OUTSTANDING: MAKING LEARNING VISIBLE

Investigate that shift in role to facilitate truly student-centered classrooms by evaluating effective approaches.

- Your school receives: £1,500 ENTHUSE Award
- Activity fee: £1,500 (ex VAT)
- 16 Nov 2016 5 days over 2 periods
- www.stem.org.uk/ny714

HEALTH AND SAFETY

Learn how to implement essential and effective health and safety planning with a pragmatic, risk based approach.

- Your school receives: £600 ENTHUSE Award
- Activity fee: £600 (ex VAT)
- 5 Oct 2016 2 days
- www.stem.org.uk/ny253

LAB DESIGN: PLANNING SCIENCE ACCOMMODATION

Well-planned, imaginative and practical science spaces in schools and colleges can create outstanding learning environments for both students and teachers.

- Your school receives: £600 ENTHUSE Award
- Activity fee: £600 (ex VAT)
- 10 Oct 2016 2 days
- www.stem.org.uk/ny211

PRE-NQT KICK START

Are you ready for your first science teaching post? Let us support your personal planning and help you develop your repertoire of effective practical science activities.

- Your school receives: £2,100 ENTHUSE Award
- Activity fee: £1,800 (ex VAT)
- 14 Nov 2016 6 days over 3 periods
- www.stem.org.uk/ny245

Bespoke CPD tailored to your needs



Our comprehensive range of support can be requested as a bespoke offer for your department, school, college or network. We can make the CPD more effective and tailored to the specific challenges and needs you face.

We have a proven track record of highly evaluated, impactful professional development and a wealth of experience in supporting teachers, technicians and support staff in all aspects of STEM education.

www.stem.org.uk/mf/bespoke-cpd

LEADERSHIP

ESSENTIAL SKILLS FOR NEW AND ASPIRING SCIENCE LEADERSHIP

Working with an experienced science leader, you will develop your vision and leadership skills to enable you to lead an effective and vibrant science team.

- Various dates and venues online
- www.stem.org.uk/rp206

LEADING ACTION RESEARCH IN SCIENCE EDUCATION

Gaining further classroom enquiry skills will provide an opportunity for you to review and reflect on personal and professional practice to the benefit of your students.

- Various dates and venues online
- www.stem.org.uk/rp209

LEADING PROFESSIONAL DEVELOPMENT IN SCIENCE EDUCATION

Helping you to identify the principles, strategies and resources that can be used to develop a programme valued by colleagues and demonstrates impact in the science classroom.

- Various dates and venues online
- www.stem.org.uk/rp204

SUBJECT LEADERS NETWORK

This is a chance for collaboration with your peers so you can share information and develop as a leader. Expert consultants will help you identify priority issues in teaching and learning and professional development for your teams.

- Various dates and venues online
- www.stem.org.uk/rp219

INTENSIVE SUBJECT-SPECIFIC CPD

Accommodation and meals included

ESTABLISHED HEADS OF SCIENCE: STRATEGIC LEADERSHIP OF YOUR TEAM

If you want to develop your skills to meet the challenges of addressing the changes in expectations then this is the perfect CPD activity.

- Your school receives: £1,500 ENTHUSE Award
- Activity fee: £1,500 (ex VAT)
- 7 Dec 2016 5 days over 2 periods
- www.stem.org.uk/ny257

LEADING ASSESSMENT FOR LEARNING

Exploring strategies which will enable you to lead your colleagues in embedding Assessment for Learning (AfL) practices in science.

- Your school receives: £1,200 ENTHUSE Award
- Activity fee: £1,200 (ex VAT)
- 3 Nov 2016 4 days over 2 periods
- www.stem.org.uk/ny703

BIOLOGY

ACTIVE APPROACHES IN A LEVEL BIOLOGY

Providing opportunities to explore the acknowledged benefits of active, collaborative and minds-on approaches to learning at advanced level.

- Various dates and venues online
- www.stem.org.uk/rp506

GETTING TO GRIPS WITH A LEVEL BIOLOGY

Supporting teachers in developing higher level thinking with their students through the use of practical work, demonstrations and modelling activities.

- Various dates and venues online
- www.stem.org.uk/rp501

GOING FURTHER IN A LEVEL BIOLOGY

Discussing the wider implications and applications of biology and exploring some tools for teaching and learning, will broaden and deepen your repertoire of practical activities and teaching approaches.

- Various dates and venues online
- www.stem.org.uk/rp509

PREPARING FOR PRACTICAL TEACHING AND ASSESSMENT IN A LEVEL BIOLOGY

Prepares teachers to make effective use of practical work in the new A level science curriculum.

- Various dates and venues online
- www.stem.org.uk/rp510

STRENGTHENING PRACTICAL WORK IN BIOLOGY

We will explore strategies for teaching topics across the biology curriculum and develop an understanding of how practical work can be made more relevant and effective.

- Various dates and venues online
- www.stem.org.uk/rp200

INTENSIVE SUBJECT-SPECIFIC CPD

Accommodation and meals included

NEW TO A LEVEL BIOLOGY

Through the development of new practical techniques, use of ICT activities and context based learning strategies, this CPD will provide a foundation for those with little experience of teaching A level biology.

- Your school receives: £1,200 ENTHUSE Award
- Activity fee: £1,200 (ex VAT)
- 3 Oct 2016 4 days over 2 periods
- www.stem.org.uk/ny250

"I gained a better understanding of my job role and was able to manage my time better. My confidence improved, enabling me to demonstrate practicals to teachers and technicians. It encouraged me to promote myself and the department and I expanded my role by running whole school CPD sessions"

- Previous STACS participant, 2015



The Royal Society of Chemistry has created a series of CPD activities that help support both specialist and non-specialist chemistry teachers improve their subject knowledge, pedagogical knowledge and confidence. The courses cover a wide range of topics at both pre- and post-16 levels and are suitable for teachers at all career stages.

There are three series of courses available in the UK through the National STEM Learning Centre and Network:

1. DEVELOPING EXPERTISE IN TEACHING CHEMISTRY

Developing expertise in teaching chemistry courses are designed to give you an in-depth understanding of key concepts in chemistry at pre and post-16 levels.

2. CHEMISTRY FOR NON-SPECIALISTS

If you teach secondary chemistry, but have a background in another subject, this course is for you. Chemistry for non-specialists is designed to provide teachers with the confidence, flair and enthusiasm to teach chemistry at pre-16 level.

3. INSPIRING CREATIVE CHEMISTRY TEACHING

The first few years in the classroom can be challenging. This series of three courses aimed at trainee teachers and those who are relatively new to the classroom helps to address this.

■ Find out more at www.stem.org.uk/mf/royal-society-chemistry

CHEMISTRY

ACTIVE APPROACHES IN A LEVEL CHEMISTRY

Providing opportunities to explore the acknowledged benefits of active, collaborative and minds-on approaches to learning at advanced level.

- Various dates and venues online
- www.stem.org.uk/rp504

GETTING TO GRIPS WITH A LEVEL CHEMISTRY

Improve confidence in subject knowledge and skills appropriate to post-16 chemistry through the exploration of key ideas common to all specifications.

- Various dates and venues online
- www.stem.org.uk/rp502

GOING FURTHER IN A LEVEL CHEMISTRY

Confident teachers will deepen their repertoire of practical activities and teaching approaches with a key focus in the use of electronic technologies.

- Various dates and venues online
- www.stem.org.uk/rp508

PREPARING FOR PRACTICAL TEACHING AND ASSESSMENT IN A LEVEL CHEMISTRY

Designed to prepare teachers to make effective use of practical work in A level chemistry and use them to improve outcomes for students.

- Various dates and venues online
- www.stem.org.uk/rp512

STRENGTHENING PRACTICAL WORK IN CHEMISTRY

Through hands-on activities you will undertake new and established strategies and practical techniques to make students' learning more effective.

- Various dates and venues online
- www.stem.org.uk/rp202

INTENSIVE SUBJECT-SPECIFIC CPD

Accommodation and meals included

NEW TO A LEVEL CHEMISTRY

With much of chemistry centred around good experimental skills, this CPD activity allows you to develop, lead and support outstanding practical chemistry, linking it to effective pedagogy within the subject.

- Your school receives: £1,200 ENTHUSE Award
- Activity fee: £1,200 (ex VAT)
- 1 Nov 2016 4 days over 2 periods
- www.stem.org.uk/ny251

PHYSICS

ACTIVE APPROACHES IN A LEVEL PHYSICS

Working with others, you will refresh your teaching and learning strategies to improve you students' understanding of core concepts of A level physics.

- Various dates and venues online
- www.stem.org.uk/rp505

GETTING TO GRIPS WITH A LEVEL PHYSICS

Develop knowledge, confidence and skills primarily through the exploration of key demonstrations and practicals common to all specifications.

- Various dates and venues online
- www.stem.org.uk/rp503

GOING FURTHER IN A LEVEL PHYSICS

Ideal for teachers who are confident in their subject knowledge as there will be ample opportunity to try out these new approaches.

- Various dates and venues online
- www.stem.org.uk/rp507

PHYSICS FOR NON-SPECIALISTS

Develop your understanding of key physics principles and the skills and strategies needed to teach physics effectively.

- Various dates and venues online
- www.stem.org.uk/rp208

PREPARING FOR PRACTICAL TEACHING AND ASSESSMENT IN A LEVEL PHYSICS

Together we look at how activities can be run effectively, used to support the awarding of the practical endorsement and to improve exam grades.

- Various dates and venues online
- www.stem.org.uk/rp511

STRENGTHENING PRACTICAL WORK IN PHYSICS

Explore ideas for teaching topics across the physics curriculum, developing an understanding of how practical work can be made more relevant and effective.

- Various dates and venues online
- www.stem.org.uk/rp201

INTENSIVE SUBJECT-SPECIFIC CPD

Accommodation and meals included

NEW TO A LEVEL PHYSICS

With recent changes to the A level specification now is an ideal time to develop your schemes of learning and integrate inspiring and engaging practical activities.

- Your school receives: £1,200 ENTHUSE Award
- Activity fee: £1,200 (ex VAT)
- 6 Oct 2016 4 days over 2 periods
- www.stem.org.uk/ny252

TECHNICIANS

SENIOR TECHNICIANS: LEADERSHIP, TRAINING AND MANAGEMENT

Designed to enhance leadership and management skills, through examining the role of senior technicians, managing an effective technical service, creating and contacting local groups and training other technicians.

- Various dates and venues online
- www.stem.org.uk/rp602

TECHNICIANS SUPPORTING A LEVEL BIOLOGY

Developed in collaboration with CLEAPSS, giving technicians an opportunity to learn skills and techniques specifically tailored to supporting advanced level biology.

- Various dates and venues online
- www.stem.org.uk/rp603

TECHNICIANS SUPPORTING A LEVEL CHEMISTRY

Learn about the key skills and techniques required for the effective support of post-16 chemistry, in conjunction with CLEAPSS.

- Various dates and venues online
- www.stem.org.uk/rp604

TECHNICIANS SUPPORTING A LEVEL PHYSICS

In collaboration with CLEAPSS we provide you with hands-on experience of a variety of apparatus and experiments, including new software and resources.

- Various dates and venues online
- www.stem.org.uk/rp605

TECHNICIANS SUPPORTING PRACTICAL WORK IN THE CLASSROOM

Understand what makes good practical work, working effectively with teachers and students, assisting with practical project work, and managing small group work and individuals with practical activities.

- Various dates and venues online
- www.stem.org.uk/rp600

WORKING AS A SCIENCE TECHNICIAN: AN INTRODUCTION TO THE ROLE

Understand the role of a technician, general health and safety, policies and procedures, technician skills and working in a science department.

- Various dates and venues online
- www.stem.org.uk/rp601

INTENSIVE SUBJECT-SPECIFIC CPD

Accommodation and meals included

SENIOR TECHNICIANS ACCREDITED CO-LEADERS IN SCIENCE (STACS)

Deliver an effective service, support engaging practical work, work with large numbers of colleagues and keep abreast of changes within the profession.

- Your school receives: £3,850 ENTHUSE Award
- Activity fee: £3,300 (ex VAT)
- 19 Oct 2016 10 days over 3 periods
- www.stem.org.uk/ny600

SKILLS FOR NEW TECHNICIANS

Suitable for those new to the role within a school or college, this CPD activity provides a thorough grounding in the science technician profession.

- Your school receives: £1,800 ENTHUSE Award
- Activity fee: £1,500 (ex VAT)
- 21 Nov 2016 7 days over 2 periods
- www.stem.org.uk/ny601

TECHNICIANS A LEVEL BIOLOGY

Investigate a range of relevant practicals for technicians to support students with the practical endorsement and skills required at A level.

- Your school receives: £400 ENTHUSE Award
- Activity fee: £500 (ex VAT)
- 16 Nov 2016 2 days
- www.stem.org.uk/ny616

TECHNICIANS IN THE CLASSROOM

Find out what makes good practical work, working effectively with teachers and students, presentations and demonstrations, assisting with practical project work and managing small group work and individuals with practical activities.

- Your school receives: £900 ENTHUSE Award
- Activity fee: £900 (ex VAT)
- 12 Dec 2016 3 days
- www.stem.org.uk/ny602

ONLINE

FREE ONLINE CPD, DIFFERENTIATING FOR LEARNING

Transform your classroom by differentiating lessons to benefit students' learning. Led by Dylan William and Christine Harrison, this CPD provides the opportunity to learn from two leading STEM education experts.

- 20 Jun 2016
- www.stem.org.uk/online-cpd

"93% of participants who attended courses at the National STEM Learning Centre reported a positive impact on their learners."



Welcome to the HEaTED CPD listing

HEaTED is a UK-wide scheme, dedicated to supporting the professional development of technicians in further education.

We do this by:

- providing high-quality professional development activities
- supporting networks of technicians across the UK with free events and online groups
- giving access to resources and information about career development and professional registration

Our CPD listing is packed with practical and innovative courses, selected especially for technicians. We can also create courses tailor-made for you and bring them to your institution. Find out more by visiting www.stem.org.uk/heated.

“The course provided was excellent with a very professional and knowledgeable instructor.”

Become a member

We offer both individual and institution memberships. If your institution is already a member, then all technical staff are automatically enrolled. This opens the door for staff to access a range of member benefits specifically aimed at meeting their specialist training and development needs.

■ Visit www.stem.org.uk/heated for more information.

COMPUTING

ADOBE DREAMWEAVER CC FUNDAMENTALS

This CPD will allow you to confidently use Dreamweaver as a graphics editor to create and implement visually exciting websites.

- Look for dates and venues online
- www.stem.org.uk/hc098

AFTER EFFECTS COURSE BUNDLE

Explore the basic concepts of working with Adobe After Effects and gain the confidence to begin using the application

- Look for dates and venues online
- www.stem.org.uk/hc427

ANDROID APP DEVELOPMENT JUMPSTART

This hands-on CPD encourages you to learn by building increasingly more sophisticated and meaningful mobile applications for Android phones.

- Look for dates and venues online
- www.stem.org.uk/hc036

BEGINNERS' ANDROID APP PROGRAMMING COURSE

Gain a firm foundation in the tools and techniques that are necessary to get started in app development on Android devices.

- Look for dates and venues online
- www.stem.org.uk/hc466

BEGINNERS' IPHONE AND IPAD APP DEVELOPMENT COURSE

Build a firm foundation in the tools and techniques that are necessary to get started in app development on iOS devices.

- Look for dates and venues online
- www.stem.org.uk/hc487

CODING AND WEB DESIGN USING HTML5 CSS AND DW

Want to learn to create websites but thought that learning HTML coding was beyond you? This is the CPD for you.

- Look for dates and venues online
- www.stem.org.uk/hc116

COSHH AWARENESS TRAINING WORKSHOP

Hazardous substances are defined under the COSHH Regulations and this course is aimed at providing straight forward guidance on understanding these regulations.

- Look for dates and venues online
- www.stem.org.uk/hc376

COSHH FOR CHEMICALS IN A TECHNICAL WORKPLACE (FULL COURSE)

Thoroughly covering the background information, skills and knowledge around COSHH and enables these skills to be put into practice in a workplace that uses chemicals.

- Look for dates and venues online
- www.stem.org.uk/hc171

COSHH FOR CHEMICALS IN A TECHNICAL WORKPLACE (INTRODUCTION)

Thoroughly covering the background information, skills and knowledge around COSHH and enables these skills to be put into practice in a workplace that uses chemicals.

- Look for dates and venues online
- www.stem.org.uk/hc172

DESIGN AND TECHNOLOGY

AUTOCAD 301 CREATING 3D MODELS

Learn to represent a design by creating solid primitives, solid or surface models from cross-sectional geometry, or composite models from multiple solid models.

- Look for dates and venues online
- www.stem.org.uk/hc039

AUTOCAD CERTIFICATION JUMPSTART

Master all of the basic commands necessary for professional 2D drawing, design, and drafting using AutoCAD and AutoCAD LT.

- Look for dates and venues online
- www.stem.org.uk/hc325

BASIC PRACTICAL ELECTRONICS

Learn how to recognise and use basic electronics components and test equipment. The emphasis will be on practical skills, although some appropriate theory will be covered.

- Look for dates and venues online
- www.stem.org.uk/hc387

UNDERSTANDING DIGITAL VIDEO AND AUDIO

For anyone working with video and audio who doesn't have formal technical training, or needs updating to digital.

- Look for dates and venues online
- www.stem.org.uk/hc231

HEALTH AND SAFETY

A COUNTER TERRORISM AWARENESS COURSE FOR STAFF IN EDUCATION

Build awareness of the threat from terrorism and how to implement simple, straightforward measures to improve safety and security in your working environment.

- Look for dates and venues online
- www.stem.org.uk/hc145

BIOHAZARD TRAINING WORKSHOP

Understand the risks biohazards pose in the workplace and how to create a platform to safely and effectively manage biohazards in the workplace.

- Look for dates and venues online
- www.stem.org.uk/hc375

FIELDWORK FIRST AID COURSE (OUTDOORS)

Delivered by outdoor professionals who are members of mountain rescue, this session will help you apply first aid principles to real life situations in the outdoors.

- Look for dates and venues online
- www.stem.org.uk/hc354

FIRE AND EMERGENCY EVACUATION TRAINING WORKSHOP

Organisations have a duty to provide fire and emergency support - get straightforward guidance on fire and emergency management in your workplace.

- Look for dates and venues online
- www.stem.org.uk/hc377

INTRODUCTION TO RISK ASSESSMENT

For those unfamiliar with the process of risk assessment this course will give you all you need to confidently approach the risk assessment process.

- Look for dates and venues online
- www.stem.org.uk/hc357

LABORATORY GAS USER WORKSHOP

Using gases in the potentially hazardous laboratory environment presents many risks. This CPD provides comprehensive safety training in the safe management and use of all gases.

- Look for dates and venues online
- www.stem.org.uk/hc159

LIFTING AND SLINGING TRAINING WORKSHOP

Every year workers are killed or injured whilst using lifting equipment. This training provides practical, simple guidance to anyone involved in lifting operations.

- Look for dates and venues online
- www.stem.org.uk/hc378

MANUAL HANDLING TRAINING WORKSHOP

Gain a good understanding of the regulations related to manual handling, risk assessment and best practice in manual handling techniques.

- Look for dates and venues online

■ www.stem.org.uk/hc373

OFF-SITE SAFETY MANAGEMENT

Developed with the Royal Geographical Society this course is designed to enhance your awareness in the planning of off-site activities.

- Look for dates and venues online

■ www.stem.org.uk/hc369

PAT TRAINING - SAFETY AWARENESS

At the end of the course you will be aware of your legal responsibilities and procedures for testing portable electrical appliances.

- Look for dates and venues online

■ www.stem.org.uk/hc173

PPE AWARENESS TRAINING WORKSHOP

Get a straightforward overview of the use of Personal Protective Equipment (PPE) including how to select the correct PPE, and correct safety classification.

- Look for dates and venues online

■ www.stem.org.uk/hc380

RISK ASSESSMENT WORKSHOP: FIELDWORK ACTIVITIES

Do you have to prepare risk assessments for fieldwork activities? This course will equip you with all the skills you need to approach the task with confidence.

- Look for dates and venues online

■ www.stem.org.uk/hc356

TRANSPORTING GAS CYLINDERS SAFELY

Refresh your knowledge on the safe transportation of gas in this comprehensive online safety course.

- Look for dates and venues online

■ www.stem.org.uk/hc138

WASTE MANAGEMENT AND CONTROL WORKSHOP

Learn effective and compliant waste management, including managing any associated bio-hazards.

- Look for dates and venues online

■ www.stem.org.uk/hc492

LEADERSHIP

COACHING AND MENTORING SKILLS FOR TECHNICIANS

Develop coaching and mentoring skills to support workplace development and contribute to the CPD cycle within your organisation.

- Look for dates and venues online

■ www.stem.org.uk/hc008

FACILITATION SKILLS FOR TECHNICIANS

Learn effective skills in facilitating learning and use classroom management techniques and effective questioning to create a student-centred learning environment.

- Look for dates and venues online

■ www.stem.org.uk/hc009

LEADERSHIP AND MANAGEMENT SKILLS FOR TECHNICAL STAFF (MODULE ONE)

Explore theories of leadership and management alongside workplace experiences in this holistic and tailored learning experience.

- Look for dates and venues online

■ www.stem.org.uk/hc002

LEADERSHIP AND MANAGEMENT SKILLS FOR TECHNICAL STAFF (MODULE TWO)

Module two expands on theories of leadership and management alongside workplace experiences in this holistic and tailored learning experience.

- Look for dates and venues online

■ www.stem.org.uk/hc003

TEACHING AND LEARNING SKILLS FOR TECHNICAL STAFF (MODULE ONE)

Become equipped with the tools you need to teach and demonstrate effectively to the student experience.

- Look for dates and venues online

■ www.stem.org.uk/hc001

TEACHING AND LEARNING SKILLS FOR TECHNICAL STAFF (MODULE TWO)

Building on module one, you will master the skills need to teach and demonstrate effectively.

- Look for dates and venues online

■ www.stem.org.uk/hc007

ONLINE

USING MEDICAL GAS CYLINDERS SAFELY (INCLUDING CYLINDER STORAGE AND MANIFOLD SYSTEMS)

Cover essential skills in the storage, use of medical gases and the operation of gas manifold systems in this comprehensive online safety training.

- Look for dates online

■ www.stem.org.uk/hc143

USING OXY-FUEL GASES SAFELY

Useful for those who regularly use oxy-fuel gases, this online safety training is ideal for new staff or as a refresher.

- Look for dates online

■ www.stem.org.uk/hc144

SCIENCE

BASIC LABORATORY SKILLS

Get introduced to the basic laboratory skills that many analysts utilise on a daily basis.

- Look for dates and venues online

■ www.stem.org.uk/hc421

SERVICING AND MAINTAINING ROUTINE OPTICAL MICROSCOPES (FULL DAY COURSE)

Get an in-depth insight into how to get the best results from your equipment by properly maintaining your microscopes.

- Look for dates and venues online

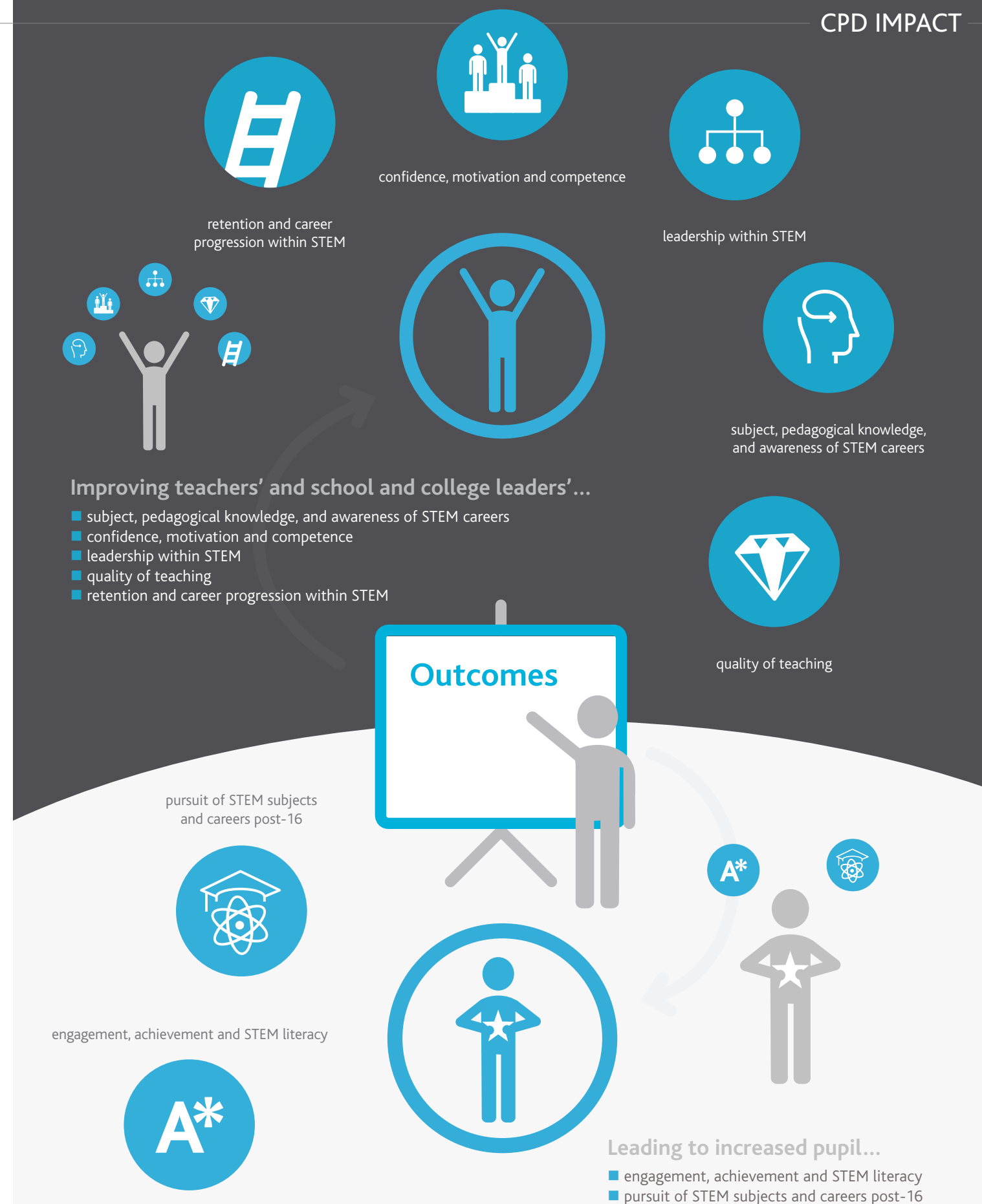
■ www.stem.org.uk/hc439

SERVICING AND MAINTAINING ROUTINE OPTICAL MICROSCOPES (HALF DAY COURSE)

Learn how to get the best results from your equipment by properly maintaining your microscopes.

- Look for dates and venues online

■ www.stem.org.uk/hc440



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PROJECT ENTHUSE

Supporting state funded schools and colleges across the
UK with access to high impact professional development.

Project ENTHUSE is a unique partnership of government, charities and
employers that have come together to bring about inspired STEM
teaching, through the continuing professional development
of teachers, technicians and support staff across the UK.

The partners in Project ENTHUSE are: the Wellcome Trust,
Department for Education, BAE Systems, Biochemical Society,
BP, Institution of Engineering and Technology, Institution of
Mechanical Engineers, Rolls-Royce, Royal Commission for
the 1851 Exhibition and the Royal Society of Chemistry.

ENTHUSE AWARDS

Bursaries available to all state funded schools and
colleges in the UK to support participation in professional
development through the National STEM Learning Centre
and partners in Scotland, Northern Ireland and Wales.
See our full CPD listing on page 16.

■ www.stem.org.uk/mf/enthuse

INTENSIVE ENTHUSE AWARDS

£5,000 bursaries to support in-school and college,
consultant led professional development for state schools
in England that have not participated in Project ENTHUSE
supported professional development in the last five years.

■ www.stem.org.uk/mf/intensive-enthuse

STEM INSIGHT

To ensure that your students are informed for the next
academic or industrial phase of their lives, it is crucial
that teachers keep up-to-date with both modern career
options and routes into academia. Being part of the STEM
Insight scheme provides the perfect opportunity for STEM
teachers to step out of the classroom and experience the
world of industry or a cutting edge university department.
The skills learned from the scheme will enable teachers
to better advise students, create partnership links with
industry or a university and support the contextualised
teaching of the STEM curriculum.

Placements happen throughout the year with universities
and employers across the country. To support with the cost
of your teacher leaving the classroom, a generous bursary
is available to state funded schools and colleges.

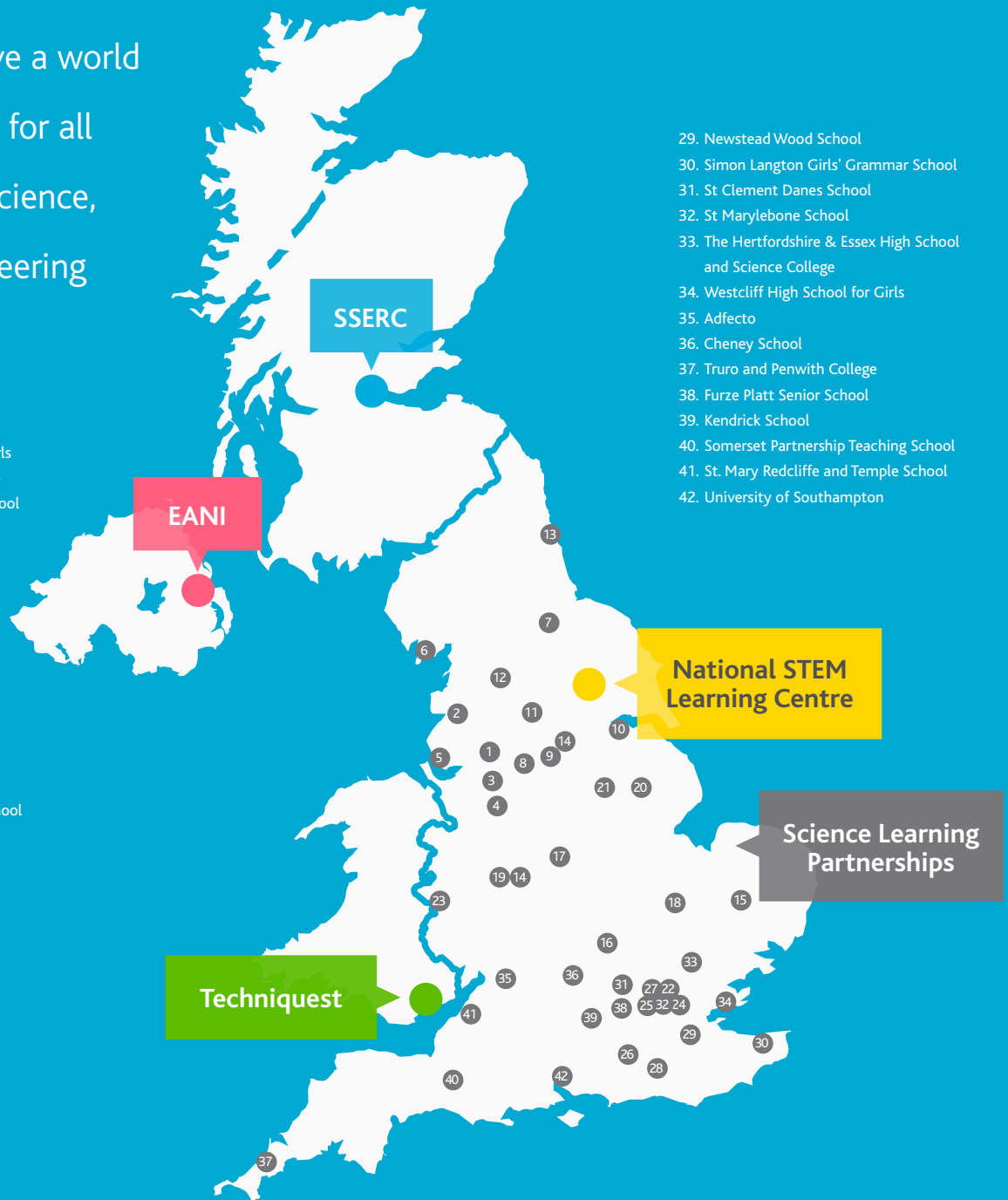
■ www.stem.org.uk/placements

National STEM Learning Centre and Network

Working to achieve a world leading education for all young people in science, technology, engineering and mathematics.

1. Altrincham Grammar School for Girls
2. Ashton Community Science College
3. Holmes Chapel Comprehensive School
4. Keele Science Learning Centre
5. Liverpool John Moores University
6. Ulverston Victoria High School
7. Carmel College
8. Chapel-en-le-Frith High School
9. Hallam TSA
10. John Leggott College
11. Kirklees Learning Service
12. Northern Lights TSA
13. North Tyneside Learning Trust
14. Bishop Challoner Catholic College
15. Bury St Edmunds County Upper School
16. Denbigh School
17. Forest Way School
18. Swavesey Village College
19. The Earls High School
20. The Priory Academy
21. Tuxford Academy
22. University of Hertfordshire
23. Wigmore School
24. Clapton Girls' Academy
25. Cranford Community College
26. George Abbot School
27. Institute of Education
28. Millais School

29. Newstead Wood School
30. Simon Langton Girls' Grammar School
31. St Clement Danes School
32. St Marylebone School
33. The Hertfordshire & Essex High School and Science College
34. Westcliff High School for Girls
35. Adfecto
36. Cheney School
37. Truro and Penwith College
38. Furze Platt Senior School
39. Kendrick School
40. Somerset Partnership Teaching School
41. St. Mary Redcliffe and Temple School
42. University of Southampton



Find out more at www.stem.org.uk

Please see www.stem.org.uk/science-learning-partnerships for the latest information.
All venues are correct at time of print, April 2016.