

National STEM Learning Network

*Working to achieve a world-leading
STEM education for all young people
across the UK*

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We will have achieved our vision when:

- all young people are **enthused** about STEM from an early stage - an engagement which is built on and developed throughout their education
- there are more pupils from **all backgrounds** opting to study more STEM subjects, for longer, through **vocational** and/or academic routes
- there are greater numbers progressing to study STEM at HE, and entering the workforce

Young people were asked what had encouraged them to learn science and what had discouraged them:

Teaching quality was the most common answer to both questions

Encouragement – having a **good** teacher (58%)

Discouragement – having a **bad** teacher (43%)

Ref Wellcome Trust Monitor 2013

Who works with us?

Working in partnership
across STEM
education



STEM Learning

STEM Learning is an initiative of the White Rose University Consortium (comprising the Universities of Leeds, Sheffield and York) and Sheffield Hallam University.

Our work is made possible by the generous support of the Wellcome Trust, Gatsby Charitable Foundation, the Government, our partners in Project ENTHUSE and other funders of related STEM projects.



The National STEM Learning Network

- Professional development nationwide
- 30,000 STEM Ambassadors from more than 2,500 employers



Supporters

welcometrust



Department for
Business, Energy
& Industrial Strategy

Institution of
**MECHANICAL
ENGINEERS**



Sheffield
Hallam University

SHARPENS YOUR THINKING



Department
for Education



GATSBY



Rolls-Royce



The
University
Of
Sheffield.

MEI Innovators in
Mathematics
Education

BAE SYSTEMS

**RESEARCH
COUNCILS UK**



UNIVERSITY OF LEEDS

IBM

THE UNIVERSITY *of* York



**BIOCHEMICAL
SOCIETY**



ROYAL SOCIETY
OF CHEMISTRY

IET The Institution of
Engineering and Technology

The *Institution*
of **Structural
Engineers**



STEM
LEARNING

Who we work with



What we facilitate

STEM inspiration activities and CPD for staff

- face-to-face and online CPD
- study visits and placements with R&D institutions, employers and academia

Resource engagement

- physical and online curated resources focussed on STEM subjects
- cutting-edge research collections
- STEM careers information and curriculum guidance



Outcomes



Improvements for teachers, support staff and informal educators in their:

- STEM subject and pedagogical understanding
- confidence, motivation and enthusiasm for STEM subjects
- competence and quality of leading, teaching or supporting STEM subjects
- understanding how to contextualise the curriculum with cutting-edge STEM knowledge, employability skills and STEM-related careers information
- retention and career progression

Increasing STEM Ambassadors':

- professionalism, communication, team working, organisational, mentoring, leadership, delegating and relationship management skills
- understanding of education and how to inspire young people in STEM
- retention in a STEM-based career

Helping employers to:

- develop an enthusiastic, motivated and skilled STEM-based workforce
- access an increasingly competent pool of young people with employability and STEM skills with the potential to become future employees
- better inform young people and parents about STEM career pathways and the employment opportunities available with STEM employers

Increasing young people's:

- engagement, interest, enjoyment and achievement in STEM subjects
- development of employability and practical skills
- post-16 pursuit of STEM subjects and progression into STEM-related study and careers



Vision
To achieve a world-leading STEM education for all young people across the UK



STEM enrichment and engagement activities for young people and families

- practical activities, experiments, technical advice
- STEM-based competitions and challenges
- extra-curricular STEM Clubs
- careers talks, careers fairs, mock interview practice
- Information, advice and guidance on routes into STEM careers
- work experience, mentoring or shadowing placements with STEM employers



Network of STEM experts: STEM Ambassador Hubs, Science Learning Partnerships, partners in SWANI, employers and supporters

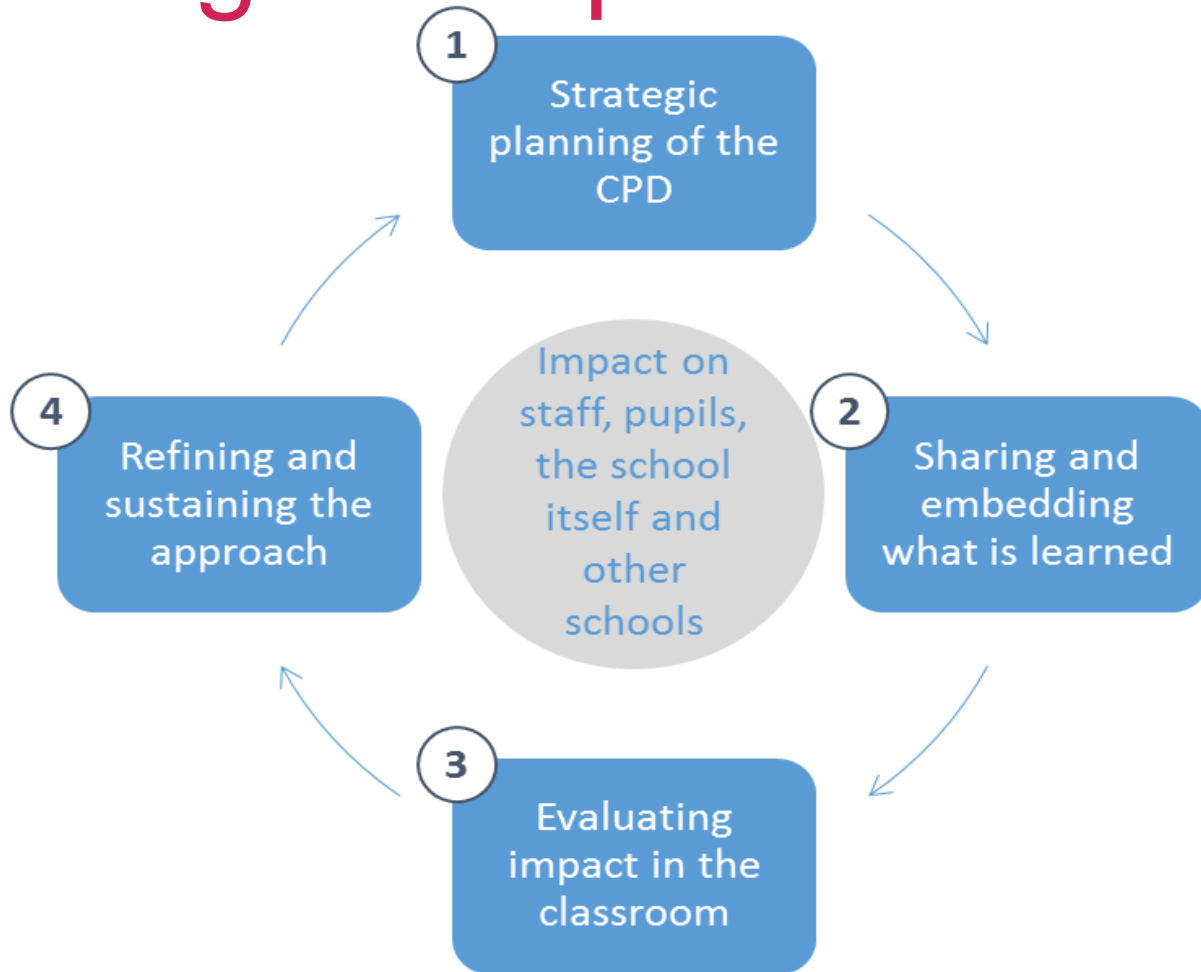
Achievements...

- the Network has positively impacted over 4,000,000 pupils
- around 27,000 days worth of CPD are delivered yearly throughout the Network
- the National STEM Learning Centre alone has engaged over 80% of all secondary schools and 11% of primary in CPD, conferences and events (the Network even more)
- over 3,000 educators benefit from residential CPD at York each year, with another 20,000 receiving high quality STEM-specific CPD locally
- 30,000 STEM Ambassador volunteers representing around 2,500 employers take part in over 50,000 activities with schools, colleges and other young people's groups annually

Project ENTHUSE 2016-17

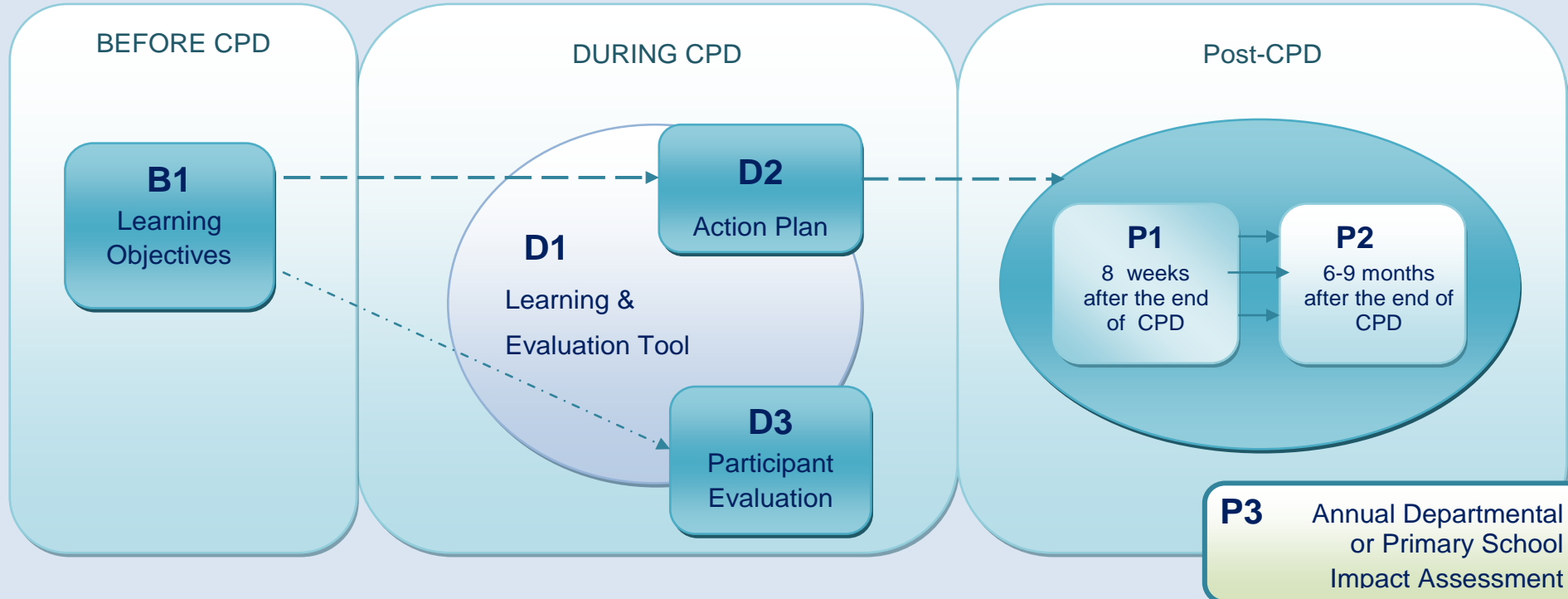
- bursary funded, face-to-face CPD for 2,887 teachers and technicians
- 9,250 UK teachers engaging in online CPD
- 80 teachers/lecturers undertaking STEM Insights placements with employers & Universities
- 42 ENTHUSE Partnerships; 248 schools and colleges (201 primary / 47 secondary) focussing on under-represented groups
- **engaging up to 1.1 million young people with STEM through their teachers and school leaders**

Planning for impact- school level



Impact process- participant level

NSLN PROFESSIONAL DEVELOPMENT



Impact on pupils from teachers attending intensive CPD

Greater motivation and engagement in lessons



Improved progress in STEM subject(s)



Intensive CPD at the National STEM Learning Centre

Impact from teachers attending intensive CPD on wider school or college

Improved quality of subject teaching



Raised profile/priority of STEM subjects



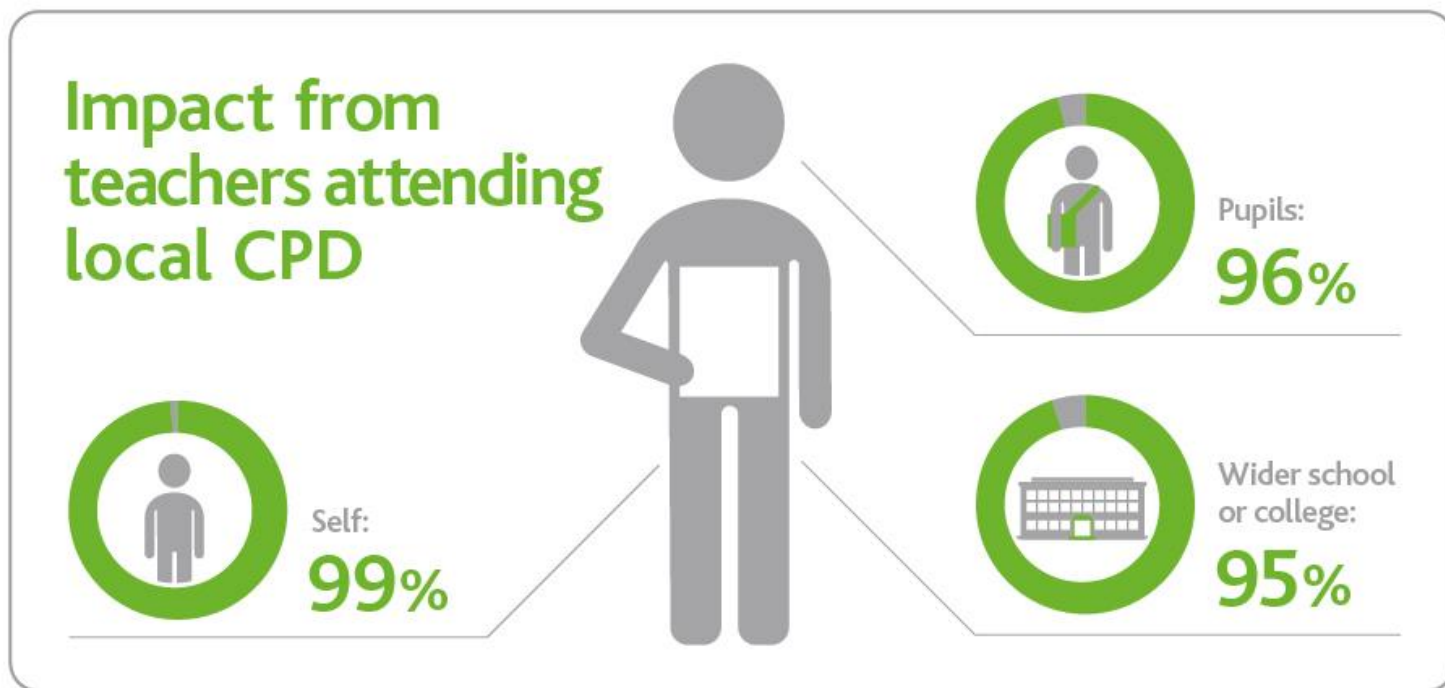
Increased capacity and capability for STEM teaching



Intensive CPD at the National STEM Learning Centre

Science Learning Partnerships in England, and partners in Scotland, Wales and Northern Ireland

Local, high impact, quality assured subject-specific professional development



Independent evidence and research shows that our CPD improves teaching; leading to better outcomes for young people.

**Participate
in CPD**



**Improved outcomes for
teachers, technicians,
and support staff**

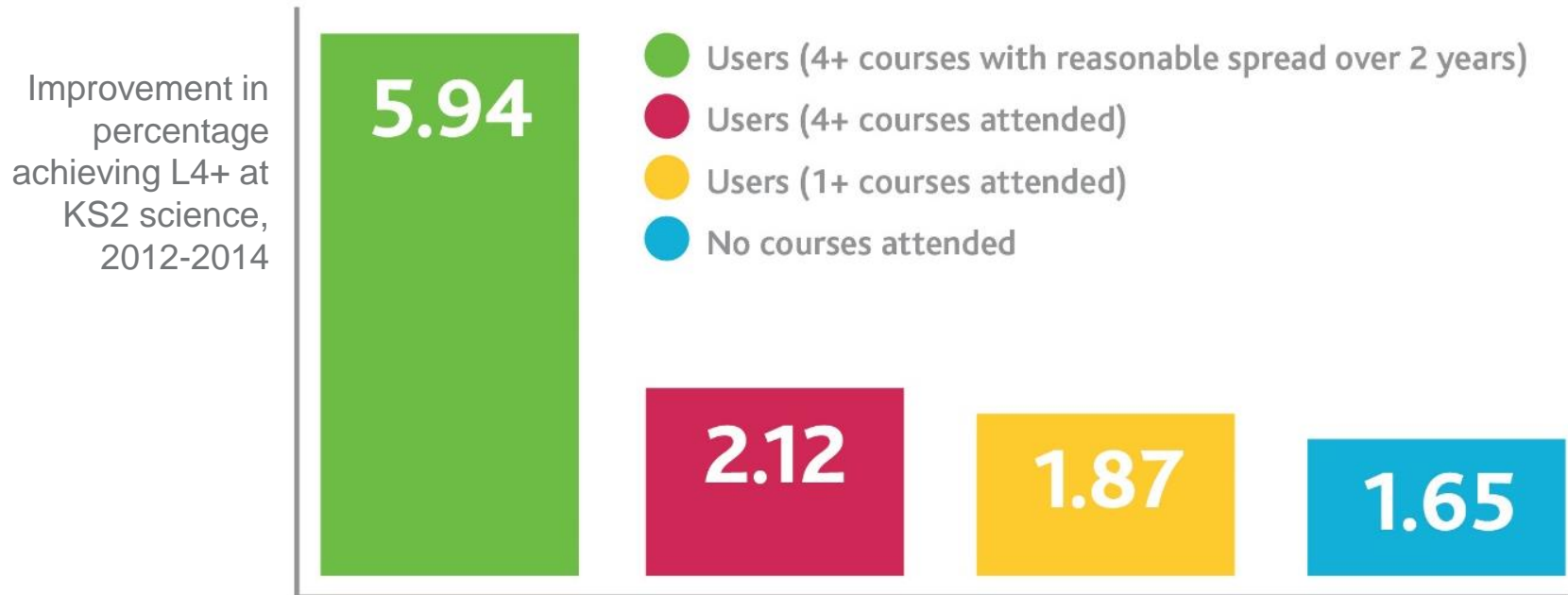
- subject & pedagogical knowledge and awareness of STEM careers
- confidence, motivation and competence
- leadership within STEM
- quality of teaching
- retention and career progression



**Improved outcomes
for young people in
STEM**

- increased engagement and achievement in STEM subjects, and higher levels of STEM literacy
- increased progression to STEM studies and STEM-related careers post-16

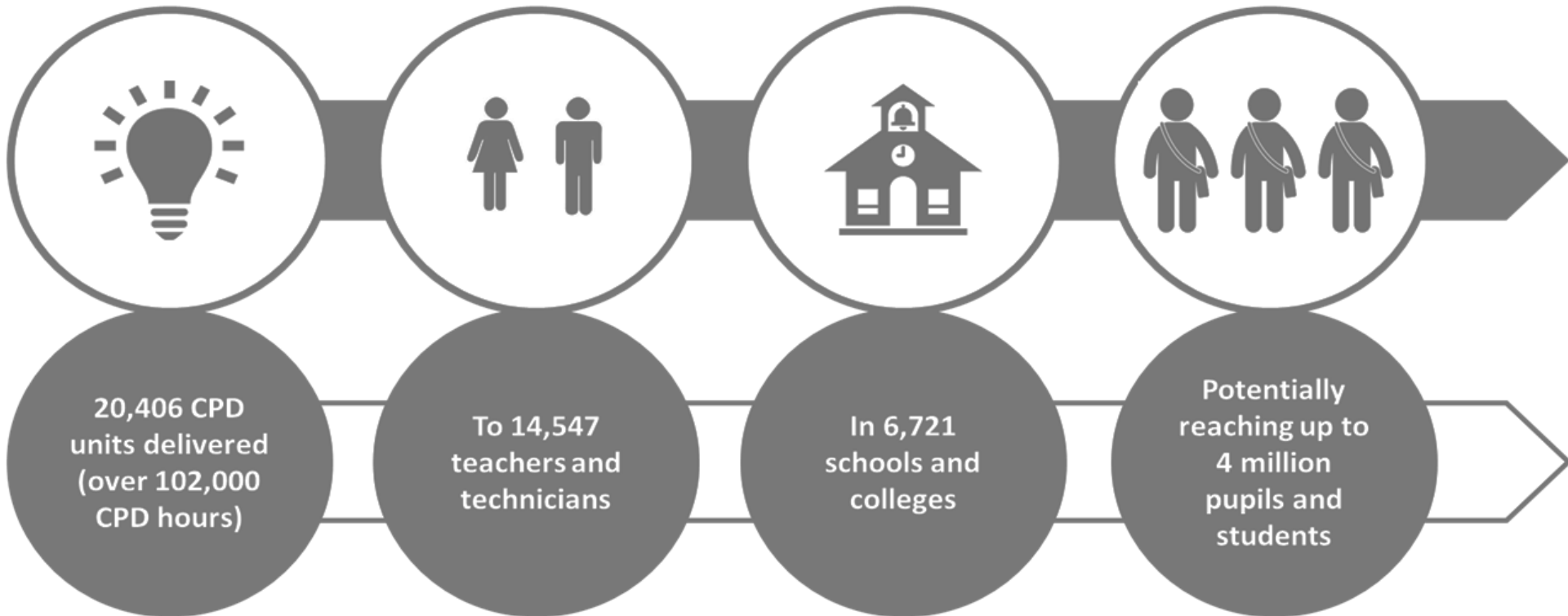
Primary schools that engage with Network support improve more rapidly and show higher value added than other schools



Impact of National STEM Learning Network CPD on schools, Isos Partnership 2015

Network of Science Learning Partnerships

What the network has delivered



STEM Insight

lifting the lid on STEM careers for teachers



Insight | into industry

During a placement, develop your knowledge of STEM careers and routes for your students to progress into STEM-related employment. Work with world-leading employers across a range of STEM industries such as manufacturing, engineering, medical, computing and many others.



Insight | into university

Spend time in a leading UK university and learn about the latest cutting edge research in your field. Support your students as they make the transition to university.

Impact of STEM Insight on participants

- more confident in talking to students about careers in science and engineering
- more able to use appropriate practical examples in lessons
- improved understanding of breadth and depth of STEM careers
- more confident in discussing apprenticeships and vocational routes with young people, colleagues and parents

Resources

Thousands of curriculum-linked, quality-assured STEM teaching resources



We house the UK's largest collection of physical and online resources to support the teaching of STEM subjects.



Over **28,000**
resources available in the Library



design and technology



computing



mathematics



science



careers

Over **10,000**
resources available on the website



Join our
online
community

Resource centre

- at the heart of the National STEM Learning Centre
- thousands of physical resources, including books, reports, gadgets, DVDs
- extensive archive collection – the best of the past 100 years
- digitised versions available via the online collection



Online resource collection

- more than 10,000 resources
- free to download
- classroom activities, guidance, policy, research
- print, multimedia, interactive and practical
- curated collections linked to subject, curriculum and careers
- quality assured
- tried and tested

The screenshot shows the top navigation bar of the STEM Learning website. It includes links for SIGN IN, REGISTER, and SEARCH. Below this, there are links for RESOURCES, CPD, and MAGAZINE. On the right side of the navigation bar, there are links for PRIMARY, SECONDARY, FE, and HE. A search bar is located below the navigation bar, with a search button. Below the search bar, there are quick search links for Computing, Design and Technology, Mathematics, and Science.

Three featured resource collections are displayed below the search bar:

- CREST Awards: thirty inspirational ideas**
1 RESOURCE
30 inspirational Ideas for science gathers some of the best STEM ideas from the last 30 years, some of which are CREST projects, some of which are just great ideas. The main themes of the activities are:
 - Interacting with researchers
- Teaching Advanced Physics: Mechanics**
30 RESOURCES
From the Institute of Physics, these resources are split into topics and each topic is subdivided into a number of learning episodes. Each learning episode represents a coherent section of teaching. Typically the activities include discussion, demonstrations, student investigations and...
- Engineers Without Borders UK**
2 RESOURCES
This collection is produced by Engineers Without Borders UK, an international development organisation that aims to remove barriers to development through engineering. It contains resources which challenge children to discuss big issues facing the modern world and the challenges this poses for...

Examples of STEM Ambassador activity



Classroom



STEM Club activities



Careers talks



Speed networking



Online mentoring



Site visits and hosting
work experience



Large science festivals
and fairs



Non-school group

Keep in touch

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