

# STEAM websites & resources

## Science, Engineering, Technology, Maths & Design information & resources

### Sources of ideas for STEM activities and demonstrations

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Activities for STEM Clubs – nine KS3 level STEM club activities from the Institute of Physics

All About STEM – links to STEM activities, events, programmes and resources

All things STEAM – US librarian’s STEAM club projects & experiments

Arkive Education – endangered species education videos & resources from wildlife charity Wildscreen

CREST Awards – STEM challenge & award scheme and resources

CREST Star – encouraging primary students to solve STEM problems through practical investigation

Dendrite – hub of the Bloodhound SSC educational programme

Fab Foundation – the parent organisation of the FabLab maker movement

IET Faraday – classroom activities, online games, videos, quizzes, supporting material and challenges

Illusionering – science based easy to perform ‘magic’ tricks for home or classroom

Lunar Exploration – interactive history & technology of the moon missions, from the ESA

MakerSpaces – the parent organisation of the MakerSpace maker movement

Planet Science – articles, ideas & activities to inspire students about science

Physics Classroom – interactive physics demos, tutorials, simulations and more

Quirkology – STEAM based magic, illusions and intriguing demonstrations

Robot Orchestra – creating robot musicians and instruments from waste and recycled materials

See Science – STEM activities and competitions listings from the Welsh STEM Ambassador hub

Science Buddies – US site with free resources, ideas and activities

Science Museum online – science based games, apps, blogs and collections

Science Sparks – easy activities for preschool, KS1 & KS2 using everyday items and materials

Sparticl – STEM games, videos, activities and articles; the ‘best of the web’ on a site design for teens

Sparxx – a wealth of STEM activities, competitions and resources, and a packed monthly newsletter

Spectacular STEM activities – activity ideas from a US home schooling blog

STEM Activities for kids – 50 STEM activity links from a US educator blog

STEM Directories – searchable online catalogue of UK STEM activities, grants and resources

STEMNET – STEM Ambassador parent organisation, some resources

STEM Clubs - STEM Learning’s national STEM clubs programme

Technocamps – resources, workshops and events to engage students with computing (Wales based)

Terrific Scientific – primary STEM from the BBC, with investigations, resources & experiments

The Naked Scientists – podcast science magazine, kitchen science experiments, news, articles & more

Young Engineers - promoting engineering through hands-on activities and competitions

BBC Make it Digital – digital, coding and micro:bit projects, activities and resources

Code Clubs – national network of after school coding clubs for children 9 - 11

Micro:bit - home of the BBC micro:bit microcomputer with ideas, challenges and activities

Raspberry Pi – home of the Raspberry Pi microcomputer; digital making, ideas, activities, parts

Arduino – home of the Arduino open source microcomputer; parts, resources, ideas

## STEM inspiration and outreach

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1851 Trust – Land Rover BAR America’s Cup team STEM & sailing engagement programme  
All About STEM – resources and links from the Merseyside STEM provider  
Ask a Scientist – STEM Q&A site run by volunteer scientists & engineers from around the globe  
Ask Dr Universe – STEM Q&A site from Washington State University  
Bloodhound SSC – 1000 mph land speed record and STEM engagement project  
Bloodhound Education – the education arm of the Bloodhound SSC land speed record project  
Born to Engineer – engineering news, resources and stories to inspire students, parents & teachers  
British Science Association – science outreach, runs CREST Awards and CREST Star  
Destination Space – STEM discovery & inspiration based around Tim Peake’s ISS mission  
DiscoverE – US engineering outreach programme  
DiscoverE resources and downloads  
Education in Chemistry – teacher and student information & The Mole online student magazine  
Engineering Development Trust – a wide range of STEM outreach, experiences and competitions  
Engineering Everywhere – videos, activities and resources from an EPSRC STEM outreach project  
Engineers Without Borders – Engineering NGO running youth engagement programmes  
Get Caught Engineering – US resource site helping connect learning with real life applications  
Imagineering – introducing 8 – 16 year olds to engineering and tech via activities and fairs  
Institute of Physics Education – portal to the IoP’s student and teacher material & information  
James Dyson Foundation – primary, secondary & university STEM kits, resources & programmes  
Lightyear Foundation – STEM engagement charity running events and programmes, UK and Africa  
Nobel Prize Inspiration Initiative – inspirational videos & insights from Nobel laureates  
Physics.org – from the Institute of Physics; explore, discover, study, careers, further links  
Universe of Engineering – practical STEM activities, competitions, class projects and teacher training  
Royal Institution – live events, outreach, research participation, & Christmas lectures  
Science Museum Educators - visits, resources, events & teacher CPD from the Science Museum  
Smallpeice Trust – STEM day experiences, out of school courses & ‘think kit’ classroom resources  
SteamCo – charity supporting schools and communities to run STEAM days & activities  
Steamed Collective – STEM inspiration through street and public art  
STEMBoost – searchable STEM outreach and experiences database  
STEM Cymru – information on STEM competitions, events, careers, case studies & resources  
Ultimate STEM Guide – 239 ‘Cool sites about STEM’ on a US based blog  
Weald Tech – company using commercial electric vehicle projects for STEM engagement  
Wellcome Science Education – education resources and support from the Wellcome Foundation  
YESC – inspiration and resources for schools & STEM clubs, Scotland based

Association for Black & Minority Ethnic Engineers

Code First: Girls – free coding courses & meetups for students & young women

Engineer Girl – US site about women engineers, what they do & how students can get there

Engineer Your Life – US guide to engineering for high (secondary) school girls

Finding Ada – Ada Lovelace Day, events celebrating the achievements of women in STEM

Generating Genius – programmes to help disadvantaged students go to university

Girl Geeks UK – support community, campus events & women STEM ambassadors

IET Women's Network – IET online community for women in STEM

In2Science – STEM advice, help & experience for students with low income backgrounds

Liverpool Girl Geeks – events and workshops to inspire women & girls about STEAM

Liverpool Women in Science & Engineering – events celebrating & promoting women in STEM

Manchester Girl Geeks – events, talks, workshops for girls & women interested in STEM

Monster Confidence – STEM careers conferences for young women & students

NASA Women – videos & blogs about women and girls in the US space programme

National Women in Engineering Day – National Women in Engineering day

ScienceGrrl – grassroots network supporting women in science – events, blogs, inspiration

SoapboxScience – public talks, debate & inspiration by women in science

Sparxx – STEAM news, views, events, careers with an emphasis on women, from WES

Stemettes – women in STEM events and mentoring

Steminist – US site blogging stories about women in STEM

STEMxm – iTunes podcast highlighting STEM careers and women in STEM

Student to Stemette – mentoring and support for students from women in STEM

WES Engineer Girl – the experiences of early career, student & apprentice women engineers

WISE campaign – role models and information, inspiring women to follow STEM careers

WISSET – help, advice, online tools & inspiration for women & girls going into STEM

Wogrammer – showcasing women software engineers and the tech they've built

Tech Girls are Superheroes – Australian site featuring female STEM role models & inspiration

Transformer Podcast – 'no holds barred' podcasts about women engineers

TrowelBlazers – pioneering women in archaeology, geology and palaeontology

Women's Engineering Society – inspiration & support for women in engineering

Women of Science – new site sharing stories of women in science & engineering

Women Shift Digital – encouraging women in tech – workshops, events, mentoring etc.



## STEM resources and support for educators and parents

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4Science - STEM educational resources agency

Association for Science Education – educator support organisation; networking, CPD, resources

BBC Teach! – BBC portal to the best of BBC Learning content and teacher support

BETTShow – teaching techniques and resources show, January 2017, London

Bowland Maths - maths teaching support for 11 – 14 years focused on reasoning & problem solving

BSW Activity Packs – early, primary & secondary Science Week activities based on a theme of change

CERN Education – atomic & particle physics resources, programmes & residential activities

Digital Explorer – learning resources & programmes based on engaging students with global issues

EdCentral – free and subscription networking, discussion and teaching resources

Edge – education charity; funding (current round Autumn 2016), programmes & research

Education and Employers – charity partnering educators with employers to inspire & inform students

Edutopia STEM – STEM education resources, articles, ideas & community, US based

Engaging Science - lesson resources focused on scientific enquiry & 'big themes'

ESA Education – space and astronautics based education resources and teacher CPD

Funded – advice and sources of school funding

Guardian Teacher Network – teacher support, information and networking portal

Lego Education – STEM teaching & classroom resources, workshops & CPD support

National Centre for Excellence in Teaching Maths - promoting excellence in teaching mathematics

O2 Learn – video library of revision lessons and materials

Practical Action - NGO using technology to alleviate poverty; STEM challenges and teaching resources

Project Enthuse - STEM CPD awards and resources from STEM Learning

Renovated Learning – information and ideas for setting up school makerspaces

School Gate SET – primary STEM activity ideas & information for parents and families

School Science – news and resources for science education from the ASE

Siemens Curiosity – Siemens group STEM resources and programmes

Siemens Education – Siemens group education support portal

SteamChap - Twitter feed for STEM ambassadors and educators with links, resources, careers & more

STEM Education – 25 US & UK STEAM links from US education blogger Michael Gorman

STEMFirst –links & parent & teacher resources from the Lancashire STEM ambassador hub

STEM Learning – Ambassador lead organisation, STEM educator resources, CPD and discussion groups

Stimulating Physics – IoP support site aiming to increase interest and uptake of physics

Talk Physics – IoP networking and discussion site for physics educators and technicians

Teach It! Science – free and subscription practical teaching resources for KS3 – KS4

Technology for fun – science, technology & engineering design & make activities

TES Teaching Resources – teacher developed lesson plans, activities & inspiration from the TES

Terrific Scientific – primary STEM from the BBC, with investigations, resources & experiments

Try Engineering – Online pre-university engineering resource from IBM & the IEEE

Underground Mathematics – rich, connections based teaching resources for A level maths

## Science and discovery centres

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1851 Trust Tech Deck – LandRover BAR America’s Cup interactive exhibition & STEM learning centre

Aberdeen Science Centre – STEM learning, activity and CPD centre

At Bristol – hands-on science centre, 3D planetarium & makerspace

Cambridge Science Centre – interactive exhibitions, workshops & science shows

Catalyst – interactive chemistry-based science centre & museum in Cheshire

Culture 24 – online access to UK museum & cultural institute collections, exhibits, news & research

Dark Sky Discovery – UK dark skies sites and information portal

Dundee Science Centre – science shows, exhibitions, learning support & CPD programmes

Dynamic Earth – interactive Earth Science museum, curriculum & teacher support; Edinburgh

Glasgow Science Centre – hands on science exhibits, events & planetarium

Google Cultural Institute – online access to global museum collections and sites of interest

Green Britain Centre – discovery centre about sustainable energy, transport and food, Norfolk

Institute of Imagination – forthcoming hands-on experimenting, creative and maker space in London

Jodrell Bank – astronomy discovery centre based around the historic Lovell radio telescope, Cheshire

Kielder Observatory – astronomy events in the world’s third largest dark skies area, Northumberland

Life Science Centre – science museum, hands-on exploration & outreach centre, Newcastle on Tyne

Magna – interactive science adventure centre & steelmaking museum, south Yorkshire

National Space Centre – space history, events, interactive galleries, planetarium; Leicester

Novelty Automation – Tim Hunkin’s arcade of satirical home-made machines

Outlook Discovery Centre – Bracknell hand-on science & discovery centre

Science Centres, Association for Science & Discovery centres - UK science discovery centres portal

Show Me! - online access to UK museum collections, artefacts and information

Techniquest – Cardiff science centre, learning support & education programmes

Techniquest Glyndŵr – Wrexham branch of Techniquest science centre

WhoWhatWhereWhenWhy (W5) – interactive science centre at the Belfast shipyard Titanic was built

Winchester Science Centre – interactive science & technology centre, planetarium

## Science and industrial museums

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Armagh Planetarium – astronomical education & outreach centre, Armagh, Ireland  
Beamish – industrial & living history museum, County Durham  
Benjamin Franklin House, London – Franklin history, hands-on scientific discovery and study centre  
Birmingham Museums – 8 museums about the industrial, scientific & cultural history of Birmingham  
Bletchley Park – Home of WW2 codebreaking with historical & hands-on exhibitions, Milton Keynes  
Bristol Museums – art, archaeology, industrial and folk history  
Brooklands Museum – aviation & motoring museum at the world’s first purpose built race circuit  
Coventry Transport Museum – houses Thrust 2 and Thrust SSC land speed record cars  
Design Museum – history of design, hands-on activities, events, workshops, talks; London  
Discovery Museum – science & industry museum & archive, Newcastle on Tyne  
Faraday Museum – small museum to Faraday in his original lab at the Royal Institution, London  
Herstmonceux Observatory – hands on science centre in a historic royal observatory, east Sussex  
Ironbridge – 10 museums & events exploring the place the industrial revolution started, Shropshire  
London Museums of Health & Medicine – group of 25 museums of medical & health history & science  
Manchester Museum of Science and Industry – industrial, engineering & science collections & events  
Mills Observatory –space & astronomy displays, planetarium, events; Dundee  
National Museums of Northern Ireland – science, engineering, transport, arts & folk collections  
National Railway Museum – exhibits, archives, events; York and Shildon, County Durham  
Natural History Museum – world leading natural history collections and research  
Natural History Museum Schools – natural history activities, classroom resources and workshops  
Oxford University Museum of Natural History – nature & geology collections, events, engagement  
Peak District Mining Museum – industrial & mining history based around a lead & fluorspar mine  
Porthcurno Telegraph Museum – telegraphy and communications, Porthcurno, Cornwall  
RAF Museum – military aviation history & technology, London and Shropshire  
REME Museum – the museum of the Army’s engineering & equipment repair wing  
Royal Engineers Museum – military civil & technical engineering history  
Royal Observatory Greenwich – the historic centre of time measurement  
Science Museums Group - the Science Museums Group portal  
Sheffield Industrial Museums Trust – industrial history, learning, resources, events  
Smithsonian – 19 US science, technology and history museums with online collections & information  
Surgeon’s Hall – nationally important Edinburgh museums of surgery, pathology & dentistry  
Thackray Medical Museum –museum of medicine from Victorian age to present day, Leeds  
Woodhorn Mining Museum – Industrial & folk history based around a late Victorian coal mine

By no means an exhaustive list – you’ll find more museums listed on Wikipedia:

Wikipedia’s List of Science museums in the UK –STEM related museums & exhibitions

Wikipedia’s List of Railway museums in the UK

Wikipedia’s List of Transport museums – no direct UK link, scroll down to the UK list



## STEM festivals and fairs

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BarCamp Manchester – STEM discussion, networking and knowledge sharing ‘unconference’

Bath Taps Into Science – science & engineering festival focused on engaging young children & families

Big Bang Fair – youth science & engineering fair, Birmingham, plus competition & resources

Bristol Mini Maker Faire – one day fairs celebrating invention, creativity and the Maker movement

British Science Association Festival – free STEAM events, talk, performances & family workshops

British Science Week – science events across the country, plus home and school activities

Cambridge Science Festival – STEM promotion & public engagement with Cambridge science

Cheltenham Science Festival – debate, discovery, experiments & hands-on activities

Derby Maker Faire – one day fairs celebrating invention, creativity and the Maker movement

Discover the Blue Dot – music, astronomy & STEM festival at Jodrell Bank discovery centre

Dundee Science Festival – celebration of science with events for all ages & 3-18 schools programme

Edinburgh Science Festival – UK’s largest science festival, over 270 events, workshops, performances

Explorer’s Fair – a 3 day STEAM fair at Nottingham’s Broadway and Near Now complex

Fife Science Festival – events, workshops, demos, experiments across Fife for schools & public

Glasgow Science Festival – STEAM engagement & events, workshops, school activities, teacher support

Gravity Fields – Lincolnshire STEAM festival celebrating the legacy of Isaac Newton

iOi London Mini Maker Faire – one day fairs celebrating invention, creativity and the Maker movement

Leeds Digital Festival – STEAM events promoting tech & digital entrepreneurship & careers

London Design Festival – massive festival of design & creativity with over 400 events across London

London Science Festival – science engagement & cultural festival

Manchester Science Festival – week long October STEAM festival around Manchester

Midlands Imagineering Fair – fun hands on engineering & tech for children

Museums at Night – UK wide festival of STEM, culture & heritage Lates in museums and galleries

Open House London – architecture, engineering & infrastructure open to the public for one weekend

Oxfordshire Science Festival – science engagement events for children, teachers & adults

Pint of Science – talks & discussions on new research, held in pubs, bars and public places

Science4Society Week – Science education activities with a justice and sustainability focus

The Wearable Technology Show – wearables, connected tech, AR / VR & internet of things

Wiltshire Engineering Festival – engineering, design & technology festival aimed at yr 6 – 9 students

## STEM blogs, vlogs and podcasts

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BBC iWonder – BBC videos and articles ‘to make you think’, not solely STEM based

BBC Science - BBC science programmes portal

BBC Earth – BBC natural history programmes portal

BBC Teach – education programmes from the BBC, with playlists for different ages & subjects

Brit Lab & HeadSqueeze – science videos and the best of BBC science, by Hannah Fry and James May

Cultivate News – online sustainability & biodiversity science, development and research magazine

Earth Unplugged – natural world videos from the BBC natural history unit

Errant Science – irreverent cartoons about current science

Eureka Lab – online age-appropriate, topical science news for students, parents, educators

European Space Agency – Astro, spaceflight, expeditions, earth from space and much more

Head STEAM TV – what STEAM is, why you should care, and how it helps us do amazing things

IEEE Spectrum – online science, tech & engineering magazine from the US IEEE institution

It’s OK to be smart – videos on science and the connection to everyday life from the US PBS channel

NASA – almost 4000 videos about anything to do with space.

New Atlas – online technology magazine aiming to inspire ideas

SciComm – science communication podcast from ‘Dr Mikeographer’

Science Focus – BBC Focus science, technology and futures magazine

Scienceish – delving into the science behind popular culture

SciNotSci – podcast stories, advice and inspiration mainly about science research

Simone Giertz – Sweden based maker, tech blogger and ‘queen of bad robots’

Story Collider – stories about science, with a personal twist

Popular Science TV – videos from the new technology and science magazine

Quirkology – STEAM based magic, illusions and intriguing demonstrations

Royal Institution YouTube channel – science videos from the world’s first science institution

Science Cafe – BBC Wales programme exploring the latest in science and technology

Team STEAM #99 – undertaking challenges to engage people in STEAM

TED Talks – short talks with the aim of spreading ideas, many STEAM based

TED Educational – animated videos aiming to spark and share student and teacher ideas

The Infinite Monkey Cage – taking a witty, irreverent look at the world through scientists’ eyes

The Gross Science Show - bizarre stories from the slimy, smelly, creepy world of science

The Naked Scientists – podcast science magazine, kitchen science experiments, news, articles & more

The Physics Girl – Physics and science videos “for every atom and eve” from a US female physicist

The Things That Make Us – podcast about people and the objects that have influenced them

Transformer Podcast – ‘no holds barred’ podcast about women engineers

Tumble – science podcast for children, to be enjoyed by the whole family

XKCD – often thought provoking webcomic ‘about romance, science, maths and language’



## STEM magazines and news

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Guardian Science Blogs – research & debate from expert scientists & writers on subjects of their choice

Guru magazine – free multi-platform lifestyle & science magazine from the Wellcome Trust

How It Works Daily – online portal of the science and technology magazine that ‘feeds eager minds’

National Geographic – online home of the magazine about exploring & protecting the planet

New Scientist – online home of the respected science magazine

New York Times Science – the online science pages of the New York Times newspaper

Popular Science – online pages of the new technology and science magazine

Plus Maths - online maths magazine

Science Magazine – trailblazing science from the American Association for the Advancement of Science

Scientific American – developments in science and technology from the US’ oldest magazine

The Engineer – engineering news, opinion, debate & careers

Whizz Pop Bang – ‘awesomely amazing’ science magazine for children (subscription)

Young Engineers – online engineering news, events & jobs magazine aimed at STEM students

## STEM competitions, challenges and awards

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Big Bang Competition – project based science & engineering competition for yr 7-13 students

BP Ultimate STEM Challenge – solve a 21<sup>st</sup> century engineering problem

Creations Competition – create an artistic piece to engage people with science or astronomy

CREST Awards – four levels of STEAM project based awards for students 11-19

Cyber Security Challenge – range of competitions inspiring interest in cybersecurity

Engineering Development Trust – STEM experiences and challenges

F1 in Schools – students 9–19 collaborate to design, build & race air powered balsa F1 cars

Girls Into STEM – interesting girls in STEM by supporting entries to the VEX Robotics competition

Go4SET - 10 week STEM projects for 12 – 14 year olds

Google Science Fair – global science & technology competition for individuals & teams 13-18

GreenPower – promoting sustainable engineering & tech through electric car racing challenges

IET Faraday – STEM challenge days and competitions

I’m an Engineer! – free online ‘X-factor’ competition where students meet and chat with engineers

I’m a Scientist! – as above for scientists.

PA Consulting Raspberry Pi competition – design innovations to improve lives

Universe of Engineering – engineering engagement organisation running experiences & challenges

Race for the Line – build a record breaking rocket car, timed using BBC micro:bit

Solutions for the Planet – connecting businesses & schools to solve real world STEAM challenges

Sparxx Competitions – Sparxx’ constantly updated listings of STEM competitions and challenges

Talent 2030 – competition for young women in yrs 7-13 to solve real world STEM challenges

Teen Tech City of Tomorrow – design your vision of the future

VEX Robotics Competition – team challenge to build a robot to compete in a game based challenge

Young Engineers – national awards, STEM individual and team challenges

## STEM Ambassador hubs

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STEM Learning – national STEM teacher resource and CPD site, merged with STEMNET

Aberdeen Science Centre – North Scotland

All About STEM – Merseyside & Cheshire

Kent and Medway STEM – Kent and the Medway area, Sussex, Surrey, Essex

Connect Education & Business – East Anglia, Bedfordshire

Education Business Partnership South West – Devon & Cornwall

Derbyshire Education Business Partnership – North Midlands, South & East Yorkshire

Staffordshire STEM Centre – Staffordshire & Shropshire

Graphic Science – Somerset, Dorset, Wiltshire, Gloucestershire, Bath, Bristol

Leicestershire Education Business Company – East Midlands & Lincolnshire

RTC North – North-East, Tyneside, Teeside, Northumberland

Science Connects – West of Scotland

MSI Manchester – Manchester, Leeds, North Yorkshire

See Science - Wales

STEM East – East of Scotland

STEMFirst – Lancashire & Cumbria

STEM Learning London Team – Greater London

University of Worcester – West Midlands

W5 – Northern Ireland

Winchester Science Centre – central Southern England, IoW, Oxfordshire, Hertfordshire

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### Disclaimer

*Websites and links are provided for information only – many are very good, but I can't endorse them or give them a 'seal of approval'. You may have to sign up to use some of them – always be aware what you're signing up to and don't give away more information than necessary. You should never have to pay for any of these sites.*

*If you see any other sites you think should be on this list, let me know! Thanks.*

