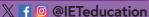


theiet.org/education



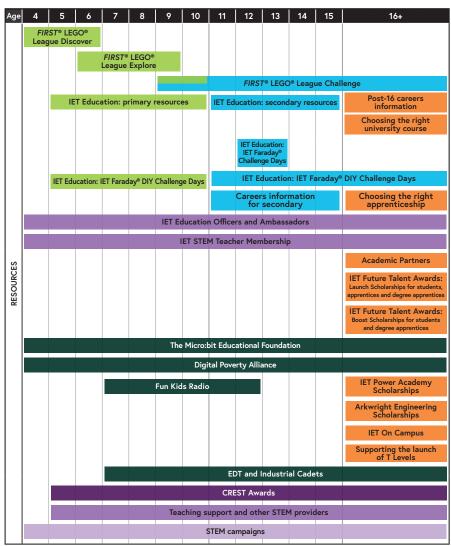




Ready to inspire the next generation of engineers?

Discover which IET Education programme is right for you in our resources table – by age group





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Inspiring the next generation of engineers and technologists

The IET has been inspiring young people from all walks of life for over 150 years, helping them access the amazing career opportunities available to them in engineering and technology.

As engineering and technology advance at a rapid rate and changes the world around us, it has never been more important to inspire young people into STEM (science, technology, engineering and maths).

The IET, along with its partner organisations, provides support to both teachers and students, helping to develop skills which are valuable not just in the engineering sector, but across the global economy.

We offer a wide range of free curriculumlinked resources, initiatives and programmes for schools/teachers, community group leaders and parents who are teaching STEM to young people from the age of 4 through



Resources include:



Putting the 'E' in STEM

Providing high-quality teaching resources, challenges and career information to support the delivery of STEM in (and out) of the classroom is something that the IET is very passionate about.

A particular focus for the IET is raising awareness of and ensuring the 'E' (engineering) in STEM is not overlooked and we provide schools, parents and community groups with opportunities to inspire the next generation of engineers and technicians. This STEM booklet highlights all our IET programmes and resources including our highly respected IET Faraday® Challenge Days; and FIRST® LEGO® League, the largest STEM programme in the UK, and of course relevant careers information to support career

advisors in schools in guiding young people through the various pathways and hopefully into an engineering career. I'm also delighted to once again include our IET Teacher Membership, an offering that supports teachers and helps to build their confidence in delivering STEM subjects in the classroom whilst at the same time, associating them with one of the largest professional engineering institutions in the world.

David Lakin Head of Education, Safeguarding and Education Policy

Key

Look out for our symbols on each programme page:



This programme has an associated cost



IET Education Officers and Ambassadors are on hand to help (more info on pages 34-35)

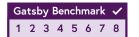
Awards and accreditation



EDT and Industrial Cadets (page 49)



CREST Awards (page 50)



Government career strategy (page 52)

The IFT and disadvantaged pupils









"On the tube back home. they were all discussing what they would do differently and how they would continue next year if they were to do it again. As a result, FIRST® LEGO® League is continuing as an after-school club and we are hoping to develop our current work to share with the whole school and parents during Science Week."

"Taking part in the competition gave the children a chance to mix with peers they wouldn't normally spend time with and promoted teamwork and problem solving within a unique setting - at school and as part of the competition day."

Secondary school teacher

At the IET we believe that every child, regardless of their background, deserves the opportunity to participate in our programmes. We are committed to reducing inequality and closing the attainment gap between disadvantaged pupils and their peers across the country by breaking down the barriers to social mobility. We want to see more disadvantaged young people participating in our programmes, attending our finals, being inspired and progressing through to the most rewarding careers in STEM.

To be eligible you need to

- 1. have more than 25% Free School Meals in your school
- 2. be one of the 12 Opportunity Areas highlighted by the government:

- West Somerset

Doncaster

Norwich

- Fenland and East

Blackpool

Cambridgeshire

- North Yorkshire coast

Hastings

- Derby

Ipswich

Oldham

- Stoke-on-Trent

- Bradford

We are proud to be working with sponsors, supporters and donors who enable teams from disadvantaged backgrounds to participate in the IET Faraday® Challenge Day and FIRST® LEGO® League programmes.

If you think that your school or group might be eligible, please email us to find out more: ieteducation@theiet.org



"We had a fantastic first year and are excited for year 2 now we know what to do! We won a trophy for best project which was totally unexpected. We've also organised a LEGO® Friendly between local schools that entered the main competition so that we can keep our skill set ticking over for the year."

STEM

as well as our IET

Amhassadors

Education Officers and

Ambassadors are on

hand to help provide

vour school. Find out

free STEM resources in

School teacher



Our IET Faraday® programme is free to all schools. Schools that meet the criteria on page six will be prioritised on application.

Please apply on our website. theiet.org/faraday



We're sure you are aware that this funding is solely to widen the opportunity to children experiencing hardship and to broaden opportunities. We trust that you as teachers will use this opportunity to reach the children on Pupil Premium, children experiencing hardship, or who may face, or have faced challenges or obstacles in their lives.



Support

IFT Futures Fund







BECAUSE ONE STEM EVENT CHANGED MY

The IET Futures Fund raises money to support the next generation of engineers, to find solutions to our most pressing problems.

Thanks to the generosity of our supporters and partners, we have been able to offer more opportunties to children and young people, especially those who would otherwise find it hard to access STEM activities.

The programmes we have been able to grow -FIRST® LEGO® League, IET Faraday® Challenge Days and the Future Talent Awards – offer vivid STEM experiences to children from the age of four and valued support to apprentices and undergraduates.

Volunteers are essential to helping us provide great impact and we are fortunate to work with STEM Ambassadors from across our donors

Join the many companies, charities and individuals who are as enthused by our programmes as the young people are. Contact us at development@theiet.org or visit theiet.org/futuresfund









"Because your donations are helping children believe that anything is possible"

Olha Burdo has been involved in FIRST® LEGO® League for many years; first as a supportive parent and then as a volunteer mentor. Her son Kostiantyn was an avid participant, returning for eight consecutive years (pandemic aside), before the war in Ukraine turned their family's life upside down and caused them to seek asylum in Ireland. Olha and Kostiantyn then formed their own team in Ireland, to make new friends and share their passion for the competition.

"The children came to us with no experience of engineering and have learnt so much about electronics, robotics and

programming through this competition. My son wants to join an engineering company, for example, while another boy, who'd planned to become a psychologist, has realised he can build and program and feels other options within engineering have opened up to him.

By donating to the IET Futures Fund you're influencing the future of today's students. STEM events like FIRST® LEGO® League help them to see that anything is possible - if they can dream it, they can do it."

Olha Burdo FIRST® LEGO® League mentor

IFT Education: **Primary** resources

Engage students with our inspirational and exciting activities.





Our education programme introduces young people to the sheer excitement of science, technology, engineering and maths.

Primary resources and classroom activities include lesson plans, handouts and film clips, all free and available through our website.

Teaching resources

Our teaching resources will enhance your teaching and bring students' learning to life. The resources are designed to support the delivery of key topics within design and technology, maths and science. They provide practical activity ideas that could be used as one-off activities or linked with other areas of the curriculum and are all fully editable so you can tailor them to your students' or school's needs.

Join in and work through the activities on offer to spark your pupils' curiosity.

theiet.org/primary

Certificates

Recognise your students' achievements with our STEM certificates.

You can download them from our website education.theiet.org/ primary/certificates





Primary themed resource collections













We have grouped some of our most popular STEM resources for primary teaching into themed collections, to make it easier for you to teach a whole topic or just pick your favourites.

From seasonal resources to activities linked with national days of interest, we're sure you'll find something here to engage your students at any time of the year.

New themes will continue to be added on a regular basis, so do keep checking back to see what new content we have to help your classroom teaching.

Primary:

theiet.org/themed-primary

STEM posters

Our visual aids bring engineering to life in your classroom or home learning space, with posters covering a range of topics.

With free hard copies and PDF downloads available, there's something for everyone!

education.theiet.org/ primary/posters



Follow us online:







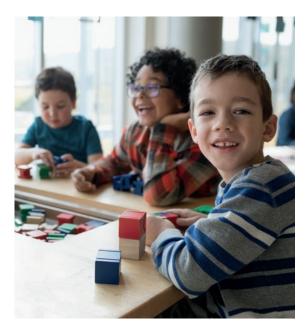
IET Faraday® **DIY Challenge Days**

Download our free guidelines and electronic resources that will take you through a classroombased engineering challenge day, with an introductory presentation, handouts, video clips, printable IET Faraday® currency and student certificates.

theiet.org/primary



Find all our primary resources online at theiet.org/primary



These resources are free to download and most of the practical materials you'll need should be available within your school.

Why not invite our Education Officers and Ambassadors to give you a hand on the day and bring real-life engineering experience into the classroom?

"Fantastic resources which meant the day was easy to run. Great that the kids had an expert on live link and those who used it found that both useful and exciting. Over half the students would now be interested in engineering."



"I've been so impressed with how well everything was organised, so easy as a teacher. Thanks so much!"

IFT video resources

Looking for fun and engaging STEM experiments to do with children?





We're working with STEM Ambassadors, IET Education Officers and Ambassadors, teachers and parents to bring you a range of videos that you can watch at home or in school with children.

Give them a go yourselves - each video will show you how to create some fantastic STEM experiments using everyday items found in the home or simply refresh your memory on some popular lesson topics.



Take a look at education.theiet.org/video-teaching-resources













12















"It has been a brilliant

experience

implement

to be able to

in such a fun

way. It has made me more confident as a

STEM activities

and fascinating

class teacher."

P1 class teacher



Wonder, question and discover.



The IET is the operational partner for FIRST® LEGO® League Discover in the UK and Ireland - an exciting STEM programme for 4 to 6 year olds.

FIRST® LEGO® League Discover is a playful introductory STEM programme which happens in the classroom. Children work in teams of four to explore a real-world theme using an exclusive LEGO® Education Discover model. Using this as inspiration, they then design their own models using LEGO® DUPLO® elements to solve meaningful problems.

Children also have a set of Six Bricks that are used for playful starter activities to practice memory, movement, creativity and more! The programme finishes with a celebration event to recognise the children's achievements.





*Packs: £45 to £145 (+VAT) for Discover Sets, Discover More Sets, supporting materials and Discover trophies. LEGO® STEAM Parks are required in addition and are not included. Top-up packs: £5.50 to £10 (+VAT) for additional materials.



"I loved the Six Bricks challenges – I thought it gave a great understanding and insight into the children's ability to listen to and follow instructions, solve some problems, communicate with one another etc. I also enjoyed the flexibility and freedom the children had to express and share their ideas and opinions."

Primary class teacher



As they work, the children develop valuable habits of learning, such as persisting with tasks and applying previous knowledge to new situations.

Throughout their experience, teams operate under the FIRST® LEGO® League Core Values; celebrating discovery and teamwork, all while having fun.

More details can be found on the FIRST® LEGO® League Discover website: theiet.org/discover

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Build, code, research and share. A fun STEM programme for 6 to 9 year olds.









"We have found FIRST® LEGO® League Explore to be a wonderful experience. The children have enjoyed the preparation, subject matter, building and design so much - it has Class Pack event. been so good for them

FIRST® LEGO® League

Explore Coach

on so many levels. The

*£30 (+VAT) for a team of up to six members, that will go to a regional festival. Includes 1 x Explore Set, 1 x Team Meeting Guide and 6 x Engineering Notebooks.

**£85 to £230 (+VAT) for Class Pack Registration, dependent on class size. This includes Explore Sets and supporting materials. Top Up packs: £12 to £30 (+VAT) for additional classes.

***LEGO® SPIKE™ Essential robots are required in addition to registration and are not included. LEGO® SPIKE™ Essential robots where listed are the recommended robot for this programme. Other robots can be used, but please refer to the website for further details on which ones



Children work in teams to research a specified theme relevant to the world around them, displaying their ideas on a Show Me poster. They also build a LEGO® model and program it to move using LEGO® SPIKE™ Essential***. Teams then attend an IET regional festival or an in-school





Explore rapidly develops teamwork, design, programming and communication skills, but most importantly it is great fun. It makes the children feel proud of what they have achieved - encouraging them to continue engaging with STEM.

"As a FIRST" LEGO® League tournament host, I have found the introduction of FIRST® LEGO® League Explore into our schools extremely beneficial in terms of embedding the necessary skills earlier in the key stages. Not only does it promote the skills needed to build and program, it encourages the essential skills of independent learning, critical thinking and teamwork. FIRST® LEGO® League Explore provides a safe environment to explore these skills without fear of failure or the pressure of attaining a grade/result."

> Fran Ward FIRST® LEGO® League Explore Host





Working in teams of up to six, FIRST® LEGO® League Explore can be delivered in two ways:

- Regionally: as either curricular or extra-curricular. Teams work towards attending a regional festival along with other teams to share their accomplishments.
- Class Pack: within the curriculum. Class Pack engages a whole class working in multiple teams, with an in-school festival to celebrate their achievements

More details can be found on the FIRST® LEGO® League Explore website: theiet.org/explore





CHALLENGE



A global roboticsbased life skills competition, run by the IET as the operational partner in the UK and Ireland.

"There are no words that can express my appreciation for what this programme has done for the children involved. It is for me without doubt of huge value to UK and Irish education. I often tell the students that there are days that stay with you as long as you live. FIRST® LEGO® League keeps supplying our team with those, so thank you for that."

Neil Corrigan, Team Coach

Team Event Registration: £165 (+VAT) for Challenge Set, supporting materials and registration to a regional tournament. LEGO® SPIKETM Prime set and device (laptop/ tablet) are required in addition and are not included.

Class Pack: £295 (+VAT) for 2 x Challenge Sets, supporting materials, medals and trophy. SPIKE™ Prime sets and devices (laptops/tablets) are required in addition and are not included. Top Up pack: £80 (+VAT) for additional classes. Class Pack team regional event entry. £37.50 (+VAT).

Gatsby Benchmark 🗸

1 2 3 4 5 6 7 8

Competing teams engage with a real-world issue, develop skills that are crucial for the workplace, and work with STEM professionals in a way that is both inspiring and fun.

What is unique about FIRST® LEGO® League is that teams must demonstrate Core Values in everything they do. These are about inclusion, teamwork and fun!

FIRST® LEGO® League Challenge can be delivered in two ways:

 Regionally: teams work towards competing at a regional tournament, with the opportunity to qualify for national or international finals.

or

 Class Pack: within the curriculum, engages a whole class, working towards an in-school event.





Teams consist of up to 10 young people (aged 9 to 16 years) and an adult coach. Once registered they receive the challenge information and a bespoke set of LEGO® missions to build.

They design, construct and program a robot using a LEGO® SPIKE™* Prime kit and create an innovative solution to a real-world problem which they present to the judges at the tournament.

The team work together on the different challenges, seeking advice from experts in their community and preparing to give their best performance at their event.

There are fo

FIRST® LEGO® League Challenge develops skills in:

- applied science
- design and technology
- programming and control
- computing
- mathematics
- research
- communication and presentation skills
- strategic thinking
- teamwork
- self-confidence

There are four parts to the challenge:

- Robot Game: teams build and program an autonomous robot to undertake a series of tasks around a themed playing field.
- **2. Robot Design:** teams are judged on their robot design, programming and strategy.
- **3. Innovation Project:** teams research, create and present a solution to a real-world problem linked to the annual theme.
- **4. Core Values:** teams are judged on how they demonstrate the *FIRST®* Core Values which include teamwork, impact and innovation.

More details can be found on the FIRST® LEGO® League Challenge website.

theiet.org/challenge





*LEGO® SPIKE™ Prime robots where listed are the recommended robot for this programme. Other robots can be used, but please refer to the website for further details on which ones.

Secondary

IET Faraday® Challenge Days











- creativity and innovation

- the ability to work as a team

Encourage your students to develop skills for their futures - enter your school into one of our exciting IET Faraday® Challenge Days.

The annual IET Faraday® Challenge is an engineeringbased competition for schools. Six teams of six students, aged 12 to 13 years, compete against one another to see who can design, create and promote the best solution to a given challenge. All challenges are genuine, real-life engineering problems.

They draw upon and reinforce learning from science, maths and design and technology lessons. Students need to demonstrate:

- the capability to project manage and take on team roles presentation skills... and more! Recent set-ups of real-life challenges have included supporting the engineering mission of UKRI's Future Flight Challenge, designing improvements to a children's hospital with the Institute of Healthcare Engineering and Estate Management, assisting Network Rail to sustainably manage the increasing numbers of passengers using their network and working

The top teams across the UK win an allexpenses-paid trip to the National Final to compete for a cash prize for their school.

Visit our website for more information on the options available and how to apply to take part in a IET Faraday® Challenge Day.

theiet.org/faraday



IET Faraday® **DIY Challenge** Days









Run your very own IET Faraday® DIY Challenge Day in your own time and on a theme that suits vour students.

Available for schools, these packages offer guidelines and electronic resources that take you through the day, with an introductory presentation, handouts, video clips, printable IET Faraday® currency and student certificates.

These resources are free to download and most of the practical materials you'll need are found in typical science or design and technology departments.

Why not invite our Education Officers and Ambassadors to give you a hand on the day and bring real-life engineering experience into the classroom?







"I really liked this challenge as I love to be creative, I also understand more about engineering and want to look in to the careers available."

13 year old female participant

"Students practically learned in a pressurised, realistic situation, how to create and build different prototypes and improve their knowledge and understanding of scientific concepts. They were inspired to compete with each other and teams learned about what engineers really do!"

Secondary science teacher





Take the hassle out of your lesson planning with our free curriculum-linked resources and activities.

We can do more to nurture students' interest and achievement in STEM by showing them the exciting, real-life applications of the subjects. If we want students to be fully equipped for their futures, we need to give them a grounding in these subjects and make them aware of the career choices in these fields.

Our resources introduce students to reallife, innovative examples of engineering and technology from around the world.



Types of resources

We provide the following resources, free-of-charge:

- classroom activities to drop into lessons or for home learning/schooling
- handouts
- classroom presentations
- podcasts
- videos



Each set of resources is brought to life in a modern engineering context by including:

Themed resource collections

- short films
- case studies and engineer profiles which can be used to inspire project work and help with careers guidance

We have also grouped some of our most popular

teach a whole topic or just pick your favourites.

STEM resources for secondary teaching into

themed areas, to make it easier for you to

theiet.org/themed-secondary

Find all our secondary resources online at

theiet.org/secondary

Follow us online:

@IETeducation X F 0 0









STEM posters

Use visual aids to make STEM topics more memorable.

Our free poster pack includes reference posters on electricity and electronics and topical posters with examples of some of the most innovative engineering around today.

The exact content of these packs will alter over time as new posters become available.

Find all our secondary STEM posters online at

education.theiet.org/secondary/posters



Undercover engineers podcast



Join us as we unleash the latest innovations in science and tech to showcase engineers that are saving our planet and helping communities across the globe.

From shark detection technology and artificial reefs for marine wildlife to the latest real-life cyber crime, nano materials and smartwatches saving lives, you can get thinking about what will be next.

With a new podcast every month, why not kick start your way to making a difference and help engineer a better world?

education.theiet.org/secondary/ undercover-engineers-podcast

IET Education around the world



The IET is a global organisation and the Education department is no different!

We want to support you wherever you are in the world in bringing STEM to your students.

On this page, you will find information on the programmes that we run outside the UK that may be relevant to you, as well as teaching resources and partner activities to help you make the most of the IET Education offering.

education.theiet.org/ iet-education-around-the-world

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Secondary

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Careers information and scholarships



For students, Degree Apprentices and apprentices who want to pursue careers in engineering and technology, we offer a number of scholarships to support them with their education and training. We also accredit degrees and apprenticeship schemes to ensure they cover the content needed to help them get a job.

For those who are still deciding what they want to do, we provide careers guidance materials. These illustrate the huge range of possibilities open to young people in the sector and the entry routes available.

For more information, please visit

theiet.org/engineering-careers





Careers information for secondary students

Tomorrow's Engineers, in collaboration with the IET and other engineering institutions, produces a helpful range of careers information and resources for teachers and young people interested in engineering.

These include information about the main types of engineering and the possible routes into them.

neonfutures.org.uk/resource





Post-16 careers information

If you're looking to advise sixth form or further education students - we've put together a collection of careers materials especially for them.

The materials include:

- information about the different routes into engineering
- a booklet about 12 key areas of engineering





theiet.org/engineering-careers



Choosing the right university course

Help your students work out which engineering course is right for them.







The routes to engineering section on our website provides up-to-date advice on choosing a course and explains how we support students at university and in their early career.

Accredited courses

We run an accreditation programme, which monitors and certifies courses, checking and approving:

- facilities and staffing
- relevance to employers
- students' opinions about the course

Our list of currently accredited degrees includes mainly BEng (Hons), MEng and MSc qualifications covering electrical and electronic engineering, computing, mechanical and manufacturing engineering and more. Individual programmes include a wide range of specialisations, including nanotechnology, communications and renewable energy. Some of these courses are part of a **Degree Apprenticeship** offered by employers.

Students about to start an IET accredited course are eligible to apply for an IET Future Talent Award (see pages 29 and 30).

Go online today and find out how to point your students in the right direction.

mtfy.org.uk



Choosing the right apprenticeship

Help your students work out which apprenticeship is right for them.





Tomorrow's Engineers

Make a difference to the world

Vocational and apprenticeship routes into engineering

The apprentice section of our website is packed with advice on choosing the right apprenticeship, including details of IET schemes.

IET accredited apprenticeship schemes

To gain IET accreditation, an apprenticeship provider needs to have demonstrated that their education and training meets certain quality standards and that they are committed to helping apprentices progress and develop. They must also provide apprentices with the skills they need as a basis for professional registration.

Search the list of our Apprenticeship Schemes and Professional Development Schemes at **theiet.org/accreditation**

Tip: Many employers offering IET Accredited Professional Development Schemes offer Degree Apprenticeships. Contact them for information about the application process.

Explore what's available and help your students make the right choices.

Students and apprentices on an IET accredited apprenticeship scheme or degree apprenticeship are eligible to apply for an IET Future Talent Award (see pages 29-30).



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IET Academic Partners are university departments that understand the value of association with the IET and want to enhance the student experience.

Studying at an IET Academic Partner university means students' IET membership fees will be partially or fully funded, and they benefit from an IET accredited course an internationally respected benchmark awarded to high quality programmes.

Academic Partners work closely with us to make sure students get opportunities to join our On Campus groups, hear from industry speakers, and use our study and professional development resources.

Find out more partnerships@theiet.org



Arkwright **Engineering Scholarships**

The Arkwright Engineering Scholarships programme is run by The Smallpeice Trust and is the most prestigious scholarship scheme of its type in the UK.

Funded by industry, academia, professional institutions (including the IET) and private donations, around 400 Arkwright Engineering Scholarships are awarded each year. Each scholarship provides two years of enrichment for the student and a financial award for the school each year.

Who can apply?

Students who are currently in the year in which they are taking their GCSE exams (or equivalent) and will go on to study an A-level (or equivalent) STEM subject at a UK school partnered with Arkwright may apply for a scholarship.

arkwright.org.uk

IET Future Talent Awards

Launch Scholarships for students, apprentices and degree apprentices

These scholarships are for students, apprentices and degree apprentices who have faced financial or personal challenges and have a passion for engineering.

Who's it for?

Students, apprentices or degree apprentices about to start their course or apprenticeship or already enrolled in any year, and the course or apprenticeship must be accredited by the IET. They can be a parttime, full-time or a mature student.

What's on offer?

£1,500 per year for three years for bachelor's degrees and four years for MEng degrees or apprenticeships. Recipients also receive free student membership for the duration of their funding.

What else do I need to know?

- UK residents only
- You don't need to be a member of the IET
- Recipients will have opportunities to promote STEM and engineering

When's the deadline?

- Friday, 22 September 2023. For the 2024 awards get in touch: futuretalent@theiet.org

Payments

Successful candidates will receive their first payment in February 2024.

IET Future Talent Awards Boost Scholarships for students and degree apprentices

These scholarships are for high-achieving students who have achieved 70% or above at the end of their second year of university and have a passion for engineering.







Who's it for?

Students who are on an IET accredited engineering or technology undergraduate degree or degree apprenticeship.

What's on offer?

At least £1,500 per year for up to two years for MEng degrees or one year for bachelor's degrees plus one year if you decide to do an IET accredited MSc. Recipients also receive free student membership for the duration of their funding.

What else do I need to know?

- Students can apply from their second year (third year in Scotland)
- You must have achieved at least 70% at the end of your academic year
- UK residents only
- You don't need to be a member of the IET
- Recipients will be chosen based on the quality of their application, and their achievements to date, and their commitment to engineering
- Recipients will have opportunities to promote STEM and engineering

When's the deadline?

 Friday, 22 September 2023. For the 2024 awards get in touch: futuretalent@theiet.org

Payments

Successful candidates will receive their first payment in February 2024.

Apply today theiet.org/future-talent

IET Power Academy Scholarships





The Power Academy partnership between companies and universities offers a host of benefits to help students enhance and progress their career in engineering.

We have a number of scholarships each year for students to get an annual bursary, access to a 2-day annual seminar led by industry partners, paid summer placements and the opportunity of a career with their sponsoring company after graduation.

For more information, visit theiet.org/poweracademy

IET On Campus

This initiative allows students to set up their own engineering societies with support from the IET. They gain fantastic opportunities that they might not otherwise have had access to.

Groups promote engineering and the IET, as well as develop soft skills that students do not typically gain through their studies.

Benefits for students

- develop skills necessary for the workplace
- network with professional engineers
- explore career opportunities
- get funding for events and activities
- discover volunteering opportunities



Find out more theiet.org/oncampus oncampus@theiet.org

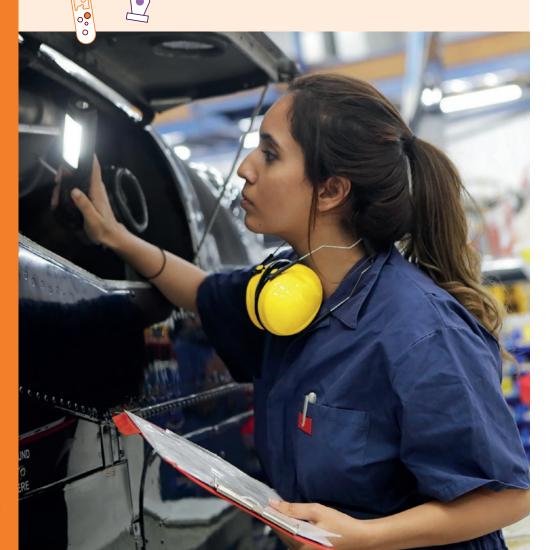
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Supporting the launch of T Levels

T Levels are new, high quality, technical-based two-year qualifications, which provide a programme of study developed by employers and businesses in England.



Available from September 2022, T Levels focus on vocational skills and are designed to equip learners with the knowledge and skills wanted by businesses. They are equivalent to three A Levels and are an alternative form of study aimed at 16 to 19 year olds. They can lead to a job, an apprenticeship or a degree.







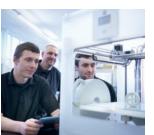
What do T Levels provide students?

- A technical qualification including core theory and industry skills that will prepare them for work.
- An on-the-job industry placement with an employer for at least 315 hours.
- Students will spend 80% of their time in the classroom and 20% placed in the workforce, learning the skills that employers are looking for.

Visit our website for free curriculum maps to resources for T Levels in engineering.

- Students can learn more about the engineering and manufacturing T Level route, latest news and more.
- **Teachers** can find resources to support their teaching within all Engineering T Level pathways including design and development, manufacturing, process, control, and maintenance, installation and repair.







IET Education Officers and **Ambassadors**













Education Officers (EOs) and Education Ambassadors (EAs) are IET members who volunteer to help introduce young people to the exciting world of STEM and raise awareness about engineering careers.

Education Officers and Ambassadors are typically registered STEM Ambassadors and can support a variety of opportunities for young people to learn about engineering.



They can:

- support after-school clubs, competitions and other
- give careers talks and provide industry insights
- represent the IET at careers and science fairs

For an introduction to your local volunteer contact us at ieteducation@theiet.org







Meet our volunteers





There is generally one **Education Officer or** Ambassador in each UK county.

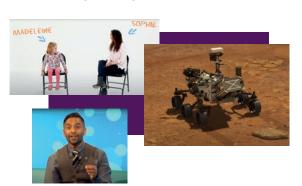
You are now able to 'meet' our wonderful Education Volunteer team, find your nearest IET engineer, as well as contact them on our interactive webpage:

education.theiet.org/support/ meet-our-engineering-education-volunteers

Volunteer resources







Our volunteers are continually striving to inspire the next generation of engineers.

You can watch videos, engage with social media posts, take part in activities, utilise handouts and even read stories and hang posters all designed and created by them on our volunteer resource webpage.



education.theiet.org/support/ education-a-z/volunteer-resources Support

STEM Ambassadors

Bringing engineers into the classroom.







IET members registered as STEM Ambassadors are available, alongside our IET Education Volunteer team, to support school activities and bring real-life engineering experience into the classroom.

STEM Ambassadors can support activity days, after-school clubs, careers events and even lessons.

The national STEM Ambassador programme, delivered by one of our associates STEM Learning, enables teachers to bring trained and checked professionals into the classroom to support teaching and inspire students.

To find out more and request a STEM Ambassador visit **stem.org.uk**



Education A-Z





If you are understandably overwhelmed by the wealth of information available and unsure where to start to teach or support budding engineers into STEM learning, have a look at our Education A-Z webpage:

education.theiet.org/support/education-a-z







All of our resources can be easily found in one place, from initial interest in engineering and STEM from four year olds, to providing a complete overview of information for students and early career engineers.

Provided in three easy to understand sections:

- 1. Education resources
- 2. Getting into engineering
- 3. Engineering careers guidance



We have also included information about our education campaigns and volunteer created video resources for you to support your teaching.

Support

Introducing our STEM Teacher Membership



Our STEM Teacher

membership costs

just £30 per year

(discounted from £170.00)

We're offering a bespoke membership package - designed specifically to meet your needs as education professionals.

Who are we?

The IET inspires, informs and influences the global engineering community to engineer a better world. We have an incredible global reach with over 154,000 members, 350 partners, and a volunteer network of over 4,000 engineering and technology professionals all supporting outreach programmes. We also have strong ties with universities, primary and secondary schools across the UK. Together, we promote the exchange of information and ideas for the

advancement of STEM (science, technology,

engineering and maths) to inspire



Why us?

Our STEM Teacher Membership provides unique opportunities to take your STEM teaching to the next level, and we've discounted it - so you'll pay just £30 for the whole year.

Join today to start enjoying these

- Access to networking opportunities with IET Academic, Corporate and Enterprise Partners.
- Links with industry contacts to help with finding engineers for school visits or to support the provision of student work experience through links with local industry.
- Links with universities to support students wishing to study STEM subjects.
- Access to life skills and professional development courses to support your own CPD. You can even track it through IET Career Manager.
- Access to IET online communities, including a STEM teachers community and discussion forum.
- Thousands of STEM videos at your fingertips on a variety of topics, with searchable content through iet.tv. the IET's own video archive.
- Access to the digital edition of our award-winning E&T Magazine.
- Membership use of our UK venues: IET London: Savoy Place and IET Birmingham: Austin Court.
- Access to our extensive technical library, both online and in-person at Savov Place.





Our education resources and programmes



Our STEM Teacher Membership provides unique opportunities to take your STEM teaching to the next level, and we've discounted it - so you'll pay just £30 for the whole year.

These include:

- IET Faraday® Challenge Days and FIRST® LEGO® League competitions, designed to help children develop real world problem solving, teamwork and communication skills.
- Scholarships and funding support for engineering projects and activities in schools
- Access to IET Education Officers and Ambassadors - trained and engaging professionals of all ages and from all walks of life, ready to help inspire the young people in your classroom.
- A wide range of teaching resources including posters, handouts, videos, classroom presentations, case studies, themed resources and more, both online and in-person at IET London: Savoy Place.

Find out more and sign up today.

Simply go to

theiet.org/teacher

and complete the online form. and we'll take it from there.

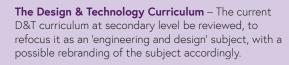
Engineering Kids' Futures

The IET's Engineering Kids' Futures report calls on the UK Government to help tackle the UK's engineering skills shortage by embedding engineering into early education.



We launched our Engineering Kids' Futures report with a parliamentary reception on Wednesday, 7 December 2022. The report was signed by over 150 signatories including Major Tim Peake to Will.i.am. The report made a series of recommendation to UK Government:

The National Curriculum – The English schools National Curriculum be reviewed to embed the teaching of engineering, at both primary and secondary levels of education.



The English Baccalaureate (EBacc) – School accountability measures (Progress 7 and Attainment 8) be reviewed to move D&T into the EBacc suite of subjects.

Engineering training for teachers – UK Government endorse, actively promote, signpost and support an engineering package of training aligned with the Initial Teacher Training (ITT) Core Content Framework.

Bursaries and scholarships – UK Government funded ITT bursaries and scholarships in engineering be reviewed to increase their value and availability.



Since launching the report, we have continued to engage with the government and STEM community. We have held a private roundtable in partnership with the New Statesmen and presented the Engineering Kid's Futures report at the National Engineering Policy centre.

More information can be found here: theiet.org/media/campaigns/engineering-kids-futures

Engineer a Better World



Super-charging STEM:
Harry, aged 10, won
our Super Realoes
competition in 2021
with his fire-fighting
and pollution clearing
drone. He was awarded
his prize by astronaut
Major Tim Peake!





The IET's Engineer a Better World campaign shows parents and their children the huge variety of exciting, creative and stimulating careers in modern engineering.

Engineering and technology are improving our world and shaping our future, touching every part of our lives. From the music you listen to and the phone in your hand, to the clean water you drink and the innovations that are helping to restore our oceans, engineering and technology are at the heart of everything.

This campaign aims to show young people that they can make a difference and demonstrates just how inspiring and fantastic a career in engineering and technology can be – all through their passion points! We've worked with the likes of Blue Peter and the Beano, as well as Mark Cavendish, Konnie Huq and Major Tim Peake to help us spread the word that engineering and technology is for everyone.



Santa **Loves STEM**

Fun activities for schools and families at Christmas.

Join in the fun this festive season:

#SantasSTEMworkshop #SantaLovesSTEM

theiet.org/santa

Our annual IET Santa Loves STEM campaign focuses on inspiring the next generation to pursue careers in engineering and technology with our festive workshop of fun, Christmasthemed STEM (science, technology, engineering and maths) activities.

Santa's STEM workshop is packed full of inspiring ideas for teachers and families to do with the kids in the lead up to and over the festive holiday season. Children can join Santa and his helpers at theiet.org/santa to make, create, imagine and discover. They will be able to get in the festive spirit with our fun craft ideas, recipes, hands-on experiments and resources, which provide STEM inspired learning through play.

From glittery slime to making your own advent calendar, to making winter window decorations or conducting experiments looking at how reindeer treats react to different household items, we have an exciting array of ideas to suit 4 to 13 year olds. For those passionate about climate change, we have a fun experiment to help Santa examine how heat passes through animals who need to insulate, as well as information on affordable and recycled STEM toys which help develop their curiosity and nurture valuable skills.

For the Christmas bakers out there, why not try your hand at some festive baking with Rudolph shaped cookies or edible snowmen. Christmas tree ornaments made from salt dough are also on the menu that will get the kids whizzing about the science and maths behind the final creation. And make sure you try our outdoor scavenger hunts or eye spy activities, which link to problem solving and discussion about the world around us all designed to get their inner engineer

buzzing during the festive season.

Look at me now

For children, toys and imagination represent a world of possibilities and invention. For engineers and scientists, the possibilities and invention never end. They are proof that our toys and dreams today impact our innovations tomorrow.



The child who loved LEGO® now designs buildings. The child with the telescope is now an astronaut and the child who dreamed of being a magician is now an electronics engineer, changing the world through technology.

#IETLookAtMeNow explores which toys and dreams our engineers had as children and how they've influenced what they're doing now sharing these great stories from around the world.

Our stories – our engineers reveal the dreams and toys of their childhood, which set them on the path to their careers today and discuss how you could get there too.

Children's activities - activities, games and resources to have a go at with children! Get creative, invent and consider engineering as a possible and real future career.

Take a look at theiet.org/look-at-me-now





STEM campaigns

Working alongside others to engage young people with engineering and technology.



Neon

Neon brings together the UK's best engineering experiences and the inspiring Tomorrow's Engineers careers resources to help teachers bring STEM to life with real-world examples of engineering. Visit the site to discover what is available in your area.

neonfutures.org.uk

Association of Science Education (ASE)

The professional association for science teachers. The ASE provides a range of resources, training and networking opportunities, including their annual and regional conferences.

ase.org.uk

The Design and Technology **Association**

The professional association for design and technology teachers. The association provides a range of resources, training and networking opportunities.

data.org.uk

Institute of Physics (IOP)

Promoting physics and bringing physicists together for the benefit of all. The IOP provides a range of resources, funding, training and networking opportunities for physics teachers.

iop.org

Project ENTHUSE

Project ENTHUSE is a funding partnership that allows the provision of subject-specific Continuing Professional Development (CPD) for teachers, technicians and other support staff at the National STEM Learning Centre in York and through partners in Northern Ireland (Department of Education Northern Ireland), Scotland (SSERC) and Wales (Techniquest).

stem.org.uk/project-enthuse

Institution of Mechanical **Engineers (IMechE)**

The IMechE is a professional engineering institution, improving the world through engineering. In addition to the collaborative work with the IET, Tomorrow's Engineers and Teachers in Residence programme, the IMechE support Bloodhound SSC and Primary Engineer.

imeche.org

ESP

ESP is a collaboration of Scotland's colleges and industry partners, established to increase Scotland's capability and capacity to deliver the right skills for the energy, engineering and construction sectors to meet industry demand. ESP works to promote STEM initiatives in colleges around Scotland.

esp-scotland.ac.uk



EESW

EESW is an independent registered charity running schemes to inspire and motivate young people in Wales aged 8-19 to choose careers in STEM.

stemcymru.org.uk

Teach First

Teach First aims to end educational inequality. It finds, trains and supports new teachers to work in low income communities. developing these new teachers to become leaders in schools and to inspire children towards the future they want.

teachfirst.org.uk











Support

The Micro:bit Educational Foundation





Fun Kids Radio









The BBC micro:bit is a pocket-sized computer that introduces you to how software and hardware work together. The Micro:bit Educational Foundation provides free educational resources to teach computing and digital skills using the micro:bit, to children aged from 7 to 14 years.

The Micro:bit Educational Foundation is a not-for-profit organisation, that works with its founding partners (the IET, the BBC, Arm, Microsoft, Nominet, the British Council and Lancaster University) to inspire every child to create their best digital future. A million devices were donated to UK schools in 2016 and there are now 39 million children learning worldwide with 6 million micro:bits in 60+ countries.



Free resources include:

Get started videos and guides to introduce and explain computing concepts simply.

Curriculum-linked lessons with easy-to-download editable resources for primary and secondary aged children.

Online code editors taking children from block coding in Microsoft MakeCode through to text-based Python. The MakeCode simulator means you don't even need physical micro:bits for many lessons and activities.

micro:bit classroom, a tool that allows you to run live coding lessons, in person or remotely.

Dozens of quick Make it: code it projects perfect for formal or informal learning.

Professional development courses for teachers and educators, using short and friendly videos, that cover the principles of computer science and programming projects to share with students.



You can access all these resources for free **microbit.org**





Fun Kids is the UK's national radio station for children, with entertaining, informative and engaging programmes.

The IET and Fun Kids have developed a number of series of short audio programmes and animated videos for 8 to 12 year olds called 'Techno Mum', the series aims to explain a wide range of technology that young people see around them.

Starring Sam and his engineer mother, Techno Mum, each episode looks at different ideas and the engineering behind it - from electric cars and motion sensor games, to supermarket scanners and much more.

Fun Kids is available across the UK through DAB digital radio, online and through smart speakers. You can even ask for a Techno Mum smart fact through Alexa.

funkidslive.com









Education partners

Education partners

Digital Poverty Alliance

The Digital Poverty Alliance is a charitable coalition bringing together government, industry and charities, at local, regional and national levels, with the aim of ending digital poverty in the UK by 2030, once and for all.

We believe that digital is a basic right for all, as more and more services move online. From homework to healthcare, finding a job to finding cheaper energy, access to the online world is growingly essential for every task.





digital alliance

Board Member

Some of our current work

- National Delivery Plan: Our overarching strategy for ending digital poverty by 2030, which is currently in its first phase. It sets out six missions supported by a range of actions across government, industry and the charity sector.
- Tech4Families: Funded by microdonations from customers from Currys across the UK, parents in set locations can apply for a laptop for their child.
- Tech4Teachers: A proof of concept delivery programme to demonstrate the importance of digital access for teachers. Our research during the pandemic found half of teachers lacked access outside school.
- Tech4Prison Leavers: A proof of concept delivery programme looking at the impact of digital skills on those leaving prison, with the aim of improving opportunities to break the cycle of reoffending.

Support us

We were launched in 2021, as the pandemic was shining a light on the reality of digital poverty. We are supported by organisations and individuals.

You can support our work by:

- Visiting our website and making a personal or organisational pledge to take action on digital poverty.
- Providing funding or sponsorship for our programmes and activity, from getting laptops to children, to researching long term solutions.
- Donating laptops and tech when your organisation is refreshing IT.
- Joining our hub and network to raise awareness and join up activity for those interested in solving digital poverty.

Our support to pupils

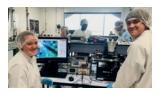
- You can visit **digitalpovertyalliance.org** to find out more about how we support children through our work
- We can provide connectivity support through pre-paid SIM cards for students email hello@digitalpovertyalliance.org to make a request
- We offer schools a management service to leverage small parental donations into sustainable schemes for school wide laptops. Email jackie@digitalpovertyalliance.org for more info.

FDT and Industrial **Cadets**













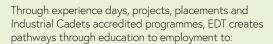
Creating pathways to unlock potential and promote achievement.

EDT's vision is a society where young people across the UK have equal access to engage with STE(A)M (Science, Technology, Engineering and Maths) subjects and achieve their potential in STEM.

EDT is a national charity and the largest UK provider of STEM outreach, delivering 40,000+ experiences to young people annually. Drawing on over 35 years of experience of connecting employers with young people and educators, EDT provides inspiring opportunities for young people to explore the exciting world of STEM, and the variety of rewarding future careers available.

EDT developed Industrial Cadets with support from industry to provide a benchmark accreditation, mapping activities against a skills and competency framework. Industrial Cadets is the "Kitemark" award for young people engaging with the world of work, providing much needed insights and real-life experiences.





- inspire young minds
- unlock potential
- promote achievement
- encourage attainment
- bridge the gap between industry and education



EDT is committed to offering a learner pathway that encourages young people to have multiple, high quality interactions with businesses, through building successful partnerships with employers and educators across the UK.

This year, EDT and Industrial Cadets celebrated the milestone of reaching 100,000 Industrial Cadets, welcoming and launching our collective ambition to reach 250,000 Industrial Cadets on the way to 1 million.



For more information, visit

etrust.org.uk

*Please refer to our partner's website for costs relating to this programme.

Education partners

CREST Awards





The CREST Awards scheme is the British Science Association's flagship STEM education programme, providing enrichment activities to inspire and engage students aged 5 to 19. This nationally recognised scheme provides educators with simple and adaptable crosscurricular activities linked to the national curriculum, and is highly valued by universities.



All CREST learning resources are free to access in the online CREST resources library: library.crestawards.org





CREST is aligned to several IET schemes. By participating in them, your students are eligible to receive a CREST Award.

- The Faraday Challenge meets the Discovery CREST Award criteria. Awards are teacher assessed and cost £3 per student*.
- FIRST® LEGO® League Innovation Project work meets the CREST criteria in a variety of ways.
- **Discovery CREST Award** for students that completed five or more hours of project work. Awards are teacher assessed and cost £3 per student*. crestawards.org/crest-discovery
- Bronze CREST Award for KS3 students that completed 10 or more hours of project work. Awards are teacher assessed and cost £5*. crestawards.org/crest-bronze

Older students may be eligible to submit their project work for Silver or Gold CREST Awards. This requires further work and evidence of meeting at least 11 of the 15 criteria. Submissions will be reviewed by independent CREST Assessors.

crestawards.org/crest-silver crestawards.org/crest-gold

To submit students' work for CREST Awards, sign up online for a CREST account at: crestawards.org/sign-in.

For further information please visit: crestawards.org.

For further assistance please visit the CREST Awards help centre or email: CRESTAwards@britishscienceassociation.org.

*Awards are free for schools in Wales due to funding from the Welsh government. Schools in other areas of the UK can apply for grants to get free CREST Awards.

IFT Education bulletin

Sign up to our free monthly email education bulletin and keep up to date with all of the news, views and events from the IET Education team and our partners.







Covering primary and secondary education, the bulletin highlights the IET's latest resources and offerings as well as those from our Partner organisations, keeping you informed of the latest education news affecting our community as well as encouraging you to take part in upcoming activities.

Sign up to ensure your school are the first to know when IET Faraday® Challenge Day applications open or when the FIRST® LEGO® League team start accepting registrations for the next season. Find out when the latest resources are available to download for engaging your students and view our celebrated engineer each month to see if they can inspire your students to dream big and follow in their footsteps.

Let us help you and together we can inspire the next generation of engineers and technologists.



Sign up here:

theiet.org/education-bulletin

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Education Bulletin

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We have over

154,000

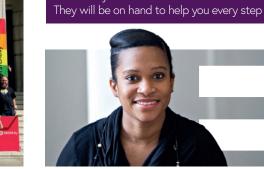
members in 148 countries

How we can help

We provide our members with a Professional Home for Life® – a range of professional services and products that support members throughout their career.

Some of our members volunteer as Education Officers or Education Ambassadors and help support the teaching of STEM with IET Education. They are here to help and support you with access to funding, programmes and information.

Email us at **ieteducation@theiet.org** for the contact details of your local Education Officer or Ambassador. They will be on hand to help you every step of the way.



Activity of the second second

Gatsby Benchmark

Gatsby Benchmark ✓
1 2 3 4 5 6 7 8

A number of our IET Education programmes meet the Gatsby Benchmark, as identified in the government's careers strategy to define world-class career guidance within schools.

The eight Gatsby Benchmarks are

- 1 A stable careers programme
- 2 Learning from career and labour market information
- 3 Addressing the needs of each pupil
- 4 Linking curriculum learning to careers
- 5 Encounters with employers and employees
- 6 Experiences of workplaces
- 7 Encounters with further and higher education
- 8 Personal guidance

Dates Activity

22 September 2023 IET Future Talent Awards (application deadline)

September 2023 – June 2024

IET Faraday® Challenge Days

FIRST® LEGO® League Discover, and FIRST® LEGO® League Explore and Challenge class packs

March 2024 – July 2024

FIRST® LEGO® League Explore Festivals

January 2024 – March 2024

FIRST® LEGO® League Challenge Tournaments

March 2024 – April 2024 FIRST® LEGO® League Challenge National Finals

June 2024 IET Faraday® Challenge
Day National Final

For more information and application deadlines visit:

theiet.org/education



Don't forget to sign up for our monthly IET Education Bulletin to receive updates on all your areas of interest:

theiet.org/education-bulletin



Join us:













Find out more from our IET Education department on +44 (0)1438 767373 or at ieteducation@theiet.org

For more information about the IET, visit **theiet.org**



STEM calendar 2023-2024

The Institution of Engineering and Technology



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