

STEM AMBASSADOR TRAINING.

Institution of
**MECHANICAL
ENGINEERS**

Become an IMechE STEM Ambassador


24th April 2024

Improving the world through engineering

HI, I'M ALEX KNIGHT FOUNDER & CEO, STEMAZING

- Chartered Mechanical Engineer.
- Fellow of IMechE.
- Over 15yrs in Industry.
- Founded STEMAZING in 2019.
- Collaborating with IMechE to empower and support you to have a greater impact as a STEM Ambassador.
- Support from IMechE Regional Education Officers (REOs) and IMechE Partners to bring additional insight and inspiration.
- Wallflower turned active role model.





TRAINING PLAN.

ONLINE STEM AMBASSADOR TRAINING (6-7pm)

- 24th April – Become a STEM Ambassador
- 22nd May – Inclusive STEM Outreach
- 25th Sept – Pitching Engineering to Primary School Children

IN-PERSON STEM AMBASSADOR TRAINING (full day)

- July TBC – Young Members
- 16th Oct – Brunel University London
- 23rd Oct – Strathclyde University, Glasgow

**What is your current
level of STEM
Ambassador
experience?**



**“Improving the world
through engineering”**

THE ENGINEERING PROBLEM



25%

Of all vacancies
in UK are
engineering jobs



16%

Women in
Engineering



55%

School students say
they know what
engineers do

YOU CAN MAKE A BIG DIFFERENCE

Only 12% of young people attended a careers event with an employer in past 12 months, but those who did were:



- **Twice as likely** to know what engineers and scientists do at work
- **Almost 3 times** as likely to be interested in an engineering career

School students who attended one or more STEM careers activity are:



x3.5 times
more likely

to know what people working
in engineering do



x3.4 times
more likely

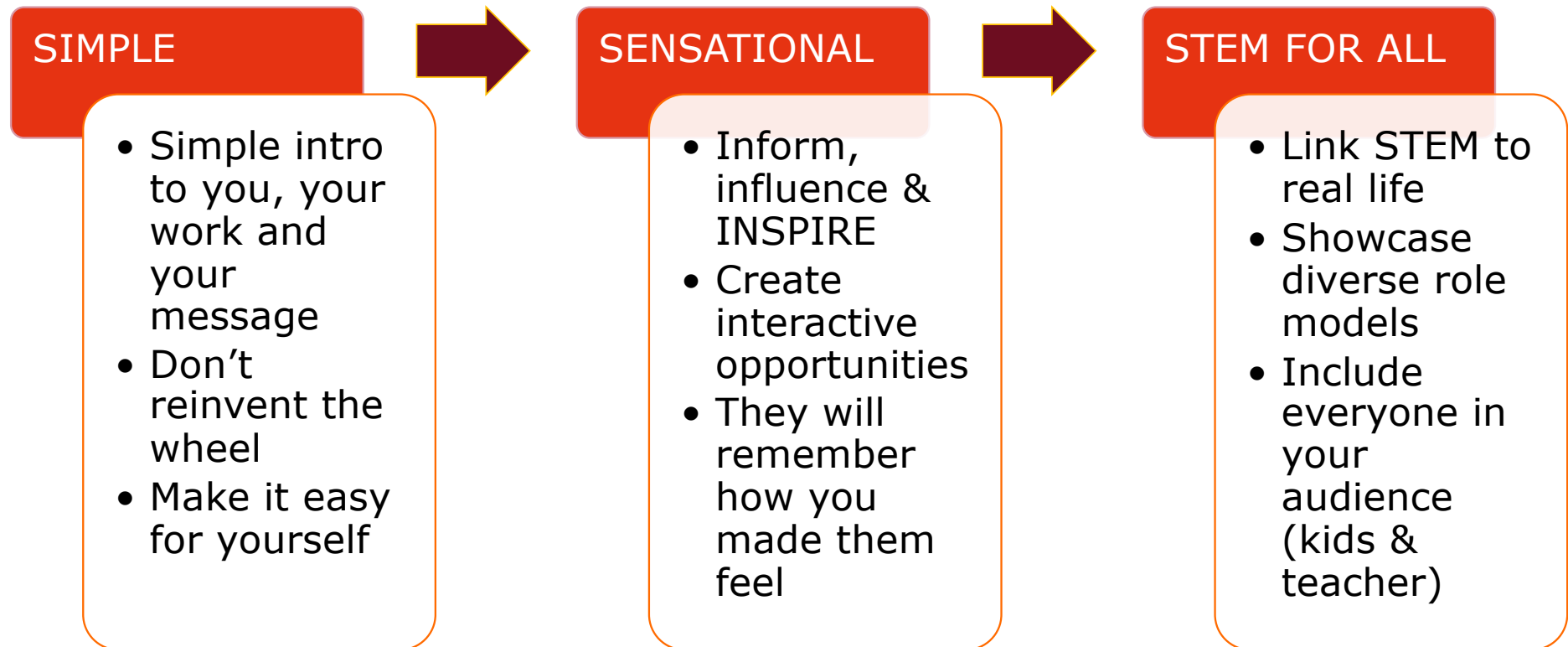
more likely to consider a career
in engineering

WHAT ARE THE BENEFITS FOR YOU?

- Grow confidence
- Grow skills – presentation / communication
- Build local community relationships
- Give back
- Make a difference
- Fall in love with STEM again
- Sense of personal achievement / reward
- Chartership / Fellowship
- Benefit your company – MPDS, staff satisfaction and development, PR, recruitment, CSR



BE INTENTIONAL. SIMPLE, SENSATIONAL, STEM – FOR ALL.



IMECHE EDUCATION PARTNERS

https://www.imeche.org/careers-education/education-partners

Institution of MECHANICAL ENGINEERS

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[Become a Member](#)

[Membership and Registration](#) | [Careers and Education](#) | [Get Involved](#) | [Training](#) | [Events](#) | [Industries and Specialisms](#) | [Library and Archive](#) | [News](#)

Homepage > Careers and Education > Education Partners

EDUCATION PARTNERS

Teaching

Every Lesson Shapes a Life

Engineers Teach Physics

As part of work to boost the pipeline of STEM teachers, the Department for Education is piloting a new physics teacher training course Engineers Teach Physics targeted specifically at recent graduates and career changers with an engineering and material science background. The aim of the pilot is to help address issues in physics teacher supply in England.

[More info >](#)

inspiring governance

Inspiring Governance

Inspiring Governance connects skilled volunteers who are interested in serving as school governors and trustees with schools in England. Our priorities are to increase the number of volunteers looking to become a governor. We also support governing boards to develop a wider breadth of thinking, skills, and decision-making by increasing the number of governors from diverse and younger backgrounds.

[More info >](#)

STEM Ambassadors Programme

in @STEM ambassadors

X @STEMambassadors

Tristan Fayers

Project Officer

<https://www.linkedin.com/in/tristan-fayers-a00581131/t.fayers@stem.org.uk>



STEM Ambassadors



28,000 volunteers



356,000 volunteer hours last year



More than **90% of teachers** said engaging with STEM Ambassadors has improved their students' awareness and ambitions in STEM



“Our STEM Ambassadors can reach thousands of students this way as opposed to us being restricted to offering work experience in person to much smaller numbers. It’s been a revelation!”

**Olivia Whitlam, Head of Sustainability,
Siemens**

Who can be a STEM Ambassador?

- Young people from all backgrounds need to see **role models** from all backgrounds
- You do use **STEM skills** in your job and in your life outside work
- The only requirement is that you are **positive** about STEM skills and the opportunities STEM skills can offer
- People with ONE HOUR to spare!



Why do we need STEM Ambassadors?



Inspire young people to appreciate STEM subjects

Widen understanding of where STEM **skills** can lead

Raise career **aspirations**

Support **teachers**

Make young people **employment ready**

Ensure STEM is **inclusive**

Support the UK **economy**

The effect of a STEM Ambassador

Can you tell me who this man is?

Some would say he has been rocking all over the world!



1. Register online

Visit stem.org.uk/register and select 'STEM Ambassador'.



2. Online induction

Find out what to expect when you volunteer as a STEM Ambassador. A link will be sent from our central team.



3. Apply for a free DBS or PVG

Essential for working with young people, this will require an ID check by someone from an approved profession.



4. Connect with your STEM Ambassador support team

Once approved, your STEM Ambassador support team will be in touch, they are your main point of contact for any questions.



5. Begin volunteering!

We're so excited to have you on board! It's time to make a real difference.

You could start by:

- Signing up for an activity with a teacher or youth leader (check your dashboard for these opportunities!)
- Improving your skills with our free courses
- Offering an activity to teachers and youth leaders near you

What does volunteering look like?



Classroom



STEM Club activities



Careers talks



Speed networking



Online mentoring



Site visits and hosting work experience



Large science festivals and fairs



Non-school group

The STEM Ambassador Platform

The screenshot displays the user interface of the STEM Ambassador Platform. On the left is a navigation sidebar with menu items: DASHBOARD, PROFILE, RESOURCES, GROUPS, MAGAZINE, STEM AMBASSADORS, ACTIVITIES, OFFERS, and TRAINING. The main content area is titled "Hi LSH, You are logged in to your Ambassador account".

User Profile: The profile card for "LSH Ambassador" includes the STEM logo, email "lshambassador@gmail.com", and details for "Organisation: STEM Ambassador Hub London" and "Current role: Hub Team". An "Edit profile" button is located at the bottom.

My impact: This section shows a "Download Impact" button and filters for "Start date" (13/10/2020) and "End date" (13/10/2021). The metrics are: Activities completed (4), Activity hours (207), Participants reached (657), and Organisations engaged (4). An "Update" button is also present.

Activity Status: A "30 days" badge indicates activity since the last activity. The "Your next activity" is scheduled for "07-03-2022". A "31-12-2023" badge indicates that the user's DBS expires on that date.

Profile Status: Three progress indicators show "About me", "Employment", and "Preferences" are all "100% complete".

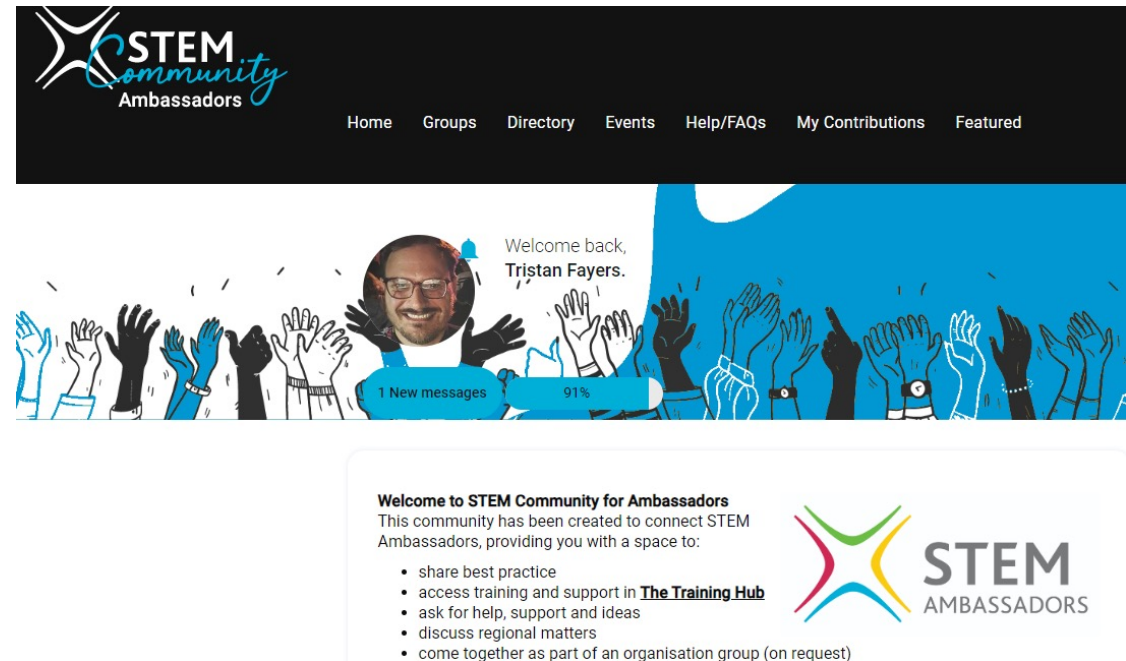
My activities: A list of activity counts: "Requiring feedback" (2), "Messages & interactions" (3), and "Upcoming activities" (0). An "Add an activity" button is at the bottom.

My offers: A list of offer counts: "Active offers" (1), "Messages & interactions" (0), and "Expiring offers" (1). An "Add offer" button is at the bottom.





- share ideas and success
- access training and resources
- ask advice
- come together as part of an organisation group



Welcome to the STEM Ambassador Training Hub.

From this page you can navigate to a huge range of training resources, from live online courses, to self paced online training and resources for your development as a STEM Ambassador and volunteer. Explore the links below by clicking on the images in the tiles.

Live online courses



Find out about live, online, sessions exclusively for STEM Ambassadors. Delivery is over Teams, with opportunities to ask questions. These can help you develop your volunteering skills and give you ideas too.

eLearning courses



Discover online e-learning courses for STEM Ambassadors that you can complete in your own time. These can help you plan, deliver and evaluate your STEM Ambassador activities, as well as help you improve your volunteering skills.

News and Support Group



Stay up to date and connect with Ambassadors. You can ask questions, share ideas and resources and celebrate good practice in this online forum.

Skills Builder Group



Check out our new resources for STEM Ambassadors developed in conjunction with Skills Builder to help you to develop your own skills and those of young people!

Next steps

Register at www.stem.org.uk

Hear the impact of STEM Ambassadors : www.stemlearning.wistia.com/medias/1hssuf3x5m

Contact us: saregistration@stem.org.uk

Find out more on our website: www.stem.org.uk/stem-ambassadors

Read our FAQs: www.stem.org.uk/faqs-stem-ambassadors-partners



in @STEM ambassadors

X @STEMambassadors

IMechE STEM Ambassadors & Primary Engineer

Primary Engineer®
...the first step



#EngineersInTheMaking



Primary Engineer

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Primary Engineer Programmes

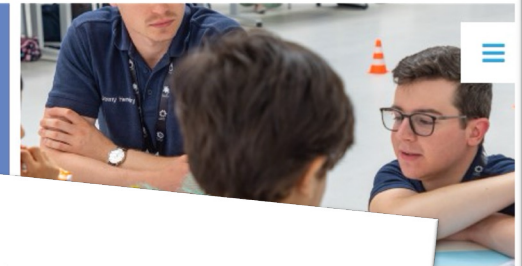
A closer look at the range of opportunities to bring engineering into the classroom

[FIND OUT MORE](#)



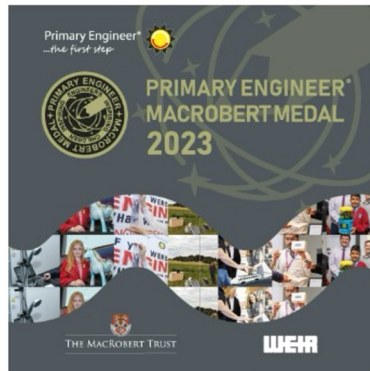
Engineering Professionals

Vital to bringing engineering into the curriculum is how we engage with engineering professionals



Roxanne McIlvenny
Engineer Relationship Manager
Primary Engineer

Roxanne McIlvenny heads-up a new role at Primary Engineer as Engineer Relationship Manager. Bringing 20+ years of customer service experience and management to the role, Roxanne supports the outreach and engagement of volunteer engineers and technology professionals across the many opportunities within Primary Engineer programmes and competitions.



Primary Engineer MacRobert Medal 2023

Pupils and engineers recognised for their innovation at Primary Engineer MacRobert Medal Award Ceremony in London

[READ MORE](#)

If You Were Engineer What Would You Do? 2023/24

You can now enter the If You Were An Engineer What Would You Do? Competition for 2023/2024!

[FIND OUT MORE](#)



Latest News

Hot off the press, all that we and our partners have been up to

[FIND OUT MORE](#)





Institution of **MECHANICAL ENGINEERS**

Inspiring, preparing and supporting tomorrow's engineers is vital if we are to respond to society's challenges.

Raising the profile of engineering and engineering careers will encourage young people to consider entering the profession at graduate and technician level. All young people need a good grounding in engineering to face an increasingly technological future with confidence.

EDUCATION AND SKILLS STRATEGY BOARD Key objectives and purpose

Goal 1. is to inspire, engage, support and influence pupils, students, teachers, careers professionals, academics, parents, education outreach stakeholders, and our profession with the aim of growing and diversifying the engineering talent pipeline.



Primary Engineer >

Primary Engineer® encourages more young people to consider careers in STEM-related professions, working with primary schools to make engineering fun and exciting.

Primary Engineer Programmes

- ▶ Primary Engineer Rail Programme
- ▶ Primary Engineer Vehicle Programme
- ▶ Primary Engineer Construction Programme
- ▶ Early Years Engineer
- ▶ Secondary Engineer Fluid Power Challenge

Up to 2 teachers per school attend a training day with a linked engineer, box of tools and consumables for 2 classes provided, digital teaching resources, celebration event. Funder reports and management of activities and engineer engagement.

Qualifications and Research

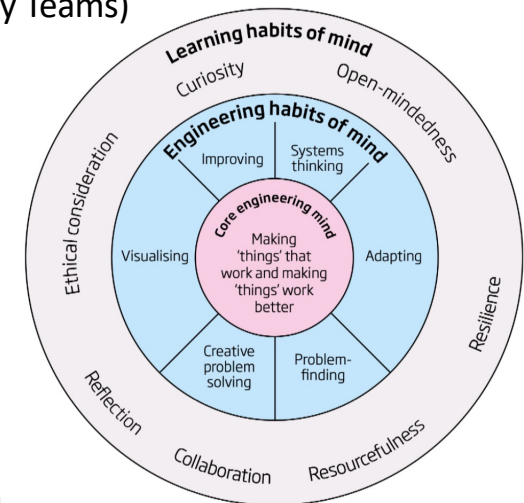
- ▶ Engineering your Curriculum PGCert
- ▶ Engineering STEM in your Classroom
- ▶ Primary Engineer Rail Programme Impact Report
- ▶ 10 Years of the Leaders Award
- ▶ Primary Engineer: Engineering Capital

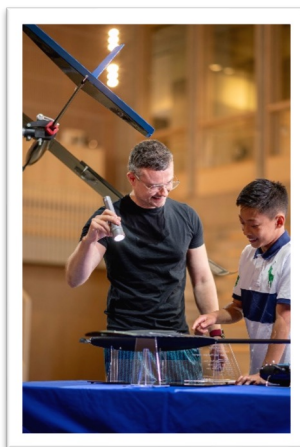
Primary Engineer®
...the first step



Primary Engineer Competitions

- ▶ If you were an engineer, what would you do? Leaders Award Competition (3-19)
- ▶ STATWARS Climate Change Challenge (7-14)
- ▶ Primary Engineer MacRobert Medal (University / Industry Teams)





Primary Engineer®
...the first step



LEADERS AWARD

IF YOU WERE an ENGINEER

WHAT WOULD YOU DO?

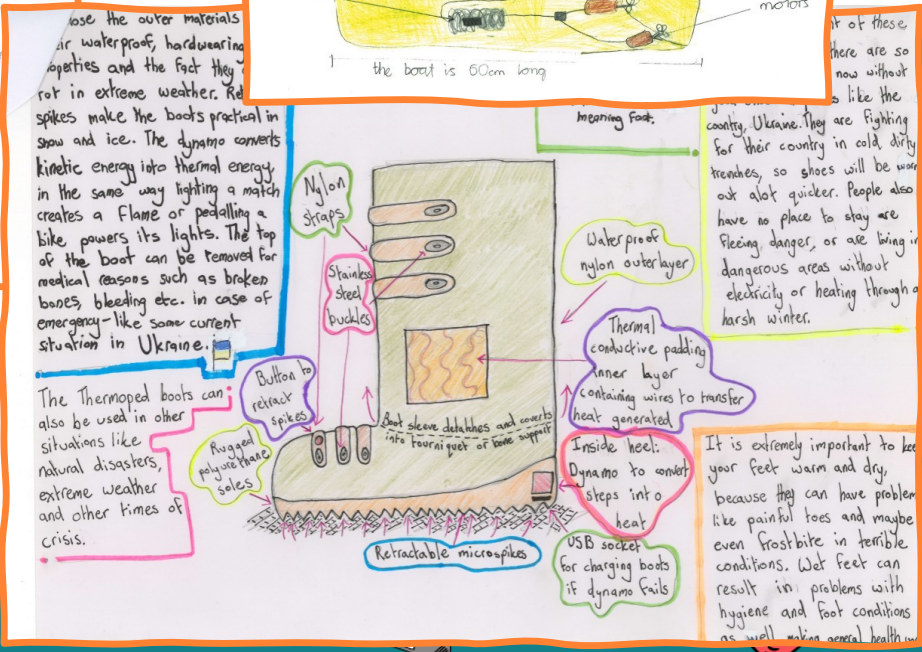
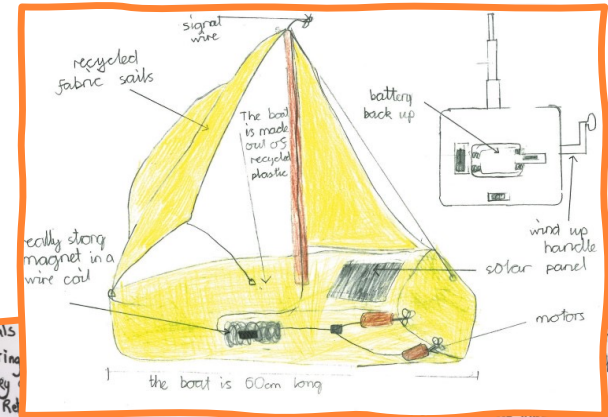
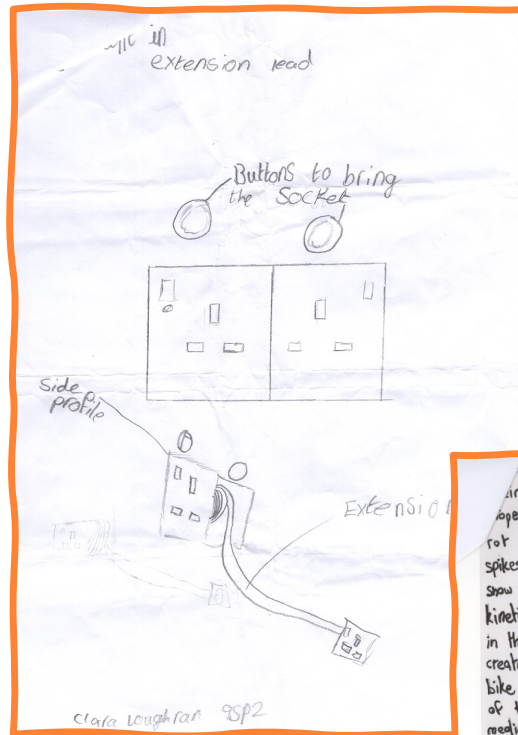
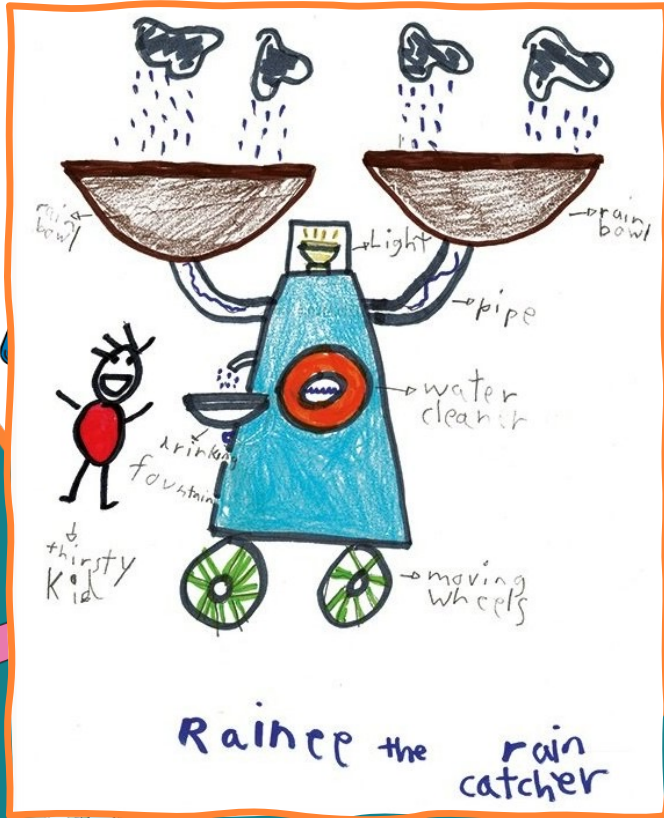
Primary Engineer® 

...the first step



**IF YOU WERE AN
ENGINEER**
WHAT WOULD YOU DO?

Primary Engineer® 
...the first step



use the outer materials for waterproof, hardwearing properties and the fact they rot in extreme weather. Ret spikes make the boots practical in snow and ice. The dynamo converts kinetic energy into thermal energy in the same way lighting a match creates a flame or pedalling a bike powers its lights. The top of the boot can be removed for medical reasons such as broken bones, bleeding etc. in case of emergency - like some current situation in Ukraine.

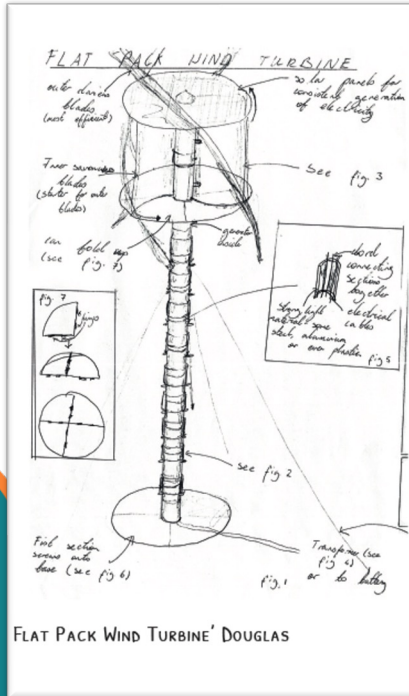
The Thermopod boots can also be used in other situations like natural disasters, extreme weather and other times of crisis.

it of these there are so now without s like the country, Ukraine. They are fighting for their country in cold, dirty trenches, so shoes will be worn out alot quicker. People also have no place to stay are fleeing danger, or are living in dangerous areas without electricity or heating through a harsh winter.

It is extremely important to keep your feet warm and dry, because they can have problems like painful toes and maybe even frostbite in terrible conditions. Wet feet can result in problems with hygiene and foot conditions as well as making general health...



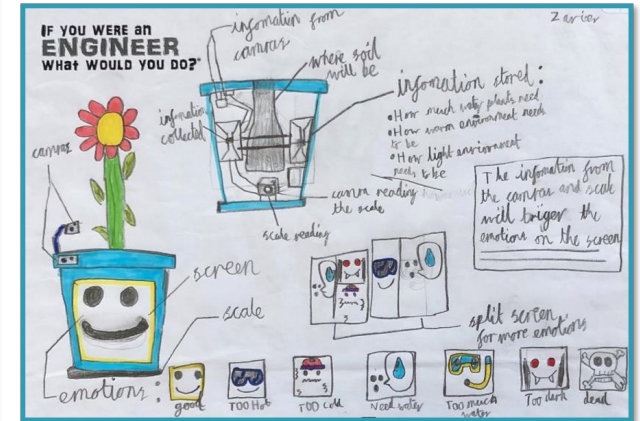
**IF YOU WERE AN
ENGINEER**
WHAT WOULD YOU DO?



FLAT PACK WIND TURBINE' DOUGLAS



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IF YOU WERE AN
ENGINEER
WHAT WOULD YOU DO?

LEADERS AWARD 

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Lead the way – how you can be involved!

- **Be interviewed by a school:** Deliver a short presentation on your engineering journey and answer questions from pupils.
- **Take part in our grading days:** Every pupil entry is graded by a real-life engineering professional, join us with fellow industry professionals across the UK.
- **Engage at our exhibitions:** Attend one of our public exhibitions and awards and meet pupils, parents and teachers, a great opportunity to inspire and increase awareness of engineering roles and opportunities.



Primary Engineer Programmes

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Primary Engineer Programmes

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Inspire the future of engineering – get involved!



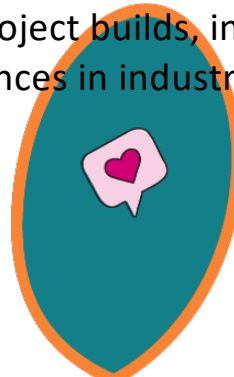
Teacher Training Days: Support teachers as they learn how to build and deliver the programme to their classes, help to open the world of engineering through your experiences.



Engage and Inspire: Visit a school to deliver a short presentation on your engineering journey and be the 'expert in the room' as pupils build their projects.



Judging and Celebration: Attend a Celebration Event and judge pupil project builds, interview them and engage through your experiences in industry.



Academic Year 2022-23

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1,256
Schools

1,185
Engineers



737,696 hours
pupils engaged
with engineering



79,058
Pupils

3,649
Teachers



CONNECT
with us

Primary Engineer®
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Volunteer: primaryengineer.com/engineers-join-us

Leaders Award: leadersaward.com



Primary Engineer: primaryengineer.com

Email: engineers@primaryengineer.com

Impact Reports: primaryengineer.com/impact

Roxanne McIlvenny - Engineer Relationship Manager





#inspirethefuture #bethechange



OUR STEMAZING MISSION

To empower women in STEM to shine as visible role models and inspire our next generation of innovators and problem-solvers.

Two key themes:

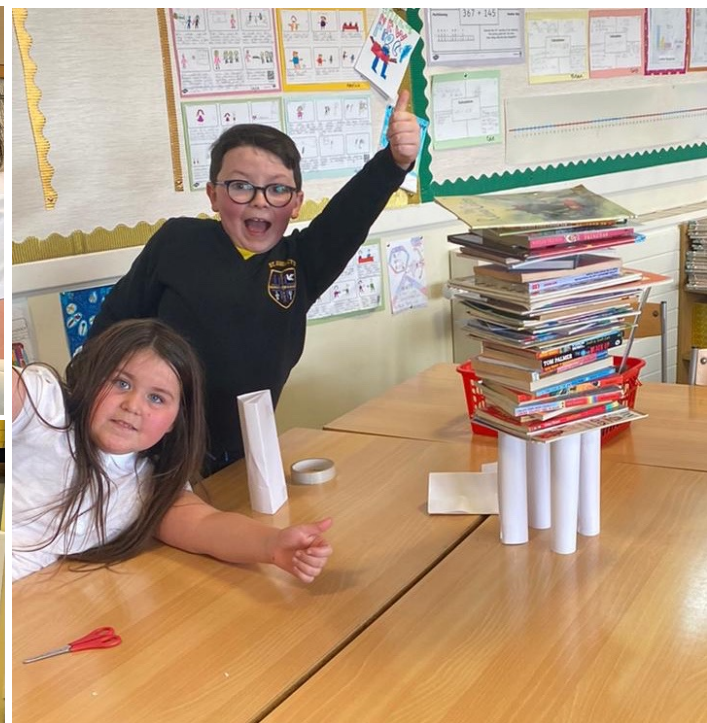


“You can’t
be what you
can’t see”

STEMAZINGWOMEN ROLE MODELS

Over 400
women-in-STEM
empowered to be
more visible role
models so far!





They have collectively led over 100,000 STEMAZINGKids experiments to date!!



TAKE ADVANTAGE OF THE 12 PLACES SPONSORED BY IMECHE!



Inspiration Academy

- Apply in Jan or July - 3 Month Programme (Mar-June / Sept-Nov)
- You should expect to spend 1.5 hours per week
- Mix of training resources and support (online on-demand training)
- Online Accountability Group
- 1 live webinar a month for whole cohort
- We match you to a UK Primary School in a deprived area or you can select your own
- You will deliver 4 STEMAZINGKids sessions with 1 class of 30 children (age 7-9)

Month 1:

Level-up as a role model

Month 2:

Build STEMAZINGKids Toolkit

Month 3:

Inspire the next gen



GET INVOLVED THROUGH YOUR IMECHE REO

<https://www.imeche.org/careers-education/regional-education-officers>



Scouts



Events



Schools



Design Challenges

STEM AT HOME.

- Free educational resources for practical STEM activities
- Worksheets, kits lists & instructional videos
- Curriculum links & learning outcomes across Key Stages 1-4
- Activities completed: in teams/individually; at home/school & accessible worldwide
- Extension activities provided for older/more able students
- Cross- disciplinary appeal of engineering highlighted
- www.imeche.org/stemathome

Improving the world through engineering




Downloadable worksheets for each activity and 'how-to' videos can be found below.



ACTIVITIES AND WORKSHEETS

<p>IMECHE STEM ACTIVITY: AEROSPACE ROCKET</p> <p>Aerospace Rocket ></p> <p>Download the Aerospace Rocket worksheet ></p>	<p>IMECHE STEM ACTIVITY: BALL RUN</p> <p>Ball Run ></p> <p>Download the Ball Run worksheet ></p>	<p>IMECHE STEM ACTIVITY: BREATHING SIMULATOR</p> <p>Breathing Simulator ></p> <p>Download the Breathing Simulator worksheet ></p>	<p>IMECHE STEM ACTIVITY: BRIDGE BONANZA</p> <p>Bridge Bonanza ></p> <p>Download the Bridge Bonanza worksheet ></p>
<p>IMECHE STEM ACTIVITY: CD RACER</p> <p>CD Racer ></p>	<p>IMECHE STEM ACTIVITY: CATAPULT ANIMATION</p> <p>Catapult ></p>	<p>IMECHE STEM ACTIVITY: CORK LAUNCHER</p> <p>Cork Launcher ></p>	<p>IMECHE STEM ACTIVITY: FLYING DRAGON</p> <p>Flying Dragon ></p>


IMECHE STEM TOOLKIT



**IMECHE STEM
ACTIVITY:
BRIDGE BONANZA**

Bridge Bonanza >

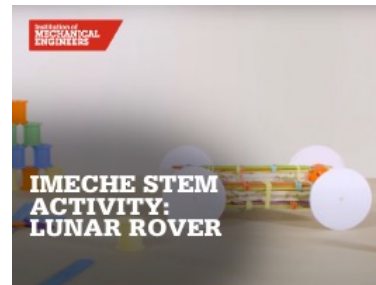
Download the Bridge Bonanza worksheet >



**IMECHE STEM
ACTIVITY:
CATAPULT ANIMATION**

Catapult >


Download the Catapult worksheet >



**IMECHE STEM
ACTIVITY:
LUNAR ROVER**

Lunar Rover >


Download the Lunar Rover worksheet >



**IMECHE STEM
ACTIVITY:
TOWER**

Tower >

Download the Tower worksheet >



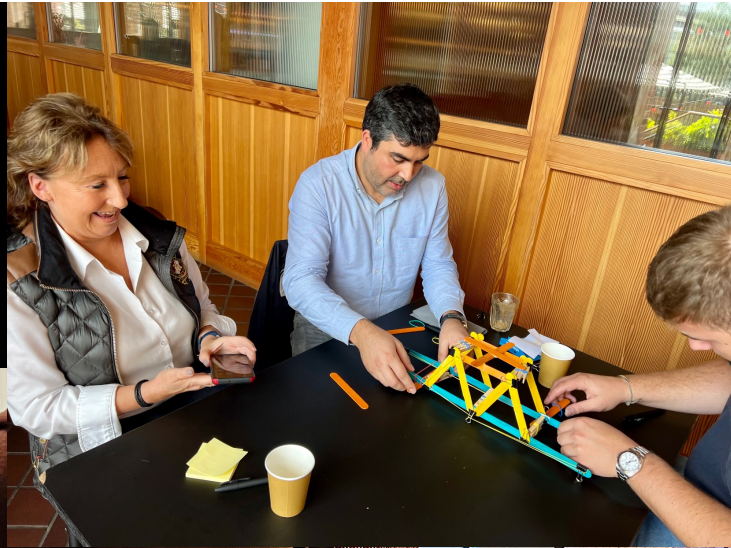
**IMECHE STEM
ACTIVITY:
BALL RUN**

Ball Run >

Download the Ball Run worksheet >

- In one STEM Toolkit Box you get enough resources to run all these activities with a class of 30 children.
- Video tutorials on the IMechE website.
- Lesson guide with warm up activities and key STEM messages for KS1/2 and KS3/4.

- Ideally choose one you can link to your work / story
- Link it to real life
- Show examples of diverse role models



STEM OUTREACH ACTIVITY BRIDGE BONANZA

Build the longest span bridge you can that will support the weight of 10 wooden wheels for 10 seconds.

Materials you can use are:

- 30 lolly sticks
- 20 elastic bands
- 16 bulldog clips
- 10 clothes pegs
- White tack



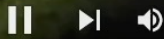
BRIDGE BONANZA



These Wildlife Bridges Save Thousands of Animal Lives



0:02 / 2:54





TACOMA BRIDGE COLLAPSE

PATHE GAZETTE

Play (k)



0:00 / 1:12



BRIDGE BUILDERS

Who are they?



New Tacoma bridge team –
10% women engineers



Emily Roebling: The woman who saved
the Brooklyn Bridge



HANDS-ON STEM ACTIVITIES ENGAGE, INSPIRE, IMPACT

Engage

- Show engineering is exciting, interesting, fun, accessible.
- Find out what interests your audience and link it to engineering.

Inspire

- Inspire the audience with your story and your delivery.
- Show engineering is for everyone.

Impact

- Show what a difference engineering makes in the world.
- Connect learning to life.



BECOME A STEM AMBASSADOR.

www.imeche.org/careers-education/stem-ambassador

The screenshot shows the top navigation of the IMEche website. The logo for the Institution of Mechanical Engineers is on the left. The main navigation menu includes: Membership and Registration, Careers and Education (highlighted), Get Involved, Training, Events, Industries and Specialisms, Library and Archive, and News. A secondary menu contains: Log in: My account, Policy & Press, About, Work for Us, and Contact. A search bar and a 'Become a Member' button are also present. The main banner features the text: **STEM AMBASSADOR** PROMOTING THE VALUE OF ENGINEERING AND PROBLEM SOLVING TO THE NEXT GENERATION. The background of the banner is a futuristic, digital-themed image with a glowing blue and orange circular pattern.

Homepage > Careers and Education > STEM Ambassador



Get registered as a STEM Ambassador >



STEM Ambassador training >



STEM activities library >



THANK YOU.

Institution of
**MECHANICAL
ENGINEERS**

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imeche.org

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