

STEM AMBASSADOR TRAINING.

Institution of
**MECHANICAL
ENGINEERS**

Teacher's Top Tips: Engaging a Primary-Age Audience

29th March 2023

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 with a mission to ignite inspiration and amplify inclusion in STEM.
- Collaborating with IMechE to empower and support you to have a greater impact as a STEM Ambassador.
- Support from IMechE Regional Education Officers (REOs) to bring local insight and inspiration.



TRAINING PLAN.



- 28th Feb – Make 2023 Your Year of Inspiration! ONLINE 6-7pm
- **29th March – Teacher’s Top Tips (Primary) ONLINE 6-7pm**
- 25th April – STEM Ambassador Training Workshop. IN PERSON IMECHE HQ 1030-4pm
- 24th May – Teacher’s Top Tips (Secondary). ONLINE 6-7pm
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- 18th July - Inclusion at the core of STEM Outreach. ONLINE 6-7pm.
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STEM OUTREACH FOR YOUNG CHILDREN

Age groups

- KS1 (Y1-2, Age 5-7)
- Lower KS2 (Y3-4, Age 7-9)
- Upper KS2 (Y5-6, Age 9-11)

What do you have experience with?



TOP TIPS FROM A TEACHER

Making your STEM delivery effective and fun

- Connection before Education
- Your delivery style
- Work WITH the teacher
- 'Catch them being good'
- Help them use a Growth Mindset
- Terminology

Questions?



QUESTIONS FROM STEM AMBASSADORS

- How do I find the opportunities for Primary outreach?
- How do I keep them engaged?
- How do I ensure it's at the right level for the children?
- I'm worried I'll get asked questions I can't answer!
- How do I link it to careers for this young age?
- What about safeguarding for this age?
- How do I handle challenging behaviour from children in the class?



INSPIRE YOUR AUDIENCE

Set the scene

- What is engineering?
- What do engineers do?
- What skills do engineers need?

Encourage interaction

- Ask questions
- Hands-on – individual / pairs / groups
- Be inclusive

Leave an impact

- Be enthusiastic
- Finish with a key message
- Impact evaluation form

THE BIG BANG 10 GREAT REASONS TO BECOME A SCIENTIST OR ENGINEER

- 1. DEVELOP ALL THIS...**
 - Artificial limbs and vaccinations against diseases
 - Wind farms and electric vehicles to help save the planet
 - Make-up that automatically matches skin tone
 - Spacecraft for future tourists
 - Smart fabrics with in-built digital technology
 - Supercomputers that predict the effects of climate change
- 2. WORK IN YOUR FAVOURITE INDUSTRY**

From food, medicine and renewable energy to sport, gaming and music

Scientists & engineers are needed everywhere!
- 3. MAKE A DIFFERENCE**

Help tackle some of the world's biggest challenges, like developing renewable power, responding to natural disasters and improving cyber security.
- 4. EARN GREAT MONEY**

On average, engineering apprentices earn almost double the national minimum apprentice wage.

The average starting salary for people with engineering and technology degrees is higher than for other graduates.
- 5. BE IN DEMAND**

People with science, technology and engineering skills are needed now and in the future, to innovate and respond to our changing world.
- 6. HAVE YOUR PICK OF FUTURE CAREERS**

Capture tidal energy, design a robot, discover a cure for cancer... or do a job that doesn't even exist yet!

Continuing with maths and science – especially physics – keeps your options open for as long as possible for jobs in science, engineering, technology, law, business, space, architecture and much more.
- 7. CHOOSE YOUR OWN ROUTE**

Go to college, do an apprenticeship, take a T level, get a university degree or combine different routes.
- 8. TRAVEL THE GLOBE**

Work in dynamic teams with people from different backgrounds, on exciting projects all over the world.
- 9. GAIN RESPECT**

Be remembered for your work and go down in history for designing incredible structures, making awe-inspiring advancements in technology, discovering planets or identifying crucial genetic codes.
- 10. DESIGN, CREATE & INNOVATE**

Subjects like design and technology, art and computing can help pave the way to careers that revolutionise the way we live.

Find out more about careers in science, technology, engineering and maths:

- Engineering: neofutures.org.uk/green
- Biology: neb.org.uk/make-a-difference
- Chemistry: edu.rsc.org/future-in-chemistry
- Physics: iop.org/careers-physics
- Maths: mathscareers.org.uk

neon Brilliant Inspiration

OTHER USEFUL RESOURCES

Meet the future you

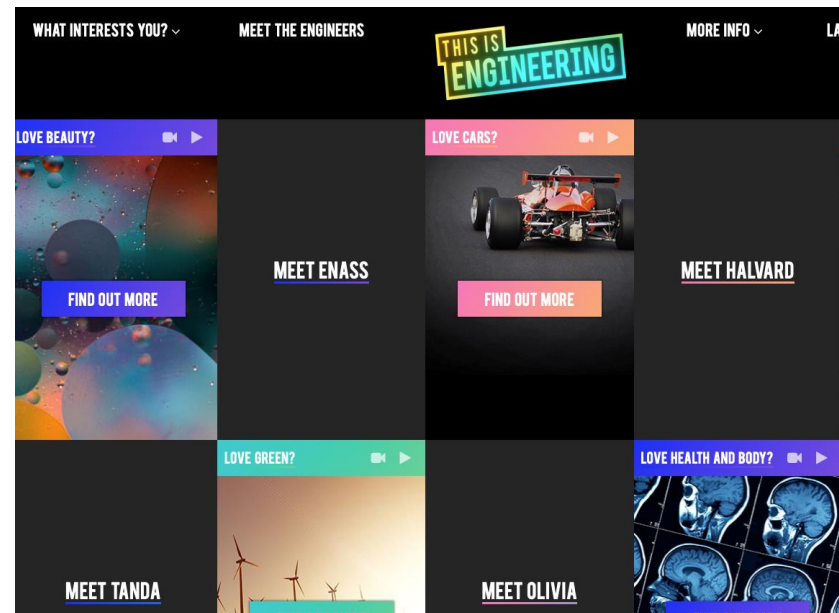
Ever wondered what an engineer does? Could you see yourself exploring outer space, protecting the environment, designing apps or developing cures for diseases?

Engineers do all this, and more! Answer a few short questions and find out how YOUR skills and passions could lead to an exciting job in the future. Whether you're just starting out, or ready to think about your next step, this is the quiz for you.

Take the quiz and get ready to be inspired...



www.mtfy.org.uk



www.thisisengineering.org.uk

Careers resources

Downloadable leaflets, posters, postcards, booklets and activities to inspire your students to explore engineering.

Our careers resources are available to order in print, free of charge. [Place your order.](#)

Filter by resource type

Any resource type



POSTER
Green engineering careers posters

A set of 4 inspiring green engineering careers posters for students to think about how they can change the way



PRESENTATION
Engineer your future

A PowerPoint presentation for teachers, advisers and ambassadors to use with 14 to 19 year olds, to inform and inspire young people about a



LEAFLET
Inspiring future engineers: notes for teachers

Teachers can use this 4-page leaflet to familiarise themselves with key points

www.neonfutures.org.uk



Getting the message across

Top tips for delivering inspiring engineering activities



www.tomorrowseengineers.org.uk

STEM OUTREACH ACTIVITY

BRIDGE BONANZA

- Children work in small teams
- Objective: Build the strongest bridge they can from simple materials that spans 45cm and can hold each weight for at least 10 seconds.
- Encourage them to think about different shapes they see in bridges before they start and draw these as possible designs.
- Each team has:
 - 30 lolly sticks
 - 20 elastic bands
 - 16 bulldog clips
 - 10 clothes pegs
 - White tack



Bridge Bonanza >

Download the Bridge
Bonanza worksheet >

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THANK YOU.

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