


# IMECHE MEMBER TRAINING STEM AMBASSADOR WORKSHOP.

Institution of  
**MECHANICAL  
ENGINEERS**

25<sup>th</sup> Sept 2024

Alexandra Knight CEng FIMechE  
CEO, STEMAZING

**Improving the world through engineering**



## TRAINING PLAN.

### ONLINE STEM AMBASSADOR TRAINING (6-7pm)

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

### IN-PERSON STEM AMBASSADOR TRAINING

- 12<sup>th</sup> Sept – Young Members' Board
- 16<sup>th</sup> Oct – Brunel University London
- 23<sup>rd</sup> Oct – Strathclyde University, Glasgow

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

- Chartered Mechanical Engineer.
- Fellow of IMechE.
- Over 15yrs in Industry.
- Founded STEMAZING in 2019.
- Train diverse STEM role models to inspire Primary children.
- Collaborating with IMechE to empower and support you to have a greater impact with Education Outreach.
- Recovering wallflower.



# THE ENGINEERING PROBLEM



25%

Of all vacancies  
in UK are  
engineering jobs



16%

Women in  
Engineering &  
Technology



55%

School students say  
they know what  
engineers do

**HOW DO YOU  
EXPLAIN  
ENGINEERING &  
YOUR JOB  
TO AN 8-YEAR-  
OLD TO ENGAGE  
& INSPIRE  
THEM?**

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# TOP TIPS FROM PRIMARY TEACHERS



Michelle O'Donnell



Sharon Fulat



# Quick Intro



**Michelle O'Donnell**

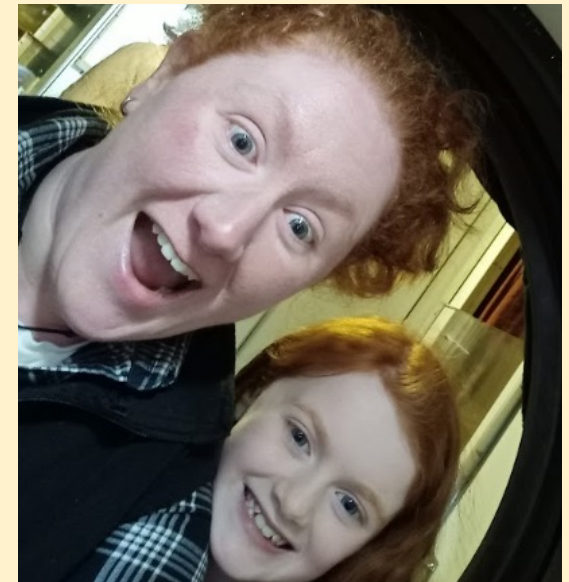
Scotland STEM Lead

Primary School Teacher

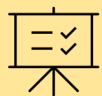
DYW Support Officer

Beaver Scout Leader

[michelle.odonnell@stemazing.co.uk](mailto:michelle.odonnell@stemazing.co.uk)



Prepare



Intros



Vocabulary



Attention!





# Before an Engagement



- Consider providing a picture or make a short introductory video
- Practise a presentation voice so you can be heard from the back of the class
- Find out about any support needs they might have in the class
- Consider how accessible activities are, can they be adapted?

Prepare



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Vocabulary



Attention!







# Presentation



- Keep text to a minimum. If possible, use it only to visually reinforce key concepts
- Yellow background, bold text, sans serif or dyslexia friendly fonts
- Including a simple timeline to show what's happening and what is coming up next is a great visual cue for learners



Prepare



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Vocabulary



Attention!





# Introductions



- Connection before learning! Share a detail that humanises you and helps make a personal connection
- Use child friendly language - start from the basics and try to link to what they might know
- This is also a great opportunity to share a disability or neurodivergent characteristic to show what people with support needs can achieve
- Show a diverse workforce so that learners know that STEM is for everyone



Prepare



Intros



Vocabulary



Attention!





# Introducing new Vocabulary



This Photo by Unknown Author is licensed under [CC BY-NC-ND](#)

- Check have they heard of it before? Ask if they could try to explain it themselves?
- Prepare a description that explains the word in simple terms.
- Give as much context as possible and use words/phrases with the similar meaning.
- Do not underestimate what kids are capable of!

Prepare



Intros



Vocabulary



Attention!





# Getting their Attention



- Ask the teacher what attention grabbers they use.
- If possible, wait until the room is as near as silent before speaking. Hold your nerve!
- Catch them being good!



Prepare



Intros



Vocabulary



Attention!





# Final Thoughts



- It will get easier with each engagement
- Have fun!



Prepare



Intros

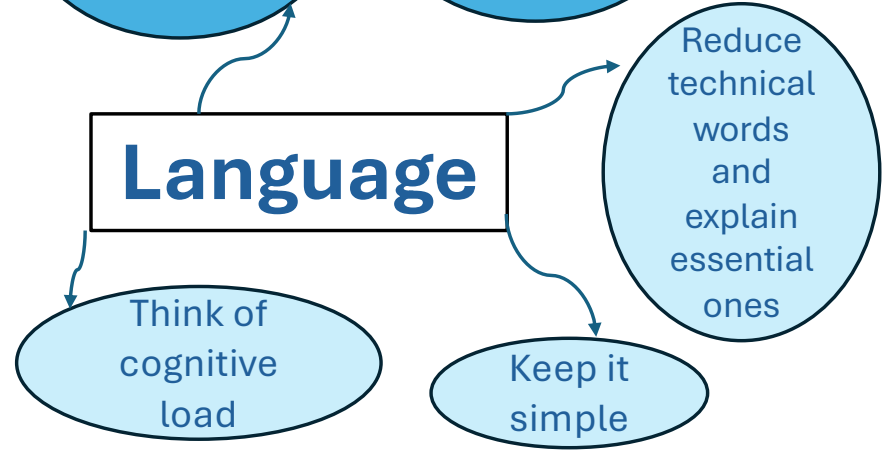
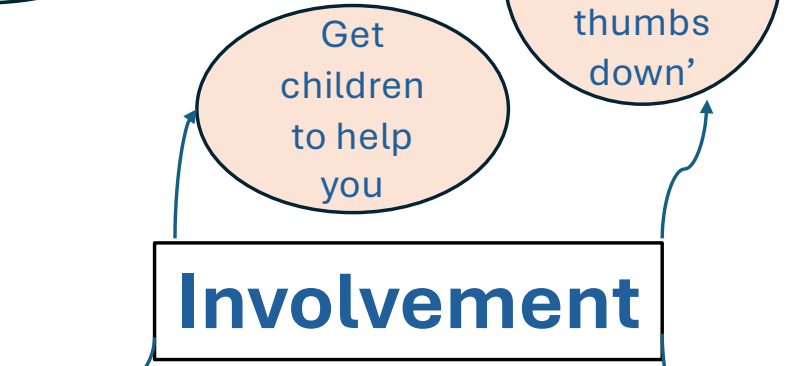
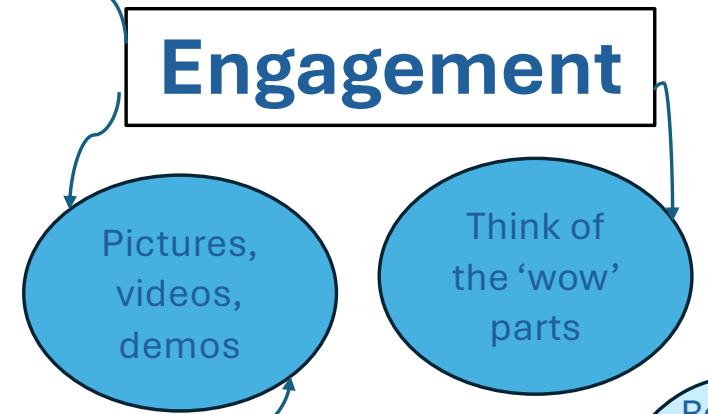
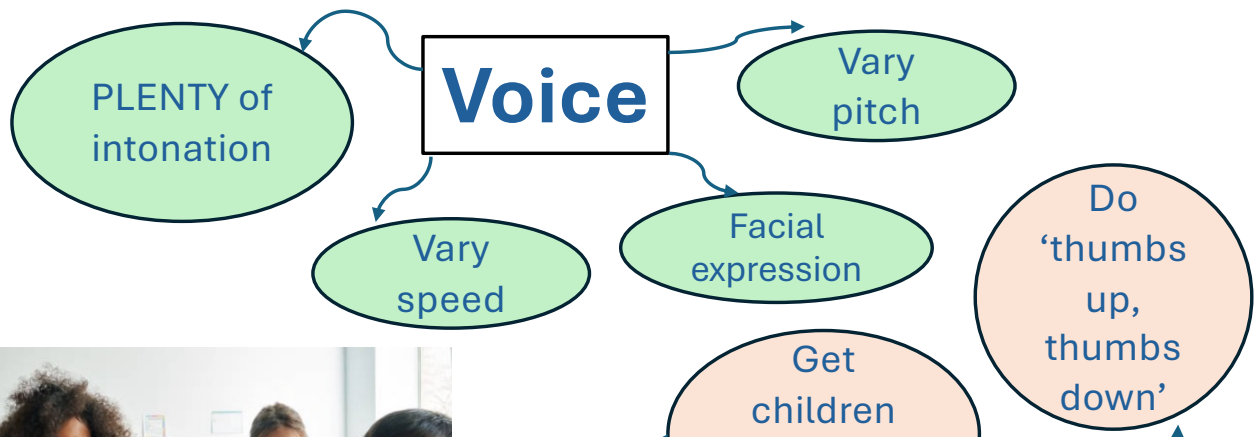
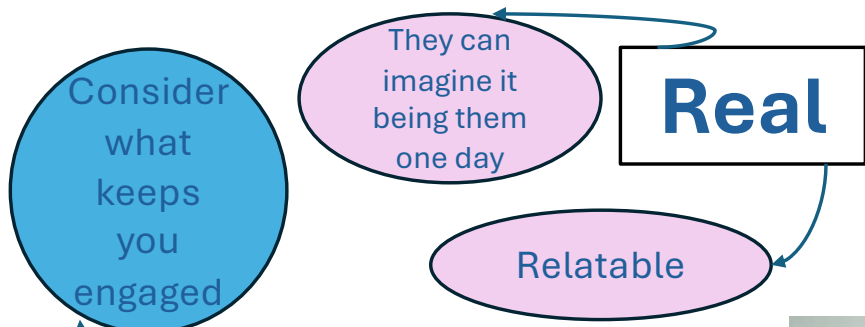


Vocabulary



Attention!

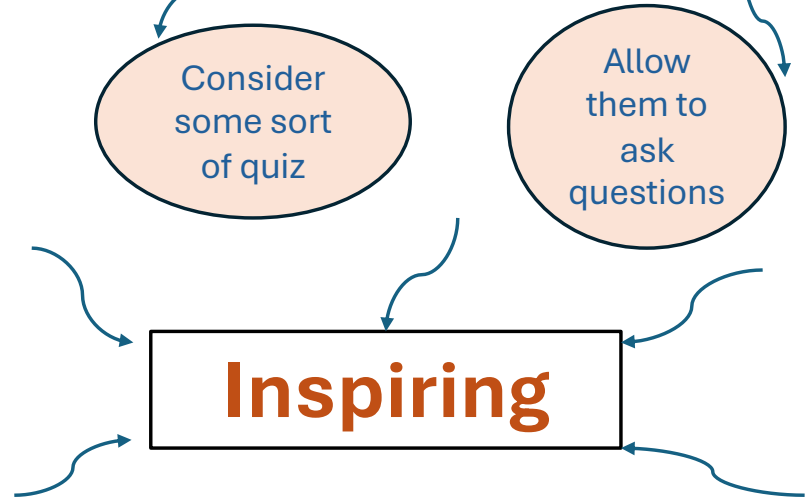




We are primary school students, keen to learn and find out about the world around us.

We love having someone to teach us who is different to our normal teacher!

How can you make sure you give us your best?



# 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](http://www.imeche.org/stemathome)

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


# IMECHE STEM TOOLKIT



**IMECHE STEM  
ACTIVITY:  
BRIDGE BONANZA**

**Bridge Bonanza >**

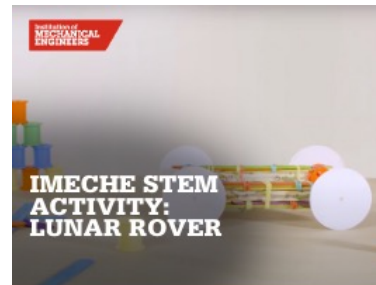
Download the Bridge Bonanza worksheet >



**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



# KEY TAKE-AWAYS FOR YOUNG PEOPLE

- Engineering is about making a positive difference to people's lives and the planet.
- Engineering is for everyone.
- Engineers are in demand and earn well in a rewarding career.
- Engineers and technicians work everywhere!
- You don't need top grades in maths and physics to become an engineer.
- You can work towards professional registration as an engineer.



**Mechanical engineers will find solutions to some of the world's biggest challenges.**

- How can we feed a growing population?
- Where will we get all the energy we need?
- How do we live more sustainably?
- When will we put people on Mars?
- What will keep our infrastructure secure?

***Mechanical engineers are the inventors who turn ideas into reality.***

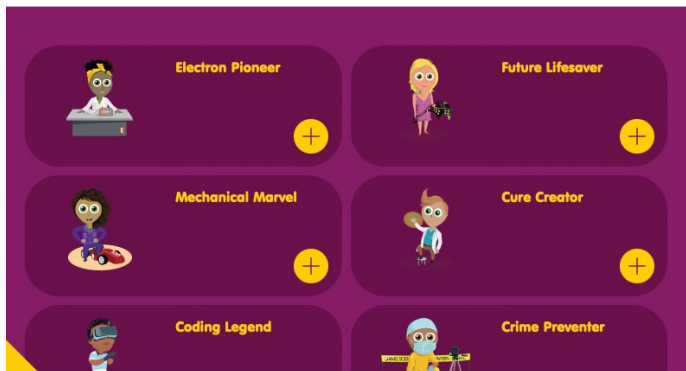
# OTHER USEFUL RESOURCES

## Meet the future you

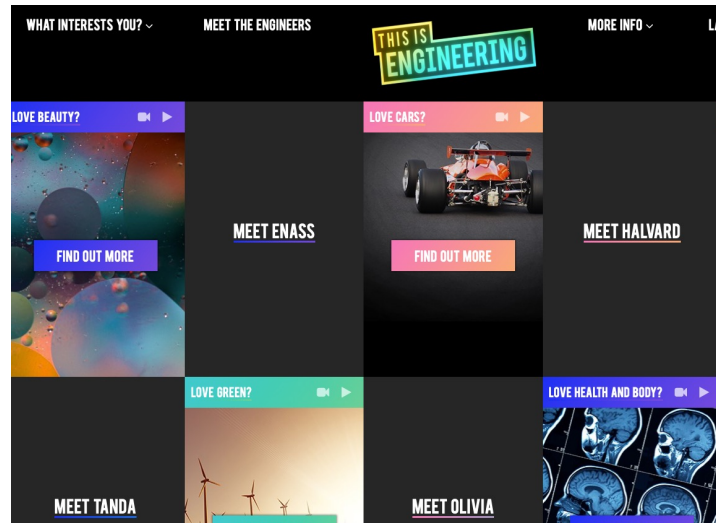
Ever wondered what an engineer does? Could you see yourself exploring outer space, protecting the environment, designing apps or developing cures for diseases?

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](http://www.mtfy.org.uk)

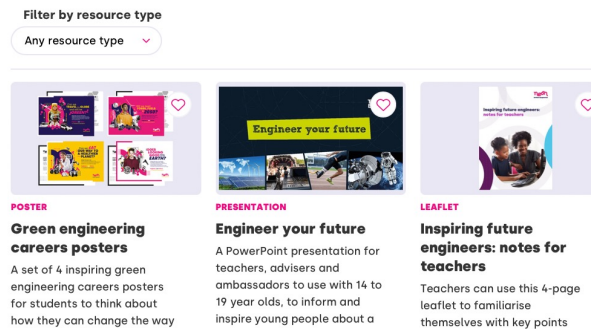


[www.thisisengineering.org.uk](http://www.thisisengineering.org.uk)

## 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.](#)



[www.neonfutures.org.uk](http://www.neonfutures.org.uk)



## Getting the message across

Top tips for delivering inspiring engineering activities



[www.tomorrowseengineers.org.uk](http://www.tomorrowseengineers.org.uk)



## **WHAT WILL YOU DO?**

Be an engineering role model -  
Empower yourself & inspire others

- We still have a long way to go to change outdated perceptions of engineering.
- You can make a real difference as a STEM Ambassador.
- Stretch your comfort zone – grow your public engagement skills through practice.
- Inform, Influence, Inspire, Impact.

## **WHAT ARE YOUR KEY TAKE-AWAYS?**

# THANK YOU.

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