

STEM AMBASSADOR TRAINING.

Institution of
**MECHANICAL
ENGINEERS**

Inclusion at the core of STEM Outreach

18th July 2023

Improving the world through engineering

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
- 20th June – Providing advice on the routes into Engineering. ONLINE 6-7pm
- **18th July - Inclusion at the core of STEM Outreach. ONLINE 6-7pm.**
- 26th Sept - STEM Ambassador Training Workshop. IN PERSON Manchester 1030-4pm
- 17th Oct – STEM Outreach beyond the classroom. ONLINE 6-7pm.
- 21st Nov – Inspire young people with engaging STEM. ONLINE 6-7pm

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.
- Guest speakers joining us to share expertise and experience.



WELCOME TO OUR GUEST SPEAKERS



FAY CRIPPS

Assistant Principal,
Littlegreen Academy



KAILEY FIRMIN

Engineer and STEM
Ambassador



LISA-JAYNE COOK

Engineer and STEM
Ambassador

INCLUSION AT THE CORE OF STEM OUTREACH

Why is this so important to consider?

£1.5
bn

STEM Skills
shortage cost
in UK

59k

Shortfall of
engineers
annually

6x

More likely to
be innovative
and agile

8x

More likely to
achieve better
business
outcomes

Sources:

Engineering UK

Juliet Bourke, Which Two Heads Are Better Than One? How Diverse Teams Create Breakthrough Ideas and Make Smarter Decisions, 2016

INCLUSION AT THE CORE OF STEM OUTREACH

How can we be more inclusive in our STEM outreach to show engineering can be for everyone?

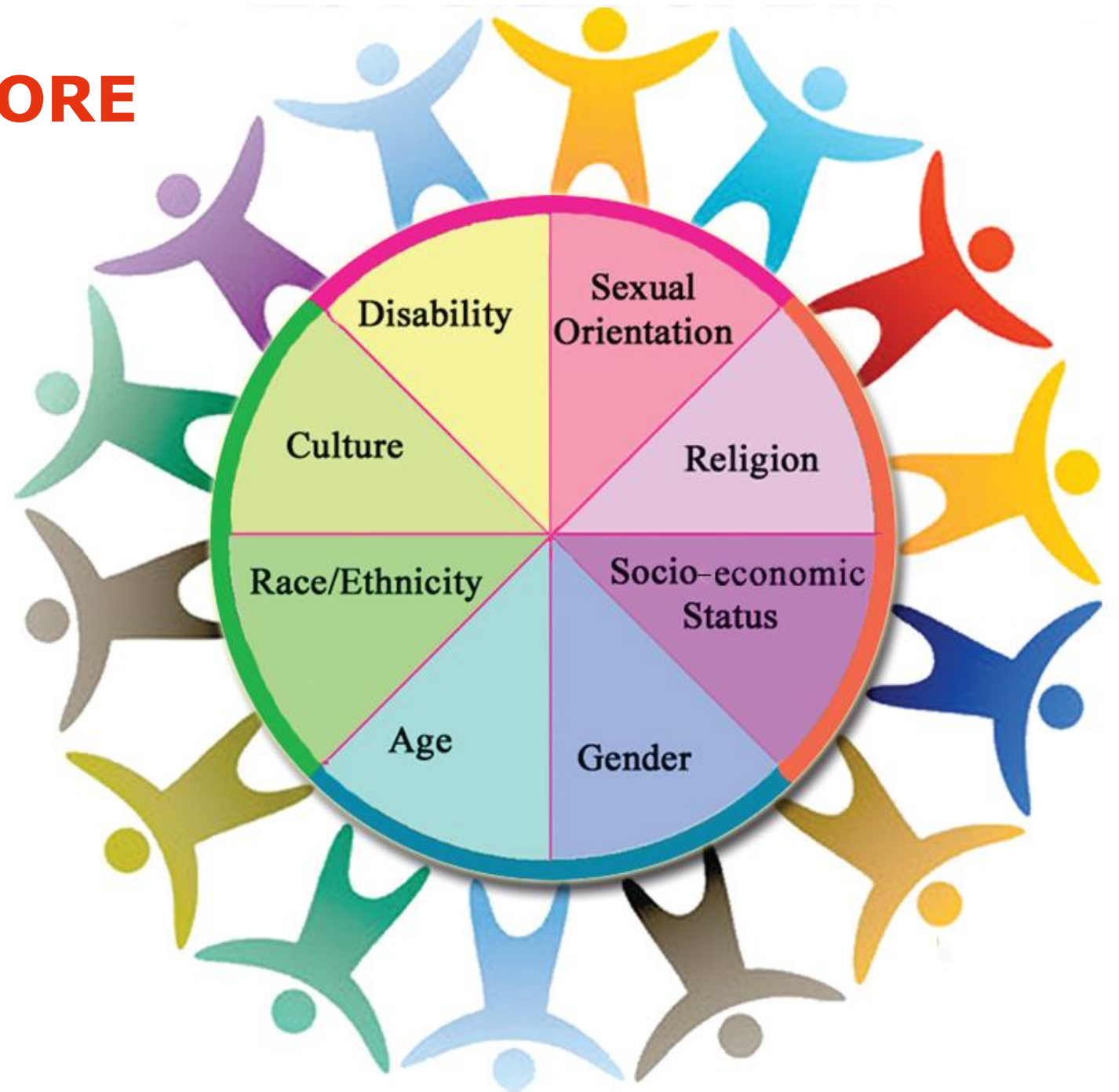
Consider...

DIVERSITY

- You can't be what you can't see.

ACCESSIBILITY

- Engagement for all.



INCLUSION AT THE CORE OF STEM OUTREACH

Bias
starts
young

Children aged between 3 - 5 show less support for counter-stereotypical STEM career choices e.g., a girl who wanted to be an engineer.

(Mulvey & Irvin, 2018)

>1.5
million

Recent Government figures show over 1.5 million pupils in England have special educational needs (SEN)

An increase of 87,000 from 2022.

4 SEN
children
in every
class

On average 4 children in every mainstream Primary class who require SEN support.

13% of pupils with SEN have no EHC plan (educational, health and care plan)

How are you?

What weather
are you today?

Which book
character are
you today?

What animal
are you
today?

INSTEAD OF 'HOW ARE YOU?'

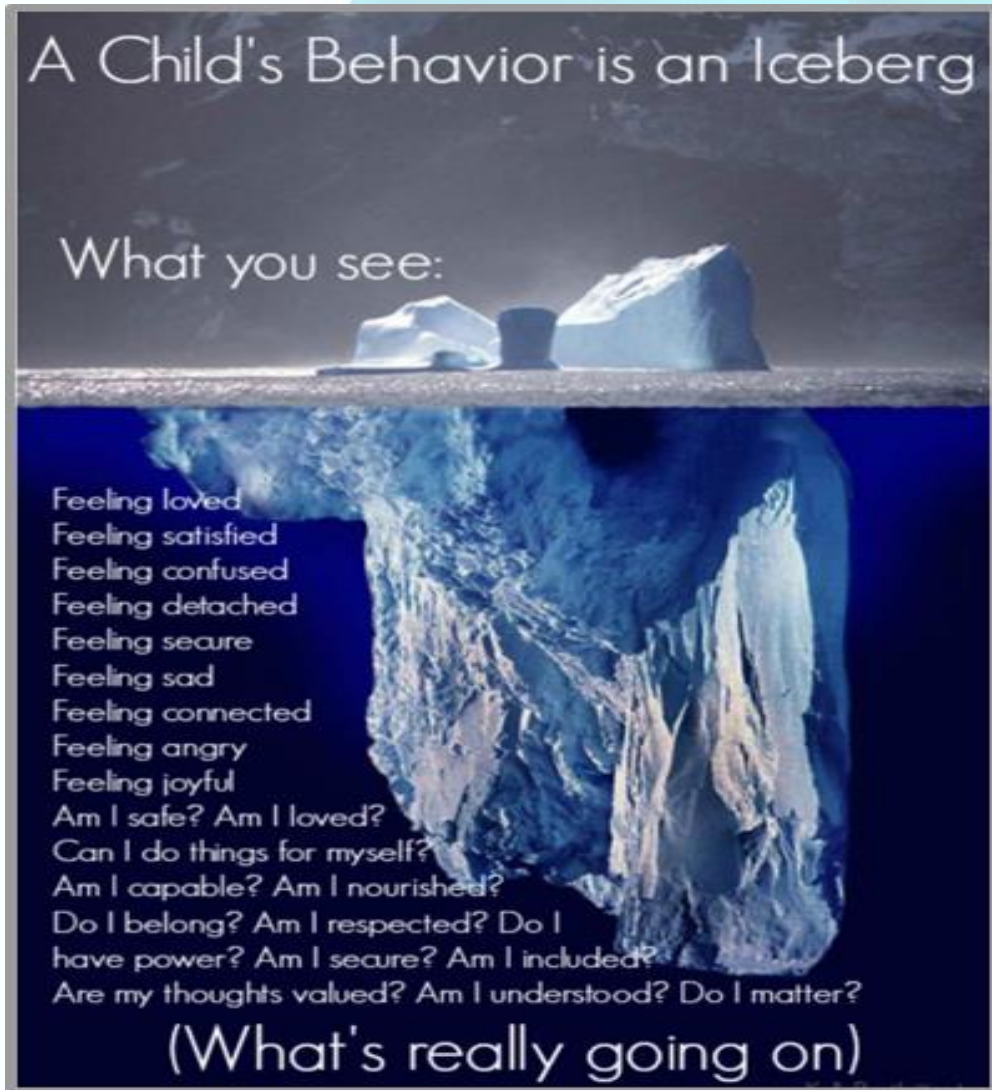
Which emoji
are you
today?

What song
are you
today?

What colour
are you
today?



Understanding SEN Pupils



Meet them with:

Kindness

Acceptance

Perseverance

Courage

Ambition

“It is impossible to understand a child correctly unless one recognises the purpose of their behaviour” Driekurs,

Meet pupil needs:

Lesson needs to be planned and broken down into clear, specific steps that pupils can follow.

You will need to explicitly model what you want them to do.

Age or stage?

Visual aids to support learning.

Praise every step, reward success.

Reduce the barriers:

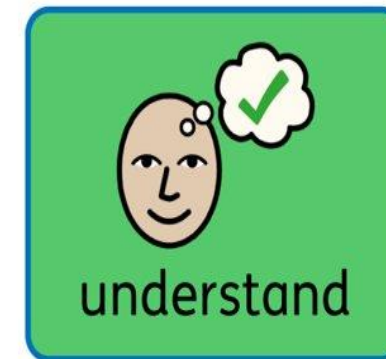
No pens!

Practical activity – hook them in.

Pupil led – they ask the questions.

Say yes – let them explore at their pace.

Call them in.



Connection before correction



Thank you for letting me know

acceptance



All thoughts + feelings are ok



Mindful Muffle

staying with the uncomfortable



story telling voice



slow down to get there quicker

Let's find a way to make this fun.

P L A Y

playfulness



Lets splash together!

FUN TIMES



It's an ATTITUDE

curiosity



Let's figure this out together

What's shareable is bearable



empathy



unconditional positive regard

What happened to you?

@themoffles

Dan Hughes
PACE is a way of thinking, feeling, communicating and behaving that aims to make children and young people feel safe.

MAKING STEM OUTREACH ACCESSIBLE

- Be prepared – to meet some of the most creative and curious minds
- Outline the task with the class leaders prior to the lesson
- Ask the teacher if they have any pupils with specific considerations such as sensory issues; aversion to loud sounds etc
- Consider any challenges the activity may bring, plan ahead simple work arounds to ensure activity is accessible to all
- Be patient and adaptable; encourage students to persist where they find the challenges
- Team work should be promoted – we all have our own strengths, together they can overcome any tricky activities



MAKING STEM OUTREACH ACCESSIBLE

- Consider your emphasis for the learning outcomes.
- Make it Flexible.
- Engagement – if they are having fun, they are being inspired!
- Relax.
- Communication – the school/group leads know the children best, work with them.
- Enjoy yourself and show your passion!
- Don't worry about mistakes and be willing to laugh when things go wrong!



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
- 20th June – Providing advice on the routes into Engineering. ONLINE 6-7pm
- 18th July - Inclusion at the core of STEM Outreach. ONLINE 6-7pm.
- 26th Sept - STEM Ambassador Training Workshop. IN PERSON Manchester 1030-4pm
- 17th Oct – STEM Outreach beyond the classroom. ONLINE 6-7pm.
- 21st Nov – Inspire young people with engaging STEM. ONLINE 6-7pm

THANK YOU.

Institution of
**MECHANICAL
ENGINEERS**

+ 44 (0)207 304 6867
education@imeche.org
imeche.org

 /imeche

 /imeche

 /imecheuk

 /imecheteam

 /institution-of-mechanical-engineers