

TEACHER GUIDE – FIVE THINGS TO DO 😊

Welcome to Tomorrow's Engineers EEP Robotics Challenge 2019/20. We're really looking forward to working with you!

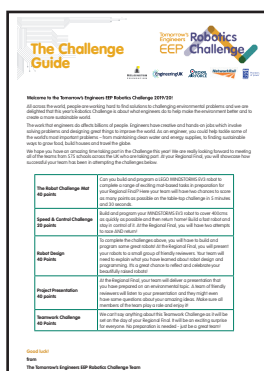
This fun, team-based competition - created by the Helsington Foundation in conjunction with Tony Purnell, Visiting Professor at the Department of Engineering, University of Cambridge and delivered by EngineeringUK - is guaranteed to transport students on an exciting voyage of exploration and discovery. It is fuelled by the STEAM curriculum and supports careers guidance in schools, including linking to the Gatsby Benchmarks.

The Robotics Challenge

The Tomorrow's Engineers EEP Robotics Challenge is aimed at 11-14 year-old students and is open to schools across the UK. At its core are real-world problems in need of innovative engineering, technology and computing solutions - all based on the application of key maths, physics and computing thinking... plus lots of fun and creative LEGO® robot building!

This year's challenge - which promises to be even bigger and better than ever before - is focused on the environment.

1. THE FIRST THING TO DO... READ THE CHALLENGE GUIDE!



This student-friendly guide contains everything that you and your group of students need to know to take part in this year's challenge. It has a detailed context that you could use with students to set the scene for the Challenge. It focuses on the 5 parts of the Challenge:

1. Robot Challenge Mat
2. Speed and Control Challenge
3. Robot Design
4. Project Presentation
5. Teamwork Challenge

The Challenge Guide outlines how your students can be successful and earn as many points as they can at their Regional Competition! You can download digital copies for students to use from the Tomorrow's Engineers EEP Robotics Challenge website: www.tomorrowsengineers.org.uk/robotics

On this website, you will also find the **Challenge Mat Setup** and **The Tasks** videos – they are essential viewing for you and your students!

2. THE SECOND THING TO DO... CREATE A TEAM!

Now that you are familiar with what is required in the Tomorrow's Engineers EEP Robotics Challenge, it is time to create a team! Recruit a 50/50 split (where possible) of girls and boys aged between 11-14. Equality, diversity and inclusion is at the heart of our competition so please bear this in mind when creating and nurturing your team. **Remember, the team should be made up of students that have never entered Tomorrow's Engineers Robotics Challenge before – those that have experience would make excellent team mentors!**



REALLY IMPORTANT: Please make sure that the groups tackling the different challenges are representative of the team as a whole. We want males AND females involved in all the different activities. Robotics and Engineering is for everyone!

How you recruit your team is up to you. Many schools work initially with around 20 students who learn how to use LEGO® MINDSTORMS® Education EV3, research engineering topics, engage with our website and prepare for the competition day elements. They then have an internal school competition to decide on the team that will go forward to the Regional Competition. Unfortunately, venue capacity restrictions mean that only a maximum of between 6-10 students from each school can attend the Regional Competition – but we would love lots of young people to engage within your school. We would also love teachers to tell us how many have taken part in robotics throughout the year as this is part of the evaluation this year.

3. THE **THIRD** THING TO DO... SUPPORT YOUR TEAM!

There are support videos available on the Tomorrow's Engineers EEP Robotics Challenge website:

www.tomorrowseengineers.org.uk/robotics. These videos don't have the answers to the challenges set but they will be a helpful starting point for students.

As a facilitator, the key role you will play is to support and encourage your team and help keep them on track. There is a useful checklist at the back of The Challenge Guide to help you. We love to see the solutions students have come up with, but we are keen to encourage students to talk openly about what was trialled but didn't work too!

4. THE **FOURTH** THING TO DO... JOIN US AT THE REGIONAL COMPETITION!

We can't wait to see you at your Regional Competition – our delivery partners will be in touch with further details of how to book your place. We recommend you plan this as soon as possible. Wherever your teams have got to in completing this year's Challenge, come along and showcase all that has been achieved and learn new things on the day itself. It's also an opportunity for your students to go behind the scenes of a STEM venue they would not normally get to access. Here they will meet and speak to people who work in STEM. These engagements can help young people develop their future career aspirations.

Here at Tomorrow's Engineers, we want to get 100% of our teams to the Regional Competitions. If you feel you need extra help, just reach out to us! We will be available for calls, emails and webinars to answer any questions about the competition and to help your team stay on track.

CONTACT DETAILS OF YOUR DELIVERY PARTNER

England and Wales (except NW): Learn by Design

Contact: 01827 316297 RoboticsChallenge@bydesign-group.co.uk

North West England: STEMFirst

Contact: Helen Heggie 07808 646 493 helen.heggie@stemfirst.com

Northern Ireland: Sentinus

Tel: 02892 627 755 info@sentinus.co.uk

Scotland: SCDI

Contact: Young Engineers team 0141 243 2667 yesc@scdi.org.uk

Tomorrow's Engineers robotics@tomorrowseengineers.org.uk

EXTRA HELP WITH MINDSTORMS:

Learning support: <https://raisingrobots.com/support/>

SOFTWARE DOWNLOADS

LEGO MINDSTORMS Education software: <https://education.lego.com/en-us/downloads/mindstorms-ev3/software>

WARRANTY REPLACEMENT AND TECHNICAL SUPPORT

LEGO Support: <https://education.lego.com/en-gb/support>

5. AND FINALLY THE **FIFTH** THING TO DO – LET'S HAVE FUN AT THE REGIONAL COMPETITIONS!

Engineering relies on creative skills too! We encourage your team to develop their own team identity for competition events. They can also develop this online through their team profile at www.tomorrowseengineers.org.uk/robotics

Encourage your students to:

- Create a team name (useful for Robot Showtime and the presentations!)
- Design a team logo
- Create a blog on the Tomorrow's Engineers Website www.tomorrowseengineers.org.uk/robotics or use the school's social media to let us know your progress!

They could even...

- Dress as team – to create a team identity!
- Create a team mascot (they could even make one from recycled materials!)

Good luck and thank you for supporting your students in this year's Challenge!

