

## Engineering Our Future Day Supports Career Related Learning



Approx.  
**180**  
learners



KS3 /  
KS4



Full-Day  
5 Workshops

This day sees learners rotate through a series of sessions, immersing themselves in the life and skills of an engineer and in the potential careers and companies in which they could work. The whole day learning experience consists of five workshops that will show the broad range of career opportunities in engineering growth sectors.

These engineering-based workshops are led by our experienced team of education communicators. Where possible we will also invite an engineering ambassador to join the day.

These engaging workshops motivate learners to take part in interactive activities:

### Half-Day

- Developing learners' ability to learn new technology quickly and work as a team as they compete in a VEX robot challenge (iEngineer).
- Working in pairs to bust myths linked to engineering as they take part in this competitive quiz (Engineering Factor).
- Putting their problem solving and teamwork to the test as they race against the clock to solve a logistics challenge. (Engineering Infrastructure)

### Full-Day (including 2 additional workshops)

- Using their creativity and innovation students consider a real world problem as they design a product of the future (The Drawing Board)
- Using research skills to identify new renewable solutions and present their findings (Solution Engineering)

### Aim:

By the end of these activities' students will

- Understand how their skills and learning in school (particularly STEM) relates to real world careers and challenges.
- Develop teamwork, problem solving, speaking, listening creativity, and aiming high skills.
- Recognise that engineering careers are for everyone and exist in their local area.



Scan the QR code to learn about the impact this workshop has had on previous students...

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## Content Overview

### Sessions Available

#### iEngineer (Robots Challenge)

- Short introduction to robots and how they are used in different industries including medicine, manufacturing, and scientific research (e.g. mars rover).
- The class is split into two teams and the robot rumble activity instructions are explained.
- Each team member has around 1-2minutes to quickly become familiar with the VEX robot and score points for their team.
- The game rules change throughout the session, challenging the team to adapt.
- A discussion at the end around learners' ability to pick up a new technology and the pressure involved in taking part in the challenge.

*\*Please note, this can be switched for our robotics programming activity, on request, which runs slightly differently.*

#### Engineering Factor (Quiz)

- Introduction to the session and how to use the Qwizdom handsets in pairs.
- Progress through a series of questions around engineering and engineering careers.
- Teams score points based on their correct questions and how quickly they answer.

#### Solution Engineering

- Introduction to the role of asking questions and research in innovation and engineering.
- In groups learners research either the ARES (3 teams) or kinetic paving technology (3 teams), rotating around research stations to collect as much information as possible to sell the new technology.
- Teams then present back what they have research about the technology to the class.

#### The Drawing Board (Design challenge)

- Introduction to what we mean by innovation.
- Discussion around the engineering design process and innovation and how to come up with ideas.
- Working in team (2 or 3) learners use their creativity to design an innovative product that tackles real world problems.
- Teams present their ideas back to the class.



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#### Engineering Infrastructure

- Introduction to what is meant by logistics
- In teams of three learners oversee a load of cargo and must determine the best method of transport from city A to B.
- Teams are given three maths-based puzzles to determine the time taken and cost for their cargo to be moved via air, train or road.
- The session concludes with a discussion around which of the different methods of cargo would be better and the careers linked to logistics.

#### What are the benefits?

##### Gatsby benchmarks:

- Learning from career and labour market information (2).
- Linking curriculum learning to careers (4).
- Encounters with employers (5) – we can facilitate a career ambassador joining the day.

#### Which part of the Curriculum does it enrich and how?

- Computing: Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.
- Design and Technology: Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists.
- Design and Technology: Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations.
- Design and Technology: Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups.
- Mathematics: use and derive simple equations and carry out appropriate calculations.
- Mathematics: Reason deductively in geometry, number and algebra, including using geometrical constructions.

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## Engineering Our Future Day Supports Career Related Learning Year 8-11 KS3 & KS4

### Logistics and Planning:

All sessions are designed for around 30 learners. Some activities can be run with larger groups if requested.

We ask that a teacher is always present throughout the activities, to support learner engagement and manage behaviour.

### Set Up Requirements:

Session	Space	IT and Power
iEngineer	Large classroom or hall, all furniture moved to sides	Power, projector and screen
Engineering Factor	Classroom	Projector and screen
The Drawing Board	Classroom	Projector and screen
Solution Engineering	Classroom	Projector and screen
Engineering Infrastructure	Classroom	Projector and screen

### Why Choose Learn by Design?

We have been delivering engineering focused activities for over 7 years and within our team we have education communications with a specific background in engineering.

We can also use out links with engineering STEM ambassadors to reach out to local ambassadors to support the day.

### Activity Colour Key

- iEngineer
- The Drawing Board
- Solution Engineering
- Engineering Factor
- Engineering Infrastructure

### Full-Day Drop-Down Timetable Example:

	Period 1	Period 2	Period 3	Period 4	Period 5
Group 1	iEngineer	Engineering Infrastructure	Engineering Factor	Solution Engineering	The Drawing Board
Group 2	The Drawing Board	iEngineer	Engineering Infrastructure	Engineering Factor	Solution Engineering
Group 3	Solution Engineering	The Drawing Board	iEngineer	Engineering Infrastructure	Engineering Factor
Group 4	Engineering Factor	Solution Engineering	The Drawing Board	iEngineer	Engineering Infrastructure
Group 5	Engineering Infrastructure	Engineering Factor	Solution Engineering	The Drawing Board	iEngineer

### Half-Day Drop-Down Timetable Example:

AM	Period 1	Period 2	Period 3	PM	4	5	6
Group 1	iE	EI	EF	Group 4			
Group 2	EF	iE	EI	Group 5			
Group 3	EI	EF	iE	Group 6			

Sessions repeat in afternoon with 3 new groups.

### For further learning this activity goes well with:

- [STEM day](#)
- [Enterprise Day](#)



Watch the video below to see how we've been bringing learning to life for students:



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