**The IET**

**In partnership with**

****

**2020-21**

**Host School**

**Briefing Pack**



**With thanks to our supporters and sponsors…**



### **Keith Thrower OBE FREng FIET**

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**IET Faraday**

The Institution of Engineering and Technology (IET) is working to engineer a better world. Our heritage dates back to 1871, and today our mission is to inspire, inform and influence the global engineering community, supporting technology innovation to meet the needs of society.

The IET produces a wide range of engineering-themes resources and activity days for STEM teachers (Science, Technology, Engineering and Maths). Our resources allow teachers to give practical and real-life context to their lessons both in the form of our award-winning STEM resources and Faraday Challenge Days [www.theiet.org/education](http://www.theiet.org/education).

**Jack Petchey Foundation**

Who is Sir Jack Petchey CBE?

Jack Petchey CBE left school at 13 and in his first job was told by his

boss that he was “not management material”. Using the small amount

of money he received after leaving the Royal Navy, Jack started a car

hire company. Starting with one car he built a fleet. Eventually he

became a self-made millionaire owning multiple businesses. Jack, now

in his 95th year, has lived his life by the motto, ‘If you think you can,

you can.’ He wants young people to believe this also – so he established

the Jack Petchey Foundation which has now invested over £133 million in

projects supporting young people to believe in themselves and make the

most of life’s opportunities.

When the Jack Petchey Foundation started our partnership with the Institution of Engineering and Technology Jack said "When I was at school I didn’t really understand the importance of Maths and Engineering, however I now know that it just wouldn’t have been possible to achieve in the business world without a good understanding of mathematical principles, and working in property development, I can see how much would not be possible without Engineers. I encourage you all, not to see maths, engineering and science as mysteries, but to embrace the numbers and ask as many questions as you need to fully understand them. Explore how these subjects can form the basis for so many aspects of life around us. If you think you can't understand a technical problem - you won't be able to - because you shut your mind, however if you open your mind, and think that you can do it....you will be able to!"

For more information on the Jack Petchey Foundation and the various programmes it supports please visit [www.jackpetcheyfoundation.org.uk](http://www.jackpetcheyfoundation.org.uk)



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8. **Faraday Challenge Day Host School Checklist**

We hope you find this checklist useful to help you prepare for the day. Please see section 2 for further details.

|  |  |
| --- | --- |
| **Item** | **Complete** |
| Check no-one in your school has arranged to attend another Faraday Challenge Day. |  |
| Book a suitable room for **sole** use from **8.00am until 4.00pm.** |  |
| Respond to the email from Keira Sewell requesting parking details and confirm you are expecting us for your Challenge Day. |  |
| If applicable, invite other schools and send them the Participating Schools Information Pack. |  |
| Organise your team(s) of students – maximum number is 36 students (6 teams of 6 students each). |  |
| Ensure the room is set up before 8.00am on the day of your challenge, including covering the cutting station with a board or cutting mats. |  |
| Arrange for a projector, screen and audio to be available in the room, if not already present. |  |
| Organise staffing for the day – at least one teacher and one technician. |  |
| Arrange parking near to the venue and lift access/help if required. |  |
| Arrange for someone to meet the Challenge Leader at 8am on the day and take them to the room. |  |
| Organise refreshments for break time (11.00am) for all students and teachers. |  |
| Ask all students to bring a packed lunch so that we can follow the schedule of the Challenge Day. If this is not possible liaise with Keira Sewell regarding an alternative schedule where possible. |  |
| Ask all students to bring a pen/pencil. |  |
| If applicable, send an email reminder to participating schools nearer to the date of the event to check they are still attending. |  |
| Ensure that all students are the appropriate age and year group for the competition (12-13 years old (England and Wales Year 8, Scotland S1/S2, Northern Ireland Year 9). |  |
| Inform us if there are any students attending who have specific requirements such as visual or auditory needs. |  |

1. **Welcome**

We are pleased that you have been selected to host one of the IET Faraday Challenge Days. We are really looking forward to visiting your school and this information pack provides important information about the day. We would be grateful if you could read it carefully to make sure everything is in place for a fantastic Challenge Day.

This year there will be a total of 130 IET Faraday Challenge Days taking place between January 2020 and June 2021 in schools across the United Kingdom. Each IET Faraday Challenge Day involves six school teams, each made up of six 12-13 year olds (England and Wales Year 8, Scotland S1/S2, Northern Ireland Year 9), ideally students who are interested in either Science, Design & Technology, Mathematics or Engineering.

The Challenge Days are provided free of charge as part of a national competition. On the day of your challenge, the winning team from each event will be awarded a prize for each team member and a trophy for their school. They will also go onto our school league table and, at the end of the year, the top teams will be invited to a national final in July. Teachers are not allowed to help their students but, if you and any visiting teachers want to take part in the challenge, you can form a team and be entered onto our teachers’ league table.

By taking part in a Challenge Day, your students will receive an Industrial Cadets Challenger Award for completing a hands-on problem solving and critical thinking activity. Industrial Cadets is run by the EDT (Engineering Development Trust) and works with UK employers to create a talent pipeline and a future skilled workforce, whilst helping young people to develop the skills they need to enter industry with confidence. For more information go to: <https://www.industrialcadets.org.uk/>.

Students will also be eligible to receive a CREST Discovery Award from the British Science Association. CREST Discovery recognises quality STEM project work that is done over a short period of time (usually a day). It focuses on fun, teamwork and transferable skills, whilst putting projects into a real-world context. This is optional and will need to be applied for online. The only evidence you will need to provide for students to get this award will be the student certificate. For more information go to: <http://www.britishscienceassociation.org/crest>.

If you are interested in running your own DIY Faraday Challenge Day then visit [www.theiet.org/education](http://www.theiet.org/education) for more information and free resources. There are currently 12 DIY secondary and 2 DIY primary challenges to choose from which get students using key STEM skills and knowledge and encourage the development of students’ problem solving, team working and communication skills.

1. **What do you need to do?**

We want you and your students to have a fantastic IET Faraday Challenge Day. We have provided a helpful checklist at the front of this booklet as a quick reminder, but the following will help you prepare for the day.

* Check with other staff that your school is only attending one Faraday Challenge Day. If schools enter teams in more than one Challenge Day their scores will not be included in the competition.
* Book a large room, ideally a hall or gym, for **sole** use throughout the whole day (8.00 am until 4.00 pm) to allow for setting up and packing away the resources.
* You will receive an email from Keira Sewell who co-ordinates the Challenge Leaders, about three weeks before your Challenge Day. She will tell you the name of your Challenge Leader and ask you to confirm you are expecting to host a Faraday Challenge Day on that date. She will also ask for any specific parking instructions. Please respond to this email as soon as possible so that she can pass the information to your Challenge Leader.
* Invite other schools and send them the Participating Schools Information Pack. Remind them that all participating students must be from the correct year group. We strongly recommend you email your participating schools close to the event to remind them about their visit and the time they should arrive.
* Organise your team(s) of students. In total there should be six teams of six students each. Students will need to be the correct age group, aged 12-13 years old (England and Wales Year 8, Scotland S1/S2, Northern Ireland Year 9). Where possible, mixed gender teams tend to work better than single gender teams.
* Inform us of any specific needs students may have which the Challenge Leader will need to accommodate on the day (e.g. visual/auditory needs).
* Make sure the room is set up before the challenge leader arrives (See **section 5** for the room layout).
* Arrange access to a projector with audio. The Challenge Leader will need to connect to this though either their own laptop or using a USB to display the PowerPoint presentation with briefing video.
* Provide at least **one teacher AND one technician** for the entire challenge to run our Faraday shop, supervise the cutting station, and be responsible for student discipline and Health and Safety. **Please note** that the IET Safeguarding Policy requires a member of staff with legal responsibility for the students to be in the room whenever the students are present. Challenge Leaders will leave the room if there is no member of staff present.
* Arrange parking as near to the venue as possible. Challenge Leaders will have a trolley but they carry a large amount of equipment. They will need lift access to rooms which are above ground floor or someone to help them carry the boxes up the stairs.
* Setting up all the equipment takes some time so please make sure you, or someone in your school, can meet the challenge leader at 8.00am and take them to the room.
* Try to follow our schedule for the day, even if it does not fit with your school day. The day can be very intense for the students (and sometimes the Challenge Leaders!) and they need regular breaks and times to be away from the engineering. We plan the day carefully to make sure students can give their best. If it is not possible to run the day on the schedule provided in this booklet, please liaise with Keira Sewell to organise an appropriate alternative schedule.
* Provide a snack for everyone at breaktime (drinks and biscuits or fruit only) and ask all students and staff to bring a packed lunch.
* Students will need to bring a pencil or pen and staff may want to bring work with them if they don’t want to take part in the teachers’ team.

If you have any further questions or queries, please contact our IET Faraday team via email at [faraday@theiet.org](mailto:faraday@theiet.org).

1. **What does the IET do?**

* We will provide a Challenge Leader who will run the day. There may be times when two Challenge Leaders will attend but we will inform you of this nearer your Challenge Day. All Challenge Leaders will bring their DBS, registered online on the update service, and photographic ID.
* Sometimes one of our IET members, a STEM ambassador or a representative from one of our sponsors will come to support the Challenge Leader on the day. The IET team will let you know if you have anyone attending. You will have time to talk to them during the day about how they might support your school in the future.
* We provide all the resources and equipment for your Challenge Day.
* We provide a certificate for all students attending and a trophy and prizes for the winning team.
* We provide a link to our Media Toolkit which includes a press release for you to use in your own school write up and to circulate to local media as required. Please remember, when placing any details of the Challenge Day on social media or in a public forum, that the exact nature of the challenge needs to be kept secret until the end of the challenge season to ensure a fair competition.
* We will put the name of the winning team and their score on the school league table on the website and inform you if your team has got through to the regional finals and national final.

Please be aware that when contacting individual Challenge Leaders or Keira Sewell that they travel around the country delivering Challenge Days and may not be able to respond immediately to emails. If your query is urgent please contact the IET Faraday team on [faraday@theiet.org](mailto:faraday@theiet.org). or telephone 01438 767653.

**5. Host school – Room/hall layout**

**Notes:**

* Each team table will need 6 chairs and be large enough for 6 students to work comfortably. The judges’ table and shop will each need 2 chairs.
* Table positions do not need to be exact and can be arranged to best accommodate the shape and size of the venue. If you are running the Challenge Day for just your school, you may choose not to have a teachers’ team table.
* We strongly recommend you cover the cutting station with cutting mats or a board to protect the surface.

**BACK**

**Cutting station (with cover/cutting mats)**

**Shop (at least 3 m x 0.5 m)**

**Team 7 Teachers**

**Team 3**

**Team 4**

**Team 5**

**Team 2**

**Presentation table**

**Refreshments Table**

**Team 1**

**Team 6**

**Judge’s table**

**FRONT – Projection screen**

**6. Schedule for the day**

|  |  |
| --- | --- |
| **08:00** | Challenge Leader arrives to set up |
| **09:15** | Register your team (All visiting schools should have arrived by this point) |
| **09:30** | Welcome and introduction |
| **09:50** | **Project brief:** Introduction to the Faraday Challenge |
| **10:10** | **Planning:** Identifying the problems and generating initial ideas |
| **10:25** | **Team role selection:** team decides on which roles they need |
| **10:30** | **Engineering apprenticeship:** teams complete a short engineering task |
| **10:40** | **Development**   * Shop opens * Agree on final product designs |
| **11:00** | **Break** |
| **11:10** | **Development continues**   * Continue to design and modify where necessary * Record progress in event log |
| **12:15** | Teams are briefed on the content of the presentation |
| **12:30** | **Lunch** – Tools down |
| **13:00** | **Development: Final preparations**   * Finalise product * Prepare presentation with notes |
| **13:30** | * Shop closes * Submit accounting sheet to the Shop keeper * Practise presentation |
| **13:50** | **Presentation**   * Teams present their designs to the judge(s) |
| **14:45** | Award ceremony with final feedback and evaluation of the day |
| **15:00** | Engineering teams depart |
| **15:45** | Challenge Leader departs by this point (actual time depends on pack up requirements) |

# 7. Risk Assessment

The following risk assessment is given as guidance. It is advised that the school refers to the CLEAPSS Model Risk Assessment Documents for D&T.

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk Assessment and Operating Procedure – IET Faraday** | | | |
|  | | | |
| **Activity: Faraday Challenge Day – Teacher Led 2020-21** | | | |
| **Persons at risk** | Students taking part in the Faraday Challenge Day and adults in the location | | |
| **Maximum Group Size** | 36 students | Recommended Staffing/Student Ratio | 1:18 |
|  | | | |
| **Risk Assessment** | | | |
| **Hazards** | | **Control Measures** | |
| 1. **Use of electrical equipment – risk of electric shock** | | All electrical equipment is low voltage. | |
| 1. **Use of electrical equipment – short circuit causing heating** | | Warn students of the possibility of burns when connecting and disconnecting components. All pupils will receive a briefing about correct use of electrical components. | |
| 1. **Basic use of hand tools (craft knives, scissors, hole punches, staplers) – risk of cutting or abrasion** | | Warn students of the risks and advise them of safe working practices. Identify member of staff to supervise area. Inform challenge leader if use of knives in school is restricted. | |
| 1. **Use of water with moisture sensors** | | Ensure students test their moisture sensor using a sponge in a small tub rather than directly in any drink or cup of water to avoid spillage on electrical components. | |
| **Location issues** (to be completed by Host School) | |  | |
| Further Action Required: 1. Ensure all persons staffing the Faraday Challenge Days are aware of and competent to comply with this risk assessment and the control measures. | | | |

# **Risk Assessment (page 2)**

|  |  |
| --- | --- |
| **Working Practice** | |
| **Group structure** | One Faraday Challenge Day Leader and one teacher and one technician from the host school to be present during the whole day to oversee use of equipment and to keep order. Teachers bringing groups from other schools must remain in the room and be responsible for their own students. |
| **Restrictions** | Unknown premises. |
| **Emergency**  **Procedure** | Follow the lead from the Host School.  Faraday Challenge Day Leader to be fully briefed on risk assessment procedure prior to the day or on arrival. |
| **Safeguarding** | The Challenge Leader will carry their DBS and provide it where requested. They will comply with the safeguarding regulations within the school. A member of staff from the school **MUST** be present in the rooms at all times when students are present. |
| **Safety Equipment** | First aid kit and fire extinguisher (electrical fires) to be provided by Host School. |
| **Covid 19** | Please refer to the separate paper ‘Safety during the COVID-19 pandemic’ and inform us of any actions or expectations as appropriate. |
| **Name and role of IET Faraday Challenge representative** | Keira Sewell  Challenge Day Leader. |
| **Name and role of school representative** |  |
| **Signature of the school representative** |  |
| **Date of this Review** | October 2020 |