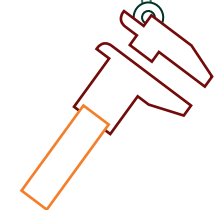
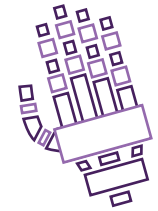


IET Faraday Challenge Days

2021-2022 Review



Explore the IET
Faraday Challenge at
theiet.org/faraday



IET Faraday Challenge Days 2021-2022 Review

We are extremely proud to have delivered 165 Faraday Challenge Days this season, with 283 schools and 5,429 students involved.

Our supporters and sponsors this year included The David Family Foundation, The Jack Petchey Foundation, The Institute of Healthcare Engineering and Estate Management (IHEEM), Motorola Solutions Foundation, Network Rail, R C Snelling Charitable Trust and The Reece Foundation.

The theme for the 2021-2022 season was in association with IHEEM and tasked teams to design a prototype that could be used in a children's hospital to make a stay in hospital more comfortable for young patients and their families, carers and friends. They had to take into account key considerations such as sustainability, energy and waste management and their prototype had to include an electrical circuit.



Students were scored throughout the day on their planning and research; development and functionality of the product; use of budget; product engineering; the final presentation, and their teamwork and attitude throughout.

Members of each winning team won a gift voucher for themselves, a trophy for their school, and had their score added to the national league table. At the end of the season, the top five teams took part in the season's National Final.

Alongside the Challenge Days this season we also had a Virtual Faraday Challenge which was available for anyone from 7 to 15 years, with the option for young people to take part at home, in school, individually or as a group/family. This gave many young people who could not take part in a Faraday Challenge Day event this season the opportunity to still get involved.



National Final

The National Final was held on 29 June 2022, at Alder Hey Children's NHS Foundation Trust in Liverpool, with the top five teams from the season's league table having to design and build a prototype to help motivate specific patients whilst in hospital. Their prototype also needed to include at least two components.

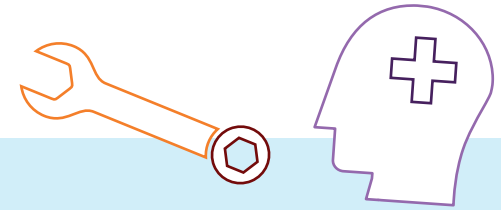
The five national finalists were Berkhamsted Girls School from Hertfordshire, St Aidan's High School from North Lanarkshire, Egglecliffe School and Sixth Form College from Stockton-on-Tees, Fulford School from York and St Edmund's Catholic School from Portsmouth.

The final was judged by Michelle Richmond, Director of Membership and Professional Development at the IET, Paul Fenton, IHEEM President, Stephen Lowndes, Technical Director at CEF and Sue Brown, Associate Development Director at Alder Hey Children's NHS Foundation Trust. Teams were judged on their product design and presentation.

After a very close competition with impressive presentations this season's winning team was St Aidan's School from North Lanarkshire, who designed a prototype munchie box to help patients choose what to eat whilst in hospital and to motivate those feeling reluctant to eat.

On winning, the team said: "It's been a great experience, it's an honour for Scotland to take part and have made the final! Thank you for the experience."

It was an inspiring event for everyone involved and we are confident this season's challenge has given students an insight into the life of a real engineer, the variety a career in engineering can offer and just how exciting and creative engineering really is.



"It has been an absolute privilege to be part of this national event, judging the five finalists from 165 school events. The young people and the engineering prototypes they produced have blown me away with their innovation, engineering and enthusiasm. They have really captured the real essence and spirit of Alder Hey and the approach we take to creating unique experiences for our children and families."

**Sue Brown, Associate Development Director
at Alder Hey Children's NHS Foundation Trust**





Quotes from professionals



David Lakin

IET Head of Education, Safeguarding and Education Policy

"As we emerged from the effects of the pandemic on education and began our first full academic year back in the classroom, what better organisation to have as our theme partner for the 2021-2022 season, than the Institute of Healthcare Engineering and Estate Management (IHEEM).

Together, our two institutions have worked to provide a challenge for this season that not only provided inspiration for young people involved, but also challenged them to use a wide range of skills from problem solving, teamwork, budgeting, and communications to impress our judges.

Each year, the solutions to the challenges set that young people come up with when participating in a Faraday Challenge Day continue to amaze me. Their ability to see a problem in a different light is a skill that will set them in good stead for the future whilst building confidence in presenting and talking others through their ideas.

It's been great to have IHEEM involved this season, and I would like to express on behalf of the IET, our thanks for thoroughly embracing the whole experience. IHEEM not only supported the programme financially, but also attended challenge days and the final in great numbers, showing just how much inspiring the next generation of healthcare engineers means to them."



Paul Fenton MBE

IHEEM President

"On behalf of IHEEM I would like to add our sincere congratulations to the worthy winners St Aidan's High School and to say well done to the other schools and teams who took part not just in the final but across all the challenge days. I know everyone from IHEEM Council and Head Office who have been involved in this year's programme has found the whole experience very rewarding.

Personally, I have been both encouraged and inspired by the innovation shown by all the students who have taken part and was honoured to be one of the judges at the final. IHEEM is committed to encouraging the next generation of healthcare engineers and leaders. This programme has undoubtedly provided students with a greater understanding of the healthcare engineering sector and the key role that all of our members, at all levels, can have in improving the experience that patients have during their time in hospital. Finally, I would also like to thank the Faraday team at the IET and the leaders who attended the challenge days and I hope that our partnership goes on beyond the conclusion of this year's programme."

Keira Hart

IET Faraday Challenge Leader



"It was with the upmost pleasure that we returned to face to face delivery of the IET Faraday Challenge Days in schools from September 2021. We expected some challenges getting into schools given the past two years, but schools welcomed us with open arms and we relished meeting up with friends, both old and new.

Our planning for the 2021-2022 season began back in December 2021, meeting up with the team from IHEEM to chat through the possibilities. Very quickly we identified the focus of the challenge, developing something for a children's hospital which could make the child or young person, their relatives or carers or even the hospital staff more comfortable or relaxed.

This has probably been our broadest brief ever but, as usual, our young engineers rose to the challenge and designed and built things as diverse as folding beds for relatives, robots to deliver food, teddies to control the things in the room or encourage children to play and ways of encouraging children to eat their meals. After 165 Faraday Challenge Days around the UK the top five teams were taken to the final at Alder Hey Children's Hospital in Liverpool for a fantastic final. There, they were able to see just what impact their ideas could have on the health and wellbeing of children and young people.

It has been a fantastic year and we have loved being back out working with schools again. Thank you to all the teachers and students who have looked after us so brilliantly and worked with us to ensure we kept everyone as safe as possible. Now all there is to do is look forward to the 2022-2023 season!"





Student quotes

"I never considered doing engineering, but I didn't know what engineering actually was and I enjoyed it."

12-year-old girl

"I really enjoyed today. In the future I could see myself as an engineer."

13-year-old girl

"It was one of the most fun things I have ever done, and I always thought engineering was a legend, like magic but now I see how it works."

13-year-old boy

"It was definitely a challenge! I thoroughly enjoyed the responsibility and innovation and hope it positively affects young NHS patients!"

13-year-old boy

"Amazing! Really loved how you were treated like an engineer!"

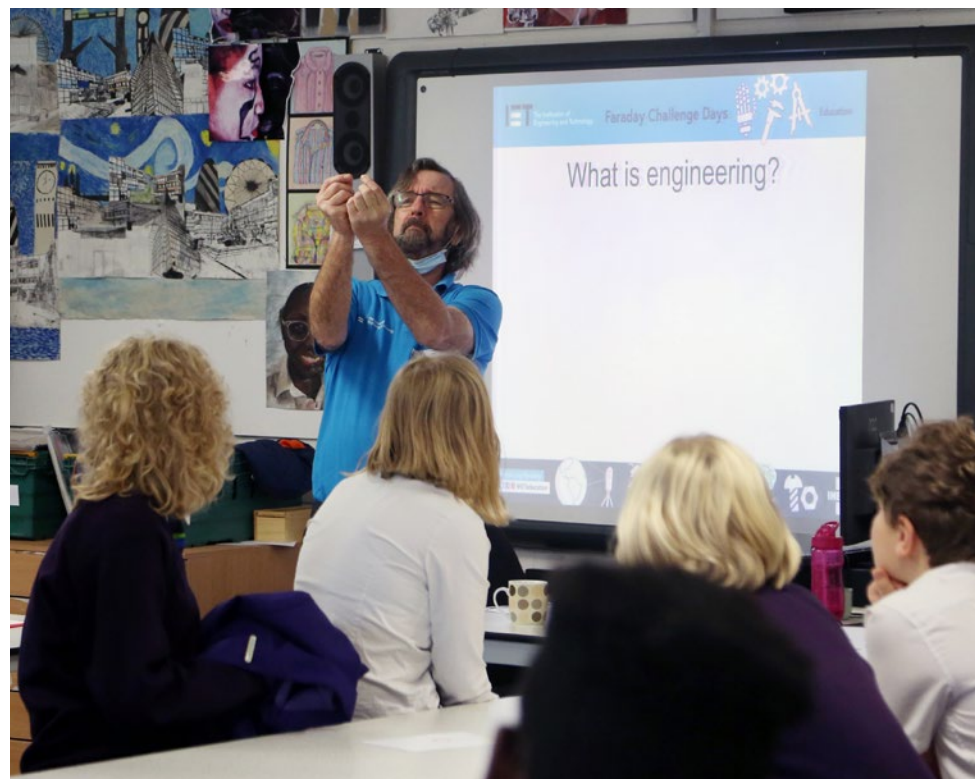
12-year-old girl

"I think today was a fun way to understand and experience how engineering is used in society."

13-year-old girl

"It was very fun, and I now want to take the engineering path for GCSE. It was amazing!"

12-year-old girl





Headline statistics from the full season

No. of events: **165**

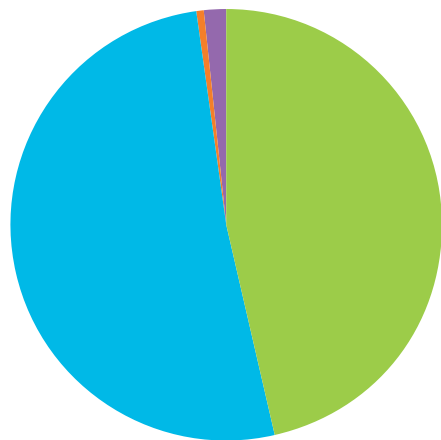
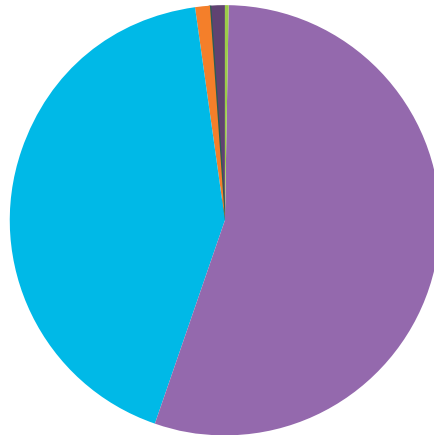
No. of students: **5,429**

No. of schools: **283 and 1 home educated team**

Engaged with **83** schools defined as hard to reach (high percentage of free school meals, rural schools and social mobility indicators).

Age

- 11 years: **0.35%** (19 students)
- 12 years: **55.09%** (2,991 students)
- 13 years: **42.59%** (2,312 students)
- 14 years: **0.88%** (48 students)
- 15 years: **0.02%** (1 student)
- Not specified: **1.07%** (58 students)



Gender

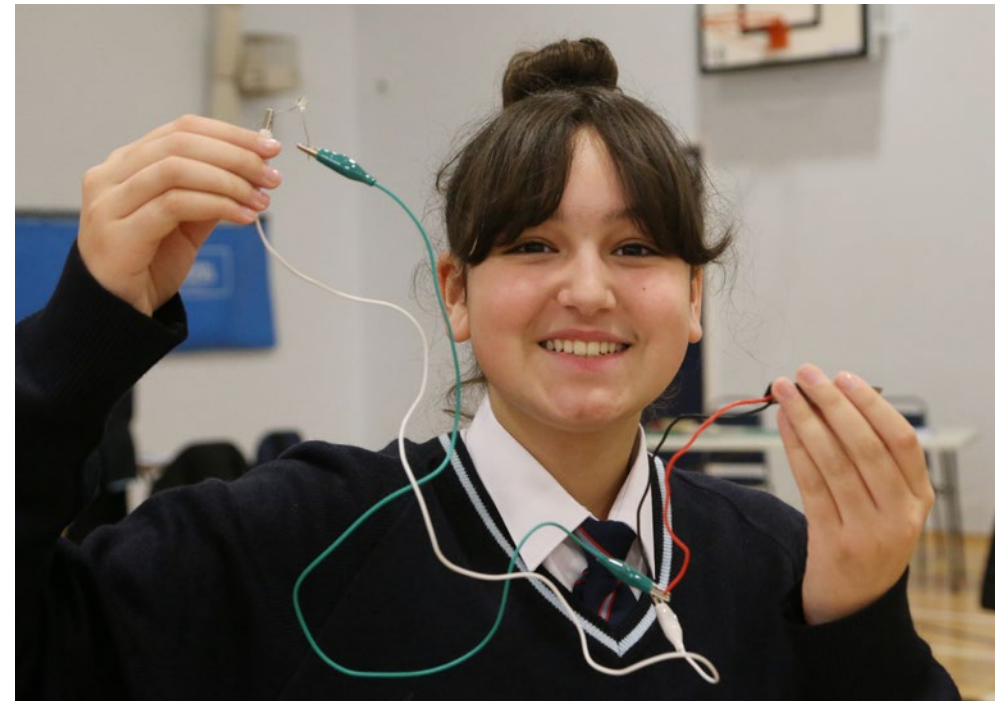
- Male: **46.60%** (2,530 students)
- Female: **51.45%** (2,793 students)
- Other: **0.33%** (18 students)
- Not specified: **1.62%** (88 students)

Student feedback

The following statistics represent the % of students who were in agreement with these statements (information gathered from 5,429 students):

- I enjoyed the Faraday Challenge **98%**
- I learnt new things **97%**
- I now understand more about what engineering is **97%**
- I have a better idea about what engineers do and the skills they need **96%**
- Before today I was considering studying or working in engineering **33%**
- Following this event I am now considering studying or working in engineering **58%**
- I'd like to do something like this again **96%**

There was a 77% increase in students who after taking part in a Faraday Challenge Day would now consider studying or working in engineering.



Teacher quotes

"Fantastic day – so well organised and the pupils were 100% engaged the whole time. Thank you for a fantastic event."

"Pupils were pushed out of comfort zones by the activity presented - making it very interesting to see how they responded to the challenge. While at the time it may appear that they did not appreciate this, I like to hope and think that they have learned something more about themselves and how they deal with adversity. I thought the day was exceptionally well organised and resourced and the Challenge Leader was responsive, authoritative, and approachable demonstrating a thorough knowledge of the challenge and the ways pupils respond to it. A great opportunity. Thank you!"



Student quotes

"I really felt like I learnt a lot from this experience and I think it will help me massively in my future choice of career."

12-year-old girl

"I really enjoyed this challenge it got me thinking practically and creatively."

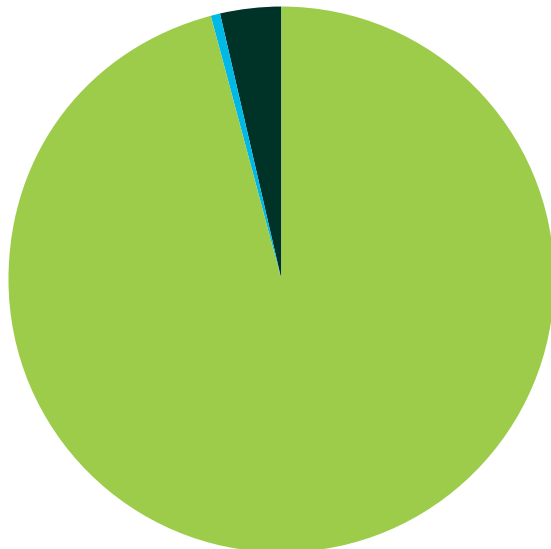
13-year-old girl

"I enjoyed the broadness of the requirements as it allowed you to use your creativity and produce something almost completely new."

12-year-old girl

"I have had a great time working with different people and seeing the different stages of developing such as planning, accounting and making."

12-year-old girl



Student feedback

- Positive: **96%** (3,007 students)
- Negative: **1%** (17 students)
- Both: **3%** (106 students)



Teacher quotes

"This was a brilliant opportunity for the year 8 students. Thank you! For girls it was a step forwards in believing that women can be engineers!"

"Fantastic day, extremely well organised and inclusive of all. Pupils were excited and thoroughly interested from the get-go. Excellent delivery and leadership all day."

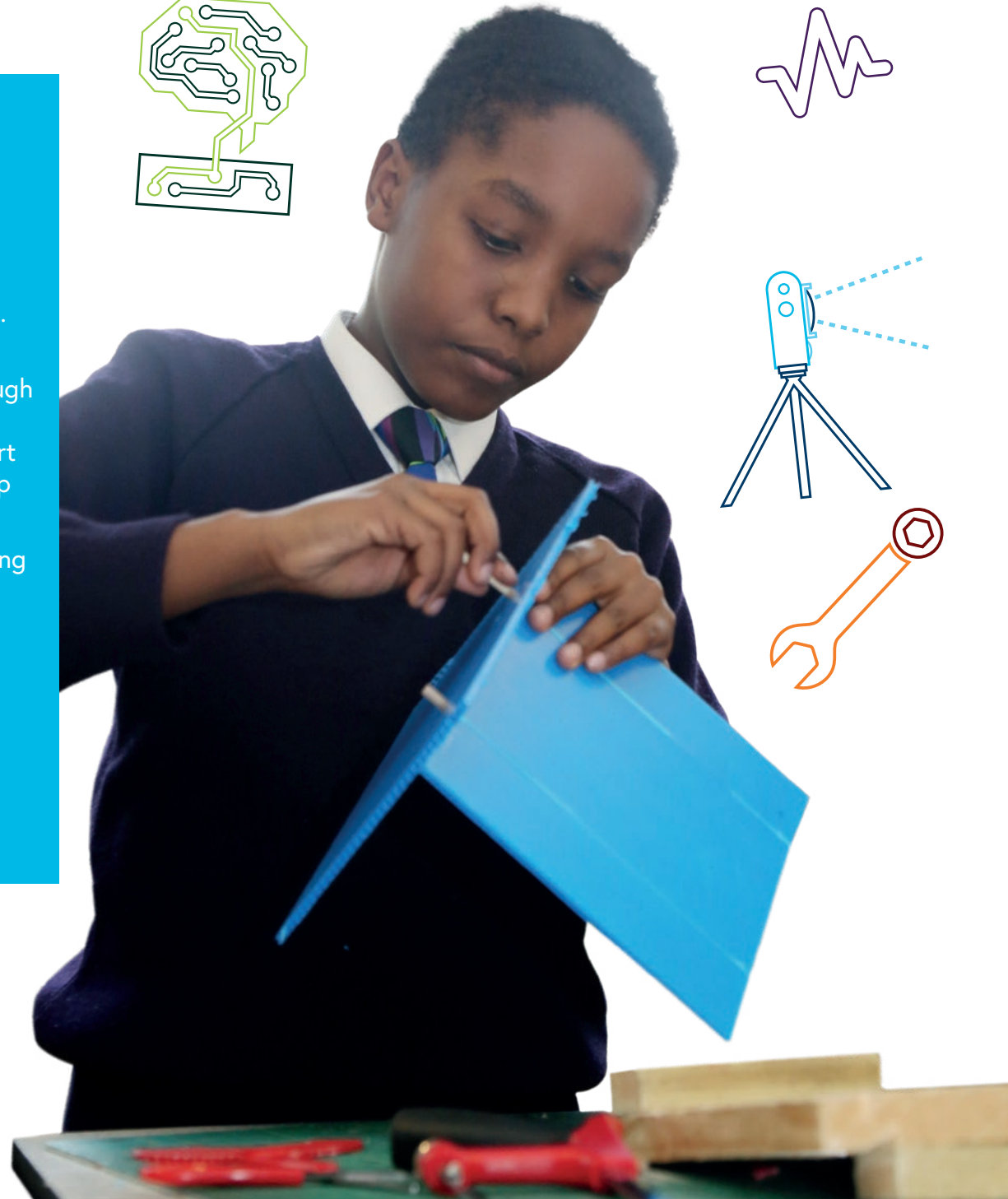
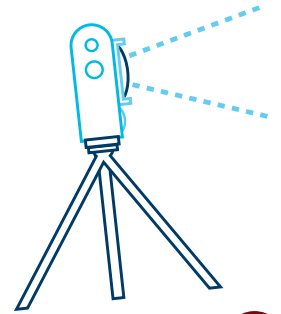
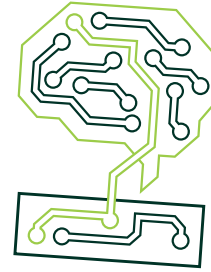
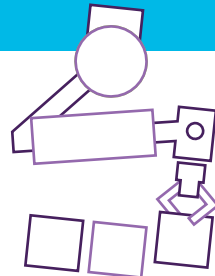
"Fantastically organised day that allows students to learn through practical application, but also make mistakes in a safe and supportive environment. While they may be out of their comfort zones, they feel confident that they will still be able to develop on ideas and see it through!"

"Fantastic day giving amazing real-life experiences of engineering practices."

"The level of challenge is great; it stretches and goes beyond knowledge from their science and tech lessons."

"Absolutely class, students have missed hands on, creative events like these, so different to what they do in school and the Challenge Leader was so engaging. Thanks."

"Great opportunity for imagineering!
Creative and productive day!"



Teacher feedback

The following statistics represent the % of teachers who were in agreement with these statements (information gathered from 383 teachers):

- The level of complexity was suitable for a National STEM challenge aimed at students aged 12 to 13 years 100%
- The interest of the students was retained throughout the day 100%
- The students learnt new concepts and expanded their knowledge base 100%
- The registration process was straightforward with enough time to plan for the event 96%
- I would be interested in taking part next year 99%
- I would recommend the IET Faraday Programme to other teachers 99%

Special thanks

Faraday Challenge Days really do inspire students and raise the profile of STEM overall.

The IET Faraday Challenge has this year reached more young people thanks to the generosity of companies and charities who have funded individual events or contributed towards the core IET events and online teaching resources.

A huge thank you to you all.

The next generation of engineers will have better skills thanks to their IET Faraday experiences and thanks to you.



David Family Foundation





The IET

No. of events: **98**, No. students: **3,227**, No. of schools: **186**

Date	Host School	Location
9 September 2021	The Castle School	Taunton
16 September 2021	Chigwell School	Chigwell
22 September 2021	Walney School	Barrow-in-Furness
28 September 2021	Farnham Heath End School	Farnham
29 September 2021	Bohunt School	Liphook
29 September 2021	Croydon High School	Croydon
5 October 2021	Penicuik High School	Midlothian
6 October 2021	Bishopbriggs Academy	Glasgow
12 October 2021	Norton Hill School	Bath
13 October 2021	Millfield School	Street
14 October 2021	Sandringham School	St Albans
19 October 2021	Harris Church of England Academy	Rugby
20 October 2021	King Edward VI Camp Hill School for Girls	Birmingham
20 October 2021	The Royal Grammar School Worcester	Worcester
21 October 2021	Cleeve School	Cheltenham
2 November 2021	Deanery High School	Wigan
3 November 2021	Darwen Aldridge Community Academy	Darwen
4 November 2021	Lewis Girls' School	Ystrad Mynach
4 November 2021	The Academy of St. Nicholas	Liverpool
5 November 2021	University of Bristol	Bristol
9 November 2021	Humberston Academy	Grimsby
16 November 2021	Lady Eleanor Holles School	Hampton
23 November 2021	Ringwood School	Ringwood
24 November 2021	St Thomas More Catholic High School	Crewe

Student feedback

Age: **11: 1** (0.03%), **12: 1,800** (55.78%), **13: 1,367** (42.36%), **14: 21** (0.65%), **15: 1** (0.03%), **Not specified: 37** (1.15%)

Gender: **Male: 1,559** (48.31%), **Female: 1,602** (49.64%), **Other: 14** (0.43%), **Not specified 52** (1.61%)

The following statistics represent the % of students who were in agreement with these statements:

- I enjoyed the Faraday Challenge **99%**
- I learnt new things **97%**
- I now understand more about what engineering is **97%**
- I have a better idea about what engineers do and the skills they need **96%**
- Before today I was considering studying or working in engineering **33%**
- Following this event I am now considering studying or working in engineering **59%**
- I'd like to do something like this again **96%**

Date	Host School	Location
24 November 2021	The Arnewood School	New Milton
25 November 2021	Leweston School	Sherborne
25 November 2021	Wellington School	Altrincham
29 November 2021	Kennet School	Thatcham
30 November 2021	Queen Anne's School	Reading
1 December 2021	Little Heath School	Reading
2 December 2021	Notting Hill and Ealing High School	Ealing
7 December 2021	Brentwood School	Brentwood
7 December 2021	Withington Girls' School	Manchester
8 December 2021	Thomas Gainsborough School	Sudbury
9 December 2021	Glossopdale School	Glossop
13 December 2021	Carleton High School	Pontefract
13 December 2021	St Dunstan's College	Catford



Date	Host School	Location
14 December 2021	Fulneck School	Pudsey
15 December 2021	Ralph Thoresby School	Leeds
16 December 2021	Waseley Hills High School	Birmingham
10 January 2022	Fearnhill School	Letchworth Garden City
11 January 2022	The Hemel Hempstead School	Hemel Hempstead
12 January 2022	St Georges School	Harpenden
14 January 2022	The Burgess Hill Academy	Burgess Hill
18 January 2022	Hornsea School	Hornsea
24 January 2022	The Leigh Academy	Dartford
25 January 2022	Longfield Academy	Longfield
26 January 2022	Dartford Grammar School	Dartford
27 January 2022	Retford Oaks Academy	Retford
31 January 2022	University of Portsmouth	Portsmouth
1 February 2022	Prestfelde School	Shrewsbury
2 February 2022	Ellesmere College	Ellesmere
3 February 2022	Mary Webb School & Science College	Pontesbury
8 February 2022	Wreake Valley Academy	Leicester
9 February 2022	Avanti Fields School	Leicester
9 February 2022	School of Science and Technology Maidstone	Maidstone
10 February 2022	Maidstone Grammar School	Maidstone
11 February 2022	Weald of Kent Grammar School	Sevenoaks
21 February 2022	The Nottingham Emmanuel School	Nottingham
22 February 2022	The Trinity Catholic School	Nottingham
28 February 2022	Eden Girls' School	Coventry
1 March 2022	Kenilworth School	Kenilworth



Student quotes

"It was really nice to work with people I typically wouldn't work with, as we pulled through and created something fun and creative; something that I wouldn't have done if I hadn't signed up for this activity."

12-year-old girl

"The Faraday Challenge Day was really fun and helped me learn about engineering and helped me work well in a group."

12-year-old girl

"I really liked how we got attached to the project because of how we worked. I thought it was awesome that I made new friends as I was in an all girls team except for me."

12-year-old boy

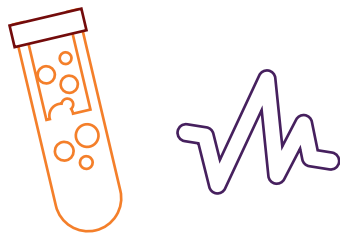
"I enjoyed today as it was something I've never done before."

12-year-old girl

"The Faraday Challenge is a great way to teach kids about engineering and make them think about others and it was a very fun day."

12-year-old girl

Date	Host School	Location
2 March 2022	The Potteries Museum & Art Gallery	Stoke-on-Trent
2 March 2022	Berkhamsted School	Berkhamsted
3 March 2022	Trinity Academy	Halifax
4 March 2022	University of Derby	Derby
7 March 2022	The Deanery CE Academy	Swindon
8 March 2022	Trafalgar School	Salisbury
8 March 2022	Ysgol Clywedog	Wrexham
9 March 2022	The Mosslands School	Wallasey



Teacher feedback

Feedback gathered from **247** teachers.

The following statistics represent the % of teachers who were in agreement with these statements:

- The level of complexity was suitable for a National STEM challenge aimed at students aged 12 to 13 years **100%**
- The interest of the students was retained throughout the day **100%**
- The students learnt new concepts and expanded their knowledge base **100%**
- The registration process was straightforward with enough time to plan for the event **95%**
- I would be interested in taking part next year **98%**
- I would recommend the IET Faraday Programme to other teachers **98%**



Teacher quotes

"Very enjoyable day, it was wonderful to see the kids interact with children they wouldn't normally and the only phone out was mine for photos. A truly interactive experience. THANK YOU!"

"An excellent day watching the pupils develop an idea from nothing. Well done and keep it up."



Date	Host School	Location
10 March 2022	Congleton High School	Congleton
10 March 2022	Walhampton School	Lymington
11 March 2022	The Bay CE School	Isle of Wight
14 March 2022	Dixons Kings Acadaemy	Bradford
16 March 2022	Penwortham Girls' High School	Preston
17 March 2022	Oakhill School	Clitheroe
18 March 2022	Preston Muslim Girls High School	Preston
21 March 2022	Wildern School	Southampton
22 March 2022	Harrow Way Community School	Andover
23 March 2022	Samuel Ward Academy	Haverhill
29 March 2022	Onslow St Audrey's School	Hatfield
30 March 2022	Westfield Academy	Watford
31 March 2022	Yavneh College	Borehamwood
6 April 2022	Helston Community College	Helston
7 April 2022	Hayle Academy	Hayle
7 April 2022	University of York	Heslington
8 April 2022	St Wilfrid's Catholic High School & Sixth Form College	Featherstone
28 April 2022	Coltness High School	Wishaw
29 April 2022	Belmont Academy	Ayr
5 May 2022	Hugh Sexey C of E Middle School	Wedmore
6 May 2022	Chosen Hill School	Gloucester
11 May 2022	West Exe School	Exeter
12 May 2022	Mount Kelly College	Tavistock
13 May 2022	University of Plymouth	Plymouth
18 May 2022	Larkmead School	Abingdon
7 June 2022	Mearns Academy	Laurencekirk
8 June 2022	Arbroath High School	Arbroath
9 June 2022	Glenrothes High School	Glenrothes



“ “ Student quotes

"I really enjoyed this challenge and the skills I learnt from it will help me in the future."

12-year-old boy

"I really enjoyed learning new skills and being called an engineer for the entire day. I feel like I have a better knowledge of what engineering is like."

13-year-old girl

"I enjoyed the day, I felt it was very impactful as my ideas could be considered for future in the NHS industry and could help millions more. It also contributed to learning about crafts and engineering."

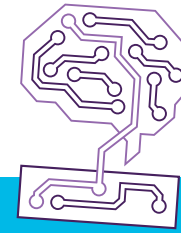
13-year-old girl

"The day was fun and I learnt a lot about how important engineering is."

13-year-old boy

"I really enjoyed this event and I learnt lots about engineering. It was fun to be able to create an idea I had."

12-year-old boy



“ “ Teacher quotes

"Excellent event to promote engineering within schools!!"

"Amazing day for the students. They felt challenged and were enthusiastic about every part."

"Absolutely brilliant Challenge Leader, so engaging and encouraging."

"A lovely day, it was a pleasure working with the Challenge Leader, the students seemed to thoroughly enjoy the whole process and they have definitely learnt how to work as a team. Brilliant!!"

"Great pace today. Great tone taken by Challenge Leader."

"A very worthwhile day that got pupils thinking outside the box and comfort zone."

"Brilliant brief and thoroughly enjoyed the day. The processes the pupils went through were really challenging."

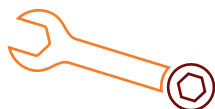
"The best school trip I have attended!"

"As teaching staff we were all in awe of the reward in teaching students to take the project seriously, they stayed motivated throughout the whole process. Perfect timing and approach."

"Excellent day and well presented by the Challenge Leader. Students were engaged from start to finish. A+"

"Superbly organised as always. Students could relate to the topic easier than previous tasks."

"Workshops like this are so important for keeping students interested in D&T and engineering."



The David Family Foundation

No. of events: 10, No. students: 297, No. of schools: 10

Date	Host School	Location
7 October 2021	St. Roch's Secondary School	Glasgow
18 October 2021	Woodfield Academy	Redditch
10 November 2021	John Whitgift Academy	Grimsby
23 November 2021	Broughton Hall Catholic High School	Liverpool
8 December 2021	Whalley Range High School	Manchester
14 December 2021	Blue Coat Church of England Academy	Walsall
25 January 2022	Winifred Holtby Academy	Hull
27 April 2022	Irvine Royal Academy	Irvine
23 May 2022	The Bolsover School	Chesterfield
27 May 2022	St Paul's High School	Newry

Student feedback

Age: 11: 9 (3.03%), 12: 143 (48.15%), 13: 137 (46.13%), 14: 6 (2.02%), Not specified: 2 (0.67%)

Gender: Male: 131 (44.11%), Female: 163 (54.88%), Not specified: 3 (1.01%)

The following statistics represent the % of students who were in agreement with these statements:

- I enjoyed the Faraday Challenge 97%
- I learnt new things 97%
- I now understand more about what engineering is 96%
- I have a better idea about what engineers do and the skills they need 95%
- Before today I was considering studying or working in engineering 31%
- Following this event I am now considering studying or working in engineering 54%
- I'd like to do something like this again 93%

Student quotes

"I learnt a bit more about engineering and I am so proud of myself."

12-year-old boy

"I found this very challenging, but I learnt new skills and facts about engineering while making this project."

12-year-old girl

"I really enjoyed this as it was challenging in a good way and it was a good teamwork experience."

11-year-old boy

"I think it will help us in the future with saving money and teamwork and it was fun."

13-year-old boy

"I enjoyed it I am now more interested in engineering. Thank you for the experience."

12-year-old boy

"It was an amazing experience, I tried new things that I wouldn't have before."

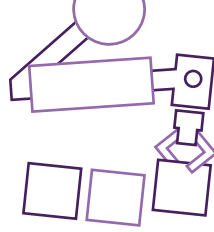
13-year-old girl

"It was very fun and it was nice to experiment and test new things/ideas."

13-year-old girl

"I really loved this and do think that I would love to do this again. It was an amazing opportunity, thank you for it! I am also considering becoming a computer engineer now, like my brother wants to be!"

12-year-old girl



Teacher feedback

Feedback gathered from 16 teachers.

The following statistics represent the % of teachers who were in agreement with these statements:

- The level of complexity was suitable for a National STEM challenge aimed at students aged 12 to 13 years **100%**
- The interest of the students was retained throughout the day **94%**
- The students learnt new concepts and expanded their knowledge base **100%**
- The registration process was straightforward with enough time to plan for the event **100%**
- I would be interested in taking part next year **100%**
- I would recommend the IET Faraday Programme to other teachers **100%**



Teacher quotes

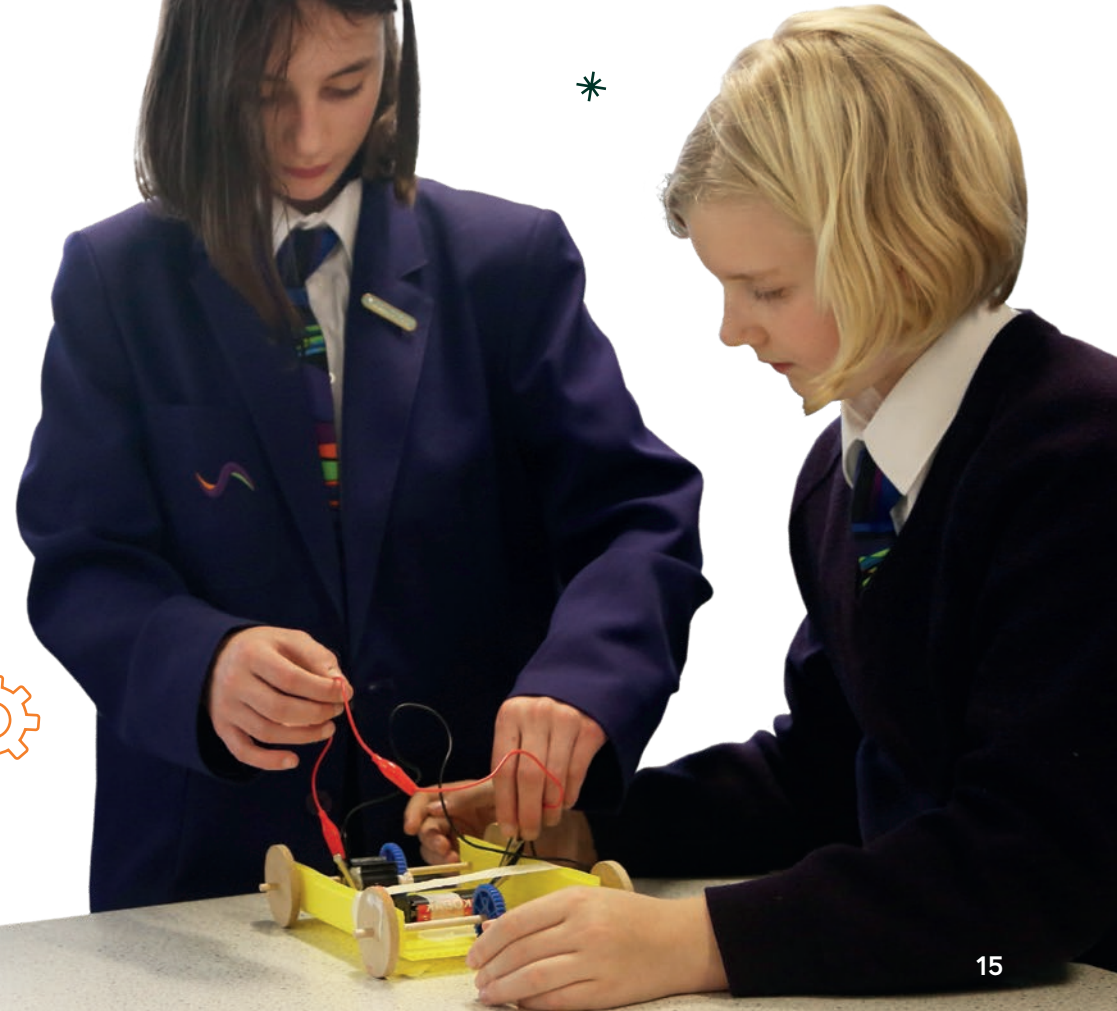
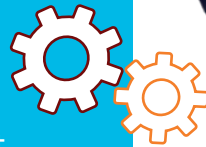
"Excellent day for the students, they were completely engaged throughout the day and came up with some amazing ideas."

"I think this is a brilliant experience for every kid and has a really good focus on STEM."

"An excellent challenge topic and an excellent Challenge Leader. Thank you."

"Amazing experience – wish I was a student again to have a go myself!"

"Fantastic day, pupils were thoroughly engaged throughout the whole day. They also learnt content missed due to covid."



The Jack Petchey Foundation

No. of events: **28**, No. students: **947**, No. of schools: **34**

Date	Host School	Location
14 September 2021	The Royal Liberty School	Romford
15 September 2021	Trinity Catholic High School	Woodford Green
30 September 2021	Richmond Park Academy	Richmond
13 October 2021	Whitefriars School	Harrow
15 November 2021	Orleans Park School	Twickenham
19 November 2021	Philip Morant School and College	Colchester
3 December 2021	The Compton School	North Finchley
9 December 2021	The Billericay School	Billericay
14 December 2021	The Norwood School	Norwood
18 January 2022	Esher Church of England High School	Esher
19 January 2022	The Kingston Academy	Kingston upon Thames
20 January 2022	Riddlesdown Collegiate	Purley
22 February 2022	The Gilbert School	Colchester
23 February 2022	St Mark's West Essex Catholic School	Harlow
24 February 2022	Plashet School Newham	East Ham
24 February 2022	Roding Valley High School	Loughton
25 February 2022	Sarah Bonnell School	Stratford
14 March 2022	Park View School	West Green
15 March 2022	Copthall School	Mill Hill
16 March 2022	Harris Academy St John's Wood	St John's Wood
22 March 2022	Saffron Walden County High School	Saffron Walden
28 March 2022	Enfield County School for Girls	Enfield
19 April 2022	The Stanway School	Colchester
20 April 2022	The Sandon School	Chelmsford

Date	Host School	Location
9 May 2022	Wallington High School for Girls	Wallington
10 May 2022	Southborough High School	Surbiton
17 May 2022	Harris Girls' Academy Bromley	Beckenham
18 May 2022	The Ravensbourne School	Bromley

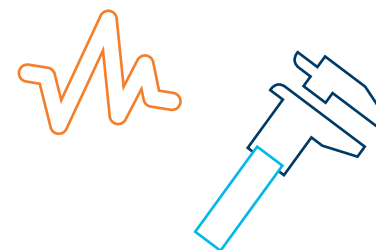
Student feedback

Age: 11: 1 (0.11%), **12: 534** (56.39%), **13: 380** (40.13%), **14: 21** (2.2%),
Not specified: 11 (1.16%)

Gender: Male: 411 (43.40%), **Female: 516** (54.49%), **Other: 1** (0.11%),
Not specified: 19 (2.01%)

The following statistics represent the % of students who were in agreement with these statements:

- I enjoyed the Faraday Challenge **98%**
- I learnt new things **97%**
- I now understand more about what engineering is **97%**
- I have a better idea about what engineers do and the skills they need **95%**
- Before today I was considering studying or working in engineering **35%**
- Following this event I am now considering studying or working in engineering **60%**
- I'd like to do something like this again **96%**





Student quotes

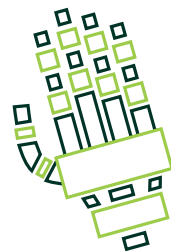
"I really enjoyed my time here today, it was a very unique experience."
12-year-old boy

"Very fun and informative, I loved the team-based activities and I have gained lots of respect for engineers."
12-year-old girl

"This really helped me think outside the box and create things I wouldn't of."
12-year-old boy

"I loved this challenge! It has shown me an expanded view on engineering."
12-year-old boy

"I loved the STEM workshop as it had me work as an engineer, which I want to be when I grow up, being that my dad is one."
12-year-old boy



Teacher feedback

Feedback gathered from 45 teachers.

The following statistics represent the % of teachers who were in agreement with these statements:

- The level of complexity was suitable for a National STEM challenge aimed at students aged 12 to 13 years 100%
- The interest of the students was retained throughout the day 100%
- The students learnt new concepts and expanded their knowledge base 100%
- The registration process was straightforward with enough time to plan for the event 100%
- I would be interested in taking part next year 100%
- I would recommend the IET Faraday Programme to other teachers 100%



Teacher quotes

"Another excellent Faraday Challenge Day. It was great to be able to have an in-person challenge again."

"Well delivered and the brief was great this year. Something the students could really relate too."

"Facilitator was fantastic. Very engaging day. Thank you."

"The challenge this year was really good. It really lent itself to very original ideas."

"Very impressed! Super impressed with pupil commitment and work throughout the day. Thank you! Excellent day!"

"Students had a fun day learning in teams. They were challenged and demonstrated problem solving."



The Institute of Healthcare Engineering and Estate Management

No. of events: 12, No. students: 416, No. of schools: 26

Date	Host School	Location
10 September 2021	Honiton Community College	Honiton
21 September 2021	Ulverston Victoria High School	Ulverston
4 October 2021	Cargilfield School	Edinburgh
3 November 2021	Bishop Vaughan Catholic School	Swansea
11 November 2021	Skegness Academy	Skegness
15 December 2021	Swanshurst School	Birmingham
12 January 2022	Brighton Aldridge Community Academy	Brighton
19 January 2022	Ampleforth College	York
26 January 2022	Sirius Academy West	Hull
8 March 2022	The Cowplain School	Waterlooville
24 March 2022	Hadleigh High School	Ipswich
23 May 2022	Queen's University Belfast	Belfast

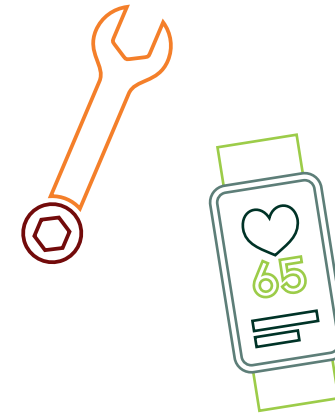
Student feedback

Age: 11: 7 (1.68%), 12: 256 (61.54%), 13: 151 (36.30%), Not specified: 2 (0.48%)

Gender: Male: 198 (47.60%), Female: 216 (51.92%), Other: 1 (0.24%), Not specified: 1 (0.24%)

The following statistics represent the % of students who were in agreement with these statements:

- I enjoyed the Faraday Challenge 97%
- I learnt new things 97%
- I now understand more about what engineering is 95%
- I have a better idea about what engineers do and the skills they need 95%
- Before today I was considering studying or working in engineering 30%
- Following this event I am now considering studying or working in engineering 54%
- I'd like to do something like this again 95%



Student quotes

- "As a female I really enjoyed this opportunity to do something in the engineering world."
12-year-old girl
- "I thought it was very fun and will help me in life having lots more different life skills."
13-year-old boy
- "I enjoyed the Faraday Challenge and I feel that I have learnt a lot more about engineering."
12-year-old girl
- "I really enjoyed this, it changed the way I saw engineering."
12-year-old boy
- "I enjoyed being able to understand what engineering is actually like."
13-year-old girl



Teacher feedback

Feedback gathered from **38** teachers.

The following statistics represent the % of teachers who were in agreement with these statements:

- The level of complexity was suitable for a National STEM challenge aimed at students aged 12 to 13 years **100%**
- The interest of the students was retained throughout the day **100%**
- The students learnt new concepts and expanded their knowledge base **100%**
- The registration process was straightforward with enough time to plan for the event **97%**
- I would be interested in taking part next year **97%**
- I would recommend the IET Faraday Programme to other teachers **97%**



“ “ Teacher quotes

"Thoroughly enjoyed the day! I saw our students display a range of abilities and was very proud of them!"

"A really enjoyable experience and the pupils loved doing something different and thought provoking. The Challenge Leader was excellent and his enthusiasm promoted the pupils to think more and participate more."

"Excellent day with interesting and relevant start to a design/ engineering project for students. A subject lots could relate to. Wide range of materials/systems and very well led, organised and delivered."

"A great idea for a STEAM Project. Our students have enjoyed their challenge day very much. Thank you!"

"An excellent day that our students really benefited from! Thank you."

"Fantastic opportunity for pupils to work together and learn in a relaxed way. Great engineering design opportunities and team building."



Network Rail

No. of events: 3, No. students: 99, No. of schools: 3

Date	Host School	Location
5 January 2022	Southfield School	Kettering
6 January 2022	Bedford Academy	Bedford
7 January 2022	Arnold Academy	Barton-le-Clay

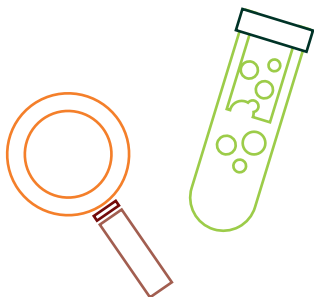
Student feedback

Age: 12: 61 (61.62%), 13: 37 (37.37%), Not specified: 1 (1.01%)

Gender: Male: 40 (40.40%), Female: 59 (59.60%)

The following statistics represent the % of students who were in agreement with these statements:

- I enjoyed the Faraday Challenge 100%
- I learnt new things 100%
- I now understand more about what engineering is 94%
- I have a better idea about what engineers do and the skills they need 97%
- Before today I was considering studying or working in engineering 23%
- Following this event I am now considering studying or working in engineering 49%
- I'd like to do something like this again 96%



Student quotes

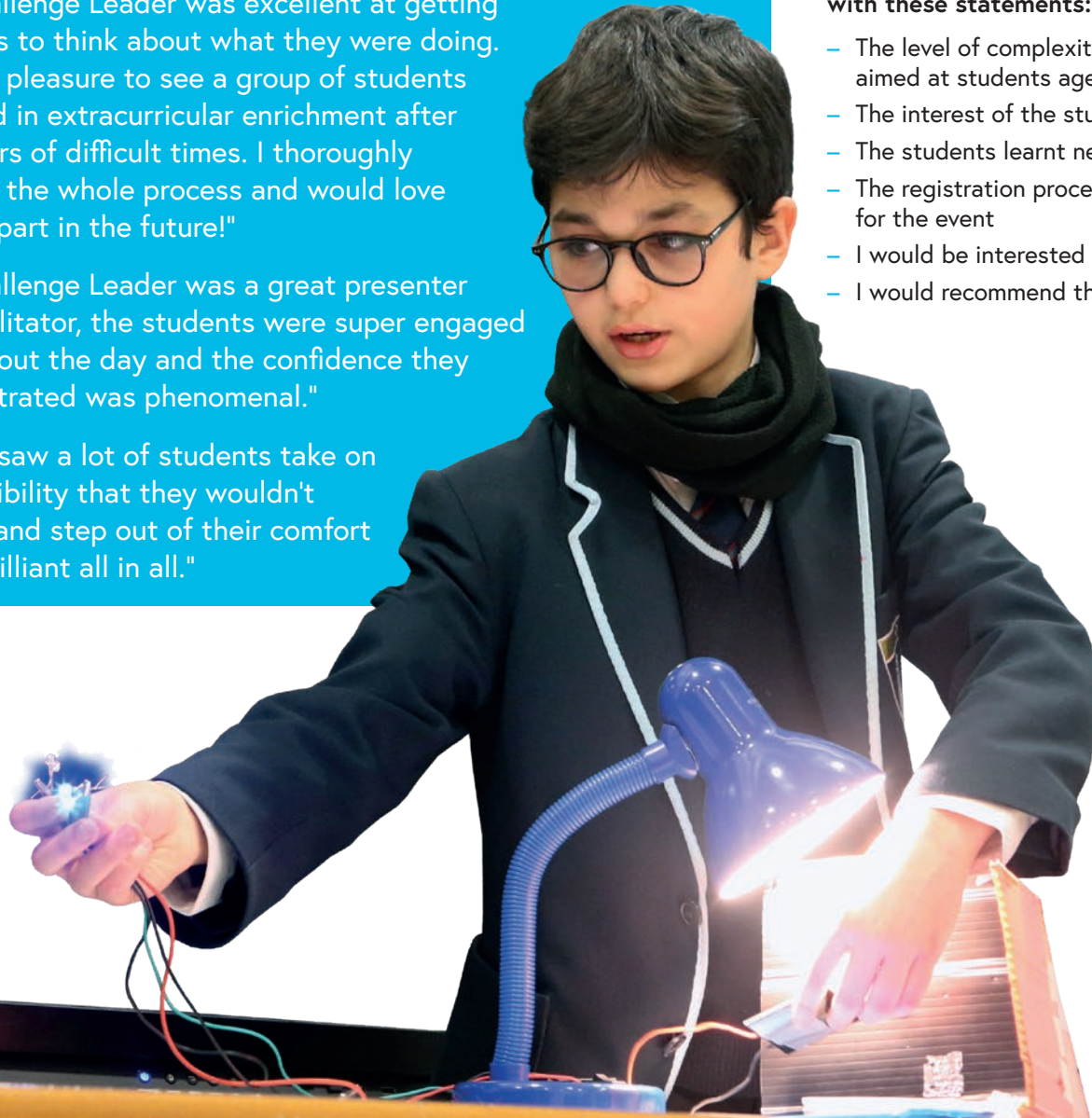
- "I enjoyed working as a team and experimenting with different materials to create something new."
12-year-old girl
- "I enjoyed working together and using creativity to design something new."
12-year-old girl
- "This was very fun, I learnt somethings that I missed due to covid and loved the experience and competition against my peers."
12-year-old girl
- "I thoroughly enjoyed this, learnt a lot more and would like to do this again."
12-year-old girl
- "It was really enjoyable and made me think outside the box. Would definitely do it again!"
12-year-old girl
- "I loved the experience and would love to do this again. Before this, I never thought about engineering, but from now I'll consider it."
13-year-old girl
- "I really liked this challenge and learnt from building prototypes."
13-year-old boy

““ Teacher quotes

"Really good day, well organised, well run, well delivered. The Challenge Leader was excellent at getting students to think about what they were doing. It was a pleasure to see a group of students engaged in extracurricular enrichment after two years of difficult times. I thoroughly enjoyed the whole process and would love to take part in the future!"

"The Challenge Leader was a great presenter and facilitator, the students were super engaged throughout the day and the confidence they demonstrated was phenomenal."

"Today I saw a lot of students take on responsibility that they wouldn't usually and step out of their comfort zone. Brilliant all in all."

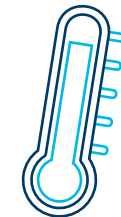


Teacher feedback

Feedback gathered from 5 teachers.

The following statistics represent the % of teachers who were in agreement with these statements:

- The level of complexity was suitable for a National STEM challenge aimed at students aged 12 to 13 years 100%
- The interest of the students was retained throughout the day 100%
- The students learnt new concepts and expanded their knowledge base 100%
- The registration process was straightforward with enough time to plan for the event 100%
- I would be interested in taking part next year 100%
- I would recommend the IET Faraday Programme to other teachers 100%





R C Snelling Charitable Trust

No. of events: **2**, No. students: **56**,
No. of schools: **5 and 1 home educated team**

Date	Host School	Location
4 May 2022	Framingham Earl High School	Norwich
5 May 2022	Dereham Neatherd High School	Dereham

Student feedback

Age: **12: 21** (37.5%), **13: 34** (60.71%), **Not specified: 1** (1.79)

Gender: **Male: 25** (44.64%), **Female: 28** (50%), **Not Specified: 3** (5.36%)

The following statistics represent the % of students who were in agreement with these statements:

- I enjoyed the Faraday Challenge **100%**
- I learnt new things **98%**
- I now understand more about what engineering is **98%**
- I have a better idea about what engineers do and the skills they need **100%**
- Before today I was considering studying or working in engineering **32%**
- Following this event I am now considering studying or working in engineering **68%**
- I'd like to do something like this again **100%**



“ “ Student quotes

- "This was an amazing experience. I learnt some new things and my team worked very well together and made an amazing prototype!"
13-year-old boy
- "Loved it as I never get to do anything like this."
13-year-old male
- "This was such a unique experience. I'd definitely do it again."
13-year-old girl
- "It was very fun and I have learnt some new things. It has made me consider work in engineering."
13-year-old girl
- "I think it was fun and I really enjoyed making and creating the challenge, it was a bit stressful but I liked doing it."
13-year-old girl



Teacher feedback

Feedback gathered from 5 teachers.

The following statistics represent the % of teachers who were in agreement with these statements:

- The level of complexity was suitable for a National STEM challenge aimed at students aged 12 to 13 years 100%
- The interest of the students was retained throughout the day 100%
- The students learnt new concepts and expanded their knowledge base 100%
- The registration process was straightforward with enough time to plan for the event 100%
- I would be interested in taking part next year 100%
- I would recommend the IET Faraday Programme to other teachers 100%



“ “ Teacher quotes

"The students were totally enthusiastic in the tasks. It was fantastic to see students working in different groups to the norm and working so well together. 100% commitment from all during the design and making session. The Challenge Leaders questioning of the students during the presentation session was great, teasing out answers to the how and why the products worked. After so long having to avoid teamwork due to covid, it was fantastic to see the students doing this so well. Many thanks for coming to the school for the Challenge Day."

"Excellent opportunity for creative student led teamwork, great facilitator, inspiring day. Thank you."

"Excellent, very enjoyable, pupils engaged."





The Reece Foundation

No. of events: **12**, No. students: **387**, No. of schools: **19**

Date	Host School	Location
9 November 2021	Gosforth Central Middle School	Newcastle upon Tyne
10 November 2021	Emmanuel College	Gateshead
11 November 2021	Emmanuel College	Gateshead
1 February 2022	North Shore Academy	Stockton-on-Tees
2 February 2022	Framwellgate School Durham	Durham
3 February 2022	King James I Academy	Bishop Auckland
22 March 2022	Egglescliffe School & Sixth Form College	Stockton-on-Tees
23 March 2022	Northfield School & Sports College	Stockton-on-Tees
24 March 2022	Huntcliff Secondary School	Saltburn-by-the-Sea
8 June 2022	Duke's Secondary School	Ashington
9 June 2022	Sacred Heart R C High School	Newcastle upon Tyne
10 June 2022	Grace College	Gateshead



Student feedback

Age: 11: **1** (0.26%), 12: **176** (45.48%), 13: **206** (53.23%), **Not specified:** **4** (1.03%)

Gender: Male: **166** (42.89%), Female: **209** (54.01%), Other: **2** (0.52%), **Not specified:** **10** (2.58%)

The following statistics represent the % of students who were in agreement with these statements:

- I enjoyed the Faraday Challenge **97%**
- I learnt new things **98%**
- I now understand more about what engineering is **98%**
- I have a better idea about what engineers do and the skills they need **94%**
- Before today I was considering studying or working in engineering **37%**
- Following this event I am now considering studying or working in engineering **56%**
- I'd like to do something like this again **96%**



Student quotes

"I really enjoyed today because I got to try and invent something new, compete and try and help Alder Hey Children's Hospital."

12-year-old girl

"I really enjoyed being able to have some creative freedom today."

12-year-old boy

"I enjoyed working as a team and managing to make something. Also, I enjoyed learning something new. This experience was lots of fun."

12-year-old girl



Teacher feedback

Feedback gathered from 27 teachers.

The following statistics represent the % of teachers who were in agreement with these statements:

- The level of complexity was suitable for a National STEM challenge aimed at students aged 12 to 13 years 100%
- The interest of the students was retained throughout the day 100%
- The students learnt new concepts and expanded their knowledge base 100%
- The registration process was straightforward with enough time to plan for the event 96%
- I would be interested in taking part next year 100%
- I would recommend the IET Faraday Programme to other teachers 100%



Teacher quotes

"Great continuing professional development for me. The day was fabulous! The pupils developed their interpersonal skills, learnt about technology and creativity, and made links to future careers. We loved it too!"

"It was an eye-opening event. Quite value packed too!"

"Great day, loved the facilitator, pupils really engaged and responded well. Thanks."

"Excellent presentation. The task kept students engaged, involved and interested at all times. Personally, I really enjoyed it."

"The whole day was very well organised and the students were engaged, positive and enjoyed it throughout."





National Final

“ Student quotes

"A fun and interesting experience. Helped me think about engineering as an option."

13-year-old boy

"The final was amazing, such a great thing to be able to experience!"

14-year-old girl

"Overall, I have really enjoyed this challenge and it will definitely benefit me in years to come. It also really opened my eyes to the idea of being an engineer."

13-year-old girl

"I think this challenge has not only inspired my love of engineering but has made me closer to my friends and boosted all of our confidence as a team."

13-year-old girl

"This Challenge Day has really inspired me and developed my perseverance and confidence preparing me for the real world. I really enjoyed the last two days and my team and I have become closer."

13-year-old girl

"I have learnt a lot from this challenge and enjoyed working as a team."

13-year-old girl



“ Teacher quotes

"This was an amazing experience for our team and a wonderful opportunity to be valued for their ideas."

"Thank you so much for this fantastic opportunity/event. Superbly organised/led! Five groups of winners."

"It has been amazing, and I can't thank everyone enough."

"It was all really well organised, such a great opportunity for our students! Thank you so much."



Virtual Faraday Challenge

This season we also extended the Faraday Challenge Day programme to include a Virtual Faraday Challenge to give young people more ways to get involved in the programme. The challenge was open for anyone between 7 and 15 years, with the option for young people to take part at home, in school, individually or as a group or family.

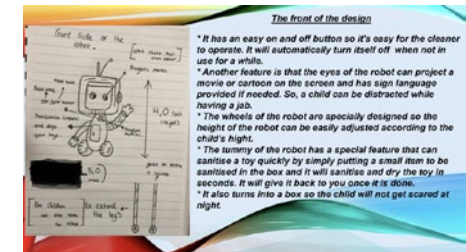
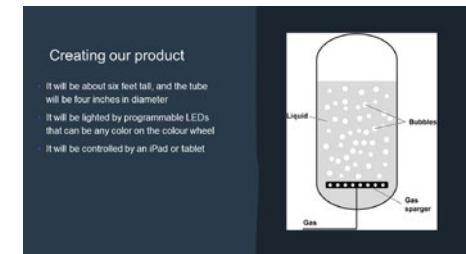
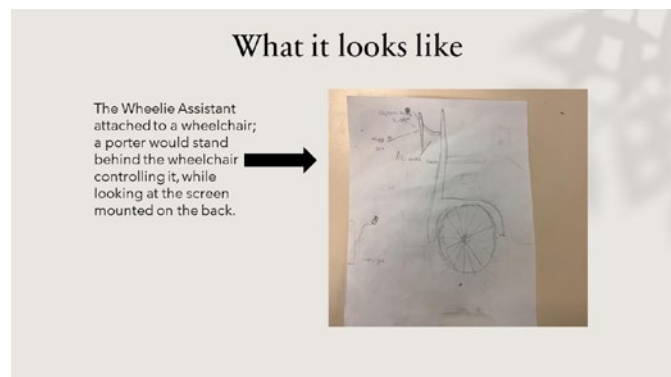
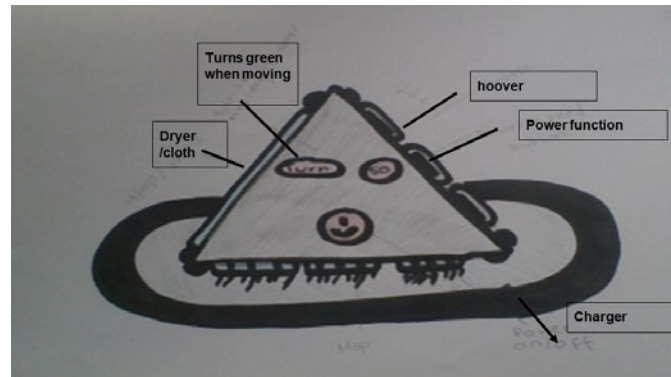
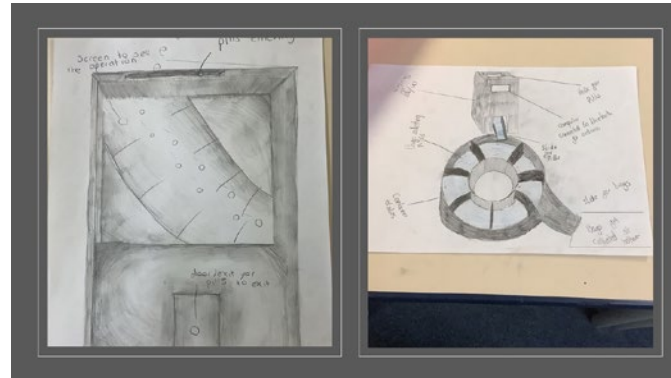
This season's Virtual Faraday Challenge tasked young people to see if they could assist the work of The Institute of Healthcare Engineering and Estate Management (IHEEM) in designing a product to help IHEEM members service a children's hospital. The brief for the challenge was given by video from our Faraday Challenge Day Challenge Leaders and young people had to demonstrate that they had the engineering skills required to think of a solution and produce a design of their idea. If they also wanted to build a model of their idea they could.

Entries were submitted as a PowerPoint presentation and judged on how the design met the criteria in the design brief; explaining how the product worked and was constructed, appropriate use of electronic components and how the presentation was communicated.

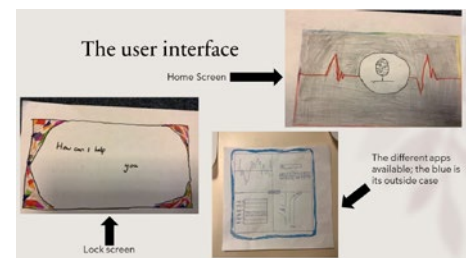
The best entries received a prize and featured on our website.

No. of entries: **29**

No. of participants: **123**



This is my robot dog, I designed it in Blender using a tutorial, then I rendered it:



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