



Technology is the future, and technology depends on Electronics

GIRLS INTO ELECTRONICS 2023

*"I'm so grateful to **Girls into Electronics** for introducing Electronics to me because it's opened up whole new career options."*

This year, the *Girls into Electronics* programme provided a record number of girls (465), between the ages of 15-18, with a unique opportunity to develop an interest in Electronics.

A series of one-day events, organised by the UKESF and hosted by 16 partner universities with support from Apple, showcased Electronic Engineering as a degree and a career. At the events, participants had the opportunity to:

- Attend a sample undergraduate lecture from a senior academic
- Hear from current female students about their experiences
- Tour the university department and see research facilities
- Learn about working in the sector by hearing from UKESF Scholars
- Take part in a 'hands on' introduction session to learn about microcontrollers.

96%

of participants rated the *Girls into Electronics* day as 'Good' or 'Excellent'

83%

of participants felt more enthused about Electronics after attending

54%

of participants who weren't considering a career in Electronics prior to attending, now are



King's College London

Why Girls into Electronics is Important

The UK Electronics Skills Foundation (UKESF) launched *Girls into Electronics* in 2019 to inspire female students, aged 15-17, to consider a career in the Electronics sector.

The global semiconductor industry is the fourth largest industry in the world, and the compound semiconductor market has been forecast to reach \$136 billion by 2024, of which the UK has an 8% share¹. However, the demand for employable graduates is currently outstripping supply. UCAS figures show that only 3,245 students enrolled on degrees in Electronic and Electrical Engineering in the UK in 2021, of which as few as 335 were women².

The programme was developed based on best practice on interventions to increase girls' aspirations for engineering and technology careers published by Engineering UK³. *Girls into Electronics* is just part of the UKESF's wider strategy to address the gender imbalance in the Electronics Sector.

The Programme

Girls into Electronics gave KS4 pupils and Sixth Formers the unique opportunity to develop their interest in Electronics. At the heart of the programme was a one-day event at a leading university. During the day, participants found out all about Electronics, studying the subject at university and enjoyed an opportunity to get hands on with microcontrollers. They heard from female students, researchers and graduates working in the Electronics sector and, this year, engineers from Apple also shared their experience working for the global tech giant on semiconductor technology.

“The lunch with Apple engineers was really insightful - I got to learn a lot about where Electronics can take you and the great things they do day to day in the Electronics sector.”

A sample lecture from a senior female academic

The subject of the lecture varied from university to university, but some examples included, medical engineering and the role electronics plays in Healthcare, Quantum Computing, using technology to capture Human Emotions and Photonics.

Experiences of students and engineers

Participants had the opportunity to hear from, and ask questions to, female engineers and interns working at Electronics companies, and lecturers and female students. This included face-to-face presentations and Q&A, as well as watching a video from UKESF Scholars.



¹ [The semiconductor industry in the UK \(parliament.uk\).](https://www.parliament.uk/business/committees/committees-a-z/commons-select/electronics-and-semiconductors/)

² [UCAS Undergraduate sector-level end of cycle data resources 2021](https://www.ucas.ac.uk/undergraduate/sector-level/end-of-cycle-data/resources/2021/)

³ A [review](#) by Engineering UK

A tour of the university department

The students were able to learn more about the host university, their labs and research facilities, and the cutting-edge work of the researchers and academics.

An introduction to microcontrollers

The students participated in a 'hands on' session which gave them an introduction to microcontrollers using the Grove Beginner Kit for Arduino, which they were able to take home with them.



Queen's University Belfast

"I really enjoyed working with the Arduino kits because it was really satisfying being able to see your code work on a physical object."

Following the event

The UKESF are keeping in touch with the participants, and their schools, to offer more support and encouragement about careers and study in Electronics. Immediately following the event, the UKESF shared a number of additional resources with the participants, to ensure they could continue to develop their interest in Electronics, as well as make the most of the Grove beginner kit for Arduino, at home.

Participant feedback on the programme

The programme has been very well received, and in a survey following the events, participants were able to feed back on the part of the day they enjoyed most:

- Arduino kit session - 44%
- Additional practical session (varies by university) - 15%
- Tour: 16%
- Demonstrations – 5%
- Q&As - 5%

89% of participants rated the practical sessions as 'good' or 'excellent'.



Aston University Birmingham

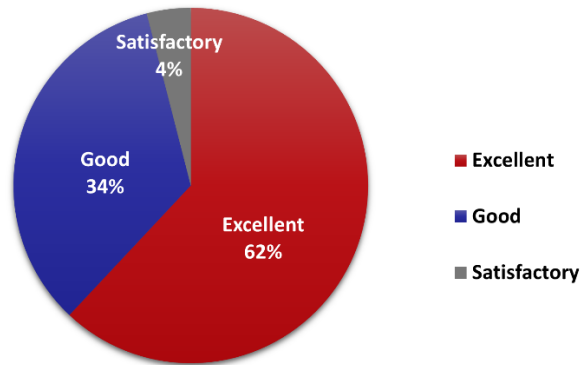
Impact

Participants were from 116 different secondary schools and 6th Form Colleges in England, Scotland and Northern Ireland. Almost half of the schools hadn't previously been involved with the UKESF's work and will now receive support from the charity's other outreach projects.

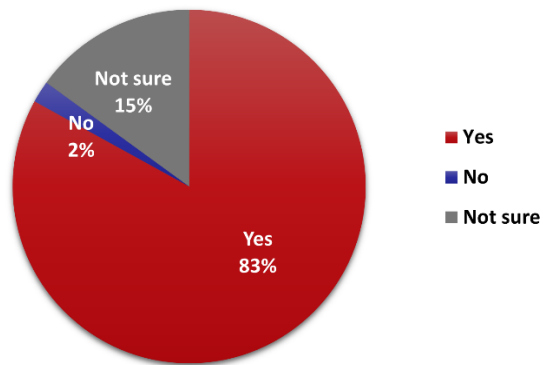
80% of students were from the main target of 11/12 school year groups

School year	% of participants
Year 9	8%
Year 10	8%
Year 11	42%
Year 12	38%
Year 13	4%

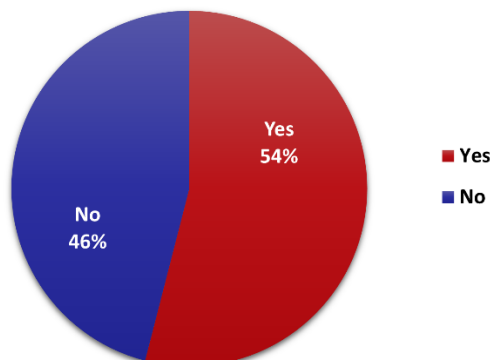
96% of pupils attending thought the event was "good" or "excellent"



83% of participants felt more enthused by Electronics after participating in the event



54% of respondents who weren't considering a career in Electronics prior to attending, now are



Diversity and Inclusivity

Polar4 quintile data – 18.9% of schools were in the lowest quintiles 1 & 2⁴

POLAR4 Quintile	Number of schools	% of schools
1	7	6.3%
2	14	12.6%
3	16	14.4%
4	27	24.3%
5	47	42.3%

42%

of participants were from ethnic minority backgrounds

25%

would be the first in their family to attend university

11%

of girls attending were eligible for free school meals

“Education can be a powerful force for equity, and help provide young women with the tools and opportunity to pursue a rewarding career in engineering. We’re thrilled to have worked with the UKESF on this important initiative, encouraging more women from all backgrounds to study electronic engineering and increase diverse representation in the field.” **Mari-Anne Chiromo, Apple Inclusion and Diversity Partnerships Lead, EMEIA**

Where next for Girls into Electronics?

The 2023 programme of 16 events was a significant scale up from previous years. In 2022, there were 10 events attended by 230 students. In 2019, before the pandemic, the inaugural event was held as a three-day residential course at Royal Holloway, University of London, attended by 22 students. Therefore, we have seen growth of over 200% in *Girls into Electronics* participation since the programme was launched.

Working with our university partners and sponsor, Apple, Girls into Electronics provided an opportunity to engage and inspire young people with Electronics. The feedback shows that the events had a very positive impact; raising awareness about the opportunities in Electronics and Engineering, as well as to encourage participants to consider it as an option for their future.

In 2024, the UKESF hopes to build on this year’s successful approach to offer more events as part of the *Girls into Electronics* programme. Also, to offer more opportunities for the schools and participants from this year.

⁴ The participation of local areas (POLAR) classification groups areas across the UK based on the proportion of young people who participate in higher education. See here: [About POLAR and Adult HE - Office for Students](#).

With Thanks

Our Sponsor



Our Partner Universities hosting events



About the UKESF

The UK Electronics Skills Foundation (UKESF) is an educational charity established in 2010. In the UK, Electronics, especially semiconductor design and manufacture, is a growing and strategically important sector of our economy. However, the demand for capable graduates far outstrips supply.

The UKESF works to tackle this national skills shortage in a coherent way; it operates collaboratively with major companies and leading universities. The UKESF also undertakes outreach and engagement activities to ensure that more schoolchildren are aware of Electronics and the opportunities available. This is achieved through a range of education Electronics-focused activities, projects and teacher training.

Girls into Electronics is just part of the UKESF's wider strategy to address the gender imbalance in the Electronics Sector. To find out more, visit ukesf.org or get in touch at info@ukesf.org.