

The Smallpeice Trust

2021/22

Annual Report



DARING YOUNG PEOPLE TO IMAGINE

In my teenage years man landed on the moon, inspiring my generation to believe engineers could not just think out of the box: they could operate beyond our planet. I have spent my life as an engineer working in this country and overseas. Engineering opened opportunities beyond my wildest dreams. Yet, when I was at school, I barely knew what engineering was.

This is why I am so passionate about introducing young people to the subject; allowing them to grasp from an early age the challenges, the fun, and the reward of engineering. For nearly 60 years the Smallpeice Trust has been inspiring young people to take up a career in engineering.

Our founder, Dr Cosby Smallpeice, was a notable engineering entrepreneur. His endowment still makes a significant contribution to our costs, so the money we raise goes to benefit our students. I must take this opportunity to thank our partners for their support through the difficult times we have all faced. Corporate partners, charities, teachers, universities, alumni, parents, and, of course, our dedicated staff have all helped to make possible our goal of reaching nearly 60,000 young people to develop their life, leadership and engineering skills.



The UK has a recognised shortage of engineers. Whichever branch of STEM students might study at school, the sciences, maths or computation, there is a rich and rewarding role awaiting in engineering. We need to dare our young people to imagine what a difference they could make to the wealth and well-being of our nation.

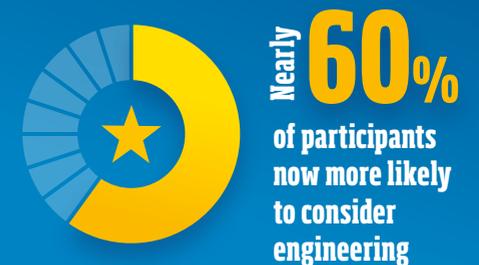
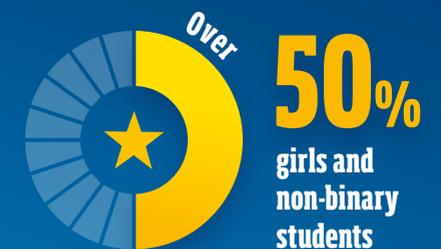


Dr. Alan Begg

Dr Alan Begg
Chairman, The Smallpeice Trust

YEAR IN NUMBERS:

Nearly
60,000
students inspired
to take part in activities



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MOVING TO A HYBRID MODEL



From the team's working patterns, to our delivery model across the Trust's programmes, the 2021/22 year has been about moving to a hybrid approach. We have seen a return to face-to-face delivery and continued with a complementary virtual offering. This is allowing us to increase the schools we can reach and offer more flexibility for the students we work with. Thank you to all our partners for working with us to make this possible.

We've seen the number of students benefiting from our STEM events nearly double to 36,000 and reaching over 1,000 schools. The hybrid model has been central to this, with a significant growth in our multi-school virtual events. We are keen to help build science capital by offering schools multiple interventions and have piloted free virtual 'STEM Sessions' available to all schools, these will be rolled out in 2022/23 once a term.

The importance of soft skills has been a theme that has emerged over the year, with the impact of COVID-19 on students' development being noticeable. We have embedded the use of the Skills Builder Universal Framework across all of our activities, particularly our STEM Days, to help students gain vital life skills alongside learning about engineering.

A highlight for us this year has been talking with the students on our courses. It was particularly encouraging to see nearly 100 12 to 14-year-olds attend our Girls into Engineering course, getting hands-on with real world projects provided by GE and Leonardo. Seeing the students' enthusiasm, teamwork and range of skills was fantastic – and hearing how much they had all benefited from the chance to undertake the projects, meet other girls like them and hear about the range of careers on offer. The student feedback across the course programme shows how important this activity is to inspire our next generation of engineers.

Arkwright Engineering Scholarships show the hybrid model in action, with virtual interviews continued as they offer a more accessible option for students, while we have returned to offering industry hosted 'Connect Days' face-to-face as well as virtually. The Trust is focussed on how we can make the best use of all the delivery options.

The Trust is delighted to be a partner in a range of initiatives. It has been fantastic to see so many grow over the last year as they move into their second or third years. We've

also seen the return of programmes that were halted due to the pandemic, like the Global Underwater Hub STEM Challenge. All of these activities will help inspire more young people to think about careers in engineering and computer science.

These have been joined by new programmes and partnerships, including with the Virgin Atlantic Foundation, developing a new programme with The RAF Charitable Trust and RAF to provide a Road to RIAT and working with Birmingham City University on a series of courses to help widen participation. The Trust is delighted to be able to welcome new partners to increase our shared impact, as well as working with longstanding partners to produce new approaches to reach more young people.

Our partners are an essential part of everything we do at the Trust – providing much needed funding, academic delivery, mentors, and role models. It is by working together we can help close the STEM Skills gap and inspire the next generation. As we look ahead to 2022/23, we look forward to working with our current partners and new ones to reach even more young people as we approach the Trust's 60th Birthday.

The Trust is focussed on how we can make the best use of all the delivery options.



Dr Kevin P Stenson
Chief Executive,
The Smallpeice Trust

STEM CHALLENGES AND CLUBS

Unlocking young people's potential through exploration

KEY STATS:

88%

of students learnt something new*

93%

of students enjoyed the STEM Day*

97%

of teachers rated their STEM event as excellent or good*

OVER **1,000** schools received a STEM event

36,571 students have benefited from a STEM activity

In the 2021/22 academic year, over 36,000 students have been impacted by our STEM programme, either by having a STEM Day, a virtual STEM event or a Think Kit, all funded by our partners. The main aim of our STEM programme is to maximise the number of students who can benefit from a STEM activity and thanks to the continuation of our multi-school virtual events, this has seen the number of students grow from almost 20,000 last year to over 36,000 this year.

Our Education Officers have continued to deliver our standard STEM events but are also working hard on developing bespoke STEM activities for some of our funders. All our STEM events bring science, technology, engineering, and maths (STEM) to life, as well as develop students' soft skills; we embedded the use of the Skills Builder Universal Framework this year to focus on these skills.

At the start of the academic year, the STEM Events Team was still managing the fallout from COVID-19 with schools cautious about booking STEM events, resulting in the majority of our events being delivered between January and July. In readiness for 2022/23, the STEM Events Team developed a new STEM event booking portal, which will make it easier for teachers to book events and monitor the progress of their bookings.

Teachers have done an amazing job over the last year, and we're pleased to support them by providing STEM enrichment.

Jeannette Murch, a Science Teacher from Honiton Community College, Devon shares her experience of using our Powered Glider Think Kit:

Since we received the Think Kit, we've been able to set up an all-girls STEM Club, and we've been steadily working our way through the activities in the pack. The members of the club come from Years 7, 8 and 9, and most joined after they heard about it from friends and became intrigued.

Running the club has been really refreshing actually, because the members aren't necessarily the students I thought would start their own STEM club. They've enjoyed it so much and it has definitely made them more enthusiastic about science, technology, maths and engineering.

The starter activity in particular was a great introduction, teaching the girls the principles of lift, and encouraging them to work together to solve problems. They really got stuck into the building stage, and the problem-solving has challenged them to do something outside of their comfort zone. Speaking of which, I've also found the Think Kit rewarding, as I've learnt new skills and focused more on design than I normally would in my daily activities as a Science Teacher.

We would thoroughly recommend the Think Kits to any interested schools, and we can't wait to see how the club members sustain their newfound passion for STEM subjects.

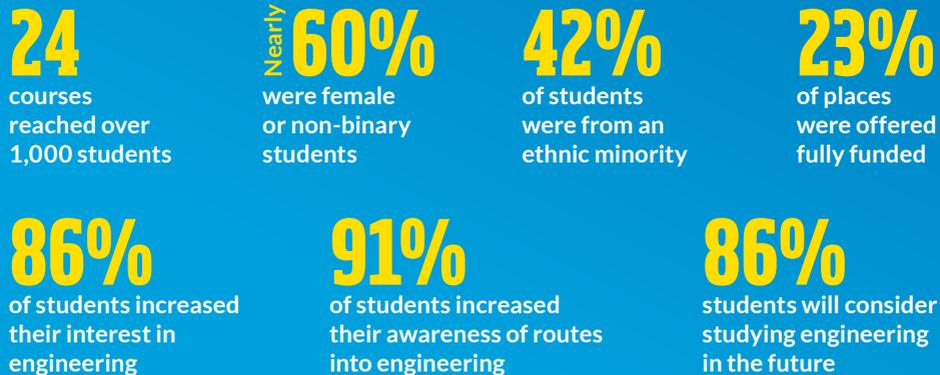




ENGINEERING COURSES

Insight into life beyond the classroom

KEY STATS:



2022 saw us start to rebuild our residential course programme after two years of disruption, working with our long-standing university partners. The team were delighted to be able to spend time with students face-to-face again at campuses up and down the country.

We continued to run virtual events to offer students across the UK the chance to attend one of our courses. The delivery team rose to the challenge of this hybrid model and provided a meaningful learning experience for hundreds of students.

University, third sector and corporate partners all made this possible. This gave the students the opportunity to engage with many role models.



Every course is supported by one of our inspirational Education Officers, who provide specialist input and expert support.

Education Officer Matt's experience:

Following the removal of COVID-19 restrictions, courses this year ran over the Easter and Summer school holidays as a hybrid model covering the whole of the UK. We converted our content to be delivered either virtually or face-to-face, utilising many lessons learned over the lockdown period. I really enjoyed being back at university campuses teaching students face-to-face and now, combined with our virtual option via Google Classroom, I am able to inspire an even greater number of students.

Students have really benefited from the varied learning opportunities on our courses, from being able to interact with academics, sponsors, and engineers to week-long, hands-on robotics courses in university labs. These unique opportunities, combined with our skilled pastoral support, has enabled me to see students develop exponentially, in both STEM understanding and social skills. It has been particularly rewarding to be able to mentor a range of students in a more personalised style, including gifted and talented students or those needing support to integrate socially into new situations, post COVID-19 restrictions.

We have also seen many returning students who have been significantly inspired by our engineering courses, having experienced both virtual and face-to-face delivery.

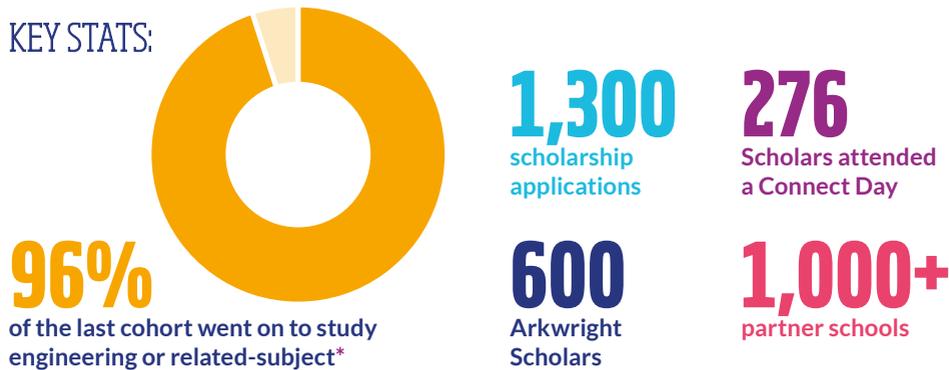


Make a difference with engineering

The Arkwright Engineering Scholarship programme continues to be the most esteemed of its type in the UK, attracting a high calibre of students to apply at 15 to 16-years-old from across the UK. This year saw the return of our virtual interviews for applicants following their success in 2021, as well as our virtual award ceremony for our 295 new Scholars.

The programme inspires the best and brightest young leaders to pursue their dreams of changing the world through engineering. Scholars continue to be inspired by industry Connect Days, which are now returning to face-to-face offerings as we emerge from the pandemic, with 17 companies and universities hosting dedicated days for Scholars. Where requested, 100% of our Scholars are supported through their A-levels or Scottish Highers by a dedicated mentor to help and guide them.

KEY STATS:



* Based on second year reports received to date (77%).

2021 Scholar shares her experience...

ARWA FATHY



I applied for an Arkwright Engineering Scholarship having heard about it from older students and it was one of the best decisions I have ever made!

Being an Arkwright Scholar has definitely given me an advantage when I have applied for work experience. The name holds a value within the industry; as a result of my Scholarship, I have been lucky to have the opportunity to work at two very competitive placements - Jaguar Land Rover and BAE Systems.

My mentor, an engineer for the Defence Science and Technology Laboratory (DSTL), has been incredibly supportive. It has been great having someone who works in the industry be there for me and offer advice and an insight into what a career in engineering could look like. Alongside career advice, they also have been supporting me with my university applications - offering to proofread and refine my personal statement.

A highlight, so far, of my time as an Arkwright Scholar may be the two Connect Days I attended - one with Baker Hughes and the other with the Royal Air Force (RAF).

On the Connect Days, I had the chance to tour Baker Hughes manufacturing plant. The RAF Connect Day was a week residential, completely free of charge. We were lucky enough to spend a day at RAF Odiham trying the flight simulators and seeing the Chinook helicopters! The Connect Days were good opportunities to meet fellow Scholars and make friends with people of similar interest.

So far, with my funding, I have bought textbooks, paid for my UCAS university application, and attended the UKESF Girls into Electronics event at the University of Liverpool. I also used it to buy electromagnets and springs for my A-level DT project.

My experience, so far, on the Scholarship has helped me understand which route I want to take in engineering - I have decided I want to study mechanical engineering at university. After university, I intend to pursue a career in Formula 1, specifically working on the precision engineering behind those high-performance vehicles - this is where my true passion for engineering lies.

KEEPING YOUNG PEOPLE SAFE



At The Smallpeice Trust we are committed to keeping children and young people safe as an integral part of our values. It is essential that students accessing our programmes are well protected and that procedures are in place to safeguard their welfare.

Following a two year break due to COVID-19, in 2022 we were finally able to return to face-to-face delivery on our multi-day courses held at universities. So, ensuring students felt safe to return was of paramount importance. COVID-19 has meant students have missed out on so much social interaction, and we wanted to play our part in enabling students to engage with other students once again and access STEM enrichment on a more in-depth course.

As we always say, safeguarding is everyone's responsibility and in 2022 we developed and rolled out new e-learning training to our supervisors who would provide pastoral care during courses. We also ran sessions for course facilitators on engaging with young people so they could adapt their content and teaching style appropriately.

The Smallpeice Trust always aims to be child centred, and before our face-to-face courses we gather information about the child from their parents to ensure we understand their support needs. This might include administering medication, adapting activities to enable students with additional needs to engage fully, or knowing how best to support a student with anxiety.

Our STEM Days for schools also returned to face-to-face delivery, which was an exciting time for our Education Officers. As COVID-19 was still very prevalent during the 2021-22 academic year all of our risk assessments were updated to adapt the activities to make them as safe as possible for students, teachers, and our staff.

The Arkwright Engineering Scholarship programme has also made great progress in the continued rollout of our online mentoring training programme, to ensure Scholars get the best possible support from their mentor.



NEW PARTNERSHIPS

Working together to fuel young people's passion for engineering

By working with Trusts, Foundations, and corporate partners, we can inspire young people to change the world through science, technology, engineering, and maths. We have worked with over 100 partners this year who have funded activities in their local communities and beyond, providing learning opportunities for nearly 60,000 young people.

Our partners support our programmes in many ways, providing careers talks, mentors, STEM ambassadors, practical projects, and access to engineering workplaces, in addition to their generous funding and sponsorship.

Partners also enable us to explore new and different ways of reaching more young people. Over the last academic year, we have been selected as the trusted partner responsible for developing and delivering several new programmes.

Here are a few highlights:

Virgin Atlantic Foundation

The Smallpeice Trust were delighted to become one of the charity partners for the Virgin Atlantic Foundation Passport to Change Programme. This has included offering STEM enrichment to their partner schools in the UK and US, sponsoring two Aerospace Engineering Courses with Kingston University and supporting six Arkwright Scholars.

KEY STATS:

Over **100**
partners funding activity

10,000+
volunteering hours

Nearly **60,000**
young people benefited

Laura Macshane, Be Yourself and Community Manager commented:

"Our Passport to Change programme is how we use the business as a force for good, investing in the hearts and minds of the younger generation. We refreshed our strategy in 2021 with clear ambitions, one of which was to bridge the gender gap within STEM. To do that, we knew we needed to work closely with a STEM-specific partner. After a huge amount of research, we found The Smallpeice Trust, who aligned perfectly with our purpose and objectives."

Mini Pioneers

Aimed at primary school children across Birmingham, Mini Pioneers was a joint initiative between The Smallpeice Trust and Birmingham Museums Trust, funded by the Royal Academy of Engineering. This was a unique experience where 8-year-old pupils played a part in creating their own STEM activity, supported by our Education Officers, before it was delivered to 10 Birmingham primary schools. The whole initiative finished with an Engineering Celebration Day for all participating schools' pupils held at Birmingham's science museum, Thinktank.

A total of 540 children took part in these events, with 95% saying they learnt something new and 88% now knowing what engineers do.

Teacher feedback was equally good:

"Made STEM real for children, really engaging activities" and "Very well led, children were engaged all the way through each activity."

Global Underwater Hub

Forty-seven schools from across six regions of the UK took part in an exciting programme of team based hands-on STEM challenges culminating in a final in Aberdeen funded by Global Underwater Hub (GUH) and their supportive membership. The competition tested students' STEM skills and demonstrated to them how these skills can be applied to future careers in the underwater industry. As part of the Aberdeen final hosted by GUH, the pupils also toured the remotely operated vehicle (ROV) workshop of geo-data specialist Fugro, seeing first-hand how underwater inspection technologies support the energy industry.

The team from Culloden Academy in Inverness was selected as the overall winner, and their teacher commented:

"I thought this was a fantastic opportunity. Thank you for all your hard work – it was an excellent experience for the pupils."

Road to RIAT

The Smallpeice Trust is part of the Road to RIAT initiative offering primary schools and their pupils a day of free engineering fun working in partnership with the RAF Charitable Trust and the RAF.

The Road to RIAT was launched to promote the Royal International Air Tattoo (RIAT) to school children to inspire the next generation of engineers and so far, two hundred primary schools from across all regions in the UK have taken part. Of the 7,500 pupils who took part, 94% said they had fun doing the activity with 93% understanding what they did during the day.

"The children loved testing their designs and then fixed the parts they thought were causing problems. Afterwards, I had to show them a Red Arrows video as that excited them a lot!"

Primary school teacher, Essex.

Birmingham City University

This summer, Birmingham City University (BCU) funded two residential courses, both of which had a Widening Participation focus to support learners from less advantaged backgrounds. BCU led the technical projects and masterclasses, whilst we took care of student recruitment and pastoral support during the events.

Both courses were a great success, with 90% of students on the Sustainable Homes course saying they had increased their awareness of future careers and routes into engineering, and 92% on Micro Computing saying it had encouraged them to consider studying engineering.

Sarah Felton, Widening Participation and Partnerships Manager at BCU, said:

"It's a great opportunity for the University to work with The Smallpeice Trust, they have enabled us to reach out to students locally and further afield to assist in introducing young people to the prospect of studying Engineering. The pupils that attended the programmes at Birmingham City University this year seemed to thoroughly enjoy the academic workshops that were on offer as well as the overall residential campus experience."

Thank you to all our partners

Working with like-minded organisations gives us all a greater impact. With two million more engineers needed by 2025, we need to expand the talent pool by providing more opportunities to underrepresented and disadvantaged young people.

Thank you to all our partners for working with us as we returned to offering face-to-face events alongside our successful virtual activities.

Your support is what makes what we do possible – igniting and fuelling young people's passion for engineering.



“

I always wanted to become an engineer, but the Sustainable Homes course has helped me learn so many new things that I didn't know before and has given me a greater understanding of what I can be.

Female Sustainable Homes Student 2022



smallpeice
Dare to imagine

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Inspire all students to believe in their abilities and raises their aspirations in STEM

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The Smallpeice Trust is a company limited by guarantee, registered in England.
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