

The Smallpeice Trust

2020/21

# Annual Report





# DARING YOUNG PEOPLE TO IMAGINE

**A**t The Smallpeice Trust, we're here to give young people everything they need to fuel their passion for engineering. The charity was founded in 1966 by a brilliant self-taught engineer, Dr Cosby Smallpeice, who ploughed £1.6m of his personal fortune into setting up the Trust. His endowment provides financial stability during uncertain times and gives us funds to invest, alongside our partners, in our education programmes.

To continue his legacy during this past year has required constant adaptation and innovation in response to the restrictions created by COVID-19. Despite the challenges, our education programmes have continued virtually and we've developed new ones in collaboration with our partners. I would like to thank all our partners for their support and willingness to work in new ways. Charities, parents, teachers, universities, alumni and corporate partners have made it possible to reach nearly 60,000 young people with activities to develop life, leadership and engineering skills.



More than ever, we need to dare young people to imagine and bring their big ideas to life through science, technology, engineering and maths (STEM). The UK continues to have a significant shortfall of engineers, technicians and computer scientists.

**Together we need to inspire more students to study STEM subjects and give them the opportunities they have missed during COVID-19 for practical, hands-on learning experiences.**

*Dr. Alan Begg*

**Dr Alan Begg**  
Chairman, The Smallpeice Trust

## YEAR IN NUMBERS:



**57,000**

**students inspired  
to take part in activities**



**45%**  
**female and  
non-binary  
students**



**60%**  
**of participants  
now more likely  
to consider  
engineering**



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# TAKING THE POSITIVES FROM 2021 AND LOOKING FORWARDS



**Dr Kevin P Stenson**

Chief Executive, The Smallpeice Trust



The 2020/21 academic year is an incredible example of collaborative endeavour, innovation and adaptability by all those involved in the Trust's activities to inspire young people to consider a career in engineering. The impact of this collaboration can be seen in the incredible feedback we have received from students, teachers, parents and our partners.

It was a year that required online delivery to be the default option for our work with students and teachers. Despite this, the Trust maintained its commitment to providing hands-on activities to young people. Thousands of kits were posted to students and teachers around the UK this year, no small logistical challenge for the Trust's dedicated team.

We have started to reach younger students, now working with those from 8 – 18 years. The team developed a new virtual primary STEM day, which could be delivered to multiple schools at once. A range of partners provided funding and content to deliver this to schools. For example, students from 200 primary schools across the UK benefited from an aerospace or space themed curriculum challenge funded by the RAF.

Our STEM days for older students continued virtually. Alongside this we offered a range of STEM challenges for teachers or parents to use, to help keep students creating while in school or being home schooled. These challenges have been viewed nearly 65,000 times and remain a free resource on our website, thanks to the partners who sponsored their creation.

It became clear in the autumn term that residential courses would not be possible in 2021, so the Trust developed a fantastic programme of online courses working with a range of universities and industry partners. A particular hit in the new course format was the Q&A sessions with engineers.

The Arkwright Engineering Scholarship moved selection online, with virtual interviews for the first time for this year's applicants. For those already awarded their scholarship there have been a range of virtual experiences on offer, including Connect Days and a Future of Green Energy online conference, delivered in partnership with the IET.

Alongside the Trust's core programmes, we were delighted to be selected as partners for a range of new initiatives. This year has seen new programmes get underway including STEM Accord West Midlands Pilot, Playground Games Coding Clubs, McLaren Racing Engage and Coding Success. All of which will help inspire more young people to think about careers in engineering and computer science.

**Looking ahead to the next 12 months we hope to see a return to face-to-face delivery and continue with a virtual offering alongside. This challenging time has helped us find new ways to reach students and inspire them to be the engineers of the future. Working with our partners we hope we can offer a hybrid model moving forward and increase our impact, delivering Dr Cosby Smallpeice's legacy.**

# STEM CHALLENGES AND CLUBS

Encouraging  
young people to  
learn through  
exploration

## KEY STATS:

NEARLY  
**400**  
schools received  
a STEM day

**84%**  
of students learnt  
something new\*

**94%**  
of students enjoyed  
the STEM day\*



Half of  
students  
would now  
consider a  
career in  
engineering\*

**19,831** students have benefited  
from a STEM activity

In the 2020/21 academic year, nearly 20,000 students have taken part in a STEM inspiration activity with The Smallpeice Trust and funded by our partners. Our team of Education Officers have been hosting virtual STEM days for students in primary and secondary schools. This has included developing a new virtual primary STEM day format, allowing multiple schools to take part in the challenge at once.

The STEM Events Team have been working hard to make sure the maximum number of schools benefit, often needing to reschedule multiple times due to the impact of COVID-19. Each STEM day is an interactive workshop which brings science, technology, engineering, and maths (STEM) to life, complementing the national curriculum. Activities range from tackling a cyber security mission to taking on a renewable energy challenge, and designing, building and testing gliders and rockets.

Schools have also benefited from Think Kits, which come with the tools and resources to start or help sustain a STEM Club for up to 20 students in a school. These kits help teachers bring STEM subjects to life in vibrant new ways.

\* Based on available secondary feedback for 2020-21 STEM events.



Teachers have done an amazing job over this last year.  
We're pleased to support them by providing STEM enrichment.

Here's some of the feedback on the virtual STEM days:

*"Evaluation from students was very positive, and they really enjoyed themselves. Many students commented that they had not realised the amount of STEM jobs available and that the day made them more interested in this sector."*

*"This event was honestly amazing and we cannot believe that it was free. We were so impressed with the resources, the activities and the delivery. The tasks were engaging and creative, the curriculum links were strong and the organisation of the whole event was utterly outstanding. The children were enthused and motivated and I'm sure they will remember this day for a long time to come. We can't thank you enough. What an amazing educational 'virtual visit' this was!"*

*"Thank you so much for a wonderfully organised and extremely engaging workshop. The children have really consolidated previous learning and built on it further. 10/10!"*

*"Excellent and easy to follow as well as educational. A great gateway into STEM for all children from all backgrounds"*





# ENGINEERING COURSES

Skills for the world beyond the classroom

## KEY STATS:

**28**

courses reached over 1,000 students

**OVER 50%**

were female or non-binary students

**39%**

of students were from an ethnic minority

**10%**

of places were offered fully funded

**93%**

of student increased their interest in engineering

**93%**

of students increased their awareness of routes into engineering

**86%**

of students were more likely to study a STEM subject at university

It was clear in the autumn of 2020 that residential courses would not be possible, so work started on creating a virtual offer. With thanks to all the university and industry partners we have delivered 28 courses this year. These have included adapting current courses – such as Astrophysics, Biomedical Engineering and Girls into Engineering – as well as creating new ones, including a Fully Electric Challenge and Discover Clean Energy course.

The live courses had a mix of lecturers, career talks, Q&A sessions, and design and make projects. To maintain the hands-on aspect, hundreds of kits were posted out. Seeing the students collaborate in virtual teams and rise to the challenge was inspiring for all involved.



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

Education Officer  
Rachel's experience:

*This summer looked a little different to the others, with all our core courses moving online. We would normally pack our suitcases and head off to tour the UK's halls of residences. This year we were based in the studios at Holly House, the Smallpeice HQ, getting young people excited about careers in engineering virtually.*

*This switch meant finding the best platform to support our new delivery model. The courses ran on Google Workspace, allowing students to fully engage with both the projects and the other students on the course. We also needed to change existing projects and create new ones that could be delivered online.*

*The students were just as inspired with the courses. I worked on a wide range from Year 9s learning about engineering career paths to Year 12s building some brilliant bridges on the Structural Engineering course in partnership with Coventry University.*

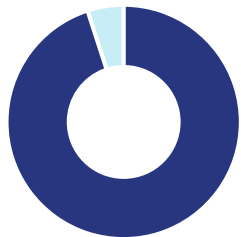
*All of this hard work paid off with a truly successful summer and the majority of students who attended a course becoming more interested in engineering. As an Education Officer, it was a new challenge having to step up and deliver virtually, but one that we all enjoyed, especially seeing the end results.*



## KEY STATS:

**305**  
new scholarships  
awarded

**331**  
Arkwright  
mentors



**95%**  
of the last cohort  
went on to study  
engineering or  
related-subject\*

**1,000+**  
partner schools

**1,300**  
scholarship  
applications

\* Based on second year reports received to date (70%).

# Make a difference with engineering

The Arkwright Engineering Scholarship continues to be the most esteemed of its type in the UK, attracting a high calibre of students to apply at 15 – 16 years old from across the UK. This year for the first-time virtual interviews were used for new applications.

The programme inspires the best and brightest young students to pursue their dreams of changing the world through engineering. Scholars have continued to be supported through COVID-19 with industry 'Connect' days moving online, with 18 companies and universities hosting dedicated days for scholars. As students are supported through their A levels or Scottish Highers they have access to a mentor to help and guide them. For the first time this year, they have also had the chance to attend a dedicated conference on the Future of Green Energy, delivered in partnership with the IET.

2020 scholar shares her experience...

**BETHANY  
SUCKLING**



The Arkwright Engineering Scholarship has opened many doors for me and expanded my horizons. It gives me a lot of recognition as it is a very important, well respected award. I was given the opportunity to chair and moderate a webinar for geothermal energy company, CeraPhi Energy. The panel were very intrigued by my scholarship and what it's all about. It's a great conversation starter and something for me to talk about in interviews - whether that be for university, a job, or an apprenticeship.

My mentor is incredibly supportive of me and my future. She is always interested to hear about what I am working on, my recent achievements and what I am doing to achieve my goals and get where I want to be. I catch up with her about once a month, sometimes more, depending on what's been happening.

As a result of applying for and being awarded the Arkwright Engineering Scholarship, I have learnt to not underestimate yourself and to push

yourself out of your comfort zone, to reach your full potential. My Arkwright Engineering Scholarship has also boosted my confidence in a huge way resulting in me doing things I wouldn't usually do, like putting myself forward for public speaking.

The Scholarship funding has been a huge benefit! So far, I have used my funding for school supplies, revision guides and scientific/graphical calculators, as well as using some of it to fix up my Aprilia RS125 motorcycle, which I now ride to school every day. It has given me much more independence, so I can be less reliant on my parents at a time when driving tests are limited.

Taking part in Arkwright virtual Connect Days and university open days has helped give me a clearer idea of what I would like to do in the future. I have decided to go down the degree apprenticeship route, focusing on renewable energy or mechanical engineering - as that is the future and I have a real passion for it!

# KEEPING YOUNG PEOPLE SAFE



The Smallpeice Trust is committed to keeping children safe as an integral part of our values. As we moved to virtual programmes in response to COVID-19 we looked at how we could adapt our activities to be delivered safely, whether at home or in schools. This included developing an e-safety policy and procedures for a new way of working.

We adapted our schools STEM Day programme so that it could be delivered virtually, taking into account the need for schools to adhere to COVID-19 regulations. We wanted to ensure that students could still access STEM enrichment, in a time where few opportunities existed.

We developed hands-on activities for students to do at home on our online courses, working in virtual groups to provide opportunities for social interaction. Our staff and supervisors were trained to engage and support children virtually. The online platform was selected to keep students safe and supported, utilising the same software available to schools.

Our Arkwright Engineering Scholarship programme underwent significant change during the 2020-21 academic year, with the introduction of our MentorNet platform. This is a fully moderated, specialised platform that enables our amazing mentors to support their scholars safely and effectively. All sponsors also signed up to a brand-new Safeguarding Pledge, showing our shared commitment to keeping students safe.



**Safeguarding is everyone's responsibility, so students and parents have a key part to play in this. We developed an Online Code of Conduct for Students, and guidance for parents on keeping children safe online.**

# NEW PARTNERSHIPS

Working together to expose young minds to engineering

## KEY STATS:

Over  
**100**  
partners  
funding activity

**10,000+**  
volunteering hours

**57,000**  
young people benefited

It's by working with Trusts, Foundations and corporate partners that we can help young people change the world through science, technology, engineering and maths. Over this past year, more than 100 partners have funded activities in their local communities and beyond, providing learning moments for nearly 60,000 young people.

As well as providing funding and sponsorship, partners support our programmes by providing careers talks, mentors, STEM ambassadors, practical projects, and access to engineering workplaces.





Partners also enable us to work in new ways to reach more young people. This past year has seen us selected as the trusted partner responsible for developing and delivering several new programmes. **Here are a few highlights:**

## STEM Accord West Midlands Pilot

The first schools started activity in November 2020 as part of the STEM Accord pilot, funded by The ERA Foundation and delivered by The Smallpeice Trust and other STEM charity partners. The pilot supports schools to improve their STEM provision by providing local leads to help them access what is on offer. As the lead partner, we have worked with the Design and Technology Association, In2Science, STEM Learning and the WISE Campaign.

## Playground Games Coding Clubs

Over the Easter and Summer terms, students aged between 11 and 14 from across Coventry and Warwickshire delved into the world of video games. These Coding Clubs were aimed at inspiring students and introducing them to different career pathways into STEM. Students competed in teams to produce three mini games, boosting teamwork and collaboration skills as well as a greater understanding of engineering.

**Pete Maguire**, Head of STEM at Finham Park School, said:

*"Playground Games provided a brilliant opportunity for students to talk and interact with a real-life female game developer, and hear about her experience of getting into engineering and games development at university. This sparked a lot of excitement and interest amongst students, particularly those who had not previously considered the potential career opportunities in STEM."*

## Coding Success



Over 1,000 schools applied for a place on this new programme funded by BAE Systems, the Royal Navy and the Royal Air Force, and launched in April 2021. We developed the programme in partnership with Raising Robots, an authorised LEGO® Education partner. It went from concept to school recruitment in a few months, with nearly 150 schools starting the project in the summer term.

**Richard Hamer**, Education and Skills Director at BAE Systems, said:

*"As the requirement for digital skills grows, coding is an increasingly important part of the curriculum. Working with the Royal Navy and the Royal Air Force to support the Coding Success programme, we're aiming to give students and teachers the practical hands-on experience they need and inspire the next generation of scientists, technologists and engineers."*



## McLaren Racing Engage

In June 2021, this pioneering new strategic alliance with four expert partners was launched to drive forward a programme of collaborative initiatives to diversify talent in motorsport. We are delighted to be one of the partners alongside the Women's Engineering Society (WES), EqualEngineers and Creative Access. Work is underway to co-design a custom STEM challenge day with McLaren Racing to introduce students to the fantastic world of engineering.

**Zak Brown**, CEO, McLaren Racing, said:

*"By investing in grassroots talent through these STEM initiatives, mentorship and inclusive development programmes, we aim to inspire future generations of talent by fuelling their passion for engineering and F1."*

## 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 strengthen the talent pool and open up more opportunities to underrepresented and disadvantaged young people.

Thank you to all our partners for working with us on the move to virtual delivery and embracing new ways of working. Your support is what makes what we do possible - igniting and fuelling young people's passion for engineering.



“

Truly, the Girls into Engineering course has been an eye-opener for me. Throughout the course I discovered new possible career paths for my future, engaged in exciting new opportunities, made wonderful friends and overall had an absolutely amazing experience.

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

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**Annual Report**  
 ★ ★ 2020/21

  
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 Dare to imagine

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