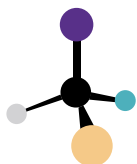


Impact Report 2022



lightyear
foundation

Lightyear Foundation breaks down the barriers to disabled people participating in science, technology, engineering and maths (STEM), opening up the exciting world of science to all, regardless of ability or background.

“At Lightyear Foundation we passionately believe that diversity can be used as a tool for innovation and growth. Better innovation comes from more diverse groups and to overcome the big global challenges, our scientists and engineers of the future need to come from all walks of life.”

Katherine Sparkes MBE, CEO



2022 in numbers

15

in Work
Inspiration
Trips

39

in immersive
Sensory Science

7303

disabled young
people through our
programmes

7201

in Active Learning
Workshops

48

in Lightyear
Labs

2

high-profile
media
features

We are a tiny team
packing a punch!
5 staff working the
combined equivalent
of 1 full-time person

16

volunteers
supporting our
work

16

Lightyear
role models

124

people trained
in 'Making STEM
Accessible'

228

SEN in STEM
Network members

5

consultancy
projects

6

presentations



We are a small team of specialist scientists, leaders and creative professionals passionate about helping change the trajectory of disabled children's lives. Together we can build a different future.

What we do and why we do it

The need

Recent years have seen some headway in tackling STEM's inclusivity and diversity issues, but it's still work in progress. Disabled people, making up 20% of working-age adults in the UK, still remain largely overlooked.

STEM jobs are growing at double the rate of other occupations, creating 142,000 extra jobs by the end of 2023. 1.8m more STEM-qualified people will be needed in the UK by 2025. There's a growing realisation that a workforce made up of people from similar backgrounds tends to come up with narrow-focused solutions.

The unique ways in which disabled people interpret and interact with the world, typically perceived as an obstacle to their inclusion, are arguably among humanity's best chances at solving some of our planet's biggest problems. For example, individuals with autism can have specialist traits of fine-detail processing, high concentration, reliability and honesty; people with ADHD can have hyper-focus, creativity and passion; and a visually impaired

scientist could detect tactile details that someone else might miss.

But despite the need for skilled people in STEM, 47% of disabled people are unemployed, including 78% of the autistic community and 95% of people with a learning disability. Disabled people are three times as likely to have no qualifications.

Many disabled children and young people either have no access to a STEM education or simply believe it's not something they could ever be part of, meaning the sector and society at large is missing out on the talents and contributions of a huge number of people. For children with more complex disabilities, STEM offers a unique way to inspire and impart key life skills such as choice-making or dealing with unexpected outcomes. So whether it leads to a career in the sector or improves a disabled person's self-confidence, independence and enjoyment of life, creating opportunities for disabled children to love and learn from these subjects has significant individual and social impact.



47%

of disabled people are unemployed

78%

of the autistic community are unemployed

95%

of people with a learning disability are unemployed

Lack of STEM knowledge and qualifications among teaching staff in schools for disabled children

Limited access for disabled children to informal science experiences

Nervousness and lack of skills within the STEM sector including around adapting activities often meaning exciting STEM events and celebrations are not targeted at disabled children

Inflexible evaluation techniques for children with a range of communication needs, meaning feedback on their experiences is untranslatable and inaccurate

What are some of the barriers to disabled children accessing STEM?

Invisible disabled role models – unless disabled children and the people around them can see disability in STEM, they can never know it's possible

Discrimination, intentional or otherwise, from society around a disabled child's ability and potential

Many visitor attractions are inaccessible to a range of different needs (for example, not having braille on exhibits or warnings before loud noises) so disabled children are unable to enjoy the places that trigger a love of STEM in early childhood

Lack of appreciation in education and society about how STEM can teach disabled children valuable life skills and independence – and how disabled adults have a valuable and important part to play

Our solution

We take a holistic approach, developing unique programmes that educate, inspire and include disabled children in STEM from the early years through to young adulthood, whilst working in partnership with educators and employers to identify and dismantle the barriers that disabled people currently face in the STEM sector. We fill a gap in service delivery and education that is offered by no other organisation.

In 2022, we offered six programmes:

1. Active Learning Workshops
2. Immersive Sensory Science
3. Lightyear Labs
4. Role Models
5. Work Inspiration Trips
6. SEN in STEM Network

The impact

Supporting disabled children and young people to dream big and reach their potential is a vital cornerstone for building an inclusive, happy and functioning society.

Our programmes show disabled children how viable and rewarding a future in STEM could be, alongside building essential personal skills like self-efficacy, self-reliance and autonomy. We believe part of the solution is to engage young disabled people from an early age with immersive, accessible, colourful, awe-inspiring classes and

events, and to show them how to use their disability as a superpower, both within the STEM sector and beyond. This education and work experience can be life changing and lead to a prosperous career path, offering a joyful alternative to the most common adult experiences for those with learning disabilities – time in a care home or recreational day centre, or in supported employment in retail or hospitality.

Through our work, we improve the quality of life, independence and future choices of thousands of disabled children. We increase representation and visibility by normalising disabled children taking part in these types of activities, and we play a vital role in championing a growing sense of belonging among the disabled community within the STEM sector. Each and every child we support is helping to show those who follow what's possible! Systemically, we help to reduce unemployment in the disabled community by creating a vibrant pipeline of STEM talent to the UK industry and using our SEN in STEM Network to drive change at the heart of the sector.

The impact of our work ultimately means more disabled children inspired and delighted by STEM, more disabled people believing an education in a STEM subject is possible for them, and more disabled STEM professionals being welcomed and supported in the UK sector.





Our Model

1 Active Learning Workshops



Our unique Active Learning Workshops fuse dance and STEM to get our youngest disabled children moving and learning about the world around them. These STEM-themed sessions are packed with sensory equipment and tailored communication aids and are ideal for children with cerebral palsy, Down's syndrome, autism, profound and multiple learning disabilities (PMLD), as well as those with other conditions such as cancer.

Our workshops are adapted for a wide range of physical abilities, feature Makaton (a language programme widely used by the learning disability community), are linked to learning outcomes in the National Curriculum and offer spin-off STEM and craft activities for extended learning. They are delivered in collaboration with Flamingo Chicks CIO, an inclusive dance charity.

In 2022, our learners have:

- focused on incredible STEM ambassadors with our 'Little People, Big Dreams' book series term
- explored the science behind our communication and feelings, which doubled as a fantastic opportunity to explore mental health and our emotions
- re-visited the most popular theme for both our young people and schools – space!

We also collaborated with inclusive music charity Drake Music to launch a new virtual class combining space facts with Makaton, music and movement.

Outcomes:

- **79%** said their physical ability had improved (60% by a significant amount)
- **83%** said their confidence and resilience had improved
- **73%** said their enjoyment and interest in STEM had increased
- **85%** of educational, health and social care professionals said they'd learnt new techniques and 95% will be implementing them
- **80%** of professionals said they now view the children they work with as more capable

Teachers scored each child out of 10 in the following areas, before and after the year of classes. We were thrilled to see that all children showed improvement in every area:

- Physical engagement: **+2.23**
- Physical ability: **+2**
- Confidence: **+2.4**
- Enjoyment: **+2.64**
- STEM knowledge: **+2.34**
- Interest in STEM: **+1.94**



"Our students are not traditional learners and we have had to find more practical ways to deliver core subjects. You have shown us this can be done effectively. The classes have empowered our students in many ways. Students are more aware of their biological capabilities, for example gross and fine motor skills. They appear to be less self-conscious which has had an impact on their mental health and wellbeing in a positive way. Thanks for giving us this opportunity, I have seen a lot of progress."

Leslie Gadogbe, St Marylebone Bridge CE School

"Our students find it incredibly difficult to understand STEM topics and so the progress they have made is extremely positive! You can see how much our students' (and staff) faces light up during the sessions! Really beautiful to see. Plus they have all made so much progress with their targets and confidence, it has been brilliant. It increases our cultural capital with students being able to access sessions that they may not have otherwise had the opportunity to try. They have learnt about STEM topics through dance and sensory stories and so have a slightly better grasp of very challenging-to-understand topics. By having regular sessions, our students get familiar and so the difference in their abilities from the beginning of the year to the end is noticeable."

Tamara Stewart, Mapledown School

2 NEW IN 2022! Immersive Sensory Science

1
experience
delivered

39
children involved

We know there is a significant lack of opportunities for disabled children to have hands-on science experiences that are fully accessible and adapted for their needs, yet we also know how truly impactful and magical these events can be. Early, thoughtful exposure to STEM topics, delivered in accessible and immersive ways, can trigger a life-long love of science in this often overlooked group of potential STEM talent. That's why we added Immersive Sensory Science to our programmes at the end of 2022. With hands-on demonstrations and stunning visuals combined with knowledgeable, enthusiastic and professional presenters, our Immersive Sensory Science programme offers lively, accessible, interactive and fun STEM experiences for disabled children. From taking an imaginary trip to space in a pop-up planetarium to travelling through the clouds and feeling them brush past us as we fly through the sky, Immersive Sensory Science uses beautiful colours, sounds, textures and activities to create an unforgettable multi-sensory experience to support STEM learning.

"It was EPIC!

It was like a magical story. My favourite thing was when we welcomed the planets. Did you know the moon is billions of years old? All my friends went 'wow!' It made me think I was in actual space. I want to learn more about space."

Poppy who has cerebral palsy,
aged 16



3 Lightyear Labs

8
labs delivered

48
children involved

Our Lightyear Labs build on the hunger for STEM consistently highlighted in our workshops, offering a challenge-based learning methodology that promotes experimentation and discovery while also developing critical thinking, decision-making and problem-solving skills. Each Lightyear Lab, led by an experienced STEM professional, takes a cohort of around five students (known as Researchers) through a 4-week programme of exploratory sessions, either online or in person. The lab aims to support our Researchers to work scientifically in practical science and engineering (in measuring, predicting, observing, recording, concluding and use of language), to increase confidence in practical STEM, to learn how to make predictions based on what is already known, to develop resilience around incorrect predictions and to apply prior learning to answer a real-world problem through an experiment. The format offers a unique gateway to GCSE science.

These sessions not only get students doing hands-on STEM, but crucially also upskill SEN teachers in the subjects for long-lasting impact.

Example experiments:

- Creating crystals by dissolving and evaporating
- Making bubble wands and testing different homemade bubble solutions
- Understanding seeds: looking at tiny plants with a smartphone microscope
- Making an anemometer: an introduction to wind power

NEW IN 2022! Formula 1 Lightyear Lab

In June, 26 students from John Watson School in Oxfordshire, a community special school for children with severe, complex, or profound learning difficulties, took part in our Formula 1 Lightyear Lab,

delivered in partnership with F1 in Schools. Groups of 6–7 students attended weekly 45-minute sessions for four weeks in a mixture of online and in-person delivery. We worked with the resources and engineers at F1 in Schools to create an inspirational hands-on engineering project for Key Stage 3 and 4 children in SEND schools. We wanted our students to experience the thrill of building and launching a model F1 car in school! Having real engineers take part in the project was a key point in building enthusiasm and engagement. Students loved getting individual feedback from their group's engineer on the aerodynamics of their car. Race Day caused huge excitement as the students arrived at school to see a 10m long racetrack running through the communal area!

Following this year's hugely successful pilot, we are working with F1 in Schools and Engineering in Motion to improve and expand this programme in 2023, building in more engineer engagement and more time for children to practically experiment with cutting-edge equipment and technology. We are also planning to work with them to improve the accessibility of their mainstream school workshops.

Outcomes

- 69% gave the F1 Lightyear Lab top marks for fun and 63% gave the project top marks for understanding what they had done
- Compared to a school science lesson, 96% of students were more engaged by the F1 Lightyear Lab
- 75% were more engaged with the lab than with their favourite activity!

"The activities were ideal for our learners, who were able to fully engage, do the experiments, make observations and communicate their own findings. It was fascinating to see the children looking forward to the start of each lab, asking us to go to the science room early to experiment with the materials and equipment or to see the progress from their previous experiments. Thank you so much for this amazing science opportunity!"

Teacher, New Fosseway School

"I really loved seeing when the students could recall some of the concepts we'd covered before like gravity and aerodynamics."

Lightyear volunteer



4 Role Models

16
role models

Dr Camilla Pang was the youngest winner of the Royal Society science book prize for 'Explaining Humans' in 2020



Dr Claire Malone holds a PhD in Particle Physics from Cambridge University

When young people are inspired and engaged by our workshops and labs, we further support these budding STEM-ists by connecting them with disabled professionals doing awesome things within the STEM industry. Currently we work with 16 role models across a range of STEM disciplines. Our role models encourage disabled children to look at the industry as a viable and welcoming career option while being honest about their experiences and the challenges they have faced (and continue to face). After all, you can't be what you can't see.

We support our role models to deliver Q&As, visits and interactions with our young people, community organisations and sector employers. This visibility and exposure is an incredibly powerful method for raising awareness and improving inclusivity. Young people meeting STEM through our programmes can see themselves reflected in the sector workforce.

"The joy in the room was what this is all about! I love how engaged the students were and that they were allowed to load and launch their cars."

F1 in Schools employee

"Ever since I was a kid, it has been my passion to understand the world around me through science. Particularly going through adolescence, it wasn't always straightforward for me to do all the things outside school that my friends were doing. I have had to deal with people's negative preconceptions about my disability and my ability to conduct research in physics all my life. Throughout my career, I have had to devise techniques to negotiate the fact that I cannot use a pen/keyboard directly due to my physical disability. I made notes by 'typing' in latex using a keyboard controlled by my eye movements."

Dr Claire Malone, science journalist and Lightyear role model

Lived disability experience is simply not replicable. By sharing their stories, Claire and our other role models celebrate diversity and disability, and encourage disabled children to realise their potential. They also show how their actions and experiences have impacted the sector for the good, helping to blaze a trail for others who follow them.

"It's an absolute honour to be a part of this programme. No aspiring scientist should be told they cannot pursue a career in STEM because of a disability."

Amy-Charlotte Devitz, Ecology and Evolutionary Biology PhD Researcher and Lightyear role model




5 Work Inspiration Trips

2
trips in 2022

We love inspiring young STEM-ists by taking groups of post-16 disabled students to show them STEM in action! There are so few opportunities for disabled young people to see a place for themselves in a STEM workplace; our trips are designed to introduce students to the full range of roles and settings available, inspiring them to consider a career in this fulfilling sector. For settings like museums or visitors centres, our students complete informal accessibility audits, sharing their thoughts on improving accessibility for future disabled guests. Brilliant suggestions have included braille on exhibits, warnings before loud noises, video tours you can watch before you visit and a quiet zone. As a result of these trips, the vast majority of students say they'd consider STEM choices at college or applying for work experience in the industry.

- 65% of young people with SEND want to be in full time paid employment – 5-6% will achieve this.
- It only takes four encounters with employers to improve a disabled young person's employment prospects by 100%.



"It has got me excited about work. I want to work here. It's the people. They are friendly – I like it here. The technology is exciting. This is the place for me."

Student

"Lightyear's Work Inspiration Trips are a brilliant way for a large number of SEN students to get a taste of a range of job roles and work as a group. Experiences such as these play a big role and are shared during college interviews. It's a great way to boost confidence and inspire our young people."

Joanne Payne, Transitions Coordinator, New Fosseway School

Cambridge Science Centre (CSC)

We hosted a group of young adults from Switch Now, a Cambridgeshire-based group that aims to provide supported training and work experience for young adults with learning disabilities, to develop employability skills, with the objective to be 'work ready'. The group learnt about the purpose of the centre, took part in a hands-on electricity workshop which is part of the Centre's roadshow, and had time to explore the exhibits, feeding back on their accessibility. We then had a Q&A with different members of staff, from science communicators to exhibit designers. CSC have asked for our help in the upcoming renovation of their exhibits, to help improve their inclusivity.

Ultraleap

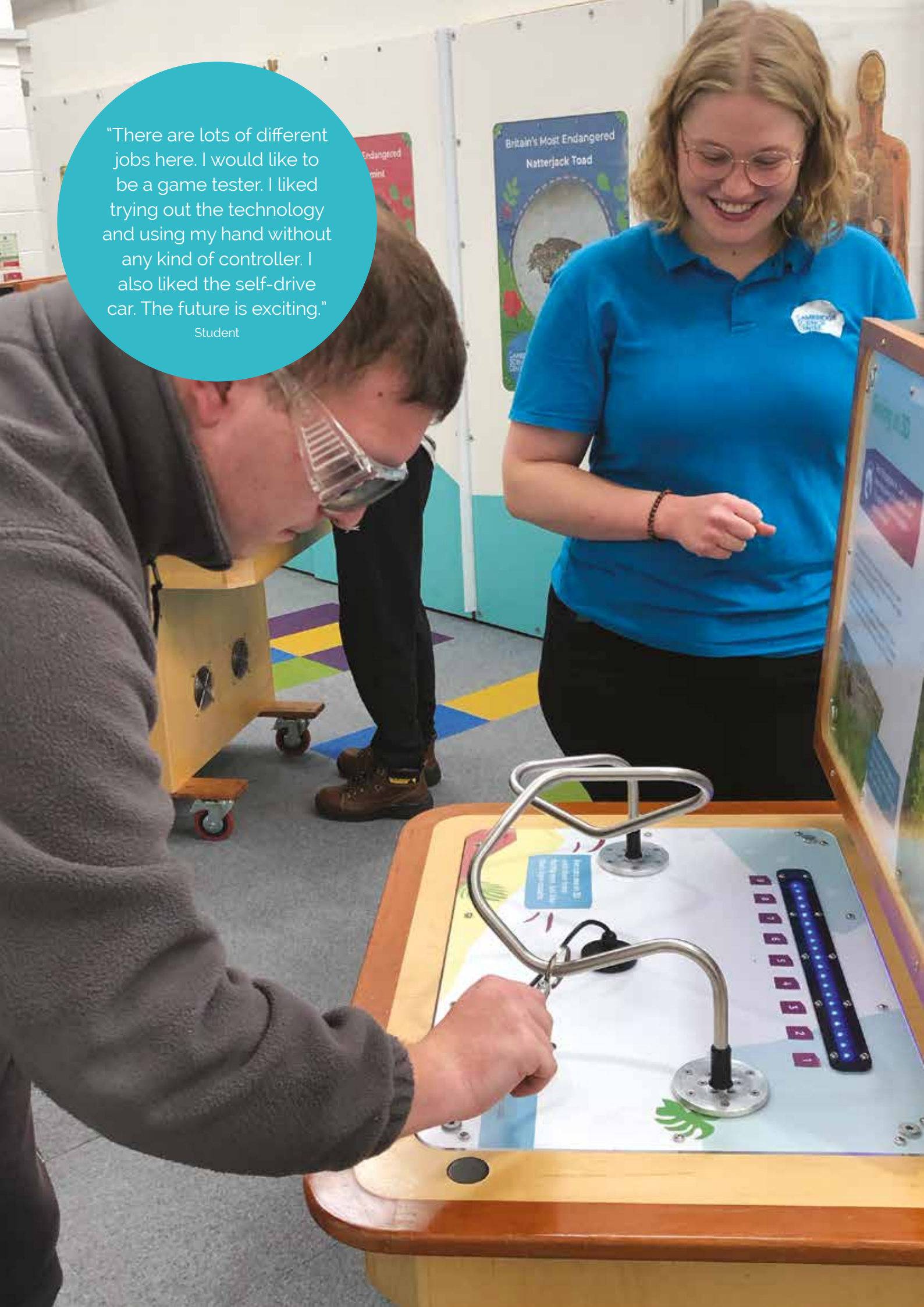
How often do you get to start the day making lightning bolts appear from your hands or to sit in a self-drive car from the future? That's how our students from Briarwood School began their Work Inspiration Trip at Ultraleap in Bristol. They also took a tour of the offices and lab, got to see prototypes of the latest technological advances and even played with some in the demo room. They heard from five different staff members, including an autistic engineer who had learning support throughout his education.

"What an exciting experience – we can't thank you enough for this amazing opportunity! We were all really inspired by our trip and the diverse team that make up the Ultraleap family. J and M were especially inspired and J maintained that he'd love to work there one day (so lovely to hear)! This has really made our guys think about the world of work."

Hazel Staddon, Lecturer Post-16, Briarwood School

"There are lots of different jobs here. I would like to be a game tester. I liked trying out the technology and using my hand without any kind of controller. I also liked the self-drive car. The future is exciting."

Student



6 The SEN in STEM Network

228
members

5
consultancy
projects

We founded the SEN in STEM Network in 2018 in response to huge demand and appetite for a central forum to discuss all things inclusivity within the sector, hosting regular in-person and virtual roundtable events and workshops at venues from the Home Office to London Zoo! The network brings the sector together to break down barriers to inclusion by sharing best practice and leading the way with practical solutions. We currently have 228 members, spanning leading science institutions, membership organisations, science centres, charities, government bodies, corporates and individuals who collectively represent the UK's STEM community. Members include the Royal Society, the Royal Astronomical Society, the Science Museum, the Association for Science & Discovery Centres, the West of England Centre for Inclusive Living, the Ministry of Defence and Airbus. Membership is entirely free of charge.

Working with major institutions means our inclusive practice benefits hundreds of thousands of disabled children and young adults. For example, the Science Museum in London welcomed 1,150,000 disabled visitors in 2021; the UK Association for Science and Discovery Centres brings together over 60 of the UK's major science engagement organisations, engaging over 20 million people with the wonders of science; the Centre for Life in Newcastle held 51,000 educational experiences in 2019/20; the Greenwich Observatory hosted 184,000 disabled visitors in 2021; and the National Space Centre had 80,000 educational visits in 2019/20. We have supported them all to improve their inclusivity and accessibility practices.

"I have to say it's a real pleasure to be involved with this group. A real rich mix of sectors and professionals sharing experiences and inspiring practice. I initially didn't have the knowledge and I wouldn't claim to be an expert now, but what this group did was welcome me in and allow me to listen, question and learn about barriers and solutions I just hadn't considered. My confidence and knowledge around SEN continues to grow and it has been an inspiration to learn from, and with, this group. Like everyone else, I learn every time we meet."

David Jones, International Centre for Life

"Lightyear Foundation offers a wealth of reliable information, advice and practical steps on improving our engagement with a wider scope of society. Their help has been crucial in giving both myself and my organisation the confidence to move forward in this field and broaden our educational offer and create impact within SEN communities."

Joe Burton, Education & Public Engagement Manager, The Linnean Society of London



Triage and consultancy

Our triage service provides a rare opportunity to share knowledge and experience, and to become better connected to improve inclusion. We have transformed operational practice by assisting organisations such as Bristol Robotics Lab, the Royal Society and the Royal Astronomical Society, improving their SEN provisions by providing

advice, sharing our top tips and best practices and connecting members who have faced similar challenges. Triage and consultancy projects could be anything from helping design calming kits for a museum to re-designing a science centre to be more accessible. Either we respond using our own expertise or signpost to other members who can help.



This year, we have worked with:



NEW IN 2022! CPD-accredited 'Making STEM Accessible' training course

6
training courses delivered

124
people trained in inclusive practice

In 2022, we developed a CPD-accredited training course called 'Making STEM Accessible', funded by John Lyon's Charity. This is a practical course for anyone working in STEM and interacting with disabled children or those with special educational needs. Attendees will leave with new techniques, tips and renewed confidence in delivery, evaluation and communication methods plus what they can do to embed these practices into their future work. Course learning objectives include:

- Understand what society can lose when we do not include disabled learners
- Understand Lightyear Foundation's multi-themed approach to inclusive learning
- Learn the importance of knowing the audience you are working with
- Learn methods employed to keep participants safe during online and in-person sessions
- Understand how to plan and deliver an inclusive activity, both in-person and online
- Learn the importance of celebrating achievements

"Thanks for sharing, excellent session as always! Lots to take on and use."

"A very interesting session, lots of food for thought!"

"This is AMAZING – you are helping so much!"

"Brilliant ideas and inspiring."

80%
rated the course as excellent

98%
said they'd learnt something new

98%
said they'd recommend the training to others





Case Study: Professor Tails (14)

'Professor Tails' first attended our Active Learning Workshops where the fusion of science and dance sparked her interest and enabled her to engage and access STEM content for the first time. Managing emotions and skills like choice-making can be exceptionally challenging for Professor Tails. Over time, she's made astonishing progress, demonstrating true ability and passion for STEM.

She was able to meet Lightyear Foundation role model Dr Camilla Pang who also has autism in our Summer Club last year. She exclaimed, "She's just like me. Autism is my superpower too!".

Professor Tails went on to help us found and develop our Lightyear Lab programme as one of our inaugural Researchers.

Throughout all the activities she's taken part in with us, she's provided great feedback including video blogs and helping us shape the work we do and the support we provide to other disabled children.

It has been a delight to see her increase in confidence, practical skills, vocabulary and scientific working. Her attainment helped her parents persuade her special school to help her to access mainstream science where she's currently outperforming her peers. She achieved a 100% score on her summer term assessment! She's now going on to study triple science.

"The impact of Lightyear on the life of my daughter has been immense. It has helped us as parents be more confident in what she's capable of. The Lightyear Lab in particular augmented her knowledge, especially her theoretical understanding as the Lab translated this into the real world so it made sense. It has also empowered us to seek out new opportunities for Professor Tails – such as completing her Duke Of Edinburgh Award."

Professor Tails' parent



"She's just like me. Autism is my superpower too!"

Measuring Success

We are passionate about creating evaluation frameworks that effectively capture the views of disabled children. We use a variety of communication methods alongside tactile, sensory and creative techniques, such as Widgit symbols, sound buttons and Makaton, to capture all voices, including feedback from those around the children, such as teachers, parents, learning support assistants and our own volunteers and programme leaders.

Our framework is a modified version of booklet five of UNICEF's framework for monitoring and evaluating children's projects and we also use the Leuven Scale for assessment (particularly for virtual work). We ensure feedback capture techniques are adjusted to individual needs. Group data collection mechanics are employed alongside individual interviews, observations and collecting stories of change. We also work with families where possible to encourage honest 360-degree feedback.

We work closely with our community to ensure our projects respond to their needs through regular consultation with disabled children, families and schools, plus health, education and social care professionals. As an organisation, we ensure a significant proportion of our Board have lived experience of disability plus access to a dedicated Agents of Change 'council' made up of 40 young disabled leaders who inform and provide feedback on the design, delivery and content of our programmes.

We are developing this work, sharing with and upskilling other organisations in inclusive techniques that put disabled children at the centre through our

'Making STEM Accessible' CPD-accredited training and our triage service. Our SEN in STEM Network roundtable on this topic was attended by 44 charities, groups and science visitor attractions.

Examples of creative evaluation

Miles up the Mountain: A visual of a mountain is displayed in an interactive format. Students are helped to reflect on the sessions and how far they've come. They each choose where they feel they started and where they ended on the mountain showing their journey. This creates a lovely drawing with each student in a different colour.

Science Sand: The session leader has a large jar of coloured sand. The students can choose a colour and also how many scoops they want put in, based on how confident they feel in the subject. This is particularly nice as it's both an individual response but the jar shows collectively what the group has achieved.

Designing Lab Coats: We give participants a lab coat to wear for their lab sessions. For the last session of the course they can come to class with their coats decorated, either with what they learnt or their favourite bits of topic-inspired drawings.





Sharing Our Learning

We welcome every opportunity to talk about representation and accessibility in STEM. Here are some of our most impactful speaking engagements and media profiles in 2022.

House of Commons Select Committee on STEM

Our CEO, Katie Sparkes, was called to present at the House of Commons Select Committee on STEM, discussing our work and the issues disabled people face accessing opportunities in STEM. The session was broadcast live on Parliament TV and led to an increase in the number of organisations approaching us for advice.

Cultural Inclusion Conference

We were invited to speak at the Cultural Inclusion Conference held at the Royal Albert Hall. We were able to showcase our work, promote our training and disseminate our top tips for breaking down barriers to inclusion.

Our Space, Our Future: Universally Different conference

Hosted by the European Science Engagement Association (EUSEA), 40 science engagement professionals from across the EU came together to discuss best practice in teaching space to a diverse audience. We shared our innovative and inclusive feedback methods as part of the presenting panel.

Institute of Government and Public Policy's Diversity in STEM conference

This event addressed the means of supporting women, disabled, racially minoritised and socioeconomically disadvantaged people in STEM workplaces as well as building the talent pipeline and inspiring the next generation of leaders from all backgrounds. We spoke about how we tackle these issues in our programmes and how we believe the UK can systemically address these challenges.

New Scientist magazine

We were profiled in New Scientist's 'Signal Boost' feature to promote our SEN in STEM Network to a global audience. This exposure led to a noticeable increase in enquiries about membership.



Short film: Dr Camilla Pang on neurodiversity in STEM

Lightyear trustee and role model Dr Camilla Pang shared her unique understanding of the world growing up, using the lens of science, in a short film we produced this year. Diagnosed with autism aged 8, Camilla was able to use scientific concepts to help her traverse ideas that she struggled to understand, such as emotions and finding her voice. Camilla went on to complete her PhD in cancer bioinformatics, and today, works as a researcher and is a celebrated author (the

youngest winner of the Royal Society Insight Investment Award). Released in World Autism Acceptance Week in March, this film celebrates Camilla's neurodiversity and the work that Lightyear does to enable more neurodiverse and disabled young people to find their way in STEM. It has been viewed over 3,000 times so far and has garnered some incredible feedback from young people and adults alike.



Our Team

In 2022, we had five staff working the combined equivalent of one full-time person across strategy, operations, fundraising, communications, events and programme delivery.

Lightyear Trustees and staff undergo DBS checks, are trained in disability awareness, follow the Charity Governance Code and complete regular NSPCC child protection training

We are passionate about having a diverse Trustee Board that represents the community we serve. Our Trustees come from a range of backgrounds covering education, STEM, SEN and employability

as well as having lived experience of disability. Over 50% of our Trustees are disabled, which ensures we are led by the community we exist to serve.

We believe by making things more accessible it improves things for everyone! Examples of how we've made our Board Meetings more inclusive include:

Integrating the chat function to better accommodate a range of communication needs

Live captioning for Board Meetings

Recording Board Meetings to enable trustees to watch again

Giving a short physical description of ourselves in the introduction for attendees with visual impairments

Assigning Board Buddies to ensure new Trustees feel supported

Saying our name before we speak to ensure it's clear to everyone who's talking



New Year Honours for our CEO

Katherine Sparkes was awarded an MBE in the 2022 New Year Honours List for her relentless commitment to improving opportunities for disabled children and their families. Her award and dedication will help us to keep inclusion and accessibility firmly in the political and social spotlight.

Volunteers

As a small team, volunteers enable us to magnify our impact, bringing with them a host of skills and expertise. We are so fortunate to have volunteers supporting our projects from Zoom Commanders in our virtual Lightyear Labs and Spotters in our Active Learning Workshops through to those who speak at events or support Work Inspiration Trips. We're also incredibly grateful for the volunteers who tirelessly fundraise for us, bringing in vital donations to facilitate our work.



Trustee spotlight: Clive Gilbert

Clive Gilbert is a public policy professional and disability rights advocate. He is part of the Assistive and Accessible

Technology Policy Lab at the cross-party think tank Policy Connect,

where he works with policy makers, disabled people and other experts to make society inclusive for everyone. He is a member of the government's Digital Social Care Advisory Group, which helps shape how technology is used in care. Clive is also a member of the governing council of the British Assistive Technology Association (BATA), where he set up and chairs the Augmentative and Alternative Communication Special Interest Group. In 2022 Clive was listed on The Shaw Trust's Disability Power 100 – a list of the most influential disabled people in the UK. He joined our Board this year and is already making a positive and noticeable impact on our team and programmes through his expertise, insight and passion.

"I'm delighted to have joined the Lightyear Foundation's Board of Trustees. As a disabled person myself, I remember how important charities like the Lightyear Foundation enriched my own education, not only by enhancing my academic experience but also by providing me with invaluable opportunities to make friends and discover who I am. I look forward to working with colleagues at Lightyear to help more children and young people with SEND learn about STEM and have some fun at the same time."

Volunteer spotlight: Rachel Stratton

Rachel is a MSc Science Communication postgraduate at the University of Sheffield



"I've thoroughly enjoyed working on the Lightyear Labs this year! From them, I have gained a real insight in effective styles of teaching scientific concepts to children, including considering use of appropriate language, relatable analogies as well as picking up some Makaton signing!"

Working with the children and seeing their progression and enthusiasm in science each week was a joy. The sessions have been a valuable experience and I strongly believe I will go on to use the multiple insights I've learnt from them in a career in science and data communication and visualisation."

Looking Ahead

Diversity and being inclusive will remain at the heart of what we do, and we'll continue to challenge ourselves to lead the way in pioneering accessibility – being led by those we exist to serve.

Partnerships and projects

In addition to managing our core programmes and growing our influence in the sector through our SEN in STEM Network, we are looking forward to delivering some innovative new projects and collaborations in the coming months.

Future First: We are excited to be entering into a two-year partnership with education charity Future First. They are managing the Planet Possibility programme funded by the Institute of Physics. The aim is to increase the diversity of the physics community. We are partnering with them to promote physics to disabled children through a mixture of Immersive Sensory Science, Lightyear Labs, Work Inspirations Trips and a brand new role model project.

Makaton: There is huge demand for Makaton vocabulary to add specific STEM-related terminology. Currently, for example, the sign for 'planet' is a ball and then 'p'. Creating Makaton signs to include STEM vocabulary would help to reinforce the importance of these subjects within SEN education, and open up the language of STEM to a wider audience. We will be working with Makaton to design and introduce these new signs next year.

Lightyear Foundation Inclusion Awards with New Scientist magazine: We meet, work with and support many people and organisations doing incredible things in the name of inclusion in the STEM sector. In 2023, we hope to host the inaugural Lightyear Foundation Inclusion Awards as our way to recognise and celebrate their relentless commitment, energy and achievements. New

To ensure we can survive and thrive, fundraising will be central to our strategy next year. We aim to maintain reserve levels of four months to enable us to cover core costs, securing our delivery so we can be safe in the knowledge of being able to support families during these challenging and unpredictable times.

Scientist magazine has confirmed its intention to collaborate on these awards as our media partner. Fully online, these awards will be accessible to all with signing and captioning. We will be seeking corporate sponsorship to cover the costs of this new national SEN in STEM event.

Virtual reality (VR) with the University of York: The university's VR and spatial audio labs feature state-of-the-art equipment for the development and production of VR experiences and immersive audio. We will be working with them to open up the exciting world of STEM to those who are unable to travel or feel overwhelmed by visiting new places by creating virtual tours of scientific facilities, offering new and exciting 360-degree video content for the young people we work with, complementing and extending our Work Inspiration Trip programme.

Our vision of the future

Through developing our programmes to be scalable and replicable, and through fortifying pathways with our SEN in STEM Network members and other educators and employers, we firmly position ourselves as a catalyst for creating systemic change. We are committed to tackling the root causes preventing the disabled community from accessing STEM. We want to be part of the solution so that ultimately our services are no longer needed. Our vision is of a future where inclusivity and accessibility are embedded within STEM education and workplaces, where disabled people are welcomed and celebrated in these pioneering fields, offering their unique contributions to tackling the world's greatest challenges and advancing human knowledge.

Supporters

We are especially grateful for the support from our trusts/grantmakers, corporate friends and community donors this year, including:

Amazon Smile

Avios

BA Better World Community Fund

British Airways Executive Club

British Ecological Society

Crowdfunder
(Race to Space campaign)

Curiosity Fund (BBC Children in Need and Wellcome Trust)

Facebook Giving

Future First

Garfield Weston Foundation

Institute of Physics

LocalGiving

LocalGiving Magic Little Grants
(Postcode Lottery)

Paolo Alto Networks

PayPal Giving

Royal Museums Greenwich

Royal Society of Chemistry

Springer Publishing

The Funding Network

The Institution of Engineering and Technology

The National Emergencies Trust

The Ogden Trust

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