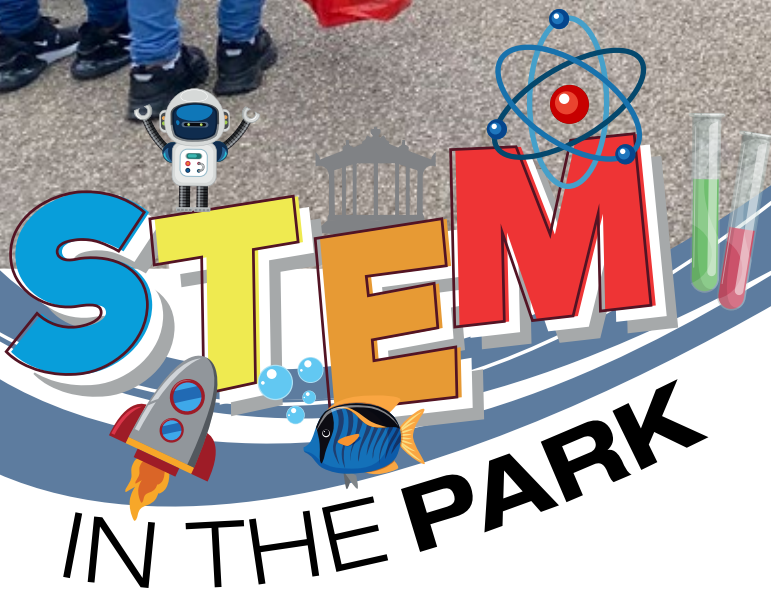




**LOCALLY
DELIVERED
TARGETED
INTERVENTION
2022**



STEM
IN THE PARK

CASE STUDY 1
STEM IN THE PARK





The aims of the event, which took place on Saturday 21st May in the Memorial Gardens in Crawley, were to meet the following areas of Science Capital (Archer et. al, 2010):

- Talking about science in everyday life
- Knowing people in science-related roles
- Knowledge and the transferability of STEM
- Participation in an out of school science learning context

This intervention aimed to improve young people's knowledge about the transferability of science and provide them with contact with people in science-related roles. Knowledge and transferability of STEM was planned by ensuring the engagement opportunities were practical and that each company and activity demonstrated STEM-focused learning opportunities. There were over twenty different STEM opportunities that both entertained and educated all the family. The event was free and held in the central park with a bigger than expected footfall.

The social media, school-related and local press engagement was central to the success of the event. Conversations with participants identified how they found out about the event and planned it into their busy weekends. This event built upon an event that was part of the local landscape in an area of West Sussex with some challenges prior to the pandemic.

Billie- Sue (a mother who brought four children with her) said,

"I was told about the event by St Wilfred's, where my children go, and it is great to see so many different things that they are interested in".

She went on to explain that,

"these events should be put on because many children do not have these things and it is too expensive to take children to London to the Science Museum. It is also good for them to be with other children after so long of being at home"

The STEM Hub team worked with stakeholders, including the Borough Council, the Local College, and Universities to improve parents and young people's understanding of what skills and abilities can be drawn into STEM roles and the diversity of these. On the day, the local companies that took part were drawn from the whole STEM sector and supported participation in an out of school activity (NSG). The local STEM companies had been briefed about the need for diverse role models to enable young people and their families to see both the diversity of STEM professionals and roles.

The time scale for the initiative was short but the approaches and ideas were developed by a community group consisting of the Local Council Representatives, large employers from the Gatwick/Crawley area and the College, who formed a co-designed and co-owned plan for engagement. Crawley College ran a STEM in the College event on the same day and there were STEM professionals in the College and College staff in the park. As a result, there was diversity, creativity and opportunities for fun throughout the day. .

The team from Edwards Vacuum showed what happens to marshmallows in a vacuum and after seeing the marshmallows turn into 'Monster Mallows' this science experiment was taken away to be eaten. The Edwards team composed of 75% female and 50% BAME STEM Ambassadors. A conversation with the managing director of the Burgess Hill site explained to the Hub director that Edward's is aiming to get to 30% female employees by 2030, and when they participate in external STEM events, they ensure their STEM Ambassadors are representative of this future vision.

On the Thales stand, non-Newtonian fluids, aeroplanes and spinners were just some of the activities that kept numerous children engaged with STEM learning opportunities, led by a team of diverse role models. The liaison with companies prior to the event ensured that in the Exhibitor Tent, young people and their families saw first-hand the diversity of roles, the diversity of the professionals and as Robyn (a local parent) identified "this is better than them being at home sitting on i-Pads!" Parents, grandparents and carers came to event, which was so busy that access to the tents and shows had to be monitored to prevent young people getting squashed.

Natalie Goodchild, UK Communications & CSR Specialist, CGG said,

"I cannot believe how busy it has been today, it's been amazing and the variety of people of all ages who came was great. The CGG team worked non-stop and for some of our STEM Ambassadors it was their first event since the pandemic and they have been buzzing."

EVALUATION DATA

In the proposal, it was planned that a simple engagement questionnaire was used with parents, carers, and young people to gauge their engagement and understanding because of attending the event. The Southeast STEM Hub team had planned to use STEM Ambassador postcards with a stamping card to ensure all areas of STEM represented will be accessed. The activities were so engaging that it was not necessary or possible due to footfall to carry out this plan, and instead the questionnaires were filled in alongside photo permission sheets and the responses digitally recorded with the participant's consent. This provided in-depth impact reporting from 20 different family groups, some of whom were happy to be interviewed but not for photographs of their children to be used.

Whilst evaluation was built into the event, with the numbers exceeding expectation the interviews were carried out throughout the day and these were recorded, alongside ethical agreement forms that explained what would happen both to the interview data and the photographs that were taken. This case study will provide the feedback from young people, their parents and carers and the business partners who took part in the event. Interviews were also recorded with stakeholders, exhibitors, and presenters. All data will be assigned to the individuals or groups by first names only in line with the ethical considerations and agreements signed. Company evaluation will be provided with full names and roles where this data exists.

CRAWLEY

Crawley was selected for this intervention because of the STEM-related industry and the lower-than-average qualifications for the area. *Figure 1* demonstrates the qualifications for the population. Crawley residents tend to have lower qualification levels than residents across the whole of West Sussex and the Southeast region.

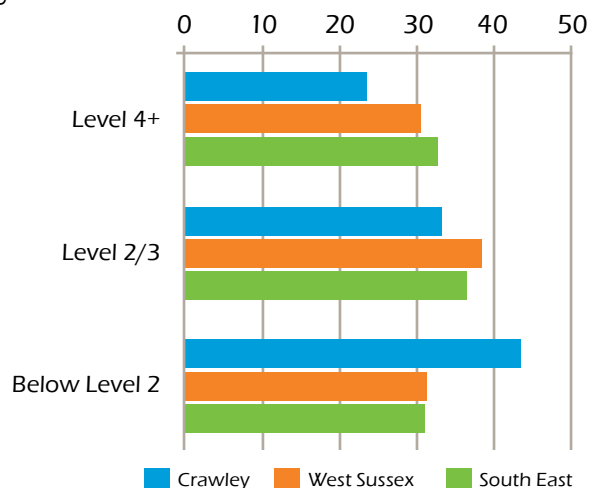


Figure 1: Source: Annual Population Survey Jan-Dec 2009

The local council West Sussex Local Economic Assessment Spatial Area Factsheets Report identified that,

Low skills are a clear issue for residents in Crawley. More than four out of ten (43%) of working age residents do not hold a Level 2 qualification, compared with just 31% in West Sussex as a whole. Conversely, fewer than a quarter (23%) of Crawley residents hold higher level (Level 4+/degree) qualifications, compared with 31% in the county as a whole. The low skills amongst Crawley's residents mean that it is likely to be difficult for local people to access the good quality jobs that exist in the Borough. The 2001 Census suggested that employees in Crawley were more likely to hold higher level qualifications than local residents, which may suggest that many higher skilled jobs in the Borough are taken by people who commute in from other areas (West Sussex accessed June 2022)

The Stakeholders identified that information, advice, and guidance concerning STEM careers needs refreshing and re-energising because of the pandemic. Under-represented groups have been identified as those who could be potentially attracted by STEM-focused work and study but who currently cannot see a link between themselves and these varied professions.

ACTIVITIES AVAILABLE FOR THE PARTICIPANTS

The STEM Hub team worked closely with the STEM companies to ensure that the activities met the needs of the participants. The industrial partners really stepped up to the remit and there were no exhibitors who handed out paper-based marketing literature.

Linked to the objectives set out in the plan there were some modifications, but the following opportunities were provided and enjoyed by the young people and their families.

Talking about science in everyday life focused activities including hand hygiene activities, torch making, demonstrations and 'take and make' activities including rockets and spinners, which brought STEM-focused learning to deprived young people.

The **science shows** every hour and **planetarium demonstrations** and **interactive opportunities** for all age groups, supported **participation in out-of-school science learning contexts** for young people who do not go to London and have little access to museums/planetariums/clubs.

The STEM Ambassadors provided the opportunity for **knowing people in science-related roles**, alongside the **knowledge about the transferability of science through** careers advice, guidance,

and information. Opportunities were provided by Higher Education Institutions and Colleges, including University of Surrey who brought a Maths-related set of activities, Canterbury Christ Church University who focused on Engineering and Biomedical Science, and professional bodies including the IET who supported thousands of young people to make torches, involving young people in everyday applications of STEM.

As a result of support from Crawley Borough Council, local construction companies Keir, Wates and City Fibre helped young people and their families to see STEM in their local environment and to meet and engage with companies who are instrumental in their local STEM economy.

"This event today has been absolutely awesome, tanks from wates for inviting us along. I cannot believe it, there has been thousands of people here today so a very well done to the stem hub for this, thank you so much."

Wates.

Councillor Atif Nawaz was keen to run the event next year and to make it bigger and rename the event as a Science Festival. Lynne Hainge, who had been the key contact at Crawley Borough Council attended the event with her daughter.

"I though the event was great, both from a corporate perspective but also as a parent – my daughter really enjoyed it and especially the science show. The feedback I had on the day was excellent, including from a number of our councillors, which is always good to hear."

The NHS was represented and brought with them practical activities and talked to both parents, carers, grandparents and neighbours and their children. The feedback from the companies gives a flavour of their experience of the event as well as their interaction with the attendees.

"WOW, what an event! Jam packed with so many different activities from all different STEM career opportunities."

"Our stand wasn't as interactive as some others that were there but the turn out of visitors that we spoke to that day shows that doesn't even matter! We spoke to people aged 4 about body parts all the way up to young adults and even parents inspiring them about apprenticeships they could get into to kickstart their career. It was lovely to see how many young people are inspired by the NHS and all the different roles there are that make us who we are and what we do. I'd just like to give my thanks and appreciation for having us there at this event again – and the faces of the children when they built the anatomy body back up and are now inspired to be doctors will be something that I'm so pleased I got to witness."
Chelsea Davis T-Levels & Careers Senior Administrator

The event was covered by the local press who came and took pictures, see link: [Crawley STEM in the Park attracts thousands of visitors after its return from the Pandemic | SussexWorld \(sussexexpress.co.uk\)](https://www.sussexexpress.co.uk/news/crawley-stem-in-the-park-attracts-thousands-of-visitors-after-its-return-from-the-pandemic/)

STEM Ambassadors also attended the event to support the Hub Team and rotated around the different marquees and shows. Their support was invaluable. Zonny, who has a computer science role and loves in Crawley supported the event and this was his first face to face event since 2019,

"It was a great day out for everyone involved! It's amazing to see the community get together again after such an extended period of time without any restrictions. To see the excitement and smiles all around is really great, especially in those young children. Thank you to the STEM Hub team for organising this event. I'm looking forward to getting involved again in the years to come. I think we need a bigger marquee next time!"

The variety of people and the busy nature of the event was commented upon by all the employers.

"The event reminds me of the Big Bang events in 2012, we were not sure how many people we would get, and the team have not stopped since the beginning."
Edwards Vacuum

"There were four of us, but we could have done with eight. Often at events there is time to walk around and see things, but we have not stopped for five hours and even getting time to get water for the Chemical Engineering demonstration has been hard, as there were so many people all the time. But it has been good, and the children and parents have really engaged."

Canterbury Christ Church University Engineering Staff

"There were so many things they enjoyed, they liked making a badge in the college and they enjoyed programming the robots, and changing a tyre."
Nicola

"We have been in the science show – it was an awesome experience where we saw magic. We went into the tents where we were able to see the jobs that my son might be able to do when he gets older. He is interested in looking at the airplanes which was pretty interesting to him and the reptiles, they all loved that. They liked holding them and touching them. It has all been great it has been a exciting opportunity."
Laurette and Reginald, who heard about the event form the library bus.

The event was set up in the park on the Friday, and this was one of the ways that people knew about the event, as members of the public came up and asked what was happening. Some of the parents heard from friends, some saw the fliers around the park, others

came to the park after seeing pictures posted in the morning by their friends on social media, Victoria (parent) came to the park after being told about it from a friend who worked in the family center and came because,

"I want to help my kids, so they don't end up like me"

Katrina brought her daughter Tamara and enjoyed the science show and holding snakes.

"I went to the college about a week ago to an event and heard about today, I don't think I will get out of here before 4 o'clock and we were only coming for an hour. She has absolutely loved it. She is really engaged, she loves it, it is all fun but it is all learning and learning that she is enjoying."
Chris and his daughter.

The range of activities and sectors was also another motivating factor for parents.

"As soon as we saw it was space they wanted to come and we have registered for the three o'clock show in the big black thing (mobile planetarium). The science show was good, he made some very silly noises in there and he had three robots, one a rabbit and one a bird and one a cat. I did not go in; she went in with daddy and then you programmed the robot. The wheels were a bit wonky. I think it is great they are learning, she does a lot of science at school and at home, but this is hands on and instead of books it is good to do things, rather than watch or read about them and it is the type of learning they like."

Grandparents attended with grandchildren and expressed surprised at what was on offer. One grandchild said,

"I liked the coil activity that you had to move the ring around the curly wire and not touch it (City Fibre). I liked that, I also liked the infra-red camera with all the space things."
Aurther

Grandparent Joanne said,

"We liked the activities, but it was very busy with so many people, so we have come outside. We are waiting for their mother to come and will do a science show. The programming of the robots was good, and it is all better than we expected."

All the participants who were interviewed lived locally in Crawley and had not had to travel. The reasons for attending varied from keeping children occupied, meeting the interests of the young people, and educating them both about science and also what is "out there about jobs". It was very valuable to talk to the parents, carers and the young people and they were very complimentary about the event.

One parents surprised us by adding *“Thank you for giving up your time on a Saturday to tell the children about things they could do.”*

“I think these events are amazing. My son starts secondary school in September and something like this that he is really interested in will give him an idea of what he might need to look for, what subjects he needs to look for. This is important as some children even as young as this will get to hear about their dream job and what they will need to do to get there, and I think it is really important and it is really fun too.”

“It is open air, it is free, and it is the sort of thing that the children like and have been looking forward to and they like doing. My daughter told me about it from social media and she told me to meet her here and have a look around. The best bit is being here and trying different things and seeing what they (children) can get out of it.”

LEARNING FROM THE EVENT

- 1. BUILD IT AND THEY WILL COME.** It was impossible to plan for the numbers of visitors and the event was held in a park in the Centre of Crawley town. Each marquee had a cost according to size and originally, and we planned to have one large tent and four smaller ones. The planetarium was a standalone structure with its own power source. The week before the event, we changed the numbers of tents and ordered two large and three smaller ones. In hindsight we needed six large marquees and would plan for this in the future (costs permitting).
- 2. ENSURE SECURITY IS INCLUDED.** This event had a security team from the set up on the Friday to take down on the Sunday. This was expensive but was required in a central location. The security team were young professionals and worked with the population. It also was helpful when there were challenges (lost refugee child, challenging members of the public, safe access for cars/vans in a public place).
- 3. MAKE SURE THE STEM AMBASSADORS GET BREAKS.** The helpers who were not attached to a company were able to have time away and be provided with refreshments. Those who were working on the stands never got a break because of the numbers of people. Refreshments were provided to them at their stands and water bottles were given out every hour.
- 4. THE LAYOUT.** Making sure the event flowed and planning what tents went where reduced the overcrowding and made the event more streamlined. This was successful, for example separating the two shows at either ends of the event helped with the overcrowding. Having marquees on both sides of the pathway that required electricity was an area for improvement in the future
- 5. BRING MORE ROCKETS, MORE RESOURCES, AND MORE ACTIVITIES THAN YOU NEED.**
- 6. BE FLEXIBLE ABOUT FEEDBACK.** The numbers meant recorded interviews was the only possibility, as cards would have been dropped over the park and the Environmental Warden had already issued a fine at 10am in the morning to an exhibitor. (Cost of £100 per dropped item and the warden made it clear if it had our logo in it we would be fined).
- 7. USE MANY WAYS TO ADVERTISE THE EVENT.** It was clear that this was one of the reasons for the high footfall.
- 8. BE FLEXIBLE** when people need electricity or must put on shorter but more numerous shows so that children were not disappointed.



THE STEM HUB

Canterbury Christ Church University

North Holmes Road | Canterbury | Kent CT1 1QU

E: thestemhub@canterbury.ac.uk

www.thestemhub.org.uk