British Science Association

Kick Start grants: Impact evaluation

14th May 2021

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Executive Summary

The British Science Association (BSA) established British Science Week as part of its mission to transform the diversity and inclusivity of science, to reach under-served audiences, and to increase the number of people who are actively engaged and involved in science. Schools, community groups and members of the public are encouraged to organise events during British Science Week to raise awareness of science and scientific careers, especially among disadvantaged children who belong to groups underrepresented in science.

To increase participation by schools with many disadvantaged pupils, the BSA provides Kick Start **grants of up to £700** for activities during British Science Week. To receive a grant, schools must meet certain eligibility criteria based on the school type, location and make-up of the student body. Applications are then assessed based on the alignment between the proposed events and the grant criteria published by the BSA.

ImpactEd has partnered with the BSA to evaluate the impact of its Kick Start grants programme on participants, organisers and the wider community. To understand the impact on each group, ImpactEd has analysed **2018-20 quantitative survey data** from participants and event organisers and collected **qualitative interview data** from organisers.

It is important to recognise the limitations of such a retrospective evaluation. In particular, it is impossible to evaluate long-term impact from survey data collected soon after the event. Equally, a single post-event survey relies on self-reported changes in attitudes rather than direct 'before and after' comparisons. The research nonetheless highlights a number of ways the grants have a positive impact and several opportunities for increased impact in the future.

Overall, organisers **enjoyed their experience of events** and both organisers and participants reported that their **interest in science had been increased** by the event. Participants with higher prior science engagement were more likely to find their interest increased by the event, whereas, among organisers, it was those with lower prior science engagement whose interest increased the most. In the post-event survey, 57% of participants who describe themselves as 'interested in science but don't make a special effort to keep informed' stated they would consider a job that uses science in the future.

Organisers expected that the events would have an **impact beyond British Science Week**. They were positive about the effect that organising the events had on their confidence in delivering practical scientific lessons and demonstrations in the classroom, leading to lasting impact. However, **the majority of applicants did not reapply in a subsequent year**. We also found that disruption due to COVID-19 (especially school closures) caused plans for British Science Week to be delayed in some schools. Other schools adapted quickly and altered their events for online delivery. Kick Start grants are also one of several routes to CREST for underrepresented audiences (URA) grants, another type of grant offered by the BSA, with 19% of those applying

for URA grants having previously applied for a Kick Start grant. In 2020, among the underrepresented audiences (URA) network, a separate network for schools in challenging circumstances, 38% of schools previously applied for a Kick Start grant.

Almost all organisers (97%) reported that the **financial contribution made via the grants was 'very important' or 'essential'** to delivering their British Science Week event. The funding was used in a wide variety of ways, from purchasing specialist equipment to funding external speakers or travel to events. Aside from this financial value, the BSA provides support to organisers through **resources (e.g. activity packs) and direct staff support**. Organisers rated both kinds of support highly, although take-up of direct staff support was low across all three years of the study period.

Most organisers first hear about British Science Week directly from the BSA. The BSA's eligibility criteria effectively select schools with **high proportions of pupils in their target groups**. Indeed, 47% of pupils at grantee schools were from backgrounds other than White British, compared with 37% across all state-funded secondaries. However, only 36% of event participants were from ethnic minority backgrounds. This suggests that, **while targeting is effective at the school level, the profile of those who take part in the events is much closer to the national picture**. Some schools expand their reach by including families and the local community in their audiences, although this is rarer and the BSA provides specific 'Kick Start More' grants for this purpose.

Several opportunities for further impact emerged through this study. While the **greatest increase in interest among organisers was seen in those with lower prior science engagement**, few such teachers made applications. Extra support for these teachers could increase the number of successful applications and expand their access to British Science Week. Equally, schools with low Ofsted ratings currently represent a small proportion of grantees. An expanded social media presence could be an additional way to reach teachers who are less engaged with other channels. While ethnic minority pupils are effectively targeted at a school level, their participation in events remains in line with the national average. Preference could be given to applications which specifically target this group and support could be given to schools to ensure these target groups within the school do benefit. The BSA could also support teachers by sharing examples of successful virtual events, which could be useful in any future school closures or to enable wider audiences to participate.

In addition, the BSA could further develop its own monitoring and evaluation. For example, collecting **information on event type** would help identify and target events which have the greatest impact. Where practical, **collecting data on attitudes before and after the event** would provide a more robust measure of the event's impact, especially if using validated scales.

Finally, schools could work to ensure target groups have equal access to events. **Informal school and teacher networks** could be used to spread awareness of British Science Week and Kick Start grants. Expertise on successful event planning could also be shared, especially ideas for virtual delivery during school closures or as part of usual practice.

Foreword from the BSA

The Kick Start grants have been a cornerstone of British Science Week for many years. Initially serving as a simple incentive for schools to participate in the Week, these micro-grants are today awarded to schools to help them run engaging activities during the Week as well. The grants have evolved, along with the vision of the BSA and are now awarded to schools which meet certain criteria and which plan activities for young people who are traditionally underrepresented in science.

The evaluation conducted so far on Kick Start has consisted of fairly light-touch annual surveys of participants and event organisers. This report, which we commissioned from ImpactEd, pulls together evaluation data from multiple years for the first time (2018-2020), cross-referencing other BSA offers to look for repeated engagement and beginning to map out the journey of the teachers who engage with our work.

The analysis shows that the grants, and the associated support from the BSA, are highly valued and having an impact on both the teachers who organise events and the students who attend them. Indeed, this report shows that the grants have become an integral part of many teachers' STEM enrichment journeys. We want to maximise this by channelling those teachers who apply for grants into our underrepresented audience (URA) network. Being part of that network opens the door to a host of support for participating teachers, including an annual free conference.

As well as Kick Start grants being a gateway to our URA network, it is also clear that one fifth of teachers each year go on to apply for further micro-grants to engage in the CREST Award scheme. CREST is a much longer-term intervention, involving young people in sustained and creative STEM project work. We believe that engagement in CREST is hugely impactful on young people, and so would like to use the findings of this report and our ongoing work with the URA network to increase the numbers of Kick Start grant recipients progressing to use CREST effectively with their students.

To that end, we are offering a new 'buddy' scheme for teachers in the URA network who are new to CREST. The 'buddy' scheme will pair them up with more experienced CREST teachers and provide peer support and coaching in small groups. This means that those teachers who progress from Kick Start events to running CREST through URA grants will be much more supported throughout their journey.

This research has offered a great opportunity to dig a bit deeper into the data and find areas where we could support teachers further, e.g., in how to organise events that are attractive to diverse audiences within their schools, so that the profile of students participating in events better matches the school diversity data. This is something that we intend to action straight away through sessions in our upcoming online conference for the URA network, as well as through the new 'buddy' scheme training.

We will also fine tune the grants and the support offered through:

- Training at the new annual URA Network conference, offering guidance on applying for the grants and planning inclusive activities.
- Additional advice within the British Science Week education activity packs on planning for diversity and inclusion.
- Explicit messaging encouraging repeat applications for grants.
- Potentially trialling multi-year grants, should multi-year funding be available.
- Adapting the evaluations to better track impact so that we can improve our evaluation and planning cycle to measure more accurately the long-term impacts of the grants on both students and teachers.

We have valued the opportunity to reflect more deeply on our evaluation data from the last few years and would like to thank the team at ImpactEd for all their hard work and analysis in this report. It will shape our future planning and evaluations and enable us to develop a more comprehensive teacher and student journey which builds their STEM engagement, confidence and identity.

- Maria Rossini, Head of Education at the British Science Association

1. Introduction

The BSA is a charity that aims to transform the diversity and inclusivity of science, to reach under-served audiences, and to increase the number of people who are actively engaged and involved in science. As part of this effort, the BSA organises British Science Week, an annual ten-day celebration of science, technology, engineering and maths (STEM). The events aim to raise awareness of science and scientific careers, especially among disadvantaged children who belong to groups underrepresented in science.

Schools, community groups and members of the public are encouraged to organise events during British Science Week. The Week is well known among science teachers and most of the resources are freely available on the BSA's website to support those organising events.

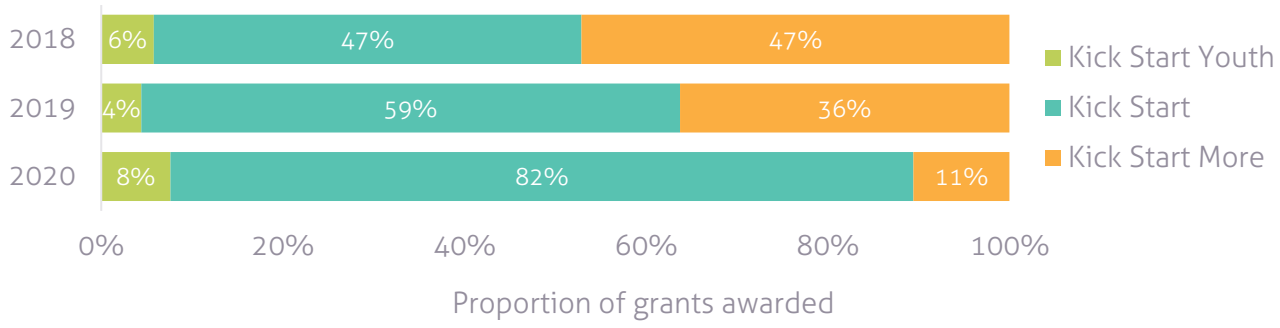
To increase participation among disadvantaged pupils, the BSA distributes Kick Start grants to support schools to take part. These grants provide up to £700 of funding to help deliver activities and events to mark British Science Week. The funding is ultimately provided by UK Research and Innovation (UKRI).

There are three types of Kick Start grant available:

- Kick Start Youth grant: a grant of £150 for a school to run an activity during British Science Week organised and delivered by students aged 10-19.
- Kick Start grant: a grant of £300 for a school to run an activity during British Science Week.
- Kick Start More grant: a grant of £700 for a school to host a science event or activity which involves students and the local community. The community can comprise of families/carers, members of local community groups, local businesses and local press.

Standard Kick Start grants constitute the majority of grants awarded, although the make-up has evolved over time. Standard Kick Start grants can be combined with Kick Start Youth grants if students take on an organising role.

Breakdown of grants awarded 2018-20[1]



In order to target underrepresented groups, the BSA imposes certain eligibility criteria on schools applying for Kick Start grants. Schools must:

[1] Totals may not sum to 100% due to rounding.

- Be a non-selective state school or college located in England, Scotland, Wales or Northern Ireland.
- Meet at least one of the following criteria:
  - Over 30% of pupils eligible for the Pupil Premium or equivalent.
  - Over 30% of pupils from ethnic minority backgrounds.
  - A small school based in a remote and rural location.

If schools do meet these criteria, grant proposals are assessed according to their alignment with the BSA's priorities. These accommodate a wide range of initiatives and not all priorities have to be met by each successful application. Submissions will be prioritised if they:

- Involve children supported by Pupil Premium, from ethnic minorities or with Special Educational Needs.
- Involve children who wouldn't normally choose to participate in Science, Technology, Engineering and Maths (STEM) activities.
- Challenge stereotypes about science, and link it to children's everyday life beyond school.
- Are cross-curricular and involve teachers, professionals or organisations from outside STEM.
- Raise awareness of the diverse range of careers studying STEM subjects can lead to.
- Impact on STEM activities throughout the year, e.g., staff CPD or launching a new STEM initiative in your school.

The BSA has collaborated with ImpactEd to evaluate the impact of these grants, considering the impact on participants, organisers and the wider community. It is important to evaluate the effectiveness of Kick Start grants, identifying where they are most effective and where there are opportunities to improve their impact.

Through quantitative survey data and a series of qualitative discussions with teachers and technicians who organised the events within their schools, ImpactEd has understood the ways in which they have impact and provided a set of recommendations to improve the effectiveness of activities funded by BSA grants. While this is primarily an evaluation of the grant scheme, ImpactEd has also included recommendations for schools to maximise the impact they provide using their grant money.

It is important to recognise the limitations of such a retrospective evaluation. Given the type of events run during British Science Week and the size of the grant, survey data was collected only during the event or immediately afterwards. This makes evaluation of long-term impact difficult. Also, 'before and after' survey data would be a more reliable indicator of improved attitudes than self-reported measures.

The findings are based on themes drawn out from these interviews and analysis of the data. These are presented alongside five case studies, which serve to illustrate the range of activities that the BSA's grants fund, as well as provide inspiration to science teachers and others looking to develop their own events.

2. Methodology

This impact report is based on a combination of qualitative and quantitative data. The quantitative survey data was collected as a compulsory part of the British Science Association grant process. Both participants and organisers completed surveys over the period 2018-20, creating a sample representing nearly 20,000 voices in total.

This is only a small sample of those estimated to have taken part in the events during these three years. Response rates among organisers are high, with nearly all organisers responding. While response rates for participants were much lower, we still have a large sample.

Recognising that the reporting requirement imposed alongside relatively modest grants (typically £300) should be proportionate, this limited form of evaluation strikes a reasonable balance. It is nevertheless important to draw attention to a number of limitations which it imposes.

- **Data collected soon after the event measures primarily short-term impact.** Naturally, long-term impact can only be evaluated over a period of time. While the survey questions do ask participants and organisers about their perception of long-term impact, further data collection some time after the event would be needed to verify that these impacts are sustained.
- **Survey questions do not include validated scales.** Empirically validated scales offer two main advantages. Firstly, they are supported by academic research which ensures the questions are valid, unbiased measures of the respondent's attitude or self-perception. Secondly, original and subsequent research provides useful benchmarks to compare against participants' responses. It can be helpful to use custom questions tailored to the specific programme alongside academically validated scales to gather specific information.
- **There is possible bias in survey responses, although this should be limited given anonymity of respondents.** Given that organisers and participants have received grant money from the BSA, there is potential for more positive responses. However, the participant surveys are anonymous, as were the organiser surveys until 2020, so this should limit the incentive to provide biased responses.

The qualitative data is based on interviews with four teachers and one science technician who organised events in different schools. These interviews were conducted in March 2021 and focused on the experience of grantees who had received grants in 2020 and in previous years.

3. Findings

The BSA is increasingly seeking to develop long-term relationships with schools and event organisers to deliver lasting impact. This could involve either repeated grant applications by the same teacher or by other teachers in their network. ImpactEd has evaluated the impact of the grant process at each stage of this cycle. The results are divided into three sections:

- **Section A:** Impact of the events on participants and organisers
- **Section B:** BSA support for organisers preparing for the events
- **Section C:** Effectiveness of school outreach and selection

Section A

Impact on participants and organisers

Impact on organisers.

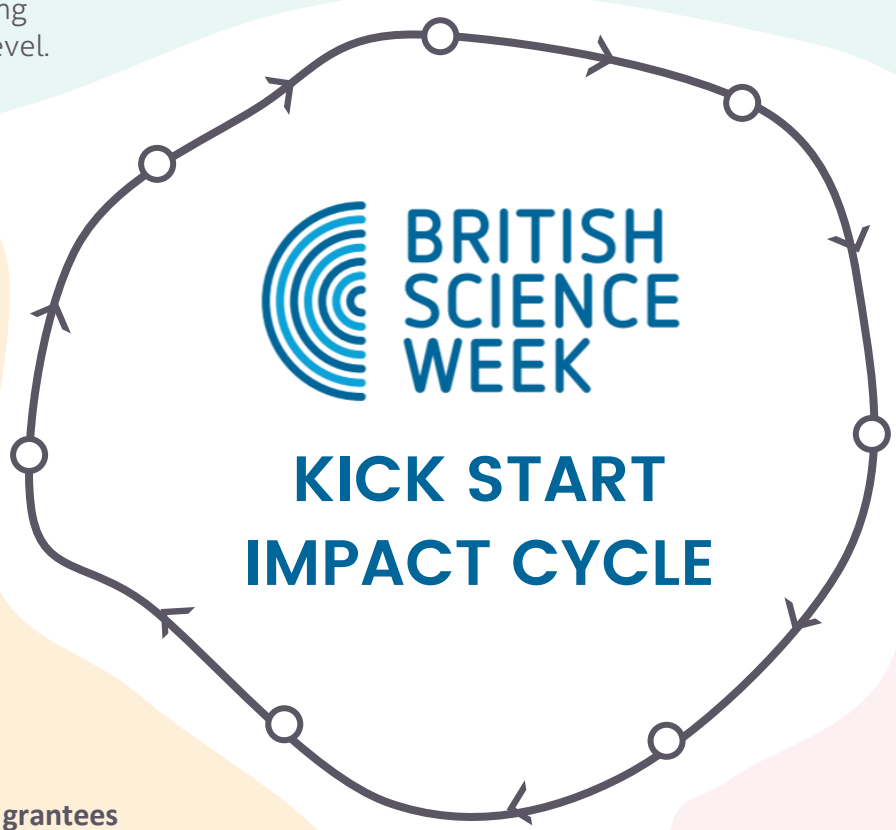
97% rate event as 'good' or 'excellent', with those initially least interested in science reporting highest increases in interest level.

Impact on pupils from underrepresented backgrounds.

52% 'much more interested in science' and over half of pupils from all genders report 'definitely' or 'maybe' wanting to use science in their job.

Impact after British Science Week.

87% of organisers agree that the grant enabled activities will have impact beyond British Science Week and 99% of schools are enthusiastic to take part again.



Section B

BSA support to organisers

Overall the grants enable high participation.

97% report grant was 'essential' or 'very important', with 88% agreeing it expanded British Science Week's reach. Approximately 100,000 participants reported annually.

Resources provided to help grantees prepare for their events.

77% find 'how-to guides' excellent or good, up from 59% in 2018. Activity packs and marketing resources also highly rated.

Section C

School outreach and selection

Schools hear about BSA due to successful prior years and outreach.

90% rate the website as good, with ~40% first hearing about British Science Week via the site. This leads to applications for double the available grants.

Targeted selection process for impact.

Grant schools have **36%** Pupil Premium, compared to 25% nationally. They also have a significantly higher percentage of ethnic minority pupils despite also focussing on rural areas.

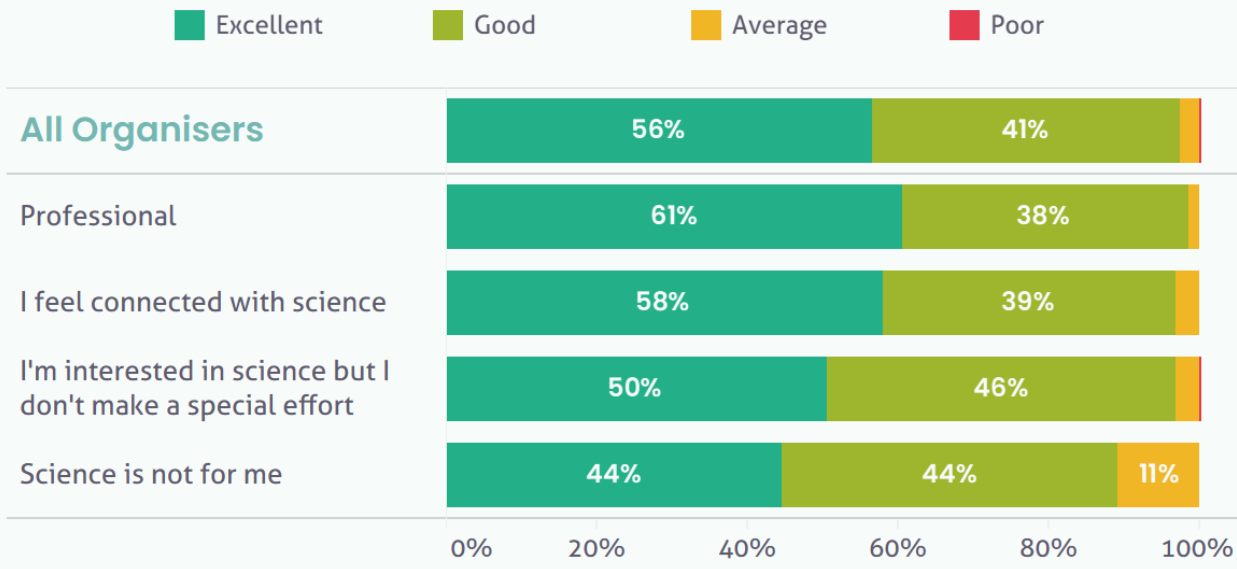
Section A: Impact of the events on participants and organisers

Key Finding #1: Overall, organisers enjoyed their experience of British Science Week events and became more interested in science

Overall, 97% of organisers who received BSA Kick Start grants to fund events during British Science Week from 2018-2020 rated the experience positively and more than half rated it as excellent.

The BSA audience model divides organisers and participants into four distinct groups based on their self-reported level of engagement with science. Feedback was slightly less positive amongst those who started with lower interest in science. Slightly fewer (88%) of those with the attitude that 'science is not for me' had a positive experience of organising the event. Nonetheless, this is still highly positive feedback.

How would you rate your experience of organising a British Science Week event? (Organisers only)* *Chart A1*

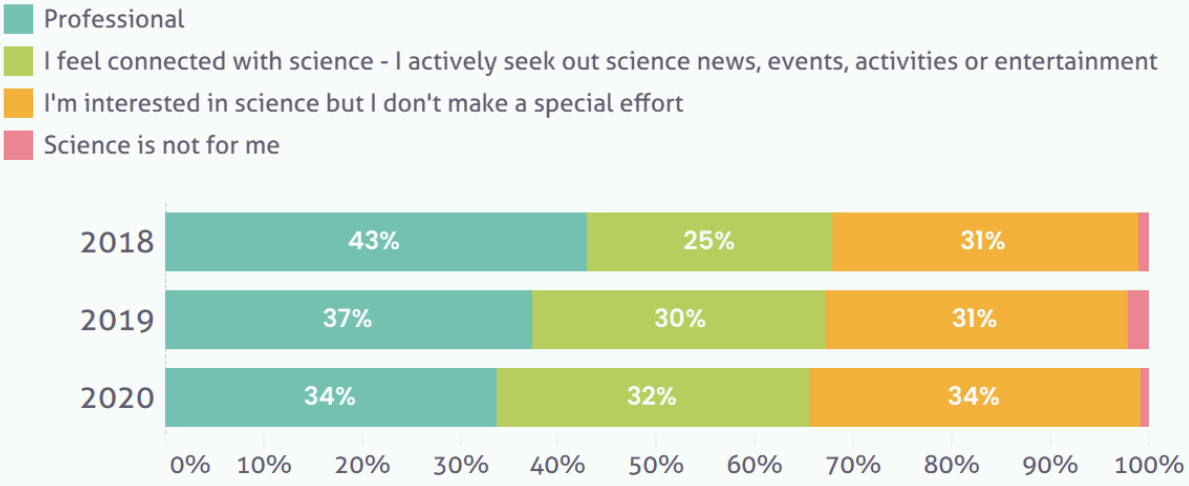


In fact, those who feel science is not for them consistently make up a small fraction of organisers. Given that organisers must apply for grant money directly with a detailed proposal outlining how the money will be spent and are likely to be science teachers themselves, it is not surprising that most are interested in science already.

Over the past three years, the mix between different organiser audience groups other than those who say 'science is not for me' has become more balanced, with professionals taking a smaller fraction of the grants. This is a welcome improvement.

* Totals may not sum to 100% due to rounding.

Organisers by BSA organiser audience group across all grants* *Chart A2*

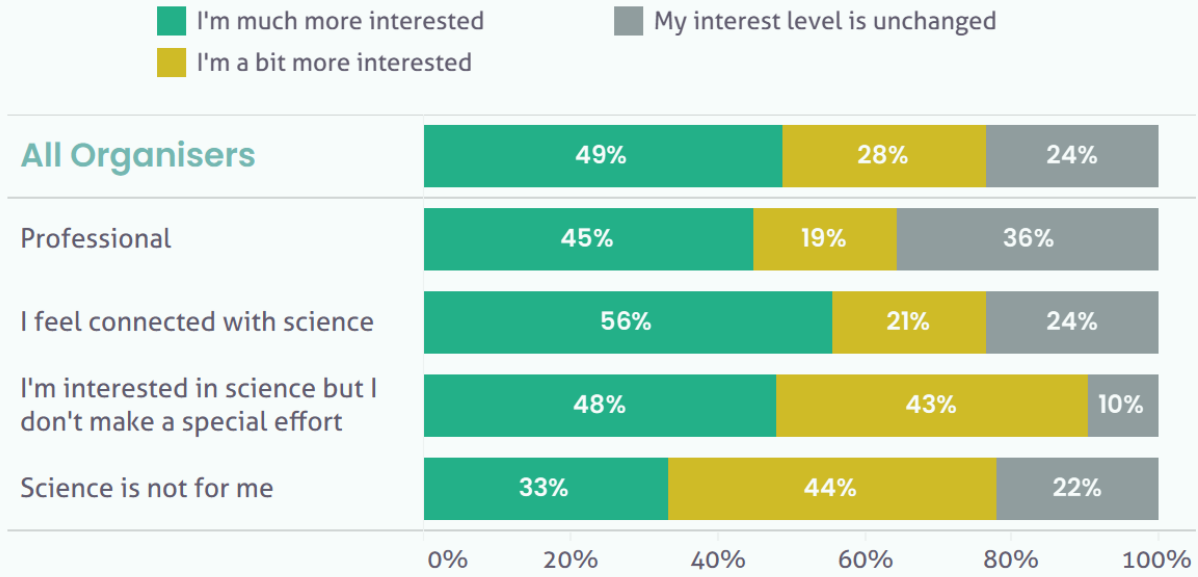


The majority of organisers also reported increased interest in science because of the event. Around half say they are 'much more interested' and over three quarters are at least 'a bit more interested'. This was especially true of those with lower engagement in science. In particular, 90% of those 'interested in science but who don't make a special effort' were at least 'a bit more interested' as a result of the event. This emphasises the value of BSA Kick Starts grants on organisers with less interest in science and highlights the value of engaging them.

Given that, among organisers, the greatest impact is seen in those with lowest interest in science, the BSA could consider ways to target and attract more organisers in this group. Teachers who feel 'science is not for me' are currently less likely to access BSA grants. Of course, in both primary and secondary schools, the teachers who choose to apply for Kick Start grants are likely to be those most interested in science. This may be an inevitable consequence of organiser self-selection. Nonetheless, the BSA could consider how to provide additional support (or ensure access to existing resources) specifically for these organisers.

* Totals may not sum to 100% due to rounding.

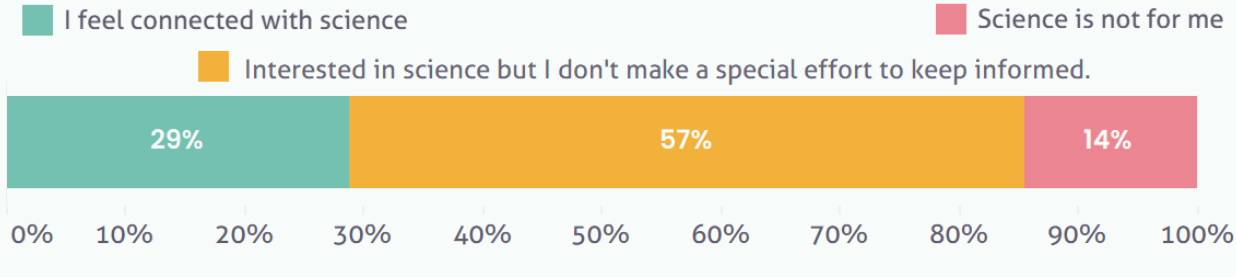
How did the experience impact your interest in science? (Organisers only)* *Chart A3*



Key Finding #2: Participants also became more interested in science, but this was less likely among those less interested initially

Participants are more likely to say science is not for them before the event. Using the same BSA audience model that is used to categorise organisers by interest in science, we find that a much greater proportion of participants (14%) found 'science is not for me' prior to the event compared to organisers (<2%). This is fairly consistent across time and between participant types. This is also not unexpected, given that organisers must make an active effort to take part in British Science Week. The extent to which participants self-select is more varied between types of events. Some grants are used to support compulsory, whole-school events, while others involve voluntary participation or community engagement. Unfortunately, it was not possible to categorise these types of event using the survey data and compare prior science engagement for each.

Participants by BSA audience group across all grants* *Chart A4*



* Totals may not sum to 100% due to rounding.

Nonetheless, 82% of participants also rated the event positively, with two thirds saying it was excellent. Again, those who felt more engaged with science prior to the event rated the event more highly. Among those who said 'science is not for me', 77% rated the event positively.

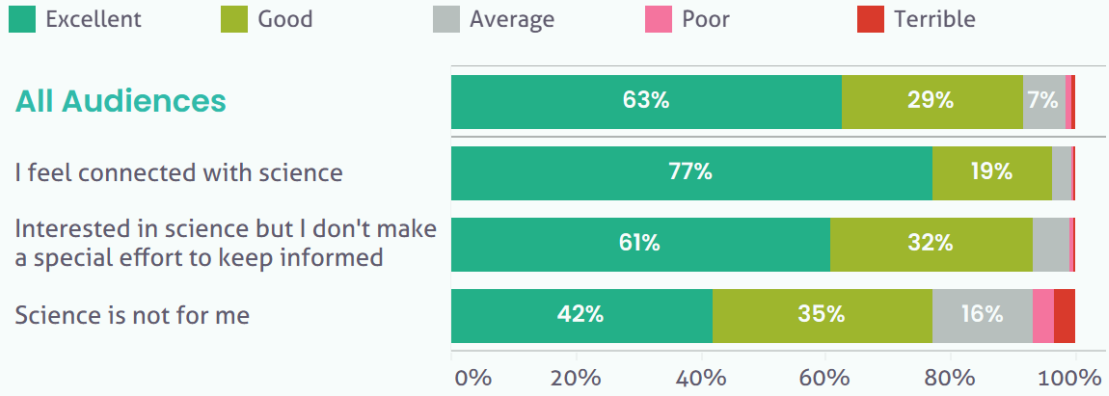
Also, a majority of participants reported that their interest in science had increased due to the event. This is a key intended outcome of British Science Week. However, unlike organisers, participants with lower prior engagement in science were less likely than others to become more interested in science. Roughly a quarter of those who said 'science is not for me' felt 'about the same' level of interest after the event compared to before, while 63% were more interested. The BSA could offer support to organisers to ensure their events have an impact on those who are not interested in science prior to the event, since this is a key target group. Indeed, 57% of those who are 'interested in science but do not make a special effort to keep informed' would consider a job which uses science in the future. It could give greater weight to applications which will target these pupils.

We also found that the impact on interest in science was strongly linked to participants' overall rating of the events. This reinforces the conclusion that enjoyment of the event is an important way in which it inspires interest in science. Nonetheless, of those who found the event 'average', 11% said they felt 'much more interested' in science. Conversely, some participants said the event was 'good' but that it still had not changed their interest in science. There may be other factors such as the type of event which explain these differences in increased interest.

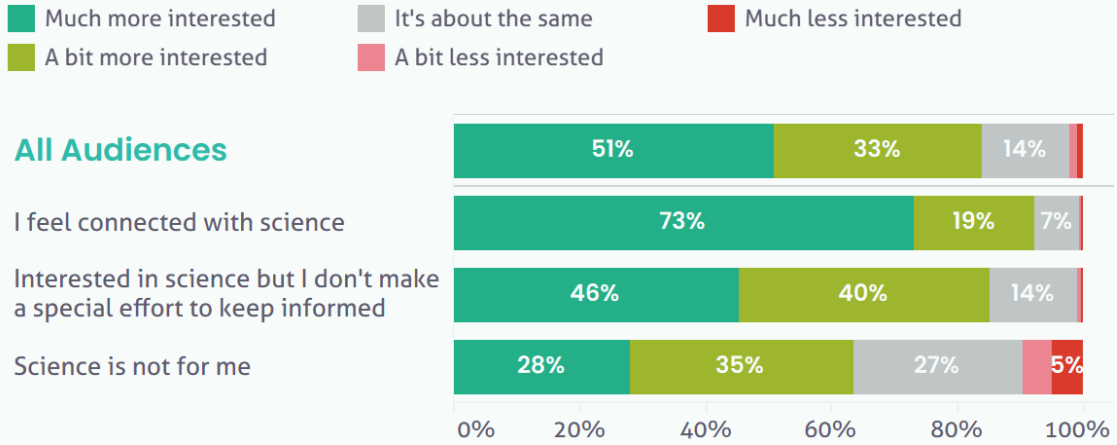
Teachers and technicians in our interviews reported that their pupils' interest in science increased due to the event. The British Science Week events generally felt very different to normal science lessons, particularly focusing on practical elements. The format varied widely, with some organisers incorporating interactive or outdoor elements. One event, in Greig City Academy, was based on a simulated crime scene, with pupils using scientific techniques to investigate and draw conclusions about the crime. Teachers found engagement to be higher when they used novel types of events to show pupils how science (and STEM more generally) applied 'beyond the science classroom'. This event (and its impact on pupils) is described in more detail in Case Study 1.

> **It was one of the busiest, most attended events I've seen since being here.**
>
> *- Event organiser*

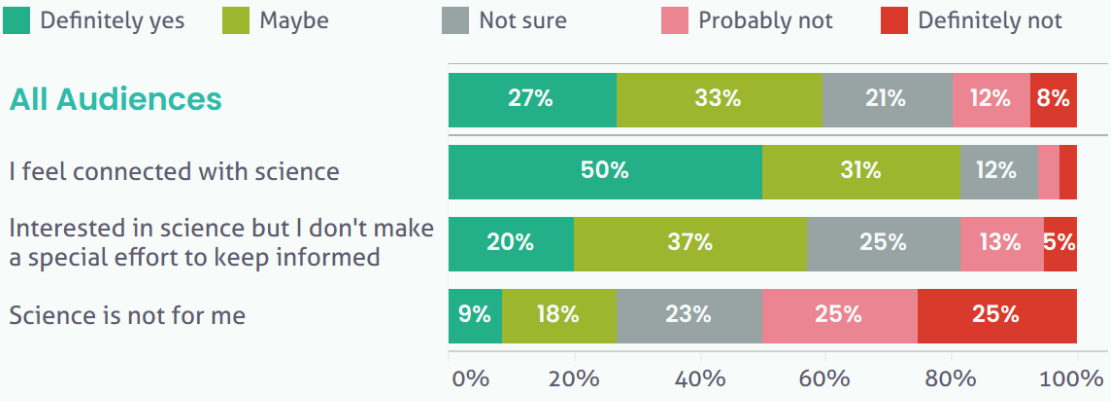
How did participants rate the event overall?* *Chart A5*



How did it impact participants' interest in science?*



How likely are participants to want to use science in their future job?*



* Totals may not sum to 100% due to rounding.

Case Study 1: Forensic crime scene investigation, Greig City Academy

Greig City is a secondary school based in North London with approximately 1000 pupils, and a predominant EAL (English as an additional language) student population. 2020 was the first year in which the school applied for and received a grant from the BSA. Irene Gomes (pictured) is a Senior Technician at Greig City Academy, where she has been working for the past 17 years. She was the main organiser of the 2020 British Science Week event. Following her successful forensic science event, she was awarded second place at Gratnells Science Technician of the Year Awards 2020.

As a technician, Irene enjoys and understands how to deliver practical activities. This is why she decided to set up a crime scene in the library and "*get other pupils engaged, not just people who are already interested in science*."

Although the project targeted Year 7 students, Irene hoped that, by having the main crime scene and different clues in the library, students from other year groups would also engage. After another teacher got involved, a second crime scene was set up in another classroom and the overall event was split into two main parts. In the first, participants had to complete a quiz, where they "*had to find the meaning of the acronym SOCO, count and find fingerprints, find splats, etc.*". In the second part, they took the evidence back to the lab to be analysed. This included flame tests, chromatography and analysis of hair and fingerprints under the microscope.

The grant was crucial to purchasing necessary equipment, including blood spots, a body outline (used in one of the display rooms), fingerprint kits, as well as DNA models which were kept in the library after British Science Week. A police officer familiar with the school also provided some resources like evidence bags and a tube designed to collect knives.

Whilst Irene was the main organiser of this British Science Week event, the librarian, the police officer and other teachers also played a part in organising this forensic project, enabling them to bring *"science outside the science department"*. As Irene puts it, *"there's not enough cross-curricular activity between departments. I think doing a project like this encourages cross-curricular activity and getting others in the school involved."*

When asked if she had succeeded in her aim of engaging students less interested in science, Irene believes so. She adds, "*the winner was a police cadet, so he was interested in this sort of activity, the forensic science and investigating information, but he was not particularly interested in science [itself]*".

In recognition of her central role in organising this project, Irene was awarded second place at Gratnells Science Technician of the Year Awards 2020 *"for her excellent work to support cross-curricular access to science and STEM."*

Teachers noted that extracurricular science events, such as those funded by BSA grants, are a good way to develop pupils' general scientific skills. In particular, investigative and observational skills, which can be better developed through practical work, are sometimes neglected in favour of exam-focused learning. Some teachers used grant money to buy equipment needed for additional practicals.

Many participants want to use science in their jobs when they are older. Even 27% of those who think 'science is not for me' do want to use it in their jobs. However, those more engaged with science are more likely to want to use it later in life.

Through our interviews with teachers and technicians, we found that many organisers design their events deliberately to introduce science and scientific careers to pupils whose parents are often in jobs unrelated to STEM. This approach can take many forms. Some organisers bring science professionals (e.g. engineers) to meet pupils or partner with local universities/companies to deliver sessions directly. Those who manage to involve these established scientific networks are very positive about the experience.

Given that this is an explicit objective of many teachers, but that the impact on interest in science is highly correlated with prior science engagement, the BSA could provide examples of successful past events which broaden scientific horizons to teachers looking for inspiration. This would enable teachers to design events to encourage participants who are less interested in science to consider scientific careers.

> **We introduce pupils to science professionals and say, "these are companies in your area that want you to work for them."**
>
> *- Event organiser*

Case Study 2: Exploration of science careers, Griffydam Primary School

Griffydam Primary is a small, rural school with 111 pupils in the East Midlands. It has low levels of social deprivation and a fairly average proportion of special needs pupils, but a very large catchment area. They have applied for a BSA Kick Start grant for the last three consecutive years and received it twice, once in 2019 and again in 2020. Claire Coates is the Headteacher and was the main organiser of the 2020 British Science Week activity.

"It was a stimulus for us to be a bit braver in terms of our science provision. We wanted to improve children's perception of science and careers, and also to engage with our local community," says Claire. The initial plan was to have a number of people from the local community come to the school and talk about science in different contexts. However, as with many 2020 grantees, plans had to change in light of COVID-19.

In the end, the grant was used to invite Jane Clarke, an award-winning writer of a series of children science books, 'Al's Awesome Science'. The event organised by Claire and her senior leadership team, including the Science Coordinator, was rolled out across the school over the course of a day. In a nutshell, it gave children the opportunity to read and participate in science activities in a clear and engaging way. There were all sorts of practical experiments throughout the school, each linking to different areas of science and, of course, relevant to the story. For example, there were two activities on forces: one where children created pulleys and another involving balloons.

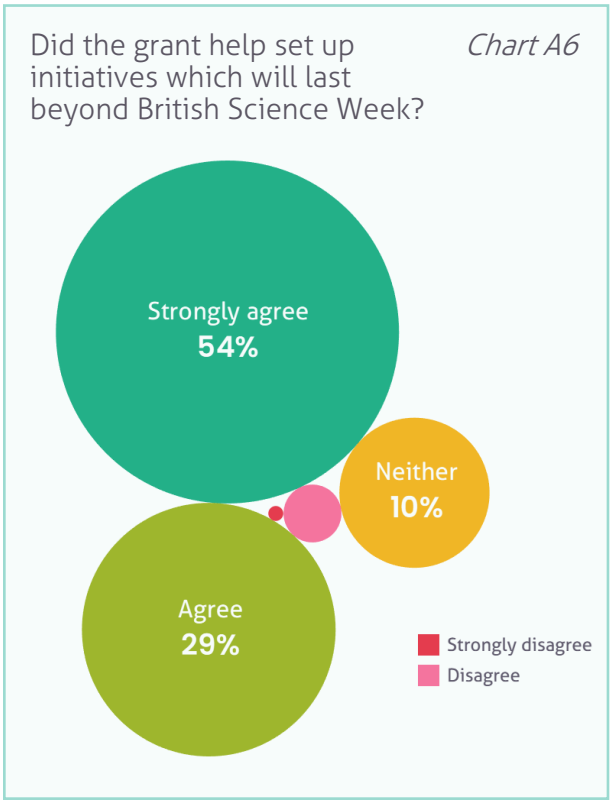
CREST Awards "*were used as a sort of jumping point... It linked really well with some of the investigations children had already done in their CREST Awards."* The practical experience of these experiments was useful to help pupils understand concepts covered in their classwork. Claire notes that *"children with special educational needs were very motivated for practical investigations and were quite successful."*

Aside from improving children's perception of science as a school subject, the organiser felt that the experience improved children's understanding of science as a career. By talking to someone *"who was using science, not just as a scientist, but also as a means of developing their literature and creative thinking*", the children were able to see someone who applied their scientific background to a career as an author, broadening their career horizons.

While Griffydam did not receive a Kick Start grant in 2021, its Year 6 pupils still participated in the BSA's Antarctica Weather Station live Q&A session during British Science Week that year. This allowed Griffydam to demonstrate the breadth of scientific careers in a different way to the 2020 event. *"It is inspirational for a child this age to engage with people that work in Antarctica, and to know that with a science career they too could work in Antarctica".*

Key Finding #3: Organisers expected that Kick Start grants would have some impact beyond British Science Week

Organisers generally agreed that the majority of the grant money's impact was felt during British Science Week itself, but that there would be lasting impact too. This was particularly true where the grant money was used to buy equipment which can be reused by the school with other pupils. 87% of organisers believed that the grant would enable longer term initiatives in some way.



We acquired equipment to be used throughout and over the years for science activities and repeated research and surveying of nature.

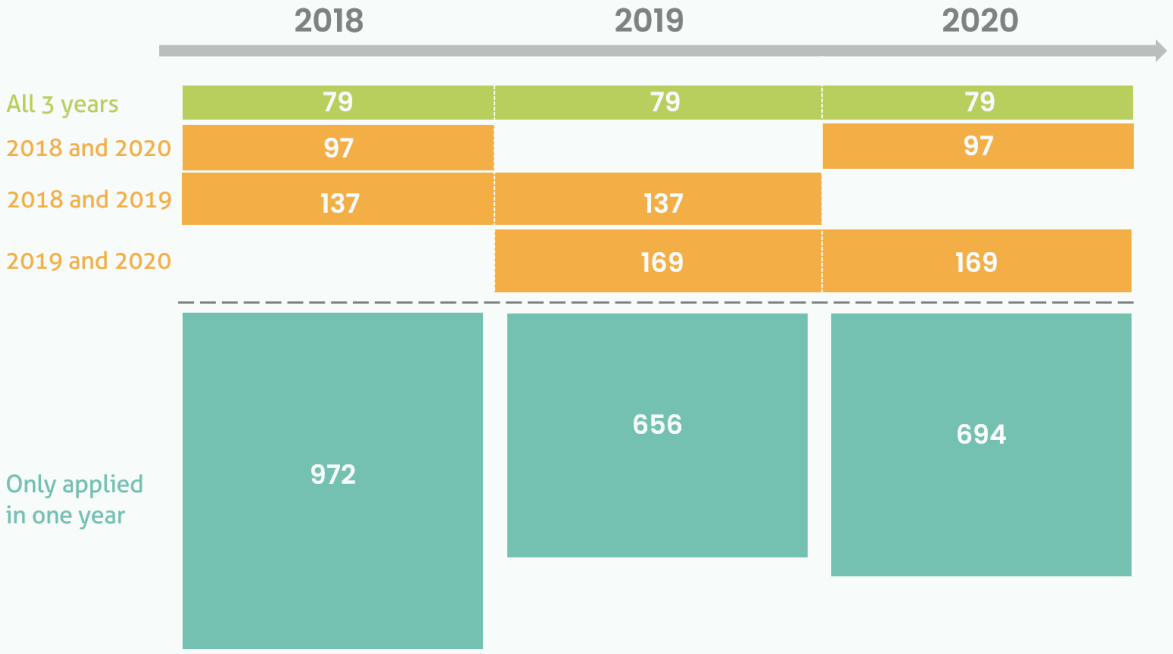
- Event organiser

It is increasingly important to the BSA that organisers continue to apply for grants in multiple years. It is worth noting that there was once a policy preventing schools being awarded a Kick Start grant in two different years, but this policy no longer applies, and reapplication is indeed encouraged. Almost all (99%) of organisers said that they intended to apply again in a future year. However, in reality, a much smaller proportion of organisers do reapply.

Key Finding #4: The majority of those receiving Kick Start grants do not apply again, especially those who do not receive the grant

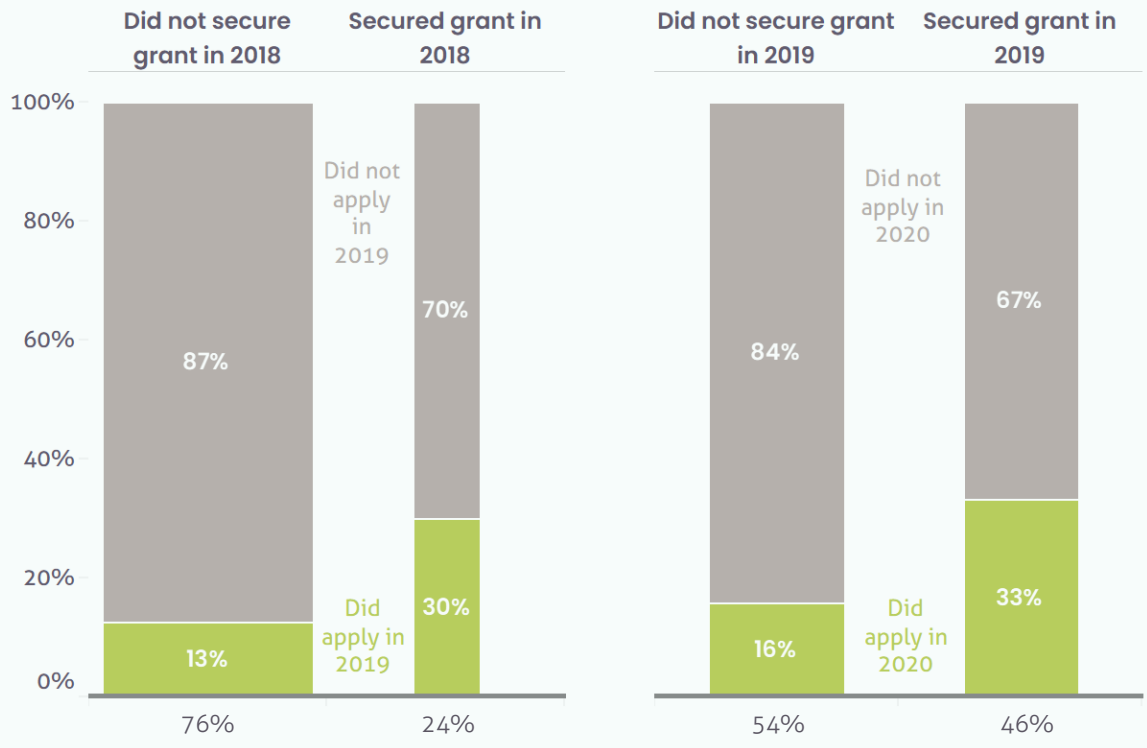
In fact, over the period of this study, the majority of those applying for grants did so only once. Of 2,804 schools who made applications during this period, only 79 made applications in all three years. A further 403 applied in two of the three years. This suggests there is a core group of schools who are actively engaged and a larger number who apply now and again. Previous applicants are contacted directly to encourage reapplications. However, targeting those who have taken part previously with communications explicitly emphasising the fact that reapplications are encouraged could increase the reapplication rate. Since this analysis was performed at a school level, some teachers taking part again after moving school will not have been captured in this data.

Number of Kick Start grant applicant schools by years of application *Chart A7*



Schools who were successful in securing a grant in each year were more likely to reapply than those who did not, but the rate of reapplication was still around 30%.

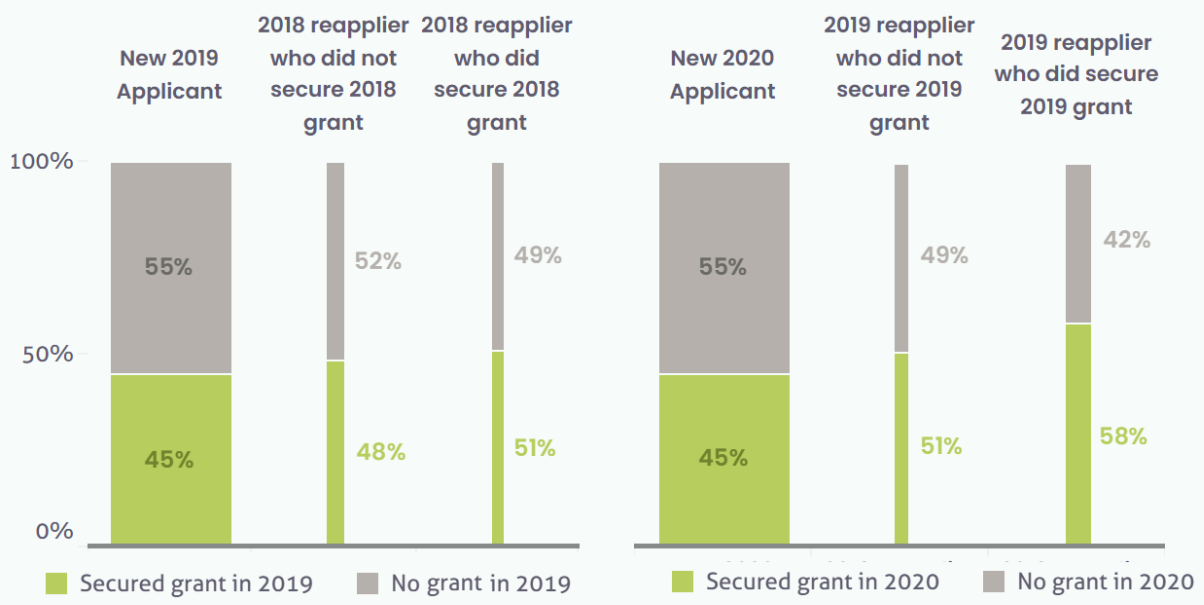
Proportion of applicants who reapply the following year by previous application outcome *Chart A8*



Applicants who had applied in a previous year were slightly more likely to succeed than new applicants, but the effect was relatively small. Among reapplicants, those who had been successful the previous year were also marginally more likely to succeed again.

It would be interesting to understand the reasons for this. For example, it could be that reapplicants submitted proposals of higher quality, or simply that some new applicants were rejected due to eligibility criteria.

School application success rate by prior application history *Chart A9*



Key Finding #5: Many who apply for CREST for underrepresented audiences grants or join the underrepresented audiences' network are past Kick Start applicants, but the majority come through other channels

Part of the intended benefit of BSA Kick Start grants is to encourage science teachers to engage with opportunities for extracurricular science activities after the grant has been used. This is an area of increasing importance to the BSA.

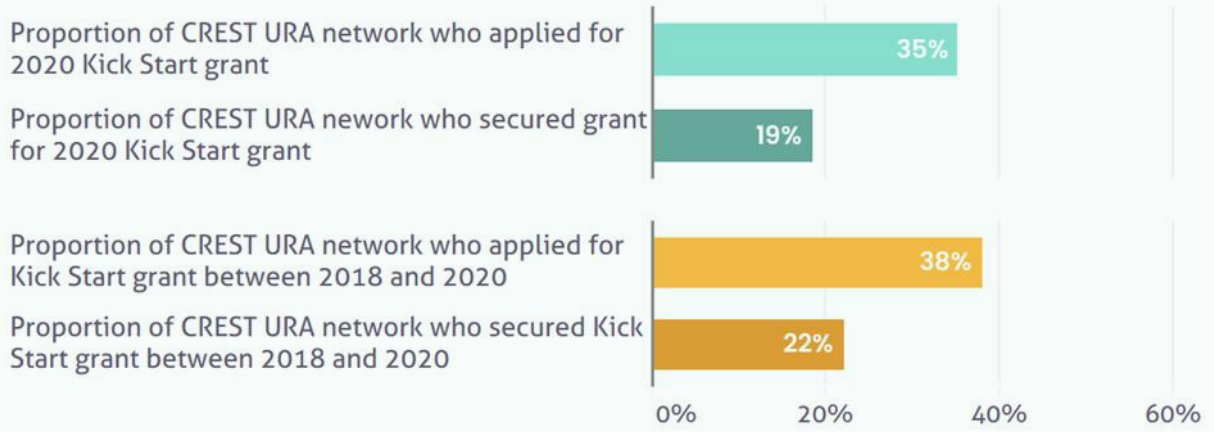
CREST for underrepresented audiences (URA) grants are another form of support provided by the BSA. They support schools running CREST Awards which qualify on the basis of their proportion of Pupil Premium (or equivalent) pupils, proportion of Black or ethnic minority pupils or their remote location.

Among those who applied for URA grants in 2020, 19% had applied for a Kick Start grant since 2018 and 8% had been successful. This suggests that Kick Start grants do lead to URA grants in many cases, although the majority of URA grants are awarded to those who have not applied for Kick Start grants but who have come to BSA through other channels.

Given that roughly five times as many Kick Start grants are awarded as URA grants, only a fraction of those awarded Kick Start grants could be expected to go on to receive URA grants. Of those awarded Kick Start grants in 2018, only 2% went on to receive URA grants in 2019 or 2020.

Another opportunity for schools to engage in extracurricular science activities is by joining the 'underrepresented audiences (URA) network'. Among those who belonged to the URA network in 2020, 38% had applied for a Kick Start grant since 2018 and 22% had been successful.

Proportion of URA network schools by Kick Start application history *Chart A10*



Key Finding #6: Impact in British Science Week 2020 was more limited than other years due to school closures

While BSA grant money is generally used in quite diverse ways, the majority of pre-COVID-19 events depend on in-person practical activities. Unfortunately, British Science Week took place in 2020 one week before national school closures. Some schools chose to close earlier and, in some others, COVID-19 disrupted British Science Week anyway. Many schools found they had to postpone events or change their plans significantly. In several cases, the planned events were replaced by new activities which could be delivered virtually.

In future, the BSA could share examples of successful virtual events to help schools to run events during unexpected closures or where digital delivery could increase events' reach. This could help schools redesign their British Science Week plans in case of future school closures due to COVID-19 or other unexpected local circumstances.

Case Study 3 describes a virtual careers fair, in which professional engineers discussed scientific careers directly with pupils.

> **They were asking these engineers what they do and how they get there. And these people were just answering straight back, and it blew their minds!**

Case Study 3: Enhancing extracurricular science, Oasis Academy and Cedar Mount

Oasis Academy Oldham is a secondary school in the North West. It is located in a deprived area with over 50% of pupils eligible for Pupil Premium. 2020 was the first year they applied for a BSA Kick Start grant. Shaun Swift (pictured), the science teacher who applied for the grant, is now the school's informal STEM Ambassador who organises many STEM activities. In 2019, he previously taught at Cedar Mount Academy, Manchester, where he also applied for and received the school's first BSA Kick Start grant. That same year, they were awarded the 2019 STEM Enthuse Award.

Shaun had fantastic plans for British Science Week. "*We were going to buy some eggs to incubate. We also got a live feed set up throughout the school and have the kids compete to guess which would hatch first.*" There was also going to be a so called 'flashbang', a big assembly involving an hour of explosions, as part of an outreach program with the University of Manchester. Unfortunately, the school closed to pupils a week earlier than national lockdown and plans could not go ahead. This was disappointing for Shaun, who had applied and received a BSA grant the previous year at another school, Cedar Mount Academy, and had organised a number of successful STEM events.

Notwithstanding the limitations of lockdown in 2020, British Science Week is now part of the Oasis school calendar and, this year, every single student was aware that it was Science Week. Students were unable to complete the hours necessary for their Bronze and Silver CREST Awards before lockdown but plans to keep up the work on Awards are in place.

A virtual careers fair was also organised. There were five (virtual) rooms, each with five engineers from different sectors, including travel, design, building and hairdressing. All 1,500 students participated, one class group at a time. The greatest impact was on girls from deprived backgrounds, especially girls in the lowest science set. "*They were asking these engineers what they do and how they get there... these people were just answering straight back... and it blew their minds!*" Shaun noticed their behaviour in science lessons improve as a result.

With the 2019 grant, Shaun and Cedar Mount students won a regional Vex Robot competition. They got third place nationally. In these contests, students are given a challenge for which they must design, build and program a Vex (a type of programmable robot). Shaun also explains that while other schools had multiple robot kits and help from teachers to fix their robots when they broke down, his pupils only had one kit which was purchased with the grant money. Twenty minutes before the end, they completely dismantled their robot and redesigned it based on successful robots they had seen during the competition. Happy with their result, he still adds: "*Imagine if they had a teacher with an engineering background, or if their parents had also got each of these children their own robot at home to tweak and mess around with.*" These students all got Silver CREST Awards and Cedar Mount Academy received the 2019 STEM Enthuse Celebration Award.

A STEM club and further CREST Awards are in the pipeline for 2021 at Oasis. These are just some of the longer-term effects of the BSA's grants in academies like Oasis and Cedar Mount, especially when paired with passionate teachers like Shaun.

Section B: BSA support for organisers preparing for the events

Key Finding #1: Kick Start grants were essential to funding a wide range of events

97% of organisers say that the grant was at least 'very important' to delivering their activity during British Science Week, with 63% of organisers saying that the grant was essential. While BSA grantees receive different kinds of support from the BSA (including resources), the financial element is the key part of the BSA's offering. Across each of the four BSA audience groups, we saw a similar pattern.

How important was the grant to your event? *Chart B1*

Our interviewees reported that grant money was particularly important where school budgets are tight and obtaining funds within the school for science is difficult.

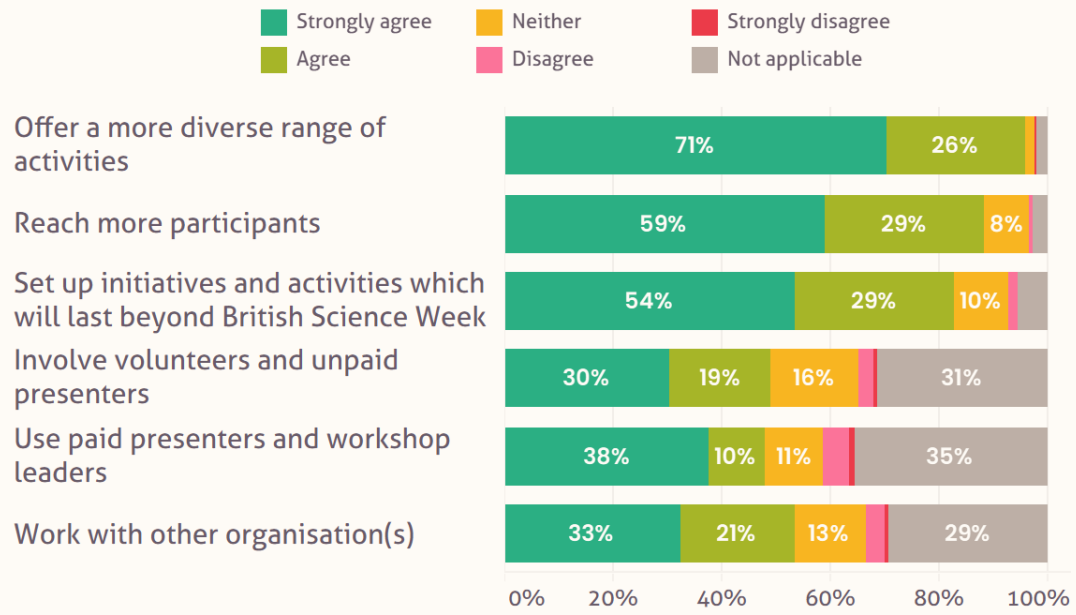
Events involving specialist equipment (which may be used beyond British Science Week), external speakers, or travel to events were common and require funding to organise. For example, one school used the grant to invite an award-winning writer of a series of children's science books, while others bought robotics or forensic equipment for specialised practical experiments and events.

It is intentional that BSA grants can be spent on a wide range of different event types. While survey data does not reveal the different types of events delivered by organisers, it does provide insight into the ways that the grant money was spent. Of

> **Headteachers are under a lot of pressure … but when you say we're going to do this, here is the money, that then changes the whole situation.**
>
> *- Event organiser*

course, many of these categories overlap and could apply to the same event. The most common way in which grant money was spent was offering more diverse activities (e.g. by purchasing new equipment). Paid presenters were involved in around half of events. A similar number of events involved work with other organisations. For example, some of our interviewees worked with

What did the grant enable you to do?* *Chart B2*



universities and companies to deliver activities and used the funding to support this collaboration. These collaborations can give students insight into the range of scientific careers available.

Key Finding #2: Organisers rated BSA support highly but it could be made more visible

The support from the BSA that grantees receive provides wider benefits than just the financial value of the grant. Organisers are asked to rate how effective they find various resources provided to help organisers prepare for impactful events. During the event planning phase, they receive 'how-to guidance', 'activity packs' and 'marketing packs', resources which are also shared with the public via the BSA website. Grantees can also access support from BSA staff.

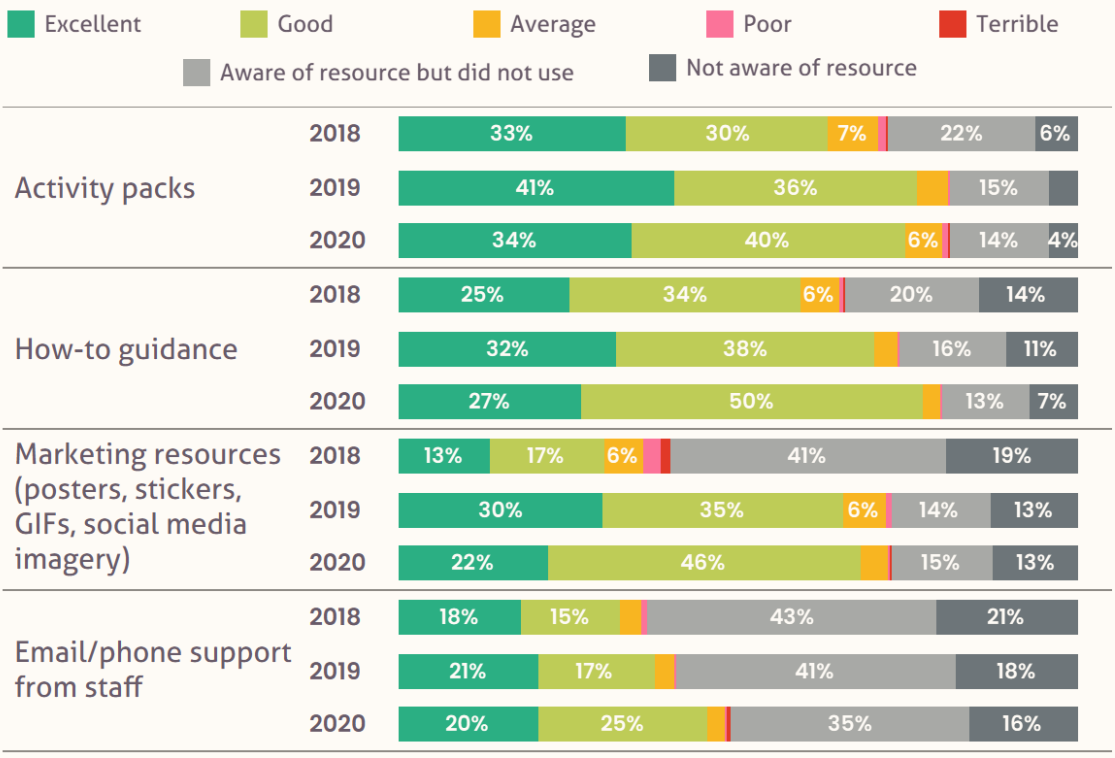
Three quarters of organisers rate the activity packs as 'good' or 'excellent'. The data shows that the activity packs have always been well liked over each of the past three years.

Furthermore, the how-to guidance has become more valuable over the years. In 2020, 77% of people were aware of it and rated it at least 'good'. This is up from 59% in 2018. Marketing resources also appear to have become more impactful over time. In 2018, only 30% found them at least 'good', with 19% not even aware that they existed. By 2020 this had increased to 66% finding them at least 'good'.

* Totals may not sum to 100% due to rounding.

Support from staff could be made more visible. Over time, organisers are making use of this support in greater numbers, but this is an area where people may still be unaware of what is available to them.

How did organisers rate preparatory resources provided by the BSA?* *Chart B3*



Key Finding #3: Organisers gained confidence delivering extracurricular events

Through interviews, we heard that organisers of British Science Week events were generally very satisfied with the outcomes of their work. Many seemed to gain confidence in planning and running experiments and more practical scientific work with their students. This is particularly valuable for primary school teachers who may not be science specialists. They also valued the scientific skills gained through extracurricular practical work as part of BSA events. One organiser explained how there were huge benefits for all parties with "*teachers educating other teachers, as some people are happier and more confident teaching science than others.*" Some organisers even received merit awards for their work during British Science Week. Shaun Swift was STEM Enthuse Award Winner 2019 whilst Irene Gomes got second place at Gratnells Science Technician of the Year Awards 2020.

* Totals may not sum to 100% due to rounding.

Case Study 4: Bringing practicals from British Science Week to the classroom, Red Hall Primary School

Red Hall Primary is a small school in the North East, with 210 pupils in total. It is a predominantly White British school with 99% of pupils from a White British background. It is located in a highly deprived area, with over 85% of pupils eligible for Pupil Premium and 30% SEND pupils. 2020 was the first year they applied and received a Kick Start grant. Stacy Luxon has been Science Lead since 2018 and is also SEN Coordinator. She was also the main organiser of the 2020 British Science Week activity in Red Hall Primary.

After a review of school science practice identified gaps in *"staff knowledge, equipment and children's understanding*", Stacy decided to use her Kick Start grant to expand the whole school's provision of practical science experiments. Ordinary school funding had not been sufficient.

Part of the grant was used to buy consumable resources needed for experiments in a two-day STEM fair during British Science Week. Another significant part of the grant money was used to purchase equipment missing from the school's inventory, which consisted of mainly reusable resources in technology and electricity. For instance, children struggled with programming as they had had very limited opportunity to do hands-on practical work. Although they had been exposed to Scratch, its abstract nature meant that it was still difficult for many pupils to grasp. A big investment was made in a 'Lego We Do' resource, giving pupils a great opportunity to practise programming before moving on to more abstract programming settings.

'Space and Earth Explorers' was the key theme for the STEM fair. Around 190 students engaged in the different planned activities in mixed age and ability groups, with older children able to support the younger ones. One part of the event had children conduct research on an assigned scientist, before presenting their findings to the whole school.

For example, one group chose to do a presentation about the astronaut Tim Peake. "*It was absolutely fantastic*", especially considering that "*they didn't know many modern scientists... they actually didn't know any scientist, even Tim Peake who had just been all over the news".* The second part of the event saw pupils engage in a series of 40-minute hands-on experiments in four areas: programming, electricity, outdoor science (e.g. animal habitats), and waterproofing materials. Stacy and three other teachers were each in charge of one of these areas. Children's interest in science increased, with many still asking science teachers, *"When are we doing more investigations? When can we do an experiment?"*

> **Before, a lot of the staff would put on a video of an experiment, and now they think, we'll do it, let's just do it!**

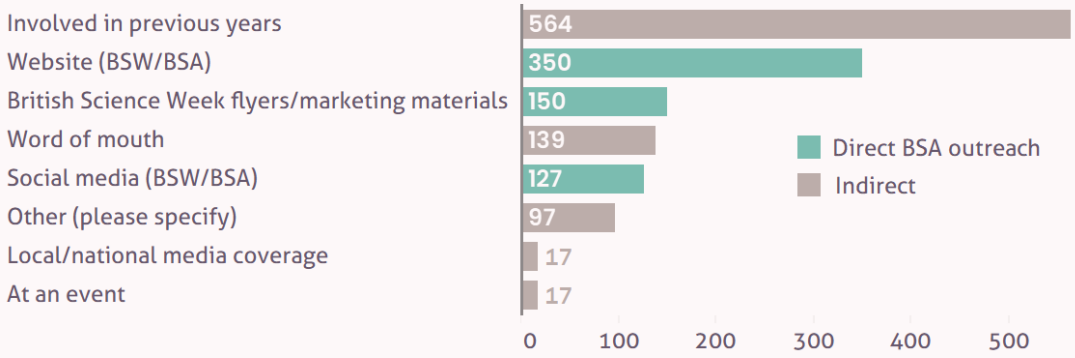
Upskilling teachers was another major area of impact. Stacy explains that they became more confident with experiments, in terms of both planning and execution. They started working more scientifically, substituting worksheet-based learning with more hands-on learning, allowing children to explore. Stacey summarises the change in attitude: "*Before, a lot of the staff would show a video of an experiment, but now they think... we'll do it, let's just do it!".*

Section C: Effectiveness of school outreach and selection

Key Finding #1: Most organisers hear of British Science Week directly from the BSA

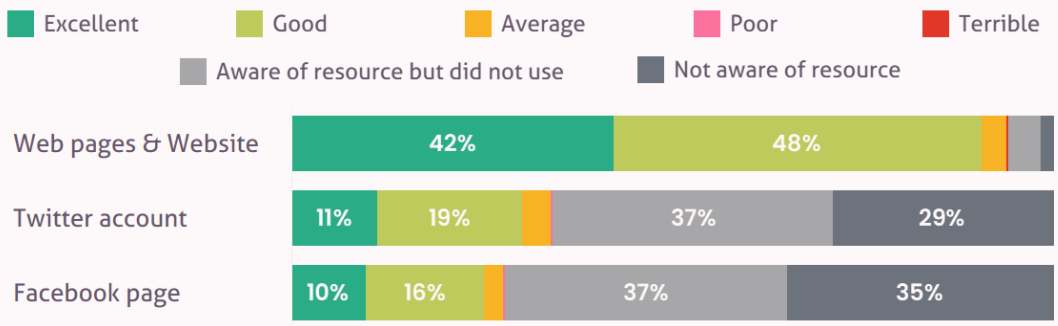
Most organisers applying for grants know about British Science Week is because they have been involved in a previous year. For those who have not previously been involved, the website is the most common way that organisers report having first heard about British Science Week. Other channels, such as direct marketing materials, word of mouth and social media make a significant, but smaller, contribution to awareness of the Week. Overall, ~72% of new organisers are recruited directly by the BSA and only ~16% first hear about British Science Week by word of mouth.

How did organisers first hear about British Science Week? *Chart C1*



There could be opportunities to develop the BSA's presence through some of these other channels, especially social media. This could enable British Science Week to reach a wider number of teachers, including those who are not actively looking for grants, and perhaps of a slightly different demographic. Approximately one third of organisers were unaware of the BSA's Twitter account and Facebook page, while approximately another third were aware but did not use them. Among those who did use the social media channels, a large proportion rated them as 'good' or 'excellent', suggesting that expanding their use would be beneficial. Developing teacher networks (e.g. the underrepresented audiences network) could also increase word of mouth referrals by teachers.

How did organisers rate BSA's digital outreach resources (2018-20)?* *Chart C2*



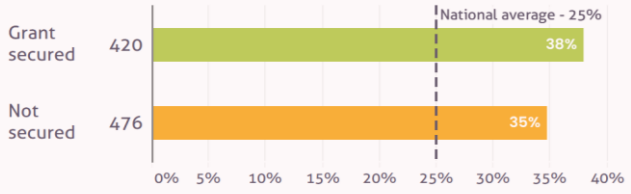
* Totals may not sum to 100% due to rounding.

Key Finding #2: Schools with high Pupil Premium and ethnic minority populations are more likely to receive grant money, but ethnic minority pupils are less likely to take part in events

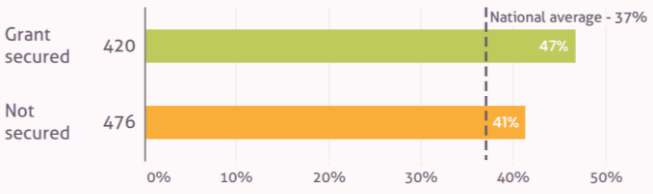
Approximately twice as many schools apply for BSA grants than can be funded. This application pool should allow the BSA to deliver on its mission of including a diverse range of participants. Schools receiving grants must meet at least one of several criteria based on a high percentage of young people from lower-income or ethnic minority households or being in a rural location. All data in this section is based on 2020 schools only.

The percentage of children eligible for extra Pupil Premium (or equivalent outside England) funding in schools selected for Kick Start grants is 38%, significantly above the national average of 25%. While the percentage was also high in schools who applied for but were not awarded a grant, the percentage in grantee schools was slightly higher. This is positive as young people from these backgrounds typically would have fewer opportunities, on average, to engage with science outside of the normal school curriculum.

Percentage of Pupil Premium pupils in schools



Percentage of ethnic minority pupils in schools *Chart C3*



Nearly half (47%) of pupils in grantee schools were from backgrounds other than White British. This is 10 percentage points higher than the average across all state-funded secondaries (37%), and higher than the schools which were not successful in the application process (41%).

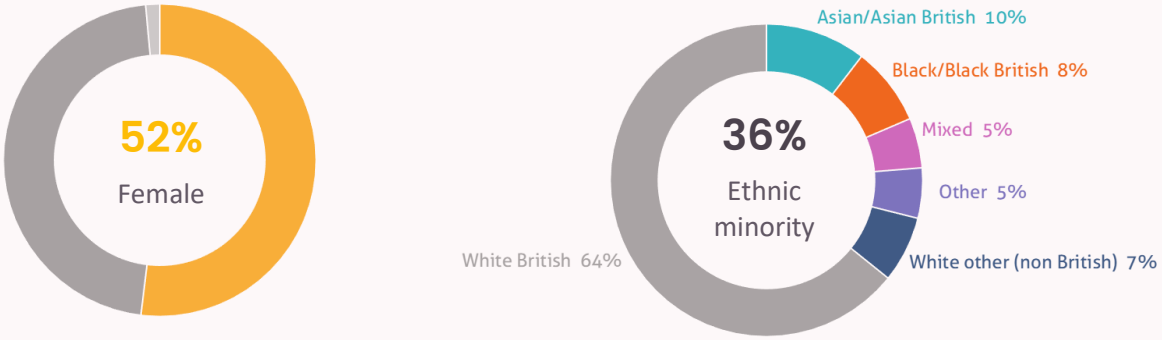
ImpactEd has conducted indicative hypothesis tests to understand the significance of these results. The high Pupil Premium rate in grantee schools relative to the national average was significant for both primary ($p < 0.0001$) and for secondary schools ($p < 0.0001$). Similarly, the high proportion of ethnic minority pupils was also significant for both primary ($p < 0.0001$) and for secondary schools ($p = 0.03$). Note that the p-value represents the probability that, if schools were selected at random from all UK schools, the difference in Pupil Premium/ethnic minority rate would be at least as great as observed. A small p-value therefore indicates a significant result.

However, these results should be interpreted with caution. This report is based on an exploratory analysis of the survey data provided by the BSA which focused on the most notable findings, rather than a systematic significance analysis of all available data points. In performing this indicative hypothesis testing, we have not accounted for these multiple comparisons. Follow up confirmatory analysis on fresh data would be needed to make meaningful claims about the significance of any findings. It is likely that the first three findings would remain significant at the $p = 0.05$ level after

accounting for multiple comparisons but that the high proportion of ethnic minority pupils for secondary schools would not.

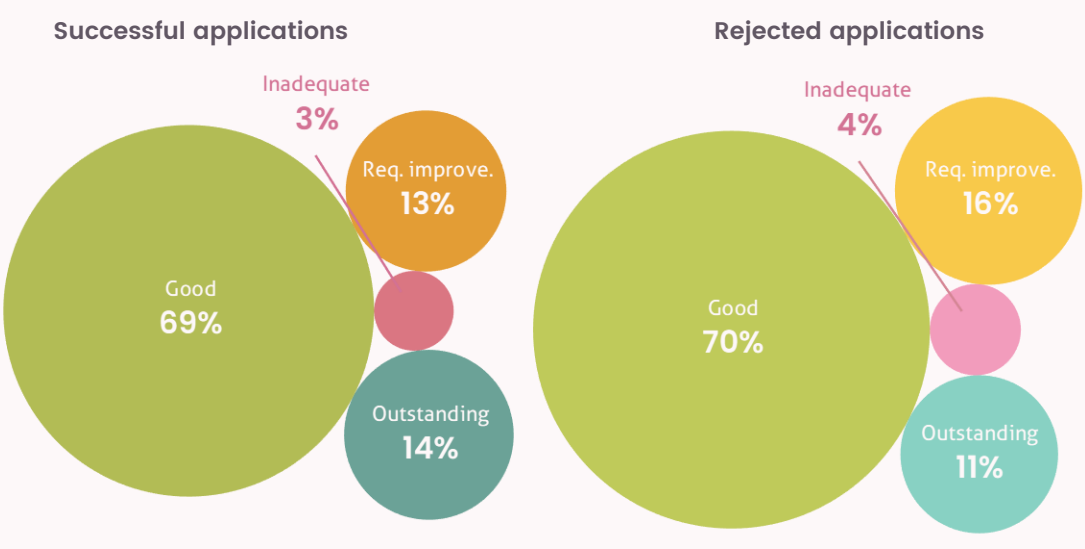
Nonetheless, based on survey data from those who attended the events, only 36% of participants were from ethnic minority backgrounds. This suggests that, while targeting is effective at the school level, the profile of those who take part in the events is much closer to the national picture. The BSA could support schools to engage more ethnic minority participants or consider explicitly evaluating the potential impact of the grant on ethnic minority pupils when deciding which projects to fund.

Demographics of those who participated in the event* *Chart C4*



There could also be opportunities to support more schools who are working on improving their Ofsted rating. The grantee schools are broadly in line with national patterns, which suggests that no preference is given to schools with any particular Ofsted rating, whether high or low. However, schools which 'require improvement' constituted a greater proportion of those rejected, suggesting that there is opportunity to increase support for this group of schools.

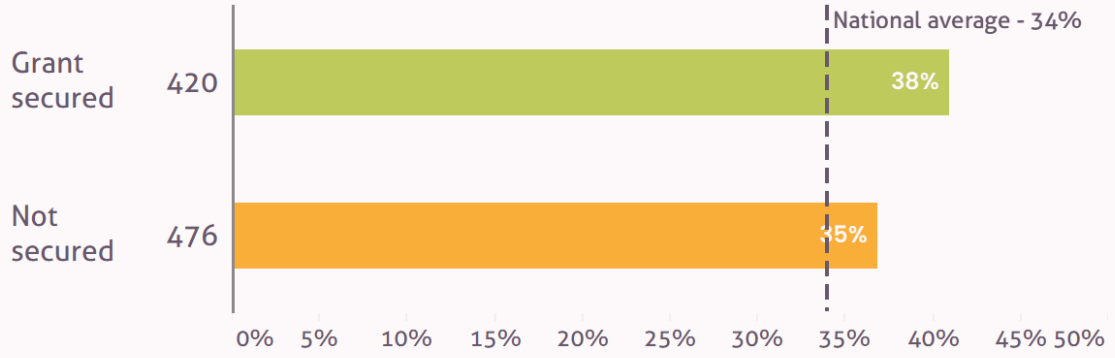
Latest Ofsted rating for schools who applied for Kick Start grants *Chart C5*



* Totals may not sum to 100% due to rounding.

Finally, grantee schools are slightly more likely than average to be part of a Multi-Academy Trust (MAT). 38% of schools were part of a MAT, which is slightly higher than the national average. This could reflect better information sharing between schools which are part of a MAT. It could also provide an opportunity to provide resources to those schools which help them spread the work across their MAT in future years.

Are schools part of Multi-Academy Trusts? *Chart C6*



Case Study 5: Science fair showcasing local STEM role models, Sandwood Primary

Sandwood Primary in Glasgow has 330 pupils and mixed demographics. It scores highly on the Scottish Index of Multiple Deprivation. The school has received a BSA Kick Start grant for three consecutive years, starting in 2019. Lynne Scott (pictured) is a primary teacher, a former engineer and Glasgow STEM Ambassador.

Lynne has applied for and received a Kick Start grant each year for the past three years on behalf of Sandwood. In 2019 and 2020, she organised two highly interactive STEM fairs which involved the entire school and its local network. Given the limitations brought by COVID-19, she invested some of the 2020 grant money in scientific equipment for the school, including a skeleton which they had been renting for several years.

The day-long fair in 2020, which focused on forces, friction and electricity, combined 20 stations with different experiments, all managed by students from local colleges and universities. Specifically, trainee primary teachers from a local university came in to conduct experiments with various groups of children, and pupils from the local high school were involved as STEM Ambassadors. After school, all families were also invited to attend.

To kick-off the fair, an external company, Science Boffins, was hired "to showcase really good experiments and get children hooked on science". Aside from hands-on experiments, there were also STEM competitions and more research-based work. For example, each year group was assigned a Scottish scientist to research. The STEM competition was designed in collaboration with the Scottish Primary Engineers Association and resulted in 50 to 60 children submitting solutions to an engineering problem. There were three winners and many merit awards. Several engineers from the Association also rotated among the class groups to speak about careers. In 2019, when the British Science Week focus was on climate change and pollution, pupils taking part in the STEM competition were asked to "*create something out of plastic because there is a lot of plastic waste found in the ocean.*"

Aside from the more obvious impact on engagement (the event attracted around 400 students and parents) and positive survey feedback, Lynne speaks about other key impacts from the British Science Week event. There is "an increased appetite for science; they see science in a different way, which makes it more accessible to them." Science teachers from the local secondary school also noticed the difference not only in "*children's subject knowledge, but also the skills that go along with being a scientist, such as observation, questioning and curiosity.*" Finally, "*exposing children to a large area of science, gives them a broader appreciation of the subject – that it is not just chemical reactions and explosions.*"

4. Conclusions & Recommendations

BSA grants have an impact on the three distinct parts of the Kick Start cycle described on page 6. First and foremost, the event itself during British Science Week has an impact on both the participants and organisers. In particular, we found the grants had impact in six important and distinct ways.

- **Overall, organisers enjoyed their experience of British Science Week events and became more interested in science.** 97% of organisers had a positive experience of their event and 76% became more interested in science as a result. Among those who are 'interested in science but do not make a special effort', 90% became more interested in science as a result of the event. This is an important outcome for the BSA because increased interest may lead to further science engagement.
- **Participants also became more interested in science, but this was less likely among those less interested initially.** A large majority of participants (84%) also became more interested in science following the event. Unlike organisers, the participants most likely to become more interested in science were those who already had a strong interest in science. Nonetheless, 63% of those who said 'science is not for me' and 86% of those who are 'interested in science but do not make a special effort to keep informed' became more interested in science. In the post-event survey, 57% of participants who described themselves as 'interested in science but don't make a special effort to keep informed' stated that they would consider a job that uses science in future. Our 1:1 interviews with organisers also highlighted impact on pupils' interest in science.
- **Organisers expected that Kick Start grants would have some impact beyond British Science Week.** 87% of organisers believed that the grant money would help set up initiatives which would last beyond British Science Week. Based on our five qualitative interviews, this was typically where the grant was used to buy permanent or reusable equipment for the school.
- **The majority of those receiving grants do not apply again, especially those who do not receive the grant.** Of 2,804 schools who made applications between 2018 and 2020, only 79 made applications in all three years. A further 403 applied in two of the three years. Schools who were successful in getting a grant in each year were more likely to reapply than those who did not, perhaps reflecting higher motivation, but the rate of reapplication was still around 30%. Applicants who had applied in a previous year were slightly more likely to succeed than new applicants, but the effect was relatively small. Historically, schools who had previously received a grant were not eligible, but reapplication is now encouraged.
- **Many of those applying for CREST for URA grants and joining the URA network have previously applied for a Kick Start grant, but the majority come through other channels.** The proportion of CREST Underrepresented Audiences (URA) grant applicants who had previously applied for Kick Start grants was 19%. Most URA grants are in fact awarded through partnerships with organisations that work with URA groups so it would not be expected that a majority come through this channel. Among schools belonging to the URA network in 2020, 38% had previously applied for a Kick Start grant.

- **Impact in British Science Week 2020 was more limited than other years due to school closures.** Unfortunately, British Science Week took place in 2020 one week before national school closures. Some schools chose to close earlier and, in some others, COVID-19 disrupted British Science Week activities. In several cases, the planned events were replaced by new ideas which could be delivered virtually.

Organisers also found the support provided by the BSA when preparing for British Science Week events valuable. While the financial benefit of the grant was important, other kinds of support were valued by organisers too.

- **Kick Start grants were essential to funding a wide range of events.** 97% of organisers say that the grant was at least 'very important' to delivering their activity during British Science Week, with 63% of organisers saying that the grant was 'essential'. Events involving specialist equipment (which may be used beyond British Science Week), external speakers, or travel to events were common uses of this funding, as highlighted in our qualitative interviews.
- **Organisers rated BSA support highly but it could be made more visible.** During the event planning phase, organisers receive 'how-to guidance', 'activity packs' and 'marketing packs'. They can also access support from BSA staff. Activity packs and how-to guidance have always been popular and well used, with around three quarters of organisers making use of them and approximately 90% positive feedback among this group. Use of marketing resources significantly increased from 2018 to 2019 and remains high in 2020. Take-up of direct email/phone support from the BSA remains lower but is rated highly among those who do use it.
- **Organisers gained confidence delivering extracurricular events.** Many teachers in our interviews gained confidence planning/running experiments and doing more practical scientific work with their students. They also valued the scientific skills gained through extracurricular practical work as part of BSA events. This impact is particularly important in primary schools since most teachers are not science specialists.

BSA Kick Start grants are intended to reach a wide audience including those underrepresented in science. Organisers making applications must meet certain criteria designed to ensure the intended audience will contribute to this outreach ambition. The BSA uses a variety of marketing channels to reach underrepresented audiences.

- **Most organisers hear of British Science Week directly from the BSA.** Organisers applying for grants most often know about British Science Week because they have been involved in a previous year. For others, the website is the most important way organisers find out about British Science Week. Other channels make a significant but smaller contribution to awareness of British Science Week. Overall, about 72% of new organisers are recruited directly by the BSA.
- **Schools with high Pupil Premium and ethnic minority populations are more likely to receive grant money, but ethnic minority pupils are less likely to take part in the events.** The percentage of children eligible for Pupil Premium is 38% in grantee schools, significantly above the national average of 25%. 47% of pupils at grantee schools were from backgrounds other than White British, higher than both the average across all state-funded secondaries (37%) and across schools which were not successful in the application process (41%). Nonetheless, only 36% of event participants were from ethnic minority backgrounds. This suggests that, while targeting is

effective at the school level, the profile of those who take part in the events is much closer to the national picture.

Recommendations for the BSA

The data collected for this evaluation revealed a number of opportunities to extend the support offered to BSA grantees and improve school targeting to meet the BSA's objectives:

- **The BSA could consider ways to attract and support more organisers with low interest in science.** Given that, among organisers, the greatest impact is seen in those with lowest interest in science, the BSA could consider ways to target and attract more organisers in this group. Teachers who feel 'science is not for me' are currently less likely to access BSA grants. Of course, in both primary and secondary schools, the teachers who choose to apply for Kick Start grants are likely to be those most interested in science. This may be an inevitable consequence of organiser self-selection. Nonetheless, the BSA could consider how to provide additional support (or ensure access to existing resources) specifically for these organisers.
- **Share examples of successful virtual events.** School closures due to COVID disrupted many schools' plans for British Science Week. As a result, some schools struggled to adapt their plans and spend all of their grant money in advance of British Science Week. The BSA could help schools to run events during any future unexpected closures by sharing examples of successful virtual events. Additionally, these ideas could be used to support schools where virtual events, even during normal times, could reach an expanded audience.
- **Further expand less popular marketing channels and informal referrals.** Less common ways in which teachers heard about British Science Week were in communications that weren't direct from the BSA and social media. Of course, given that this survey data is self-reported, some who selected the website may actually have reached the website via social media. Developing informal networks among teachers, or encouraging the sharing of resources through existing networks (e.g. Multi-Academy Trusts), could further improve the BSA's visibility within the sector.
- **Improve targeting of ethnic minority participants.** While schools selected for grants had a high proportion of ethnic minority pupils, those who attended events were much closer to the national average. Evaluating the impact of proposals specifically on target groups could help ensure events reach the intended groups. Highlighting successful events to prospective organisers could also help schools target their pupils more effectively.
- **Improve support for schools with lower Ofsted ratings.** While the schools awarded grants are roughly in line with the national profile of Ofsted ratings, schools rated as 'inadequate' and 'requires improvement' constitute a small proportion of grantees and are more likely than others to submit unsuccessful grant applications. The BSA could consider how to support these schools to decide to apply and then to submit successful applications.

Recommendations for Ongoing Monitoring and Evaluation

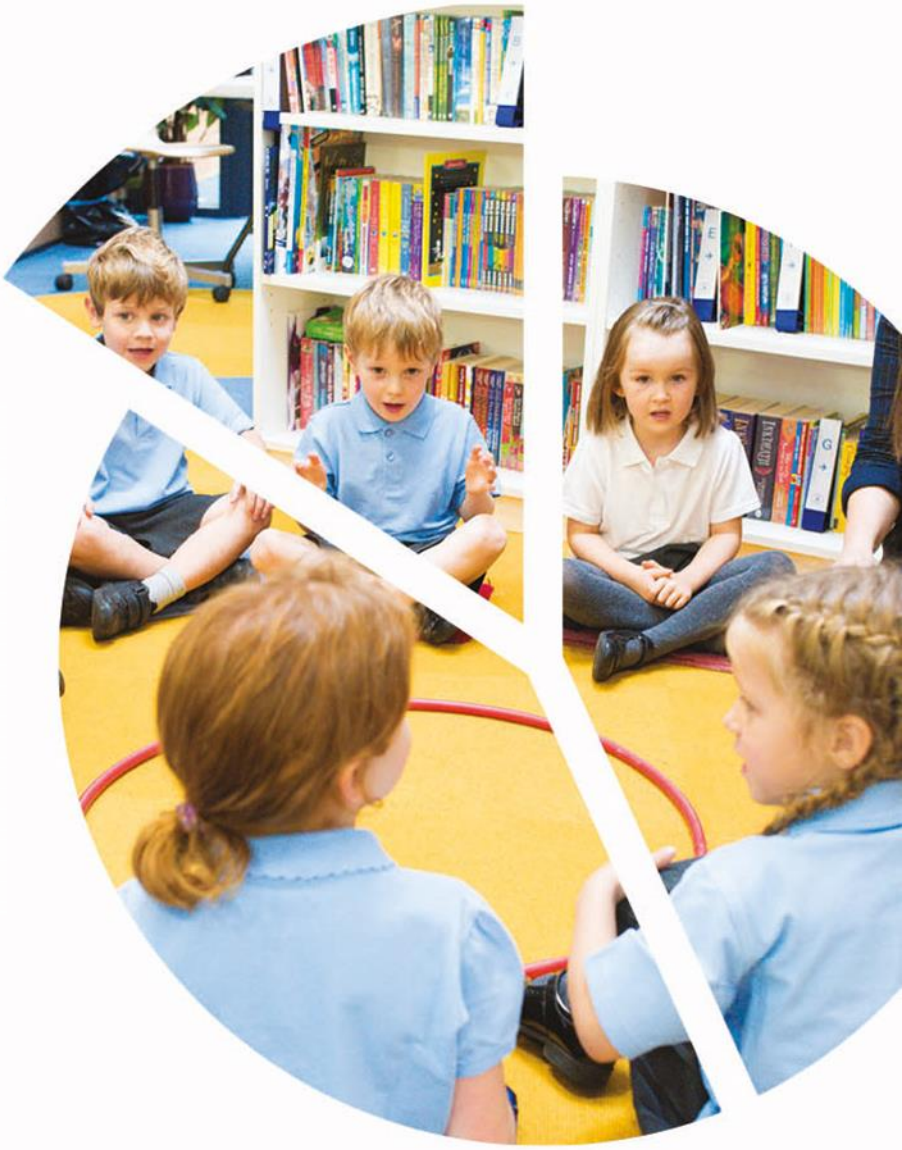
In addition, ImpactEd identified several areas in which the BSA could improve its monitoring and evaluation framework:

- **Collect data on event types to analyse impact and select highest impact event types in future.** Both survey and interview data revealed that the way in which grants are used varies widely. It would be useful for the BSA's impact evaluation to include a survey question categorising the event type. This could be used to understand the impact of different types of events and inform selection criteria in future to make sure the most effective events get funded.
- **Where possible, collect data before and after the event to evaluate change in attitudes.** While one-off, post event evaluations can ask directly about the impact of British Science Week events, comparisons between survey measures (e.g. interest in science) conducted before and after are generally considered more reliable. Of course, evaluation should be proportionate to the grant funding. Asking organisers to complete before and after surveys but not participants could strike a reasonable balance. The BSA could also consider incorporating evaluation of long-term impact, perhaps using focus groups with organisers sometime after the event.
- **Use validated scales for more robust measures of impact.** Validated scales consist of a series of questions designed to measure a single outcome. They have been tested to ensure that the questions coherently measure a single variable and correlate well with other existing measures of this variable. If possible, ImpactEd recommends using validated scales for two reasons. First, the supporting academic research gives confidence in any conclusions to both internal and external stakeholders. Second, the availability of benchmarks allows comparison with national averages. Validated scales could be incorporated into feedback surveys.

Recommendations for Schools

Finally, there were several ways in which schools could improve their use of BSA grants to enable impact within their own schools:

- **Ensure all demographics, especially target demographics, have equal access to events.** Organisers could find ways to make events more accessible to all groups. Equally, schools may benefit if the BSA more effectively selects events most likely to positively impact ethnic minority pupils. This is one of the recommendations to the BSA.
- **Consider virtual delivery during lockdown and beyond.** During school closures, some schools had to cancel their planned British Science Week events, and many schools adapted to online delivery. Schools could consider the benefits of virtual events, both as a response to possible future school closures or to enable their events to reach more participants.
- **Spread knowledge and experience of British Science Week and successful events among networks of teachers.** Most schools surveyed have had a positive experience of BSA Kick Start grants and of British Science Week in general. Understanding of what makes events successful and awareness of the support available from the BSA could be shared more widely within existing school/teacher networks. Currently, word of mouth referrals are an infrequent way in which people hear about Kick Start grants.



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