

British Science Association: CREST Awards Impact Report

IMPACT REPORT

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Executive Summary

This report details the findings from the evaluation of the British Science Association's (BSA's) CREST Awards, focusing on their impact on participating pupils and teachers. This represents a piloting of a new approach in evaluation for BSA and, where relevant, reporting aims to make recommendations for refining future evaluation of the awards.

All schools that participated in the evaluation received Engage funding and data was collected from 193 pupils and 60 teachers from those schools who completed online surveys, with 6 teachers also completing focus interviews. The aim of this data collection was to support evaluation of the impact of BSA's CREST Awards on pupils' social and emotional skills, as well as how the awards may affect pupils' attitudes to STEM and science, including their future career aspirations related to STEM.

Statistically significant differences between participating pupils' social and emotional skills and our propensity score matched group, as well as teacher feedback in the form of an online survey and focus interviews, provided strong evidence on the positive impact that CREST Awards had on the majority of our measured outcomes.

Teaching staff provided feedback on the wider impact of the awards, particularly in relation to the ease of implementation. They also underlined the contribution of the awards to enhancing pupils' knowledge of STEM and demonstrated its relevance both beyond the classroom and in relation to future careers.

Key findings

- 1 British Science Association's CREST Awards have a statistically significant positive impact on pupils' grit at both KS2 (+6.94%) and at secondary (+10.79%).
- 2 A statistically significant positive effect is also seen on secondary pupils' motivation (+7.41%). However, considering all pupils together (KS2 and secondary), this same positive impact is not seen in pupils' motivation.
- 3 Lead teachers reported in both surveys and interviews that the CREST Award has a positive impact on pupil confidence, independence, resilience, teamwork and notably impacts their ability to communicate with one another and engage in conversations where not everyone agrees but a solution is required.
- 4 Teachers believed the awards successfully challenged pre-existing perceptions of students with SEND's ability to participate in practical STEM work, especially where concerns regarding pupils' safety in completing practical investigations had previously limited access.
- 5 Projects tied to real-world contexts (e.g., fast fashion) helped pupils see the societal and career relevance of STEM, leading to reported shifts in career aspirations, particularly at secondary level.
- 6 An overwhelming majority of staff felt that completing the CREST Awards raised the profile of STEM projects at their school as well as their own efficacy in delivering STEM project work.

Recommendations for future evaluation

1. **Increase the pupil sample size** – from an initial Deep Dive group of 10 schools, ImpactEd received pupil data from only 6 schools and 193 pupils in total. Of that group, 170 had reading ages sufficiently high enough to complete the surveys that carried validated social and emotional measures. By either increasing the number of schools in future evaluation, or focusing on a specific age group of pupils, a larger sample size could be obtained, increasing the reliability of findings.
2. **Consider other social and emotional measures** – this evaluation has shown the positive impact that the awards have on pupils' grit. It might be that including this measure again may help in continuing to monitor the awards' positive effect on this social emotional skill. In addition, BSA may choose to investigate the effect of CREST on other social and emotional skills. Upcoming work on an updated Theory of Change will inform the selection of these outcomes in future evaluation.
3. **Further develop an attitudes towards STEM measure**, ideally with the possibility of benchmarking to allow comparison of the impact of these awards with other national initiatives.

Recommendations for CREST Award programme design

1. **Further tailor engagement strategies by Key Stage**- given differing impacts between KS2 and secondary pupils—especially in motivation and self-efficacy, it may be beneficial to further design targeted activities and supports for each age group.
2. **Address funding sustainability** – teachers responded to surveys and in focus interviews with the message that, if the funding for CREST was not available, they would not be able to continue their schools' engagement with the awards.
3. **Consider expanding SEND accessibility resources** - build on successful adaptations (simplified resources, scaffolded experiments) to develop a formalised inclusion toolkit for schools.



Introduction

Each year, over 50,000 CREST Awards are undertaken by 3-to-19-year-olds, giving them opportunities to explore real-world science, technology, engineering and maths projects in an exciting way.

CREST is a UK award scheme that recognises success and enables students to build their skills and demonstrate personal achievement in project work. It offers educators an easy-to-run framework for curriculum enhancement and is student-led, which means that young people take ownership of their projects and choose to undertake them in areas they enjoy or see as relevant.

There are six different levels of CREST Award, from Star – six-eight 1-hour challenges for 3-7-year-olds, up to Gold, which typically involves 70+ hours of project work and is aimed at 16-19-year-olds or young people working at that level.

This report presents the findings of the British Science Association's CREST Award's pilot evaluation into the impact of the awards on participating pupils and teachers. It builds upon previous evaluation approaches by BSA and includes recommendations on how evaluation may be further refined in the future.

This will be done by evidencing findings from **quantitative and qualitative pupil and staff surveys**, and triangulating these with further qualitative data collected through **staff focus interviews**. It aims to both evaluate impact and inform future refining of evaluation in future years.

The evaluation aims to find out the impact of CREST Awards on pupils' social and emotional skills- in particular pupils' grit and motivation.

At ImpactEd, academically validated self-report surveys are used to support schools, and educational organisations, understand and measure pupils' social and emotional skills. This knowledge allows evaluation of a project or programme's impact on those skills. ImpactEd have developed a suite of core measures for skills such as growth mindset, self-efficacy, grit, wellbeing, motivation and teamwork that have been used widely on projects, creating a large national dataset that can then be used for comparison.

After discussion with leaders at The British Science Association, an increase in grit and motivation were identified as the two of ImpactEd's core measures most closely aligned to desired pupil outcomes for CREST.

Grit is defined as perseverance and passion for long-term goals. It is closely related to academic and social resilience. Pupils with high levels of grit may work persistently over years to achieve goals despite setbacks. Motivation is what causes an individual to want to do one thing, and not another. Intrinsic motivation relates to pupils' inherent enjoyment or interest in a task. Intrinsic motivation has positive effects on academic performance, encouraging high-quality learning and creativity.

In addition, we evaluate how the awards may affect pupils' attitudes to STEM and science, and the role it may play in their future career aspirations related to STEM. We have also gathered and presented feedback about the engagement of both pupils and staff with the awards and how they are implemented.



Data was collected once the pupils had completed their awards during the summer term of 2024-25. As they were implemented at a time that was most convenient for schools, the date that each school completed the data collection varied.

Using a mixed methods approach and collecting data from different sources allowed for a cross-sectional approach, holistically enhancing the evaluation and building a deeper understanding of the project's impact.

As this is a pilot evaluation, this report will also focus on recommendations to further improve methodology for future larger scale evaluation – this theme will be revisited throughout the report.



Pupils were encouraged to engage independently with peers and conduct fun, exciting experiments."

Methodology

The ImpactEd pilot evaluation of the British Science Association's CREST Award aimed to understand how pupils engaged with the awards, how the awards affected pupils' attitudes towards science and STEM, and how their social and emotional skills may be impacted through their participation. All data was collected once pupils had completed their CREST Awards.

Originally, 10 schools were included in a "Deep Dive" evaluation group. This group would provide data through pupil online surveys administered on ImpactEd's School Impact Platform (SIP), online staff surveys, and virtual 1-1 staff interviews to get to the heart of the impact of CREST Awards on participating pupils and teachers.

However, from the original group of 10 schools, only 6 were able to provide complete data – more information regarding this can be found in the "Limitations" section within the report.

A "Light Touch" survey was also administered to a larger group of schools. This group provided the same intervention to pupils as the Deep Dive group but provided more general feedback regarding the awards and their implementation to the evaluation, specifically how the awards may have affected the way in which teachers delivered STEM project work. The link for the Light Touch survey was shared with teachers from 124 schools.

All schools involved in both groups received Engage funding for 2024/25 CREST.

To be eligible for Engage funding schools must be UK state-schools, colleges or registered Early Years settings that are not academically selective. Schools must also meet at least one of the following additional [eligibility criteria](#):

- i. a minimum of 30% of students are eligible for free school meals (FSM) or equivalent
- ii. a minimum of 30% of students are from ethnic minority backgrounds
- iii. the school is in a remote and rural location

Research questions

Analysis of findings from pupils from the Deep Dive group, and teachers from both groups (Deep Dive and Light Touch), is featured in the report, with the aim of answering the following research questions:

1. How does completing a CREST Award affect pupils' social and emotional skills?
2. How have pupils engaged with the CREST Award?
3. How has participating in the CREST Award changed the way pupils feel about STEM?
4. How do teachers perceive the impact of the CREST Award on their practice?
5. How do teachers feel about the implementation of the CREST Award at their school?

Outcome Measures

Outcome	Quantitative measures	Qualitative measures	Participating group
Pupil motivation	ImpactEd Academically validated measure*	Focus interviews with lead teachers	Deep Dive
Pupil grit	ImpactEd Academically validated measure*	Focus interviews with lead teachers	Deep Dive
Pupil self-efficacy	ImpactEd Academically validated measure* (2 items)	Focus interviews with lead teachers	Deep Dive
Pupils' attitudes towards STEM and Science and related potential future careers	ImpactEd custom pupil survey* ImpactEd custom teacher surveys**	Focus interviews with Deep Dive lead teachers	Deep Dive and Light Touch
Pupil engagement with CREST Awards	ImpactEd custom teacher surveys**	Focus interviews with Deep Dive lead teachers	Deep Dive and Light Touch
Teacher current and future engagement with CREST Awards	ImpactEd custom teacher surveys**	Focus interviews with Deep Dive lead teachers	Deep Dive and Light Touch
General feedback on CREST Awards	ImpactEd custom teacher surveys**	Focus interviews with Deep Dive lead teachers	Deep Dive and Light Touch

*Pupil surveys were administered online using ImpactEd's School Impact Platform (SIP) .

**Teacher surveys were completed online through Typeform – links to the surveys were shared with lead teachers from relevant schools.

Evaluation Design

Deep Dive group

10 schools were initially designated to be part of the Deep Dive group. They were asked to complete pupil surveys, teacher surveys and participate in 1-1 focus interviews. Of the original 10 schools, 6 ultimately provided data for the project.

To cater for different aged respondents, initially two pupil surveys were developed – primary (suitable for KS2 pupils) and secondary (KS3+). Relevant academically validated measures of grit, motivation and self-efficacy (2 items) were used. However, it became apparent that there were primary pupils that were part of the evaluation, but who were in either KS1 or EYFS, as well as secondary-aged pupils who were unable to access the secondary question sets due to lower reading ages.

As a result, a simplified survey (which did not carry benchmarked academically validated measures for grit, motivation and self-efficacy) was created for those unable to access the KS2 survey, and teachers could opt for their secondary pupils to access the KS2 survey if appropriate (which is why there are older pupils accessing the “primary” measure).

The resulting sample sizes are given below (Table 1), with pupil characteristics shown separately for the 'simplified' survey and the KS2+ surveys as these have been analysed separately.

Deep Dive Pupil surveys

The surveys were administered online, with pupils presented with one question at a time on the screen.

KS2 and KS3+ pupils responded to ImpactEd's academically validated question sets to measure grit, motivation and self-efficacy (2 items only for the latter). The question and statement sets are subtly different to ensure accessibility for pupils when answering.

Pupils with reading ages younger than KS2 completed the "simplified" survey which did not specifically measure pupil motivation or grit.

In addition, all groups were asked questions, and to respond to statements, regarding their engagement with the awards, how they viewed science and STEM, as well as their interest in future careers that had a STEM or science focus.

Table 1: Pupil surveys, numbers per survey type and pupil characteristics (%):

Survey type	Subgroup	Final sample Number	Final sample Percentage
Simplified pupil survey	KS1	15	65%
	KS2	8	35%
	Male	18	65%
	Female	8	35%
	Pupil Premium (PP)	9	39%
	EAL	7	30%
	SEND	4	9%
	Total surveyed	23	
Full pupil survey	KS2	125	85%
	KS3+	45	15%
	Male	77	45%
	Female	93	55%
	Pupil Premium (PP)	32	19%
	EAL	31	18%
	SEND	13	8%
	Total surveyed	170	

Deep Dive teacher survey

All staff that worked with pupils on CREST Awards in the Deep Dive group were also asked to respond to a staff online survey. Again, 6 of the 10 schools that were part of the Deep Dive group responded to the survey – with some schools offering multiple respondents.

Staff were asked contextual questions regarding their previous engagement with CREST and project work in general, before then responding to questions and statements regarding the impact of completing the award on their pupils social and emotional skills. Finally, they were asked how the award affected their practice in delivering STEM work.

Table 2: *Deep Dive teacher survey numbers per school type*

Subgroup	Final sample size
Primary	9
Secondary	3
Further education	3
Total	15

Deep Dive Teacher focus interviews

All lead teachers from Deep Dive schools were invited to an online 1-1 focus interview to explore in further detail how they have engaged with their CREST awards, as well as giving context for how they feel the awards have impacted pupils' social and emotional skills, and their engagement with STEM and science more widely – all themes that were also covered in both the pupil and the staff survey.

A teacher from each of the schools that provided pupil survey data also took part in interviews. As such, 6 teachers took part from a variety of settings.

Light touch survey

Teachers at 124 schools for CREST were contacted to respond to the Light Touch survey – participants in the Deep Dive group were not also asked to respond to the Light Touch survey. 45 responses were registered in total from a variety of settings.

Analysis

Quantitative analysis

Scores for motivation, grit, and self-efficacy were compared to those of a matched sample obtained through propensity score matching¹. The comparison group consisted of pupils who took the relevant tests (motivation, grit, or self-efficacy) between February and August 2025, with data sourced from ImpactEd's School Impact Platform (SIP) database.

For motivation and grit, a summary score was calculated using responses to all individual items within each scale (nine items for motivation and eight for grit). For self-efficacy, as only two items were included, these were analysed separately.

Matching was carried out on five background characteristics: school year group, gender, Pupil Premium eligibility, English as an Additional Language (EAL) status, and Special Educational Needs (SEN) status. Comparisons were then made using independent-samples t-tests to establish whether there were statistically significant differences (at the 0.05 level) between students who had completed a CREST Award and those in the comparison group.

A t-test in significance testing helps determine if a difference in means between two groups (or a sample and a known value) is statistically significant, meaning it's unlikely to have occurred by random chance. This was done for all pupils, and separately for KS2 and secondary pupils.

In addition, multi-level regression analysis was conducted to explore the extent to which pupils' schools contributed to their scores on grit, motivation, and self-efficacy. This method was selected because pupils within the same school often show greater similarity in outcomes compared to pupils in different schools. Multi-level regression controls for school effects while also adjusting for differences in background characteristics (year group, gender, Pupil Premium eligibility, EAL status, and SEN status) over and above matching. This was done for all pupils only, as the lower number of schools when the data is split into KS2 and secondary makes results potentially unreliable.

Qualitative data analysis

The focus interviews were analysed using the recordings and transcripts.

Thematic analysis was conducted with the transcribed conversations to extract emerging themes linked to the implementation of the project, including teachers' perception of the impact on pupils' social and emotional skills.

Key quotes were drawn out during this process which could be used to evidence findings and create mini case studies, particularly as the interviews allowed for more in-depth discussion with participating teachers. Thematic analysis was used as this is the best suited analysis to identify, analyse and report patterns within qualitative data.

Moreover, both the staff and pupil surveys had optional qualitative questions for participants to answer if they wish. These were also analysed using thematic analysis. For the latter, this meant that the data could be analysed somewhat quantitatively, allowing for comparative analysis across the sub-groups.

¹ Propensity score matching was carried out in R (version 4.5.0) using the MatchIt package, with "optimal" matching specified.

Limitations

Limitations with this evaluation that should be considered when assessing findings include:

- **Low/ limited sample size.** There was a small sample size for secondary-age pupils: The secondary age survey had a small sample (n=23), with pupil year groups ranging from year 7 to year 10, this variability in a small sample may reduce the power of tests, such as independent t-tests to detect differences. This was due to several reasons, including:
 1. **Fewer pupils engaging in the Award** than had previously been disclosed to BSA. Although teachers were confident that all their pupils that engaged in the awards did complete surveys, this number of pupils was lower than we had expected in the planning of the project.
 2. **The response rate to the Light Touch survey** which went out to 124 schools was lower than expected.
- **The evaluation did not include a specified comparison group** and relied on final data rather than both baseline and final measures (an approach that had been impractical in previous evaluation). Pupil motivation and grit surveys provided a national benchmark, and Propensity Score Matching was used to address this. However, collecting both baseline and final data in future would help strengthen this mitigation further.
- Matching was carried out on pupil characteristics such as gender and year group; **there may be characteristics we have not matched for that affect outcome scores** and that limit the conclusions we can draw from the analysis, for example, academic attainment.
- Self-efficacy was measured using two items from the pupil self-efficacy measure, a battery of items whereby the sum of scores on all items is normally aggregated. Carrying out statistical tests such as t-tests on Likert-style items such as this can yield unreliable results.

The impact of CREST Awards on pupils

1. How does completing a CREST Award affect pupils' social and emotional skills?

KEY FINDING:

1

British Science Association's CREST Awards have a statistically significant positive impact on pupils' grit at both KS2 (+6.94%) and at secondary (+10.79%).

2

A statistically significant positive effect is also seen in secondary pupils' motivation (+7.41%). However, considering all pupils together (KS2 and secondary), this same positive impact is not seen in pupils' motivation.

Matching BSA CREST pupils to comparison cases:

CREST students were matched one-to-one to comparison cases from the ImpactEd SIP (which contains survey data from across the country) using the following characteristics: school year group, gender, Pupil Premium eligibility, English as an Additional Language (EAL) status, and Special Educational Needs (SEN) status. There was a larger matching pool for the outcome 'Grit' (14,644) than for 'Motivation' (1,208) and 'Self-efficacy' (1,284) leading to slightly better matching on characteristics for Grit, but still acceptable levels for the other two outcomes. For more information see Appendix A.

Differences between BSA CREST pupils and comparison pupils for motivation, grit and self-efficacy:

Table 3 summarises the differences in average scores between the intervention and comparison groups for each outcome for all pupils, and also by KS2 and secondary; with the difference tested for statistical significance using 't-tests' with the following results:

- **Grit:** The intervention group scored higher than comparisons group, scoring +6.94 points at KS2, +10.79 points at secondary, and +7.79 points overall (all statistically significant)
- **Motivation:** The KS2 intervention group scored -3.34 points lower and secondary +7.41 points higher. Both were statistically significant. Taking all pupils, there was no **statistically significant** difference.
- **Self-efficacy²:** The KS2, intervention group scored slightly lower on both questions (-0.91 on Q5 and -0.53 on Q6, both statistically significant but differences at secondary were not statistically significant. Taking all pupils, the intervention group scored lower than comparisons on both questions (-0.66 on Q5 and -0.29 on Q6, both statistically significant).

² The wording for self-efficacy question 5 was: "I am sure I can do a very good job on the problems and tasks in my lessons", and question 6: "I think I will receive good grades in my subjects".

Table 3: Difference in mean scores between BSA CREST pupils and matched comparisons

Outcome & Stage	Intervention Mean	Comparison Mean	Difference (Int – Ctrl)	95% CI of Diff.
Grit – KS2	34.18	27.24	+6.94 ***	(+5.72, +8.16)
Grit – Secondary	36.57	25.77	+10.79 ***	(+8.78, +12.81)
Grit – All	34.51	26.71	+7.79 ***	(+6.78, +8.81)
Motivation – KS2	30.74	34.08	–3.34 ***	(–4.88, –1.80)
Motivation – Secondary	48.08	40.67	+7.41 **	(+1.72, +13.11)
Motivation – All	33.29	35.13	–1.84	(–3.68, +0.01)
Self-eff. Q5 – KS2	3.40	4.31	–0.91 ***	(–1.13, –0.68)
Self-eff. Q5 – Secondary	5.61	5.30	+0.31	(–1.71, +1.09)
Self-eff. Q5 – All	3.70	4.36	–0.66 ***	(–0.91, –0.41)
Self-eff. Q6 – KS2	3.70	4.23	–0.53 ***	(–0.76, –0.29)
Self-eff. Q6 – Secondary	5.61	4.60	+1.01	(–2.36, +0.35)
Self-eff. Q6 – All	3.96	4.25	–0.29 *	(–0.54, –0.04)

*** = $p < 0.001$ (highly significant); ** = $p < 0.01$ (moderately significant); * = $p < 0.05$ (statistically significant); no asterisk = $p \geq 0.05$ (not statistically significant)

Differences between BSA CREST pupils and comparison pupils for motivation, grit and self-efficacy after adjusting for the effect of school

We carried out further statistical testing to examine the effect that the pupils' schools might have on these outcomes, using a regression analysis³. The regression analysis also further accounted for small differences in characteristics such as pupil gender that might remain after matching. These 'adjusted' results are shown in Table 4 for all pupils where it can be seen that the small, statistically significant difference using t-tests has now become non-significant.

The column labelled 'ICC' shows the effect of the school on each outcome. School effects for 'Grit' are very low (0.03), moderate to high for self-efficacy (0.11 and 0.13) but high for Motivation (0.27).

Table 4: Comparing t-test and multi-level regression mean differences.

Outcome	t-test Diff	t-test 95% CI	Adjusted Diff	Adj. 95% CI	ICC
Grit	+7.79 ***	(+6.78, +8.81)	+8.33 ***	(6.63, 10.04)	0.03
Motivation	–1.84	(–3.68, +0.01)	1.59	(–3.05, 6.23)	0.27
Self-efficacy Q5	–0.66 ***	(–0.91, –0.41)	0.39	(–0.99, 0.22)	0.11
Self-efficacy Q6	–0.29 *	(–0.54, –0.04)	0.01	(–0.66, 0.68)	0.13

³ A 'multi-level regression analysis'

*** = $p < 0.001$ (highly significant); ** = $p < 0.01$ (moderately significant); * = $p < 0.05$ (statistically significant); no asterisk = $p \geq 0.05$ (not statistically significant)

In conclusion, when taking all pupils together (KS2 and secondary) there is a difference between intervention and comparison for grit, but not for motivation, or self-efficacy. However, for motivation and self-efficacy, this may be due to poorer matching, or due to these outcomes being more heavily influenced by the pupil's school environment. For motivation in particular there is a strong school effect. Overall, there appears to be a more positive intervention effect for secondary pupils for all outcomes.

KEY FINDING:

3

Lead teachers believe that the CREST Award has a positive impact on pupil confidence, independence, resilience, teamwork and notably impacts their ability to communicate with one another and engage in conversations where not everyone agrees but a solution is required.

School staff running CREST Awards were asked to indicate whether the award has impacted positively on their students in seven areas. Scores for each statement were calculated with 'Strongly agree' as 5 points, descending to 'Strongly disagree' at 1 point. Mean scores for each statement are shown in Figure 1. While scores for all domains were positive, most highly rated were 'work with others', 'Be creative' and 'Problem solve'.

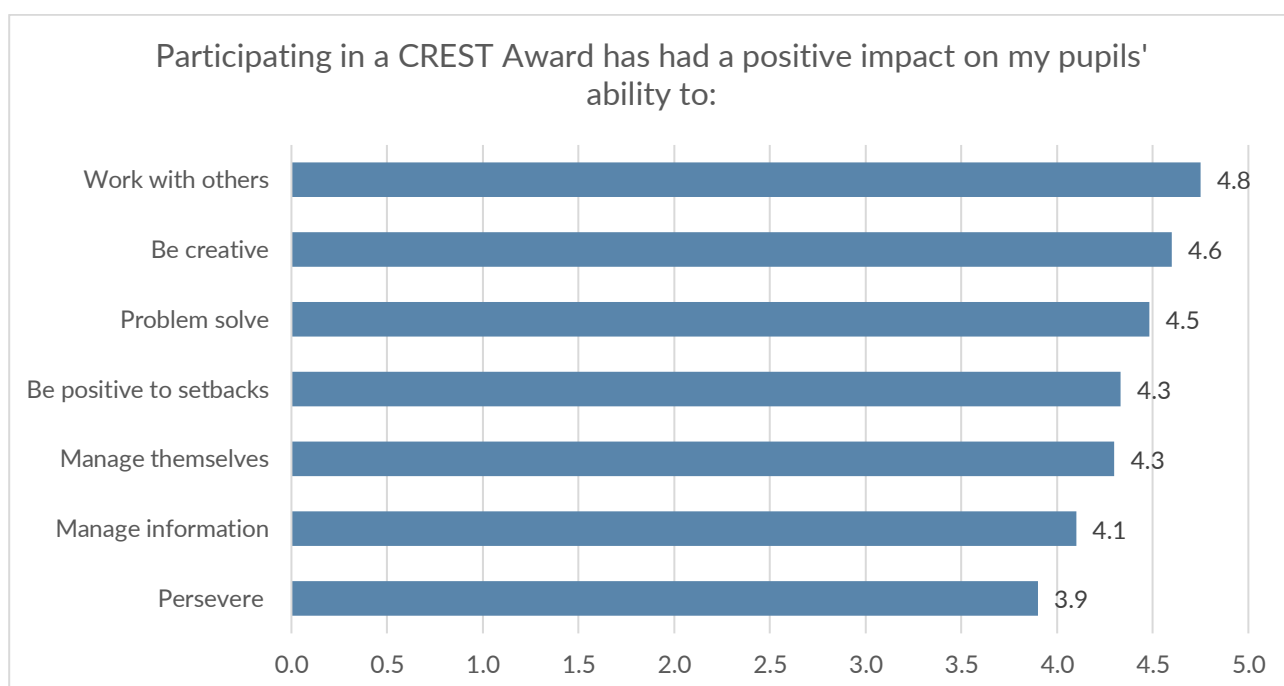


Figure 1: Teacher report of impact of CREST Awards on pupils.

Insight from focus interviews with teachers from Deep Dive schools:

In all groups the teachers believed that the CREST Award had a positive impact on pupil confidence and resilience and significantly impacted their ability to communicate with one another and engage in conversations where not everyone agreed but a solution was required.

One secondary school teacher stated:



“I had a group of pupils who would come after school on a Wednesday; they were a mixture of students across years 7 to 10. What was really nice is that they kind of started off in quite niche groups but then they all became very friendly. They were happy to go to each other to ask for guidance and support. They shared results and compared their results which prompted good discussions, and they began to work together outside of these groups.”

In this school the award was open to all pupils but has gradually become only girls as the boys dropped out but the impact on communication, friendships and organisation within the groups was “significant.”

Teachers in all six interviews believed that involvement in the CREST Award helped to develop resilience, independence, communication and teamwork. The nature of the projects meant that pupils from across the schools were put together to problem solve and conduct experiments, moving them out of friendship groups and comfort zones and opening up pupils to the idea of teamwork across year groups.

2. How have pupils engaged with CREST Awards?

The results show some notable differences between engagement with the awards for primary and secondary pupils. This may be due to how pupils are allocated to CREST, with secondary pupils possibly more likely to be self-selecting, and primary pupils more likely to be told they are participating. The data suggests that satisfaction and motivation are higher at secondary level, along with a stronger connection to future careers.

KS1 pupils were asked to respond 'yes' or 'no' to '*I enjoyed my CREST Award project*', with 100% (n=23) responding 'Yes'. Pupils in KS2 and secondary school were asked to indicate their level of agreement to the same statement with **62% of KS2 pupils** and **83% of secondary pupils** agreeing or strongly agreeing (Figure 2). While no secondary pupils disagreed, or strongly disagreed, this figure for KS2 pupils was 15%.

While the majority of pupils enjoyed doing the award, there was less satisfaction for KS2 pupils.

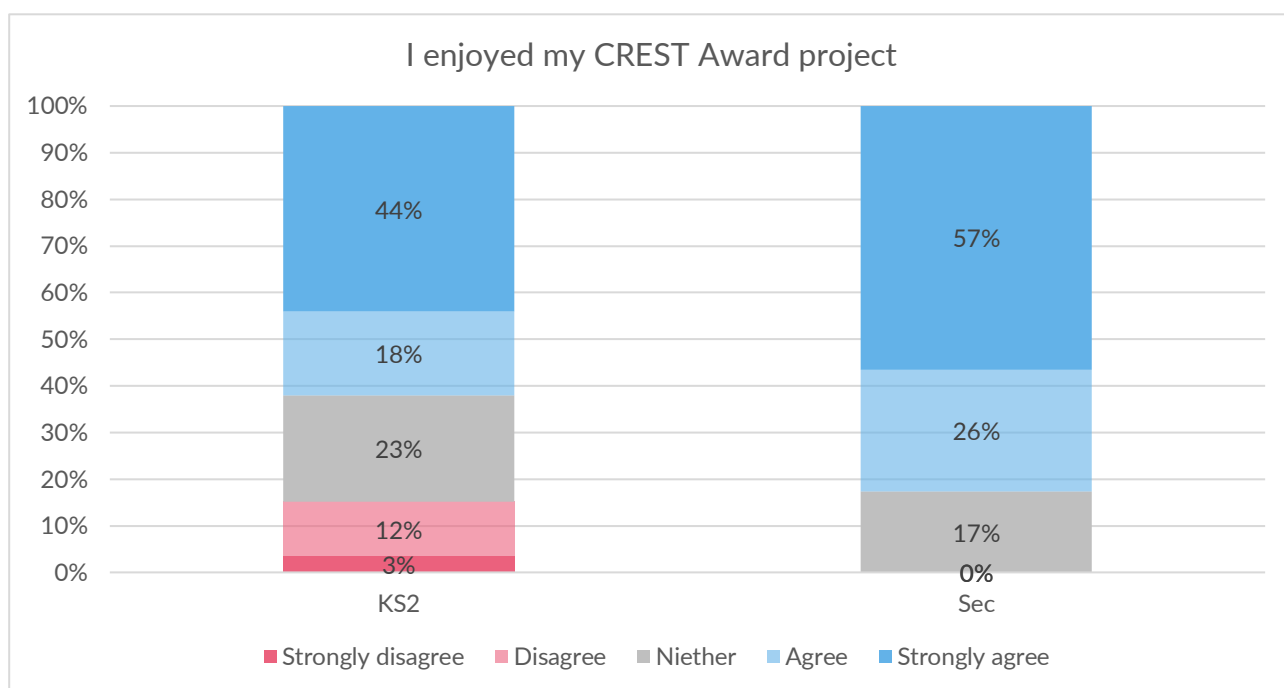


Figure 2: '*I enjoyed my CREST Award Project*' for KS2 (n=145) and secondary (n=23) pupils.

Pupils in KS2 and secondary schools were given a statement 'Getting a CREST certificate is important to me'. A total of 55% of KS2 pupils and 65% of secondary pupils agreed or strongly agreed, with 18% of KS2 pupils and 8% KS3+ pupils disagreeing or strongly disagreeing (Figure 3).

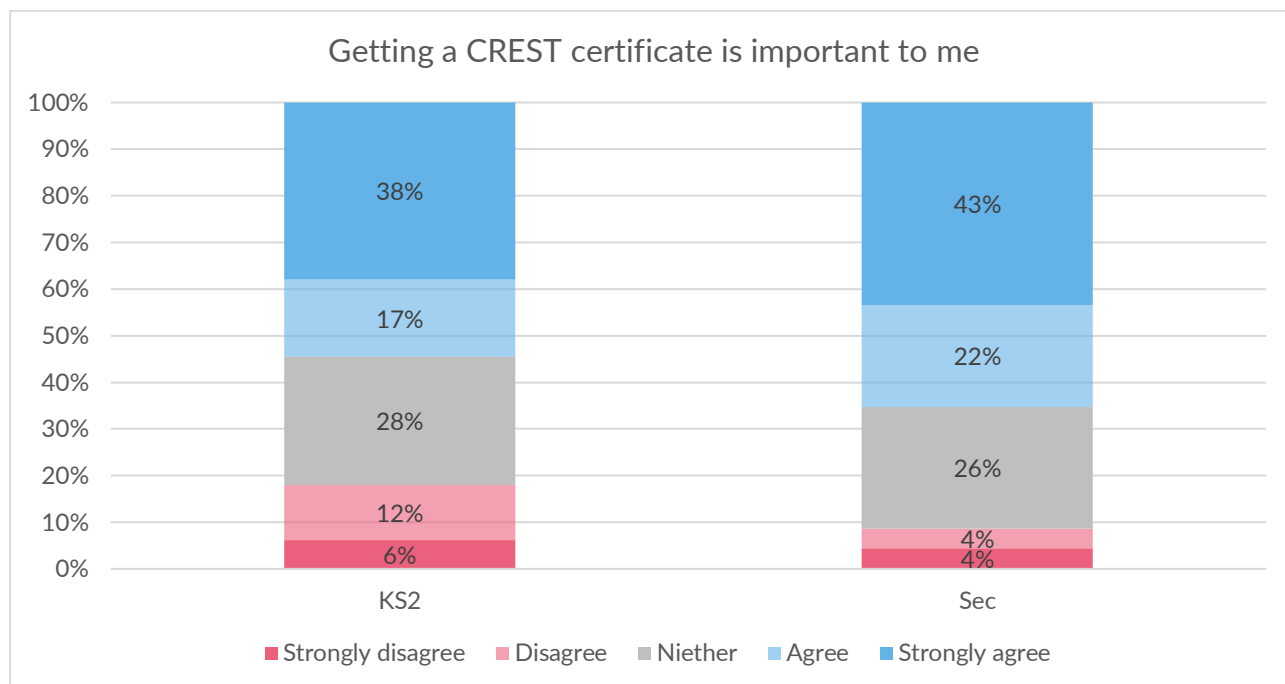


Figure 3: 'Getting a CREST certificate is important to me' for KS2 (n=145) and secondary (n=23) pupils.

All pupils were asked why they participated in CREST. Pupils were able to choose as many responses as they wanted from a list. The most common response was 'It was fun', followed by 'I like science'. For secondary pupils, future career and CV were also important (Figure 4).

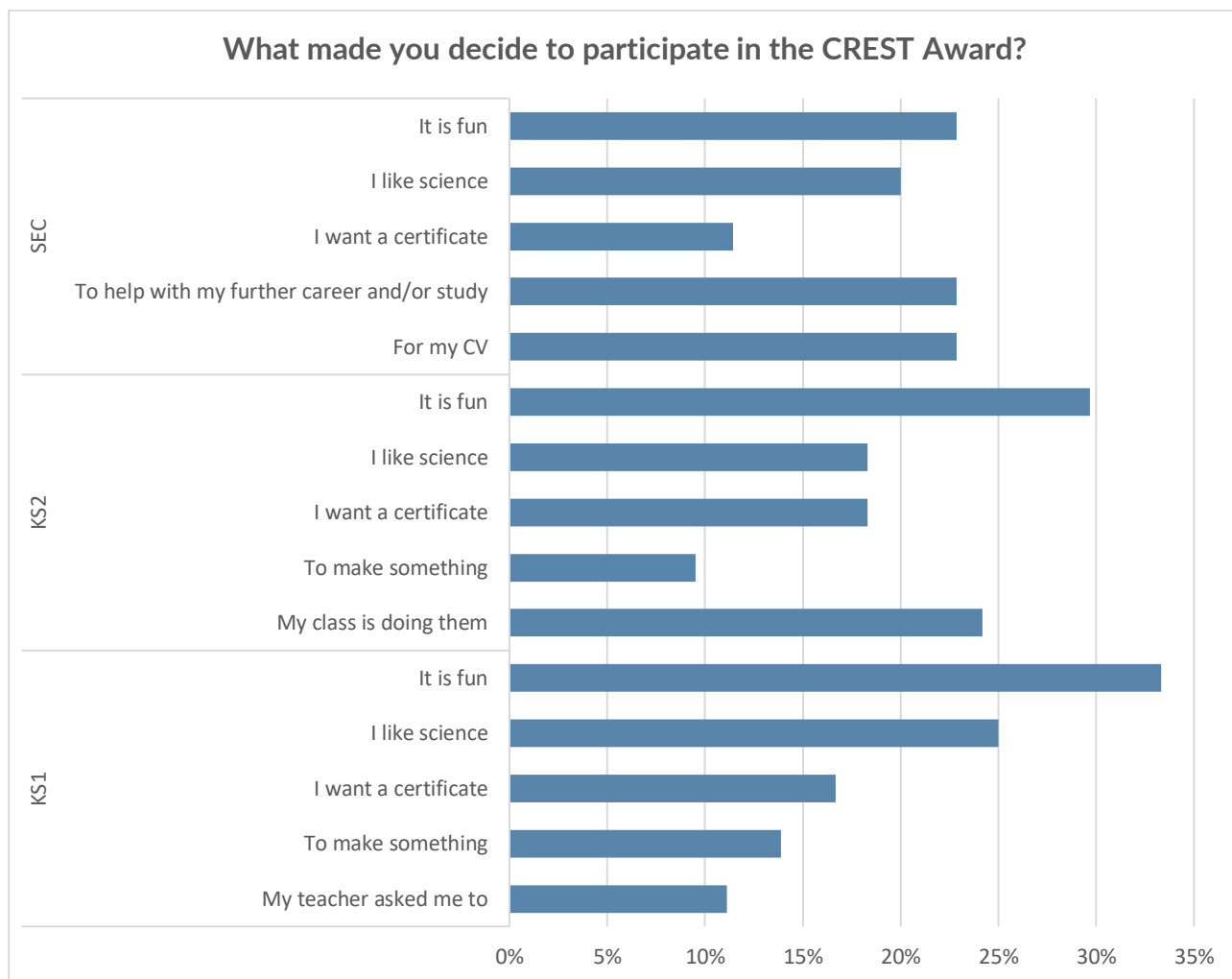


Figure 4: 'Getting a CREST certificate is important to me for KS2 (n=145) and secondary (n=23) pupils.

All pupils were also asked to provide three words to describe how they felt about their CREST Award (Figure 5). Prompts were not provided. The most common word used for KS2 respondents was “fun”, whereas secondary responders’ most selected word was “happy”, followed by “interest”.

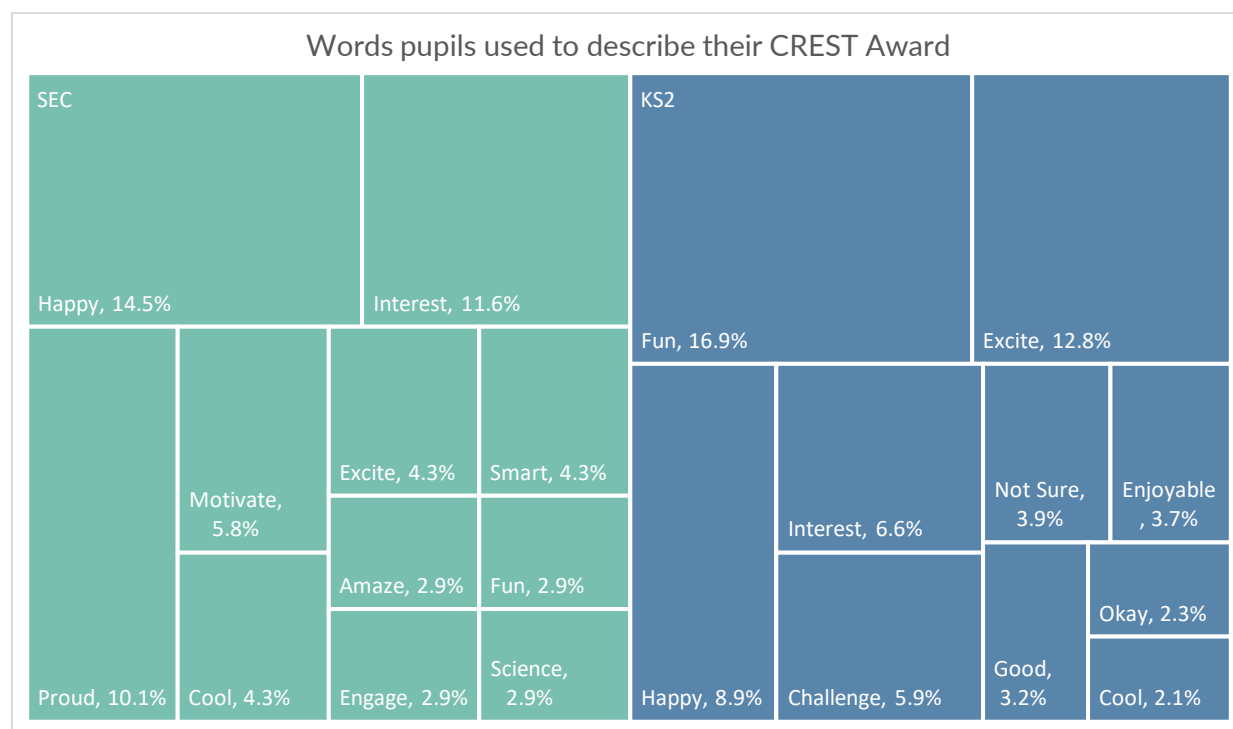


Figure 5: Words used by pupils to describe their CREST award, frequencies $\geq 2\%$. Word stems are used e.g. ‘Excite’ for ‘Exciting’ and ‘Excited’.

Insight from the staff survey (Deep Dive and Light Touch):

Staff reported that most pupils completed their award in curriculum time (Table 5)

Table 5: When pupils completed award (n=59)

Period completed award	Percentage
Curriculum time	58%
After school or during lunch break	22%
Drop-down/off-timetable day	20%

Insight from focus interviews with teachers from Deep Dive schools:

KEY FINDING:



Lead teachers reported in both surveys and interviews that the CREST Award has a positive impact on pupil confidence, independence, resilience, teamwork and notably impacts their ability to communicate with one another and engage in conversations where not everyone agrees but a solution is required.

In all interviews the teachers believed that the CREST Award did have a positive impact specifically on students with SEND pupils and their engagement in science although they found this difficult to evidence using progress figures and, in some cases, significant adaptations were needed to allow this to happen. Teachers felt that because pupils were encouraged to engage independently with peers and conduct fun, exciting experiments, students with SEND were more engaged and were beginning to see Science as more relevant to them and something that they could pursue in the future. Due to the nature of the experiments, teachers felt the science was more accessible to students with SEND and meant they got more out of being involved.

One College decided to offer the CREST Award only to students with SEND from vocational courses to try and change the narrative around STEM. The laboratory manager stated that previously, students with SEND had been actively discouraged from getting involved in subjects which involved lab work over safety concerns. They strongly believed that the world of science should be opened up to students with SEND to show them that it was something accessible to them and could provide them with a future. Pupils were empowered to participate in practical lab activities traditionally restricted to them, aided by tailored resources like simplified workbooks. The laboratory manager believed that the impact this had on the pupils was “game changing” and they are going to follow the same model within the college next year. They also stated that it significantly impacted their colleagues' opinions on what practical subjects should be made available to students with SEND and the outcomes they could achieve if given the opportunities.

One primary school teacher believed that students eligible for Pupil Premium (PP) found it more difficult to partake in the award but not because they were not engaged because overall, they found learning more challenging. They said that the students eligible for PP were very excited to take part in the award but they found it challenging to think methodically and needed some support with this. However, they were keen to state that this did not distract from the confidence and independence they gained whilst taking part in the award.

In two schools, teachers stated that whilst students with SEND wanted to and were encouraged to take part in the Award there was a need for significant adaptation to make sure they were able to access the projects and have a valuable experience.

3. How has participating in the CREST Award changed the way pupils feel about STEM?

Pupils in KS2 and secondary schools were given a statement 'In future I would like a job that uses science/maths/engineering/technology' and asked to indicate their level of agreement (Figure 6). For ease of comparison, results are shown as average scores whereby the scores were calculated with 'Strongly agree' as 5 points, descending to 'Strongly disagree' which was 1 point. **At secondary, these pupils have more interest in a job in science in future, rather than maths or engineering/technology, at primary there is more interest future jobs in engineering/technology.**

Pupils were also asked to indicate agreement to the statement 'Completing my CREST Award has made me want a job in science/maths/engineering/technology more' (Figure 7). At secondary, the highest scoring category was science, at primary, in engineering/technology.

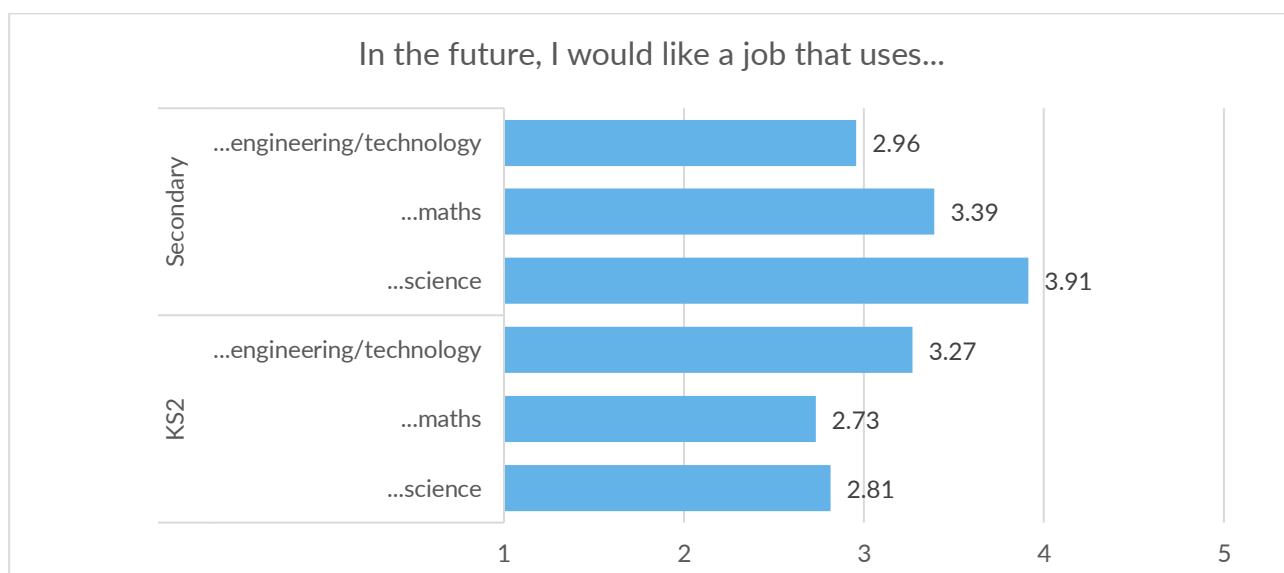


Figure 6: Pupils' interest in future jobs relating to STEM

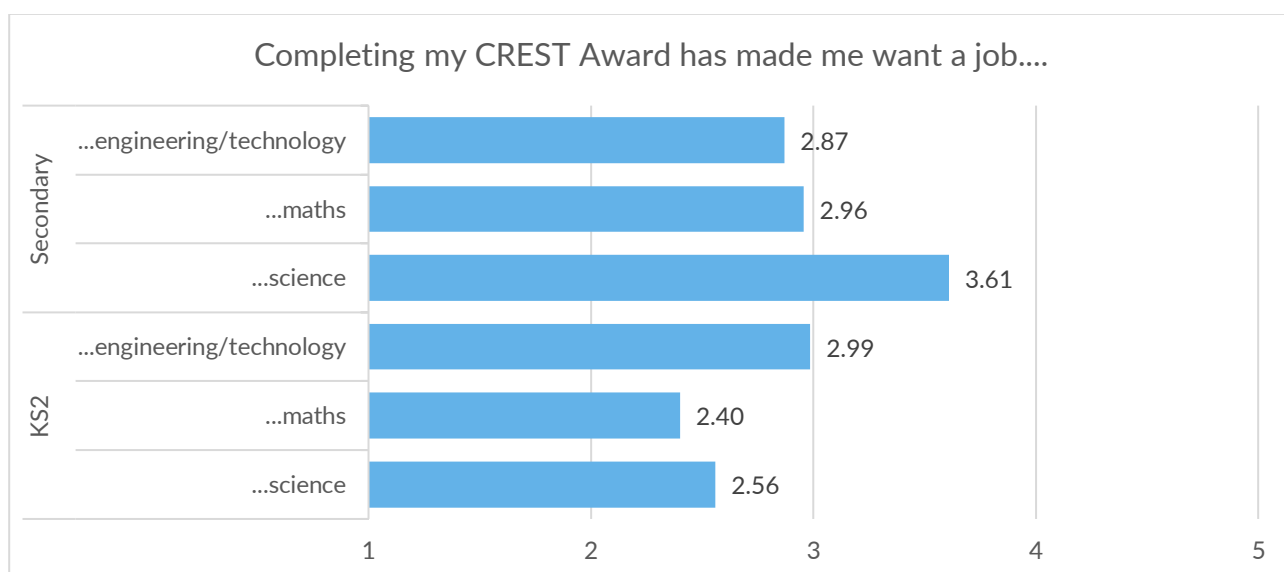


Figure 7: Pupils' interest in future jobs relating to STEM as a result of CREST Awards

Pupils at KS2 and older were asked 'Now you have completed your award, which of these do you think you are?' Similar results were found for KS2 and secondary, with hardworking, curious and patient being in the top five for both. For these pupils, those in secondary were less likely to say 'creative' when compared to KS2 pupils, whereas KS2 pupils were less likely to say 'open-minded'.

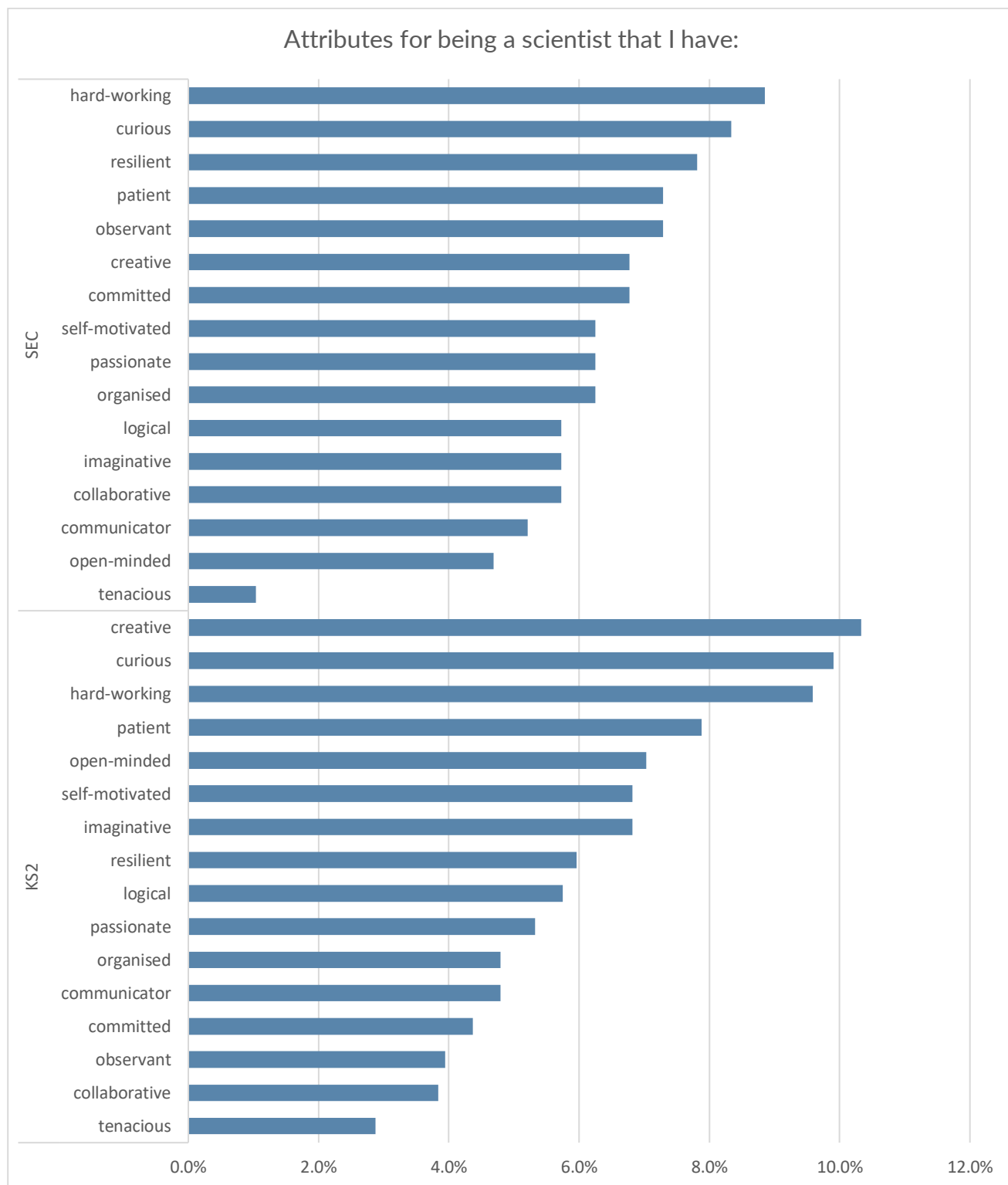


Figure 8: Attributes children have that they think are important for being a scientist

Teachers were asked whether they agreed that the CREST Award had given children/young people the opportunity to understand that science skills and knowledge can be applied to non-traditional science jobs. 71% either agreed or strongly agreed, and only 7% disagreed or strongly disagreed.

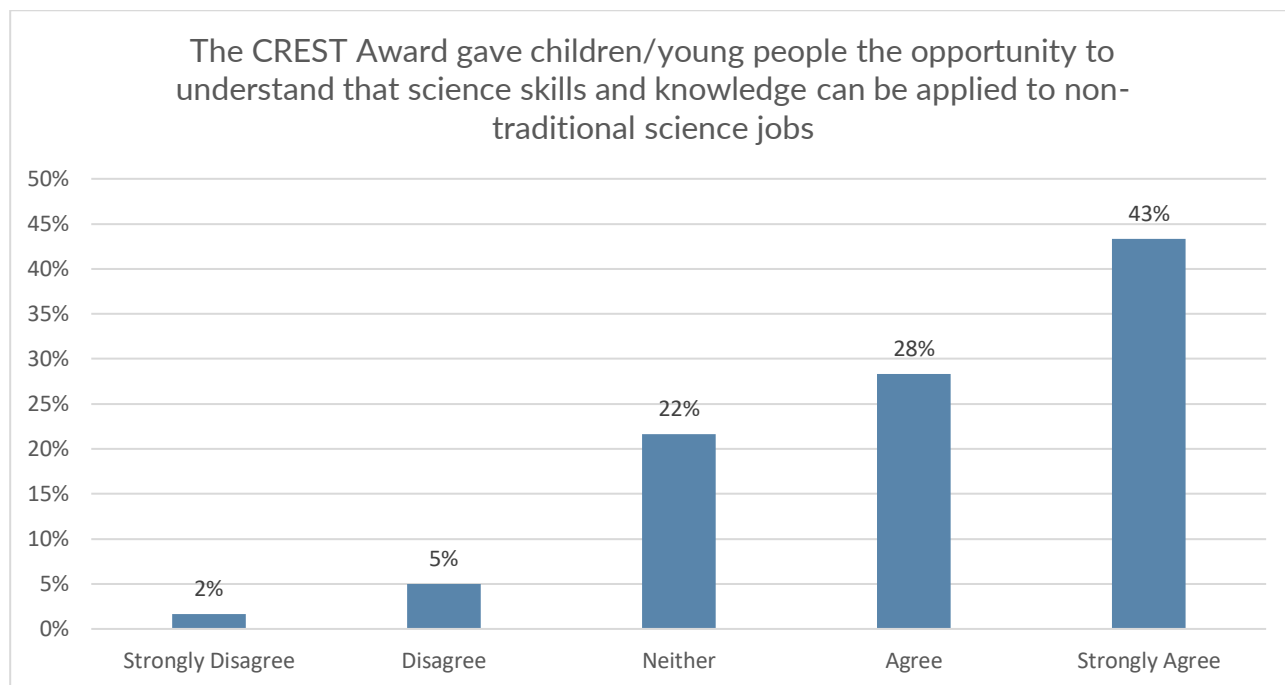


Figure 9: Teacher's perception of whether CREST Awards provided the opportunity to understand that science skills and knowledge can be applied to non-traditional science jobs

KEY FINDING:



Projects tied to real-world contexts (e.g., fast fashion) helped pupils see the societal and career relevance of STEM, leading to reported shifts in career aspirations, particularly at secondary level.

Of those interviewed, **all believed that the CREST Award has had a positive impact on pupil engagement with STEM subjects.** One Year 3 Science lead said:



"I chose CREST because it uses all other subjects from maths to PSHE and our pupils see science as having links to all these other subjects which they did not see before."

Another teacher, who worked in a First school stated that as Science lead they had seen a reluctance from teachers to let pupils "take control" of investigations. They stated that they often lead pupils through the investigation and then shared results at the end. Through involvement in the CREST awards, teachers have seen the benefit of stepping away from directing pupils during investigations and allowing them to take charge. This approach has significantly impacted pupils' engagement as they feel that they have "ownership and independence" and are not afraid to make mistakes as they are being led by the evidence they gather.

Furthermore, two teachers stated that through this independence, pupils were focussing on scientific skills without really knowing it and then they are translating these skills back into their science lessons.

One Primary school teacher and two secondary school teachers stated that as a result of doing the CREST Award pupils now saw a future in science and were more aware of the jobs available to them.



We were looking at building bridges and boats and they didn't see how this was linked to science. But now they seem to understand it's actually engineering, and this is a branch of science and a few of them are now saying "oh I could do that as a job".

Whilst all teachers believed that it had made pupils see the relevance of science in their daily lives, two teachers felt that their pupils were too young to link this to careers in their future. Another stated that they decided to change the name from Engineering club to Science club because when it was called Engineering club less girls attended. They felt that this was because there was an overall lack of understanding around the term and what it meant, however when it became Science club more girls attended.

In all interviewees, teachers commented on the gender divide in science within their schools. The uptake in the award from across the schools was split between girls and boys but 3 out of the 5 schools stated that taking part in the award did have a very positive impact on the number of girls attending and their views of science within their lives. One teacher said that the girls took a much more methodical approach to the award and therefore got more out of it whilst another said that the presentations which the girls created were of a much higher quality than that of the boys.

One Year 3 teacher explained how they saw a huge improvement in communication skills from Early Years to Year 6. This increased communication and:



The removal of social barriers allowed everyone to be engaged and come up with solutions together. They brainstormed and adapted their ideas which they came up with independently but worked through together as a team."

In one secondary school, the teacher stated that the pupils really began to see how Science related to their everyday lives. They had decided to focus on one project and chose the yeast one. By doing this, the teacher believed that through the investigation they were able to see the impact on industry and society, far beyond the science of making bread. Another secondary teacher discussed working on the fast fashion project and the opportunities within this to link science to a whole other range of roles and industries which pupils had previously not considered.

The impact of CREST Awards on teachers

4. How do teachers perceive the impact of the CREST Award on their practice?

KEY FINDING:



An overwhelming majority of staff felt that completing the CREST Awards raised the profile of STEM projects at their school as well as their own efficacy in delivering STEM project work.

95% of teachers agreed or strongly agreed with the statement, “Completing the CREST Awards has raised the profile of STEM projects at my school” (Figure 10).

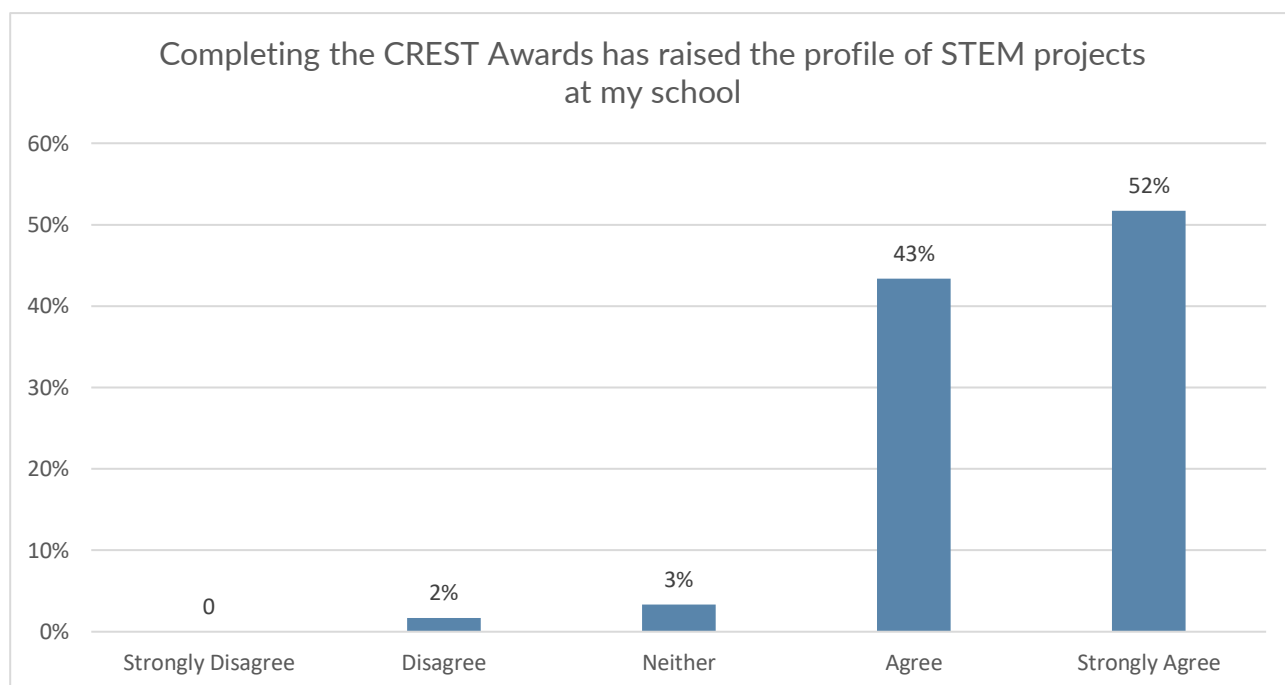


Figure 10: Teacher perception of whether the CREST Award had raised the profile of STEM

Equally, teachers were very positive about the impact of the award on their efficacy in delivering STEM project work (Figure 10).

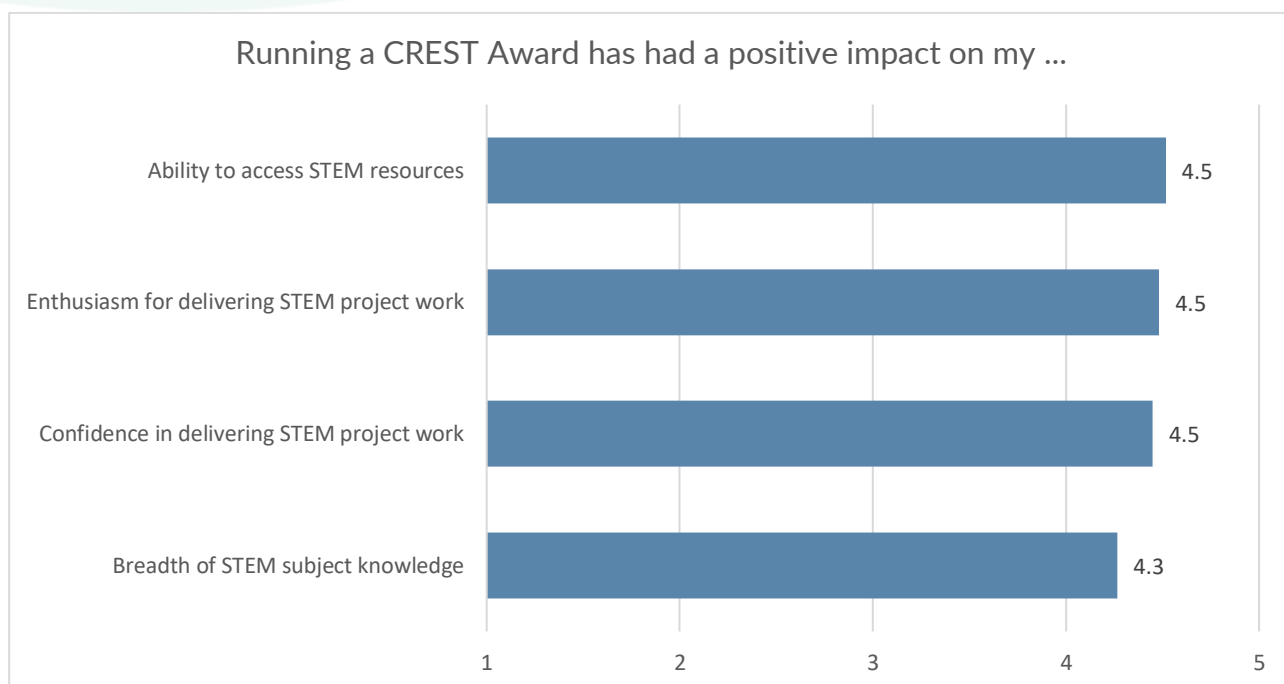


Figure 11: Teacher perception of impact of the CREST Award on their efficacy in delivering STEM projects

The Science leads who took part in the interviews all stated that because of their involvement in the CREST Awards they viewed teaching science differently. Before taking part in the Award, most interviewees felt that they were controlling in their science lessons and provided their pupils with a very strict, closed set of instructions which in many ways limited the investigative experience for their pupils. **Taking part in the CREST Award opened their eyes to the opportunities for really deepening scientific knowledge by allowing pupils to take complete charge of their own experiments and be led by their own thoughts and findings.** They also felt that they were now more confident themselves to lead these practical sessions and re plan to make lessons more dynamic and engaging.

3 out of the 6 teachers interviewed discussed that with such packed curriculums, teachers often felt great pressure to get everything covered and so do not allow opportunities for pupils to explore thinking scientifically. All stated that as a next step they were going to work towards feeling confident to step back somewhat from scientific investigations and allow pupils more opportunities for independent, scientific thinking.

Teachers views of the support offered to them

Only 18% of teachers used an Engage Buddy, with 37% using email advice and 48% using webinars and online surgeries. Around a quarter of teachers were not aware of Engage Buddies.

Table 6: The percentage using support services

	Unaware of it	Aware of it but didn't use it	Used it
CREST/Engage webinars and online support surgeries	10%	42%	48%
Support from an Engage Buddy	27%	55%	18%
Emailed advice from the Engage Teacher Network	20%	43%	37%

Teachers that used support services, were satisfied with them, with only very few finding services poor. Satisfaction levels are slightly lower for Support Buddies, however numbers using these services are low, so care should be taken in generalising from this.

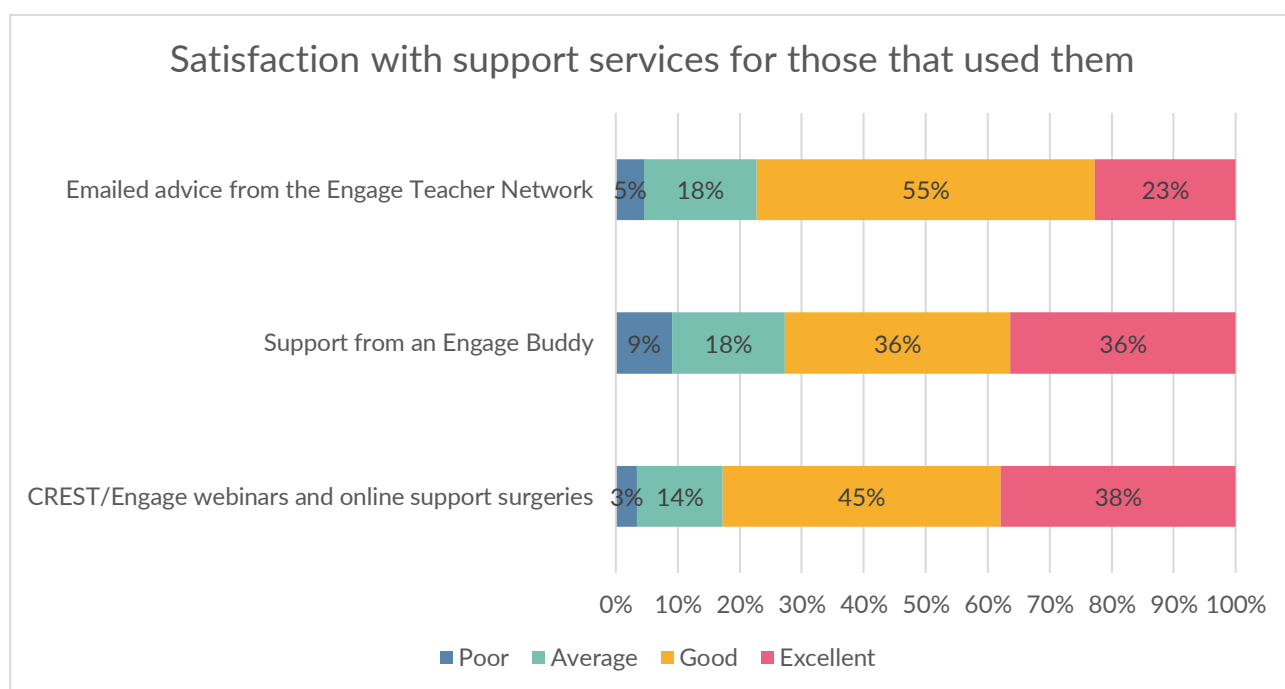


Figure 12: Satisfaction with support services for those that used them.

5. How do teachers feel about the implementation of the CREST Award at their school?

Data from the Light Touch and Deep Dive survey, as well as from Deep Dive interviews, can be grouped by the following themes related to implementation of CREST in their setting.

Barriers to implementation

Time Constraints

- **Curriculum Time:** Many schools report difficulties fitting CREST Awards into the limited curriculum time available.
- **Staff Time and Availability:** Teachers often struggle to find time to support CREST activities, especially outside regular classes or during extracurricular periods. There is frequent mention of an uneven workload falling on a few staff members.
- **Scheduling and Coordination:** Coordinating across multiple classes or groups while managing other responsibilities is challenging.

Funding and Financial Barriers

- **Lack of Funding:** Budgetary constraints are a widespread obstacle, limiting schools' ability to buy necessary resources and tools
- **Dependence on External Grants:** Many schools rely heavily on external funding (e.g., Engage grants) to run the awards; without such grants, running CREST might not be feasible.

Resource Limitations

- **Insufficient Materials:** A shortage of appropriate science resources, or specialised equipment hampers the delivery of some projects.
- **Human Resources:** Limited staff availability and expertise can restrict the number of students who can participate and managing students with SEND sometimes requires additional tailoring of tasks.
- **Space and Facilities:** Physical space to conduct large group science activities is sometimes lacking.

Curricular Priorities and Recognition

- **CREST's Lack of Formal Curriculum Value:** Because the awards do not contribute to GCSE grades, some teachers prioritise core curriculum teaching over CREST activities.
- **Need for Shorter Projects:** There's a desire for more manageable, shorter projects, particularly for lower-level awards (e.g., Discovery, Bronze), which could ease workload pressures and help engagement.

Other Specific Barriers

- **Scaffolding and Support:** Some students need tailored support and structured guidance, especially those in SEND settings.
- **Student Engagement:** Sign-up and attendance for extracurricular activities present challenges.
- **Large Group Management:** Managing awards with large groups can increase costs and complicate administration.

What Works

Ninety-eight percent (n=60) of teachers responding to the survey would run a CREST Award again in their school. Positive feedback regarding the implementation of CREST could be grouped by theme as follows:

- **Funding:** Funding is vital for running the awards. It gives access to resources and materials, that many schools—especially smaller or less well-funded ones—could not afford otherwise. Getting the funding is generally simple, with many appreciating how straightforward the application is.
- **Positive Impact on Pupils:** Pupils enjoy taking part, which builds excitement for STEM and helps link learning to STEM careers. The awards boost their confidence and independence.
- **Hands-on Learning:** Practical experiments and investigations are very popular and help pupils enjoy science more while learning the scientific method.
- **Inclusive Support:** The funding allows children with special educational needs and disabilities (SEND) and disadvantaged pupils to join in, making the awards more accessible for all.

Conclusions

The findings from this pilot evaluation indicate that the CREST Awards programme likely delivers tangible benefits for pupils and teachers and that expanding this evaluation approach and refining the tools would be of benefit.

Quantitative analysis revealed a particularly **strong and statistically significant positive effect on pupils' grit at both KS2 and secondary levels**, suggesting that the Awards help build perseverance and the capacity to overcome challenges—skills widely recognised as critical for success in education and beyond. While motivation and self-efficacy outcomes showed mixed patterns across key stages, the qualitative evidence suggests that these measures may be influenced by contextual factors and age-related differences in engagement.

Teachers' testimonies were consistent and compelling. Across primary, secondary, and further education settings, **educators reported notable gains in pupil confidence, independence, teamwork, and communication skills**. Many described pupils developing the ability to negotiate, problem-solve, and collaborate beyond their usual friendship groups. The Award's emphasis on open-ended, pupil-led investigation appears to have been a key driver of these outcomes, enabling pupils to see science as relevant, interconnected with other subjects, and applicable to real-world contexts. In several cases, this led directly to shifts in pupils' perceptions of potential STEM career pathways.

The impact on inclusion was particularly noteworthy. **Schools that intentionally engaged students with SEND and those from disadvantaged backgrounds reported transformative effects, both in terms of pupil engagement and changes to staff perceptions of what these learners could achieve in practical STEM environments**. Targeted adaptations—such as simplified resources—enabled wider participation and challenged pre-existing assumptions about the suitability of STEM for certain groups. Such adaptations not only benefitted the targeted pupils but also enriched the collaborative learning environment for all.

Teachers themselves reported a significant pedagogical shift. Prior to the awards, many felt constrained by the demands of a packed curriculum and were inclined to deliver science through tightly controlled, step-by-step methods. The CREST Awards encouraged them to step back, allow pupils to lead, and embrace investigative uncertainty—changes which they believe have increased both the depth of pupil learning and their own professional satisfaction.

However, the evaluation also highlights barriers to sustainability. **Funding was a recurrent challenge**, and in some cases a determining factor in whether schools could participate in future. **Time constraints** also presented difficulties, with some projects being compressed into lunch or break periods. While some schools had developed succession plans or embedded CREST approaches into the curriculum to mitigate these risks, others expressed uncertainty about future participation without external support.

In summary, this evaluation has provided strong early evidence of its capacity to foster perseverance, collaboration, and STEM engagement across diverse pupil groups, while also promoting inclusive practice and shifting teacher pedagogy.

Glossary

Evaluation terminology

Control Group

A control group is composed of students who do not participate in the programme and who closely resemble the pupils who take part in the programme in attainment and demographic traits. It is used to get an indication of whether a change in results over the course of the programme can likely be attributable to the programme itself, or whether results were likely to change over time in any case. Also known as a comparison group.

Evaluation

An evaluation is set up to measure the impact of a particular programme. This will involve monitoring the programme over a specified period, for one or more groups, in order to evaluate the progress participating pupils make. One programme can involve multiple evaluations, and we recommend gathering data across multiple time points to ensure valid and reliable results are generated.

Final

The final assessment of pupils' attainment or social and emotional skills at the end of an evaluation.

Outcomes

We use outcomes to refer collectively to any social and emotional skills and academic attainment scores that are being measured over the course of an evaluation.

Participating pupils

The group of pupils participating in the evaluation and not forming part of a control group.

Programme

This could be any intervention, project or programme run in school with the aim of improving pupil outcomes or life chances.

Statistical analysis terminology

Statistically significant

A result has statistical significance when it is very unlikely to have occurred given the null hypothesis. In other words, if a result is statistically significant, it is unlikely to have occurred due purely to chance.

P Value

A p-value is a measure of the probability that an observed result could have occurred by chance alone. The lower the p-value, the greater the statistical significance of the observed difference. Typically a p-value of ≤ 0.05 indicates that the change was statistically significant. A p-value higher than 0.05 (> 0.05) is not statistically significant and indicates strong evidence for the null hypothesis; i.e. that we cannot be confident that this change did not occur due purely to chance.

Appendix A: Results for propensity score matching the three main outcomes for the full pupil survey.

The number of available comparison cases for each outcome is shown in Table 6, along with a metric for the largest difference between the CREST pupils and comparison pupils for any characteristic using the *standardised mean difference* (SMD)⁴. There were 14,644 possible comparisons for 'grit' and after matching, both groups were very similar. There were 1,208 possible matches for 'motivation', where the SMD for one of the characteristics (school year group) was 0.37; although this exceeds the ideal threshold of 0.20 for "well matched" groups, most group differences were still acceptably small. There were 1,284 available matches for 'self-efficacy', with an SMD of 0.37 for school year group; again, other group differences were acceptably small.

Table 6: Results for propensity score matching by variable showing the total pool available and largest SMD after matching

Outcome	Comparison pool available	Largest SMD after matching	Number of characteristics with SMD > 0.20	Balance interpretation
Grit	14,644	0.17	0	Well balanced – all covariates below 0.20 threshold
Motivation	1,208	0.37	1	One characteristic slightly above ideal (0.20), but still acceptable
Self-efficacy	1,284	0.37	1	One characteristic slightly above ideal (0.20), but still acceptable

⁴ The *standardised mean difference* (SMD) is a way to compare how different two groups are, using standard units. An SMD of 0 means no difference at all; values below 0.10 are considered negligible, and below 0.20 are generally acceptable for meaningful comparisons.

Case study 1: Bishop Burton

Case study 1 comes from a Higher Education college where the Laboratory Manager oversaw implementing and delivering the CREST Award to a selection of students with SEND. The participant's role was to run the teaching labs and ensure that courses such as farming and agriculture were available. The participant stated that science was not a key priority within the college and that other subjects were viewed more highly so this was a driving force for them to enrol in the CREST Awards.

They really wanted to promote science within the school with a particular emphasis on making science accessible for pupils with additional needs who they felt had been discouraged from doing any subjects which involved lab work. They felt that there had been concerns over health and safety around students with SEND using the labs and felt that this was something which needed to be challenged.

They believed that involvement in the CREST Award had a significant positive impact on pupil confidence and self-worth and are going to continue to take part in the future.

The participant stated that the CREST Award was perfect for pupils with SEND because of the different levels and options available to them meaning they could choose a level which made it accessible for them. They stated that the pupils absolutely loved being in the labs and practically applying their learning.

As it was lab based, the pupils were exposed to not only lecturers but lab technicians as well as other students who they had not met before, which helped them develop their social and communication skills. They were out of their comfort zones and although they were uncertain at first by the end of the project, they had all improved massively. Furthermore, at the beginning they were anxious to work independently but because of the expectations of the CREST Award they were pushed to become more independent thinkers and again this had a significant impact on their communication skills and confidence.

Whilst the participant was unable to quantify the exact improvement in scientific knowledge and the desire to work in science because of the award, they felt that pupil awareness and engagement with science as something accessible to them and as a subject in which they could be successful did improve directly.

The participant also felt that not only did it change pupils' views on science but also other lecturers' views. Where people had previously seen the labs as inaccessible for pupils with SEND, they were now seeing the positive impact it was having. Other students from across the college heard of the award and were approaching the Laboratory Manager asking to get involved next year.

Case study 2: City Fields

The Associate Assistant Principal and STEM lead had been tasked with trying to get more pupils involved with science across the school and spoke very highly of the impact the CREST Award was having on pupil engagement with science across the school.

Despite budget constraints and some of the pupils initially dropping out of the award, the 15 that remained had an excellent experience and they believe it has changed their mindset around STEM and what future opportunities could be available to them if they were to pursue these subjects further. Furthermore, the participant believed participation in the CREST Award had a very positive impact on girls' attitudes towards STEM making it seem more relatable and accessible to them with potential careers in the field, achievable.

The participant explained that every Wednesday a group of students from across years 7-10 came to take part in the award. They said that initially they had very niche groups who stuck to their own year groups but as a result in taking part in the award they became friendly with each other. They were forced through the award to develop teamwork skills and communicate with others outside of their comfort zones and this improved not only their confidence but also their communication skills. They had to share results with one another and talk about their findings and often in larger class settings some of these pupils would have been reluctant to do this.

They stated that of those who initially joined all the boys dropped out but the girls remained. This is not something they expected and historically within their school, girls were more reluctant to engage with STEM subjects but because of the award and the way the language is presented, girls found it more appealing.

Their sense of achievement, as a team working towards a shared goal, had a huge impact on pupil confidence and self-worth and they held each other to account if someone was not doing their role 100 per cent!

The biggest achievement they felt was how organised the pupils became in their scientific process and how they followed this meticulously in each session as a team.

The teacher felt that because of the packed curriculum often these enrichment opportunities are the only time that they can encourage and allow pupils to explore the fun side of science. As a teacher they believe that through delivering these science projects in such a way they have become better practitioners. Because of the time constraints they explained that often in class they would be very directive and controlling around what pupils were doing but you could not do this in the CREST Award- it had to be led by the pupils and teachers began to see how this positively affected their scientific thinking and reasoning and let go a bit more in lessons!

Case study 3: Ombersley

In one Primary school a co-Science lead at a First school implemented the CREST Award because they had used it at a previous school and valued the impact it had when improving pupil engagement with science.

As a First school they only go up to Year 4 and so they thought it was important that Year 3 and 4 had the opportunity to engage with scientific opportunities outside of their lesson times. They opened it up to older pupils as a lunchtime club and described it being "absolutely rammed every lunchtime!" They said that pupils were desperate to be part of it and that they repeatedly come every week despite it being during their lunchtime.

They believe that it was so appealing because in class science is driven by curriculum expectations and therefore quite content heavy and for some pupils this is very challenging. The joy of the CREST Award is that pupils can take charge of their own learning and feel a sense of pride in their achievements. They said that science lessons in class could be relatively prescribed but in the CREST sessions the teachers were 'almost quite cruel' and forced the pupils to think and work independently with minimal instruction and this had a significant positive impact on their confidence, resilience and teamwork.

The participant explained that they completed the bridge experiment where they had to build a bridge and see how much weight it could carry. Even though they wanted their bridge to be the most successful, the participant explained that 'they were really on the fair testing and wanted the results to be accurate even though it meant they might not win.' They were really impressed with this resilience and development of a key scientific skill. Teachers have seen these scientific skills being used in class alongside increased resilience and independence and they believed this was helped hugely by their involvement in the CREST Award.

They also had to make boats out of paper which, at first, they were reluctant to do because they kept saying they would just sink. However, when they began to try out different types of boats and surface areas they were fascinated by the results and came up with loads of different ideas and designs to try and test their new knowledge.

Furthermore, when they talked about building bridges and boats, a lot of the children did not realise that these were things which required science and began to see the wider range of opportunities available to them because of the exposure they had through CREST.

They felt that there was a higher intake of girls this year because they changed the name from engineering to science club. They felt that engineering was a term the girls in their school typically associated for some reason with boys and so would not engage. However, this change in name had a significant impact on the number of girls attending who began to see the opportunities available to them through all STEM subjects.

Case study 4: St Mary's Catholic Academy

One Science teacher from a Secondary Academy ran a STEM club for Years 7-9 every week. They decided to take part in the CREST Award so that they were able to do something practical with their pupils which would remove the fear some pupils had around science. They explained that many pupils were intimidated by science and felt that they just didn't and would never understand it. The biggest impact on the pupils was their confidence around science. By giving them a problem and removing the fear of getting things wrong, the pupils were able to explore and make mistakes and see that these mistakes were in fact beneficial to their experiments. They became resilient and were able to bounce back and carry on if things didn't go exactly to plan and "it was a real pleasure to watch them grow like this."

The participant explained that they decided to choose the fast fashion project because they thought this would appeal to a wider range of students. They feel that this was a great decision as pupils suddenly saw science as being relevant, this was a topic they all felt passionately about, and they explained that the pupils put so much effort into it because they could see how it directly impacted their lives and their futures.

They explained that the club was voluntary so the pupils who came were the pupils you would expect to come but that there was an equal split between girls and boys. They felt that girls in general put more effort into the presentation side of the award and approached the experiments more methodically whilst the boys needed a bit of "reining in". Although they tried to make it as accessible and diverse as possible, they found that for pupils eligible for Pupil Premium it was difficult for them to access the resources, and they were unable to do any of the work at home.

The participant commented that for all pupils, whereas during the STEM club they did a different experiment every week, with the CREST Award it was much more realistic in terms of research and write ups, so some pupils grew tired of it by the end and even the certificates were not enough of an incentive to complete. They have thought about adapting the structure a little so that they are still completing the award but without the disengagement towards the end.

Cast study 5: Higham

The science lead in Case study 5 believed that the biggest impact the CREST Award had on pupils was their communication skills and their independence. From early years to year 6 they felt that those who took part had to work together to discuss ideas and come together to make final decisions on how to proceed.

They had to “listen, adapt and engage” with each other, without teacher input and this was quite new for some pupils. As a result of taking part, they now work more collaboratively across subjects and are more capable of adapting to meet the needs of a group rather than getting upset their ideas were not chosen.

They believe that because of their involvement pupils were questioning things more and changed their view of what a scientist was. They began to see it as something wide-reaching and accessible to them and wanted to know about how things worked and why things were done in certain ways. They explained that they saw this questioning in more subjects across the school and other teachers noticed it too. It helped to change the whole school's attitude towards science and other STEM subjects as teachers were more prepared to complete practical science lessons, where the pupils lead and where they could step back more and let them question the science independently.

Additional analysis

Reasons for students not completing their CREST Award

Teachers were asked for any reasons that pupils did not complete their CREST Award. The below is a thematic summary of their responses:

Time constraints and scheduling conflicts (approximately 25% of responses) represent the most frequent barrier pupils face. "There was a clash for some students with clubs running at the same time" and pupils are "Unable to attend due to other commitments." Several responses mention insufficient participation: "Had other commitments to attend so couldn't complete the required hours" and "Time constraints. Pupils are still working through the awards but may not finish by the July deadline."

Engagement and academic difficulties (approximately 20% of responses) feature prominently, with "Some struggled with the written work or found their chosen project too difficult" and "There were students who struggled to engage in the projects and some who struggled to complete all the required tasks." Some pupils showed specific preferences: "some did not like that it wasn't experiment after experiment" and some responses noted general "Non-engagement" and "lack of effort."

General/unexplained absence (approximately 12% of responses) includes "Student absence," "Absences," and "persistent absence" without specific underlying causes identified.

Health, behavioural, and SEND issues (approximately 10% of responses) include specific barriers such as "Didn't complete the day due to behaviour, illness, appointments," "Absence (as a hospital school attendance can be a barrier)," and "SEND needs."

Implementation challenges (approximately 5% of responses) include "Other activities taking place during science week - some teachers prioritised the other activities over the CREST award activities."

Month of completion

Teachers were asked to share the date that their students completed their CREST Award.

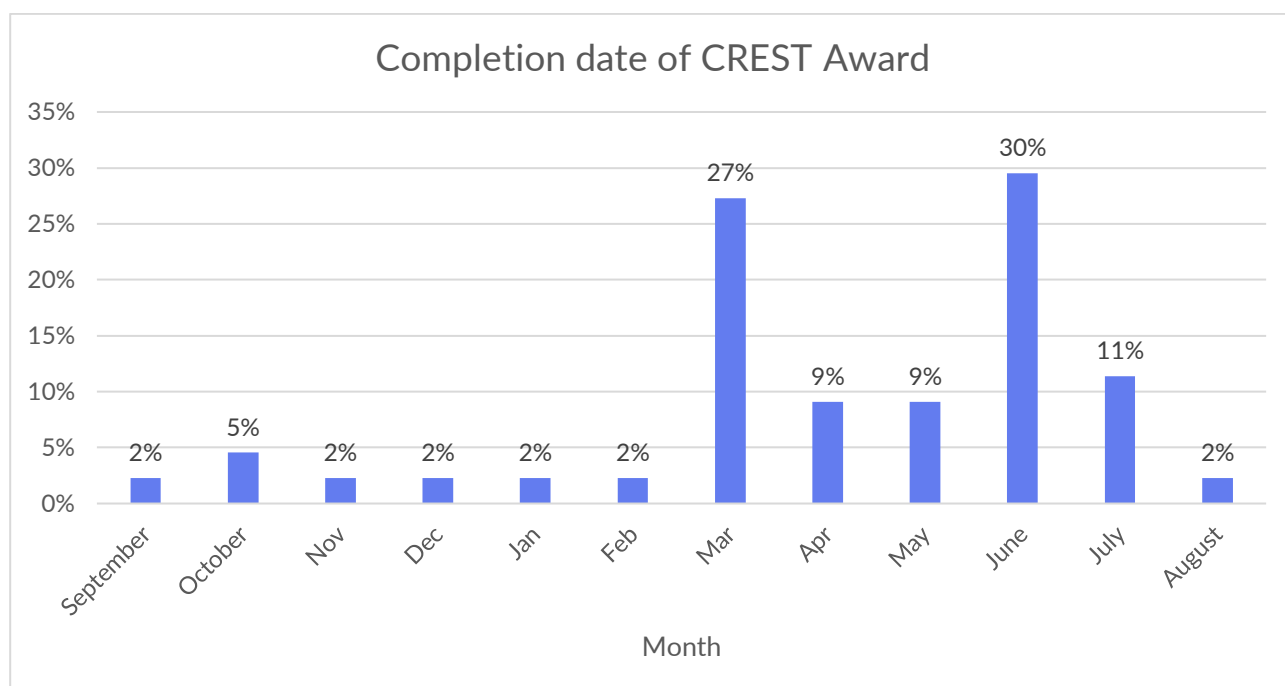


Figure 13: *Completion date of CREST Award.*

March (27%) and June (30%) were the months during which the largest proportion of CREST Awards were completed.

Students' attitudes towards science, technology, engineering and maths

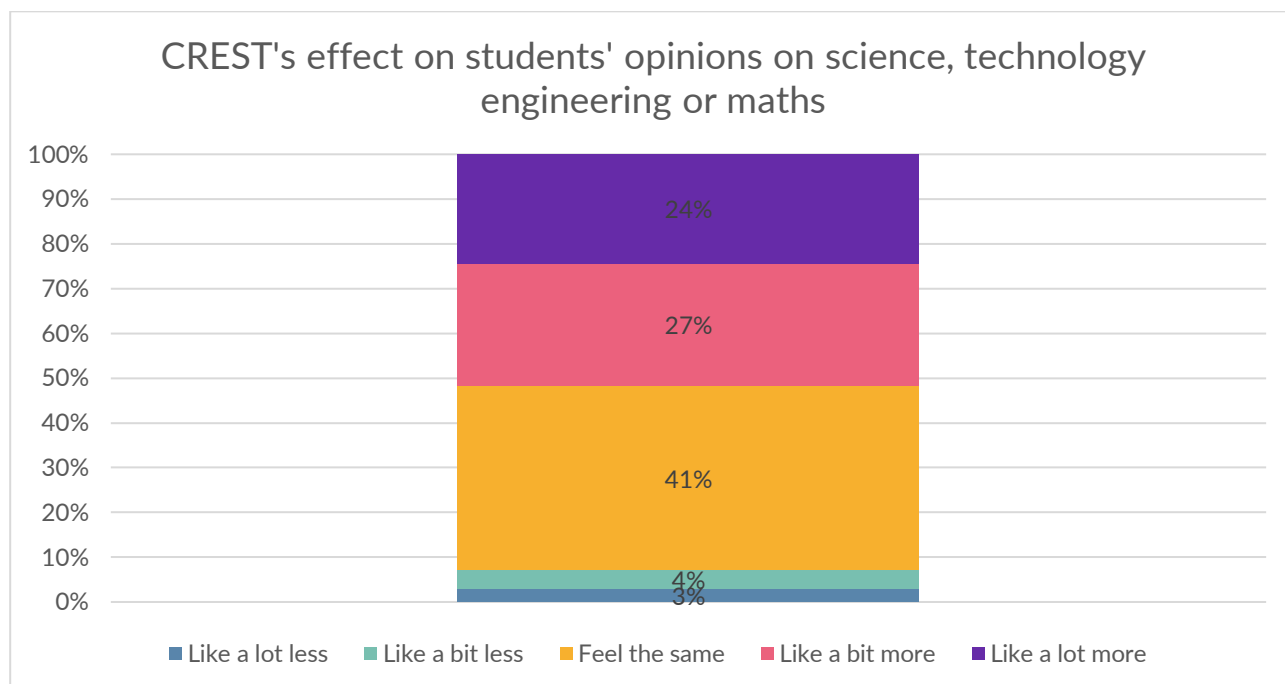


Figure 14: Completion date of CREST Award.

51% of students felt that participating in the CREST Award meant that they now like science, technology, engineering or maths “a bit more” or “a lot more”. 41% of students felt that CREST had resulted in them feeling the same about those subjects.

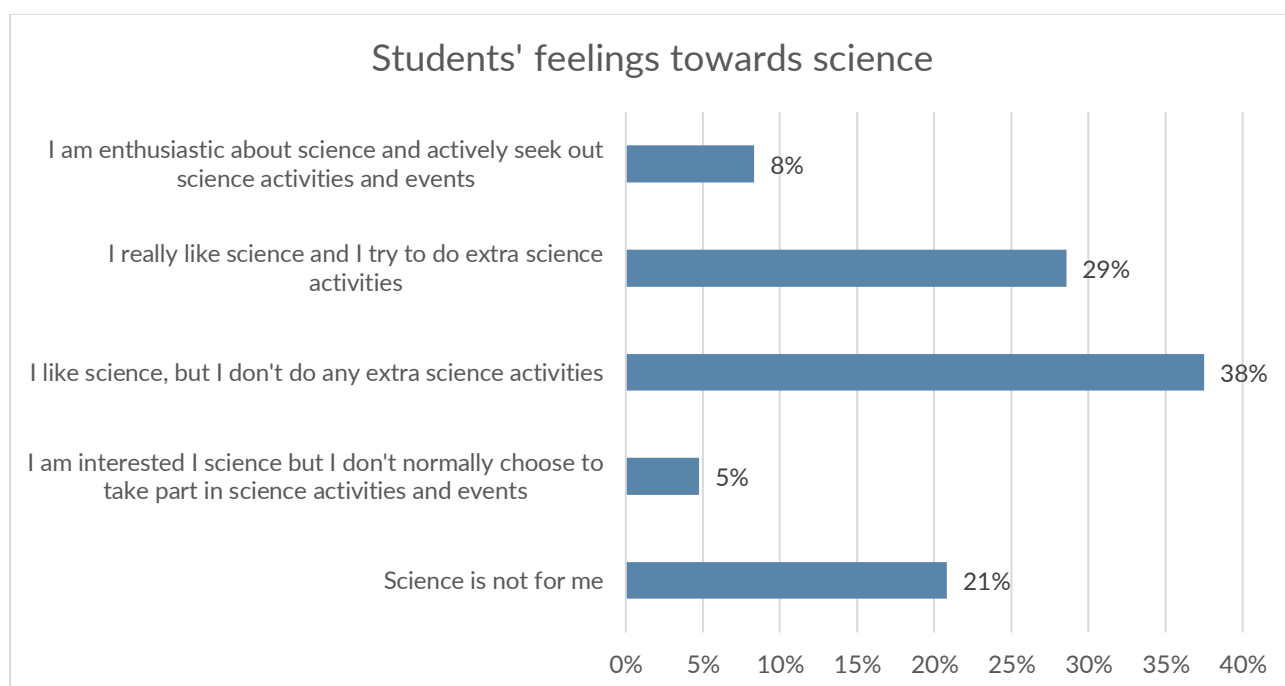


Figure 15: Students' feelings towards science.

Most students (38%) stated that they like science, but that they don't do any extra scientific activities. Just over one fifth of students (21%) did not feel that science was for them.

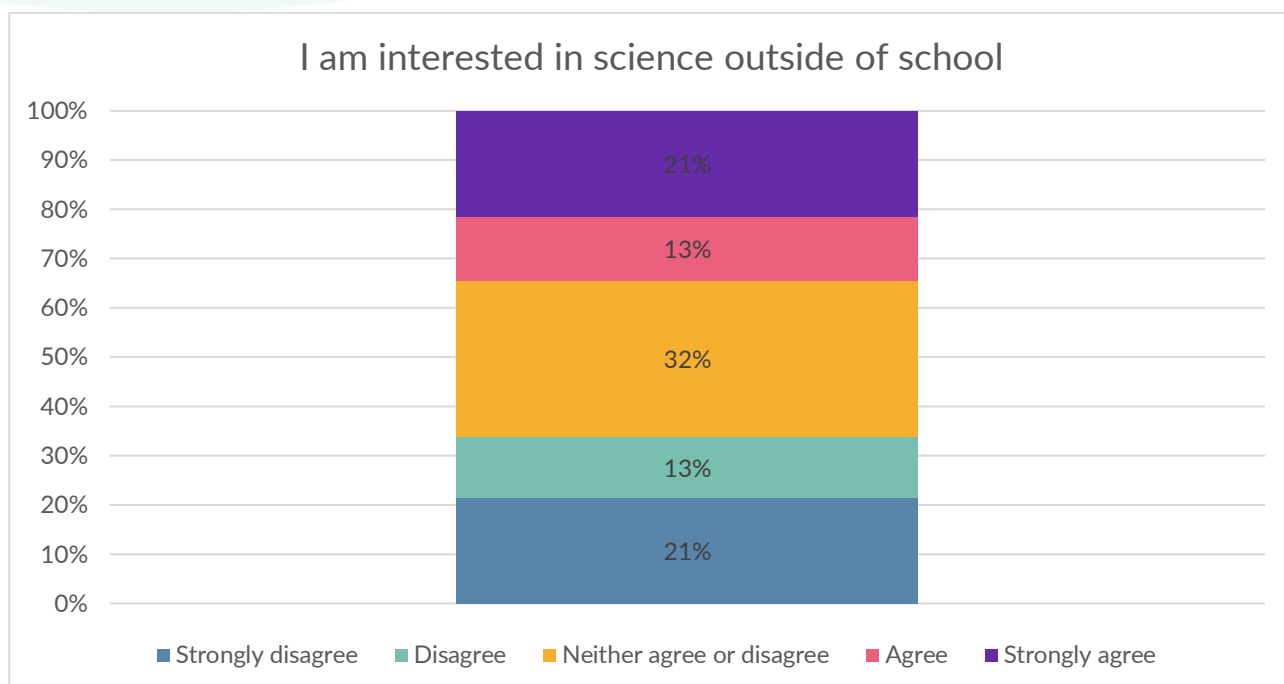


Figure 16: *Students' interest in science outside of school*

34% of students agreed or strongly agreed with the statement, "I am interested in science outside of school."



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