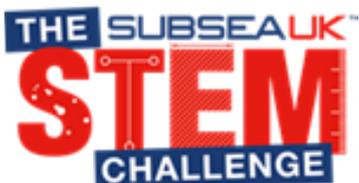


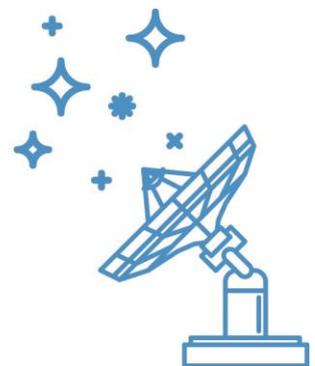
# Final Report 2020



# The Smallpeice Trust

*2020 Subsea UK STEM Challenge*

*Regional Events and Aberdeen Final Report  
and Statistical Analysis*



1.0 OVERVIEW OF YOUR SUPPORT 4

2.0 PROJECT DEVELOPMENT AND CREST AWARDS 5

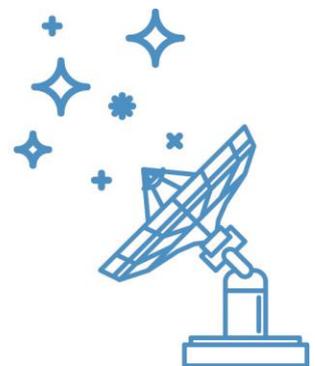
3.0 REGIONAL EVENTS 6

4.0 ABERDEEN FINAL 7

5.0 FEEDBACK AND CONCLUSION 8

APPENDIX A- PARTICIPATING SCHOOLS 9

APPENDIX B – FEEDBACK ANALYSIS 11



## 1.0 OVERVIEW OF YOUR SUPPORT

For the third year The Smallpeice Trust has worked with Subsea UK to develop and deliver a programme of STEM activities to promote the subsea industry and associated careers.

The Smallpeice Trust developed an exciting, hands-on project that could be delivered as part of the programme. The project was British Science Association accredited.

The Smallpeice Trust were also tasked to engage with school across six regions to recruit teams to participate in regional challenges. A full list of the regions and the participating schools can be found in **Appendix A**.

The Smallpeice Trust delivered an exciting STEM challenge at each of the regional events. The winning team from each of the regional events was invited to a national final hosted at P & J Live in Aberdeen.

At the national final, participating students completed a range of activities including a follow-on challenge developed by The Smallpeice Trust that enabled students to apply for The British Science Association Crest Discovery award.

The programme was a huge success. Feedback shows the students and teachers highly valued the initiative.



## 2.0 PROJECT DEVELOPMENT AND CREST AWARDS

The original project developed during the 2017-18 academic year focused on Subsea ROVs. This project was also used in the 2018-19 academic year and the decision was made to use this project again in the 2019-20 academic year as it was popular with students and remained relevant to the subsea industry.

In the challenge, participants used Lego Mindstorms and iPads to build and programme their own ROVs, which had to navigate around a subsea terrain without human interaction. This activity is a good introduction to drag and drop programming, with the introductions of functions like loops and switches.

For the final in Aberdeen The Smallpeice Trust developed an expansion of the original project. This involved a more complicated programming challenge and the addition of a grab arm into the build. Whilst students were given instructions to create a grab arm, most teams designed and built their own working ones by themselves. The programming aspect also grew to include an infrared sensor and a beacon that emitted a signal they could trace. They also used an ultrasonic sensor to navigate the three-dimensional map created especially for the final. The additional work allowed the project to become British Science Association accredited.

The Subsea Challenge was designed to comply with the CREST Discovery Award guidelines, which state that “Discovery Awards offer an introduction to real project work and give students the freedom to run their own investigations. They can be completed in one day, with students working together in self-managed groups. Students work in groups to solve a STEM challenge, or challenges, with minimal adult intervention.”



## 3.0 REGIONAL EVENTS

The Smallpeice Trust ran a campaign to engage with schools across six regions (Manchester, Port of Blyth, Norwich, Glasgow, Inverness, Bristol). Within each region a maximum of ten school teams were recruited. A full list of each region and the teams can be found in **Appendix A**.

A full breakdown of the student feedback is included in **Appendix B**. Headlines for the programme include:

- 253 students participated in the regional programme (116 Female, 137 Male)
- 45 teams from 33 schools participated in the programme
- 98% of participants stated they enjoyed the day
- 94% said that because of the programme they now know how STEM is used in the Subsea sector
- 63% said that they would now consider a career in the Subsea sector.
- 100% of the teachers rated the programme as good or excellent and said they would recommend the programme to other schools.

Some teachers' comments included

- "It was great meeting real life engineers and putting classroom learning into practice"
- "It was a great opportunity for students to see industry"
- "Good experience for pupils, shows relevance for industry"
- "Great day out to show pupils local industry opportunities"
- "Positive links to ethical issues"

The winning team from each event was invited to attend the national final in Aberdeen.



## 4.0 NATIONAL FINAL

The national final was hosted at P & J Live in Aberdeen on 6<sup>th</sup> March 2020. Teams from the following schools attended:

- St. Damians Roman Catholic Science College - Manchester
- St. Mary's Catholic School – Port of Blyth
- Northgate High School - Norwich
- Hyndland Secondary School - Glasgow
- Millburn Academy - Inverness
- Bristol Free School - Bristol

The schools completed a follow-on ROV challenge that allowed them to receive the CREST Discovery award and received presentations from Subsea UK and their partners.

Subsea UK representatives and their partners selected Northgate High School from Norwich as the overall winner. The school's teacher commented that "The event was very engaging and offered opportunities that are otherwise unavailable".

Some student feedback included:

- "The activity was great; I can't think of a way to make it better"
- "I have improved my team communications and have learnt about real subsea jobs"

Some teacher feedback included:

- "Very well organised and delivered. Pupils and staff very much enjoyed the day"
- "Excellent level of challenge and opportunity for students"
- "Excellent, well-run event with lots of industry represented"



## 5.0 FEEDBACK AND CONCLUSION

The Subsea UK STEM Challenge received extremely positive feedback. The participating students enjoyed and benefited from all elements of the programme. Students had the opportunity to engage with, and learn from, real role model engineers and worked on a project reflecting the modern challenges facing the Subsea Industry; this is an opportunity they don't have in school.

The addition of CREST gives students the added benefit of a recognised certificate that can be used to demonstrate what they have achieved.

The Smallpeice Trust welcomes the opportunity to work with Subsea UK on the programme in the future.



# APPENDIX A – PARTICIPATING SCHOOLS

## Manchester

Cardinal Langley Roman Catholic High School Team 1
St Damian's RC Science College Team 1
William Hulme's Grammar School
Atherton Community School
Cedar Mount Academy Team 1
Cardinal Langley Roman Catholic High School Team 2
St Damian's RC Science College Team 2
Blessed John Henry Newman Roman Catholic College
Cedar Mount Academy Team 2

## Port of Blyth

Churchill Community College
St. Mary's Catholic School Team 1
The Blyth Academy Team 1
Newcastle School for Boys
Benfield School
Royal Grammar School
The Blyth Academy Team 2
St. Marys Catholic School Team 2

## Norwich

SET Beccles School
The Hewett Academy Team 1
Norwich School
Northgate High School
Open Academy Team 1
North Walsham High School
The Hewett Academy Team 2
Thorpe St. Andrews School
Sewell Park Academy
Open Academy Team 2



**Glasgow**

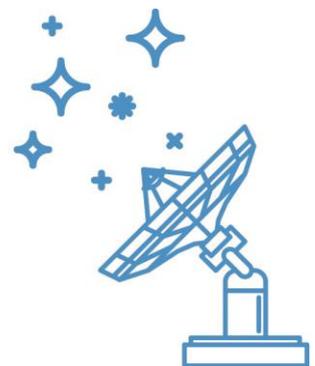
St. Magaret Mary's
Cleveden Team 1
Cleveden Team 2
Hyndland Secondary School
Turnbull High School
St. Stephens
Bellahouston Academy

**Inverness**

Alness Academy Team 1
Millburn Academy Team 2
Charleston Academy Team 1
Inverness High School
Grantown Grammar School
Alness Academy Team 2
Millburn Academy Team 1
Charleston Academy Team 2

**Bristol**

Bristol Free School Team 1
Bristol Free School Team 2
Abbeywood Community School



## APPENDIX B – FEEDBACK

Teacher Evaluation		
Question		Total
Worked with Smallpeice before?	Yes	8
	No	29
How were pupils selected?	Class/Yr Group	8
	Gifted & Talented	8
	Student interest	19
	D&T Set	2
	Random	5
	Other	5
General pupil aptitude/ability	High	17
	Average	7
	Low	1
	Mixed	10
General level of pupil interest in the day	Enthusiastic	33
	Average	3
	Low	0
Please rate the standard of the project/s	Low 1	0
	2	0
	3	1
	4	11
	High 5	24
How would you rate the delivery of the day?	Excellent	19
	Good	14
	Fair	3
	Poor	0
How would you score the day?	Excellent	23
	Good	13
	Fair	0
	Poor	0
Do you feel the day has addressed any of the following curriculum areas?	Science	29
	Maths	9
	Design & Technology	21



## Combined Student Feedback

STEM Day Secondary - All Student Distribution		Strongly Agree	Agree	Disagree	Strongly Disagree	Total
S1	I enjoyed the day	54%	44%	2%	0%	100%
S2	I learned new things	41%	54%	5%	0%	100%
S3	I am more confident in my team working skills	27%	60%	11%	2%	100%
S4	I now know more about how Science, Technology, Engineering, and Maths are used	39%	55%	6%	0%	100%
S5	I feel inspired about what Engineers do	30%	56%	13%	1%	100%
S6	This day has made me further consider a career in the Subsea sector	14%	49%	29%	9%	100%

## Female Student Feedback

STEM Day Secondary - Female Student - Distribution		Strongly Agree	Agree	Disagree	Strongly Disagree	Total
S1	I enjoyed the day	57%	41%	2%	0%	100%
S2	I learned new things	43%	53%	4%	0%	100%
S3	I am more confident in my team working skills	32%	57%	8%	3%	100%
S4	I now know more about how Science, Technology, Engineering, and Maths are used	39%	56%	4%	1%	100%
S5	I feel inspired about what Engineers do	26%	55%	16%	3%	100%
S6	This day has made me further consider a career in the Subsea sector	14%	46%	31%	9%	100%

## Male Student Feedback

STEM Day Secondary - Male Student - Distribution		Strongly Agree	Agree	Disagree	Strongly Disagree	Total
S1	I enjoyed the day	54%	45%	1%	0%	100%
S2	I learned new things	42%	54%	4%	0%	100%
S3	I am more confident in my team working skills	24%	65%	10%	1%	100%
S4	I now know more about how Science, Technology, Engineering, and Maths are used	41%	52%	7%	0%	100%
S5	I feel inspired about what Engineers do	32%	57%	11%	0%	100%
S6	This day has made me further consider a career in the Subsea sector	12%	50%	27%	10%	100%

## Prefer Not To Say Feedback

STEM Day Secondary - Unknown Gender Student - Distribution		Strongly Agree	Agree	Disagree	Strongly Disagree	Total
S1	I enjoyed the day	41%	56%	4%	0%	100%
S2	I learned new things	33%	56%	11%	0%	100%
S3	I am more confident in my team working skills	21%	54%	21%	4%	100%
S4	I now know more about how Science, Technology, Engineering, and Maths are used	30%	63%	7%	0%	100%
S5	I feel inspired about what Engineers do	33%	52%	15%	0%	100%
S6	This day has made me further consider a career in the Subsea sector	19%	52%	26%	4%	100%



## National Final Feedback Teacher

Teacher Evaluation		
Question		Total
New to Smallpeice Trust	Yes	5
	No	5
How were pupils selected?	Class/Yr Group	3
	Gifted & Talented	2
	Student interest	5
	D&T Set	0
	Random	0
	Other	2
General pupil aptitude/ability	High	10
	Average	0
	Low	0
	Mixed	0
General level of pupil interest in the day	Enthusiastic	10
	Average	0
	Low	0
Please rate the standard of the project/s	Low 1	0
	2	0
	3	0
	4	1
	High 5	9
How would you rate the delivery of the day?	Excellent	9
	Good	1
	Fair	0
	Poor	0
How would you score the day?	Excellent	10
	Good	0
	Fair	0
	Poor	0
Do you feel the day has addressed any of the following curriculum areas?	Science	9
	Maths	5
	Design & Technology	9
	Engineering	10
	Inclusion	5
	Personal learning & thinking skills	10
Would you request another STEM day?	Yes	10
	No	0
Would you recommend a STEM day to another school?	Yes	10
	No	0



## Combined Student Feedback

STEM Day Secondary - All Student Distribution		Strongly Agree	Agree	Disagree	Strongly Disagree	Total
S1	I enjoyed the STEM Day	80%	20%	0%	0%	100%
S2	I learnt new things	47%	53%	0%	0%	100%
S3	I am more confident in my team working skills	47%	50%	3%	0%	100%
S4	I now know more about how STEM are used in the wider world	40%	53%	7%	0%	100%
S5	I feel inspired about what Engineers do	63%	33%	3%	0%	100%
S6	This STEM Day has made me further consider a career in STEM	38%	41%	21%	0%	100%

## Female Student Feedback

STEM Day Secondary - Female Student - Distribution		Strongly Agree	Agree	Disagree	Strongly Disagree	Total
S1	I enjoyed the STEM Day	92%	8%	0%	0%	100%
S2	I learnt new things	42%	58%	0%	0%	100%
S3	I am more confident in my team working skills	50%	50%	0%	0%	100%
S4	I now know more about how STEM are used in the wider world	50%	50%	0%	0%	100%
S5	I feel inspired about what Engineers do	58%	42%	0%	0%	100%
S6	This STEM Day has made me further consider a career in STEM	27%	45%	27%	0%	100%

## Male Student Feedback

STEM Day Secondary - Male Student - Distribution		Strongly Agree	Agree	Disagree	Strongly Disagree	Total
S1	I enjoyed the STEM Day	71%	29%	0%	0%	100%
S2	I learnt new things	47%	53%	0%	0%	100%
S3	I am more confident in my team working skills	41%	53%	6%	0%	100%
S4	I now know more about how STEM are used in the wider world	29%	59%	12%	0%	100%
S5	I feel inspired about what Engineers do	65%	29%	6%	0%	100%
S6	This STEM Day has made me further consider a career in STEM	41%	41%	18%	0%	100%

## Prefer Not to Say Feedback

STEM Day Secondary - Unknown Gender Student - Distribution		Strongly Agree	Agree	Disagree	Strongly Disagree	Total
S1	I enjoyed the STEM Day	100%	0%	0%	0%	100%
S2	I learnt new things	100%	0%	0%	0%	100%
S3	I am more confident in my team working skills	100%	0%	0%	0%	100%
S4	I now know more about how STEM are used in the wider world	100%	0%	0%	0%	100%
S5	I feel inspired about what Engineers do	100%	0%	0%	0%	100%
S6	This STEM Day has made me further consider a career in STEM	100%	0%	0%	0%	100%

