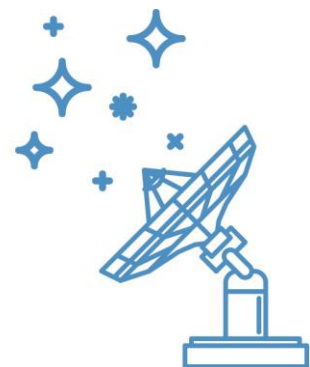




# Final Report 2021\22

# The Smallpeice Trust

*2021/22 Global Underwater UK STEM Challenge  
Regional Events and Aberdeen Final Report and  
Statistical Analysis*



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## 1.0 OVERVIEW OF YOUR SUPPORT

The Smallpeice Trust has worked with the Global Underwater Hub to deliver a programme of STEM activities to promote the subsea industry and associated careers.

The Smallpeice Trust ran an exciting, team based, hands-on project as part of the programme. The project was British Science Association accredited.

The Smallpeice Trust were tasked to engage with schools 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 in Aberdeen.

At the Aberdeen 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.

A teacher from Bristol said, “This is the most worthwhile event, our students were so thankful for the opportunity.”

A teacher from Glasgow said “The content and pace of the day is great, there is a part for everyone in the team. Relevant to all STEM Curriculum”

A teacher from Manchester said “Excellent day for all involved. The students loved the whole experience”

A student from Caldicot School said “this day doesn’t need to be improved its great as it is!”

A student from Bristol free school said, “It was a really great experience - Thank you for everything!”



## 2.0 PROJECT CHOICE AND CREST AWARDS

The original project developed during the 2017-18 academic year focused on Subsea ROVs. The decision was made to use this project again 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.

For the Aberdeen final The Smallpeice Trust delivered an expansion of the original project. The additional work allows 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 (Inverness, Glasgow, Port of Blyth, Bristol, Manchester, Norwich). Within each region a ten school teams were to be recruited however due to COVID and other issues not all schools recruited attended. 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:

- 49 teams from 45 schools participated in the programme
- 294 students participated in the regional programme
- 145 Female 49% : 149 Male 51%
- Feedback was received from 151 students 51% of the cohort
  - Inverness and Norwich feedback was not submitted
- 100% of participants stated they enjoyed the day
- 96% said they have gained new skills
- 93% said they now understand engineering better
- 77% said that they would now consider a career in engineering.
  - 65% Female 86% Male
- 100% of the teachers rated the programme as excellent and said they would recommend the programme to other schools.

A female from Dame Allan school said “ROV’s and AUV’s are very expensive. Living on a ship is a great life and ROV piloting looks fun”

A male student from Dukes secondary said “I learned how many different jobs are in engineering, skills in teamwork and critical thinking”

One teacher from High Tunstall College commented “It was a fantastic day I would not change anything. Amazing opportunity enjoyed by all”

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

STEM Day Secondary	All	Female	Male
	AGREE	AGREE	AGREE
I enjoyed the STEM Day	100%	100%	100%
I learned something new	99%	100%	98%
I've gained new skills	96%	96%	97%
I now understand engineering better	93%	91%	95%
I now have a greater appreciation of engineering	98%	96%	99%
I would now consider a career in engineering	77%	65%	86%





## 4.0 ABERDEEN FINAL

The national final was hosted in Aberdeen on 16<sup>th</sup> June 2022. One teams from the following schools attended:

- Culloden School - Inverness
- Hyndland School - Glasgow
- High Tunstall College – Port of Blyth
- Bristol Free School - Bristol
- Fixton Girls School – Manchester
- Alderman Peel High School - Norwich

The schools completed a follow on ROV challenge that allowed them to receive the CREST Discovery award and gave a presentation to showcase their work.

GUH representatives and their partners selected **Culloden Academy** as the overall winner. And a presentation was given by GUH CEO Neil Gordon and Operations Director Trish Banks.

The school's teacher commented that "I thought this was a fantastic opportunity. Thank you for all your hard work – it was an excellent experience for the pupils"

All PR was managed by GUH.

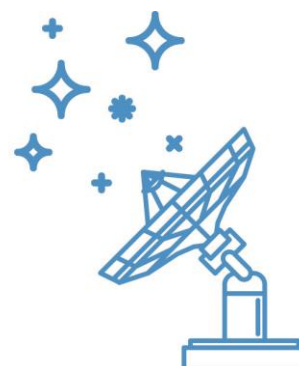
Feedback was requested via electronic form for the final

Feedback was received from 5 of the 36 students from 2 different schools

Feedback was received from 4 of the 6 schoolteachers from 4 different schools

STEM Day Secondary	All	Female	Male
	AGREE	AGREE	AGREE
I enjoyed the STEM Day	100%	100%	100%
I learned something new	100%	100%	100%
I've gained new skills	100%	100%	100%
I now understand engineering better	100%	100%	100%
I now have a greater appreciation of engineering	100%	100%	100%
I would now consider a career in engineering	100%	100%	100%

Whilst these number look great; they are not representative of the whole group as it is such a small sample number. It is worth noting that none of the student feedback was from the winning team and required motivation to complete so it a good indicator that it is genuine.



## 5.0 FEEDBACK AND CONCLUSION

The GUH STEM Challenge received extremely positive feedback with all enjoying the experience 100% in regionals and the final. 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.

This quote from Alderman Peel High school sums up the experience well.

*"We had the best time thank you and our students gained so much from this amazing opportunity! I was particularly impressed and proud with how our students learned so much from the regional heat and were able to improve their performance massively in the final - several overcoming their fears of presenting and travelling away from home for the first time."*



Thank you so much for all your support 😊





## APPENDIX A – PARTICIPATING SCHOOLS

### Inverness

Alness Academy
Culloden Academy
Dingwall Academy
Glen Urquhart High School
Grantown Grammar
Inverness High School
Millburn Academy

### Glasgow

Bearsden Academy
Govan High School
Hyndland Secondary
Knightwood Secondary School
St Stephens High School
St. Mungo's Academy
Woodfarm High School

### Port of Blyth

Ampleforth College
Bede Academy
Churchill Community College
Dame Allan's Girls School
Duke's Secondary School
High Tunstall College of Science
Newcastle School for Boys
Ponteland High School
The Nelson Thomlinson



<b>Bristol</b>
Brimsham Green School
Bristol Free School
Bristol Grammar School
Caldicot Comprehensive School
Mangotsfield School
Sir Bernard Lovell Academy
St Bede's Catholic College
St Oscar Romero Catholic High School

<b>Manchester</b>
Altrincham Grammar School for Girls
Cedar Mount Academy
Childwall Sports and Science Academy
Coop Academy North Manchester
Dean Trust Ardwick
Flixton Girls
Holmfirth High
Laurus Ryecroft
Newman RC College

<b>Norwich</b>
Acle Academy
Alderman Peel High School
Archbishop Sancroft High School
Felsted School
Northgate High School Dereham
Sewell Park Academy
Stalham High School



## APPENDIX B – FEEDBACK

### Totals

#### Combined Student Feedback

STEM Day Secondary - All Student Summary		Strongly Agree	Agree	Disagree	Strongly Disagree	Total
S1	I enjoyed the STEM Day	106	46	0	0	152
S2	I learned something new	98	52	2	0	152
S3	I've gained new skills	73	73	6	0	152
S4	I now understand engineering better	75	67	10	0	152
S5	I now have a greater appreciation of engineering	86	62	3	1	152
S6	I would now consider a career in engineering	48	68	29	6	151

#### Female Student Feedback

STEM Day Secondary - Female Student		Strongly Agree	Agree	Disagree	Strongly Disagree	Total
S1	I enjoyed the STEM Day	46	21	0	0	67
S2	I learned something new	45	22	0	0	67
S3	I've gained new skills	34	30	3	0	67
S4	I now understand engineering better	29	32	6	0	67
S5	I now have a greater appreciation of engineering	36	28	2	1	67
S6	I would now consider a career in engineering	11	32	19	4	66

#### Male Student Feedback

STEM Day Secondary - Male Student		Strongly Agree	Agree	Disagree	Strongly Disagree	Total
S1	I enjoyed the STEM Day	60	25	0	0	85
S2	I learned something new	53	30	2	0	85
S3	I've gained new skills	39	43	3	0	85
S4	I now understand engineering better	46	35	4	0	85
S5	I now have a greater appreciation of engineering	50	34	1	0	85
S6	I would now consider a career in engineering	37	36	10	2	85



## Student comments from Final

### Tell us 3 things you learned during the activity?

Writing a pitch, Subsea engineering, Coding a ROV

Working together, Design process and advertisement.

Programming, video editing, persuasive language

How to use LEGO Mindstorms, How much plastic is in our oceans, How many jobs there are in engineering.

### The activity could be improved by...

There was more equipment and resources for the branding / marketing side. Such as being able to create our logos digitally...

Allowing more time.

Spread over two days

I think that the presentations could be performed in front of the judges only.

Wider array of peices for the model

### Anything else to add...

It was a really great experience - Thank you for everything!



## Teacher Comments from Final

How would you rate the project? ▾	How would you rate the delivery? ▾	How would you rate the day overall? ▾
Excellent	Excellent	Excellent
Excellent	Excellent	Excellent
Excellent	Excellent	Excellent
Excellent	Excellent	Excellent

Teacher Questions	
The booking process for the regional competition worked really well	100% ▾
The booking process for the national competition worked really well	100%
The GUH team were great to work with	100%
The Smallpeice Delivery Team team were great to work with	100%
The Smallpeice Bookings Team team were great to work with	100%

What did you like about the GUH STEM Schools competition? ▾

That the students had to work together to problem solve, design and work independently without teacher support

The competition is well paced, provides enough challenge and is encouraging to all students

The whole experience was outstanding and the students were given so many wonderful opportunities.

Tasks gave pupils the opportunity to

- use equipment that schools cannot afford.
- work on a range of skills from problem solving to communication and presentation.
- network and learn alongside pupils from other schools
- see the real life links to industry / environment
- take part in an excellent project at very little cost.



What were the best parts?
The challenge required students to apply a range of key employability, engineering, design & technology skills - creativity and problem solving, teamwork and collaboration, communication and presenting, coding and testing - and made aware of careers and ecological issues
How the competition has roles for everyone in the group
Tour of the Vessel. The competition requirements and the tour of the companies
Visiting, meeting and speaking to industry partners.





What feedback do you have regarding, food and refreshments?	What feedback do you have regarding, travel and logistics?	What other feedback, if any, do you want to give us about this event?
I thought the sandwiches and wraps excellent!	Everything ran very smoothly thank you!	We had the best time thank you and our students gained so much from this amazing opportunity! I was particularly impressed and proud with how our students learned so much from the regional heat and were able to improve their performance massively in the final - several overcoming their fears of presenting and travelling away from home for the first time.
Excellent!	We were kept in the loop throughout about all travel and logistics which was fab!	This is the most worthwhile event, our students were so thankful for the opportunity.
A little earlier notice about the evening meals (worked out in the end) but could have planned a little earlier. Otherwise no issues all very nice.	Very well organised no issues.	Outstanding and thank you for the opportunity.
Excellent provision	Excellent provision	Thank you for all your hard work - it was a excellent experience for the pupils.

