UHI STEM Outreach Programme

2024/25

Annual Review

UHI | STEM

STEM (science, technology, engineering and mathematics) are the building blocks of innovation and progress, creativity and finding inspiration is essential to keep pushing boundaries and exploring new possibilities.

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English:
This document is available online in both English and Gaelic. Should you require a printed copy, you may request one by emailing STEM@uhi.ac.uk.

Gaelic:
Tha an sgrìobhainn seo ri fhaighinn air-loidhne sa Bheurla agus sa Ghàidhlig. Ma tha thu feumach air lethbhreac clò-bhuailte, faodaidh tu fear iarraidh le bhith a' cur post-d gu STEM@uhi.ac.uk.

In memory of Dr Evelyn Gray who passed away unexpectedly earlier this year.

Evelyn was a passionate champion of **STEM** education, and her legacy in the promotion of UHI STEM across the Highlands and Islands and Moray enabled the current UHI Outreach Programme to become reality.

UHI | STEM

Annual Review 2024/25

STEM (science, technology, engineering and mathematics) are the building blocks of innovation and progress, creativity and finding inspiration is essential to keep pushing boundaries and exploring new possibilities.

Introduction

STEM (science, technology, engineering and mathematics) is a well-established area and focus for education. UHI recognises its importance and strives to embed this interdisciplinary approach in our curriculum to inspire innovation through creativity via the arts, (where **STEM** becomes STEAM).

Our UHI strategy identifies that our science, technology, engineering, arts and mathematics approach to a multi-disciplinary curriculum, produces the most professional and flexible graduates.

The STEM Outreach Programme has developed from a legacy of **STEM** projects with schools over many years which have evolved to meet the needs of our rural geography.

Starting early in the education journey enables a foundation in **STEM** topics inspiring the next generation and our activities provide a structure to learn and space to discover and explore.

The generous support of industry partners enabled a pooled budget of £1.2M for the three-year programme. Various size of donations from multiple industry partners and UHI combined enabled us to deliver cost efficient coordinated **STEM** engagement activities across the whole of the Highlands and Islands including Argyll & Bute, Moray and Perthshire and Northeast Aberdeenshire

The UHI STEM Outreach Programme has two main aims:

Inspiration

We aim to inspire the next generation by influencing pathways into **STEM** from early years, through primary and secondary school and into further education and training, to promote access into **STEM skills** and careers.

We achieve this by increasing the confidence of pupils and teachers to engage with **STEM** subjects, by providing schools with access to equipment and teaching resources to aid with **STEM** learning and offering in-class support to embed **STEM** within the school.

Collaboration and Coordination

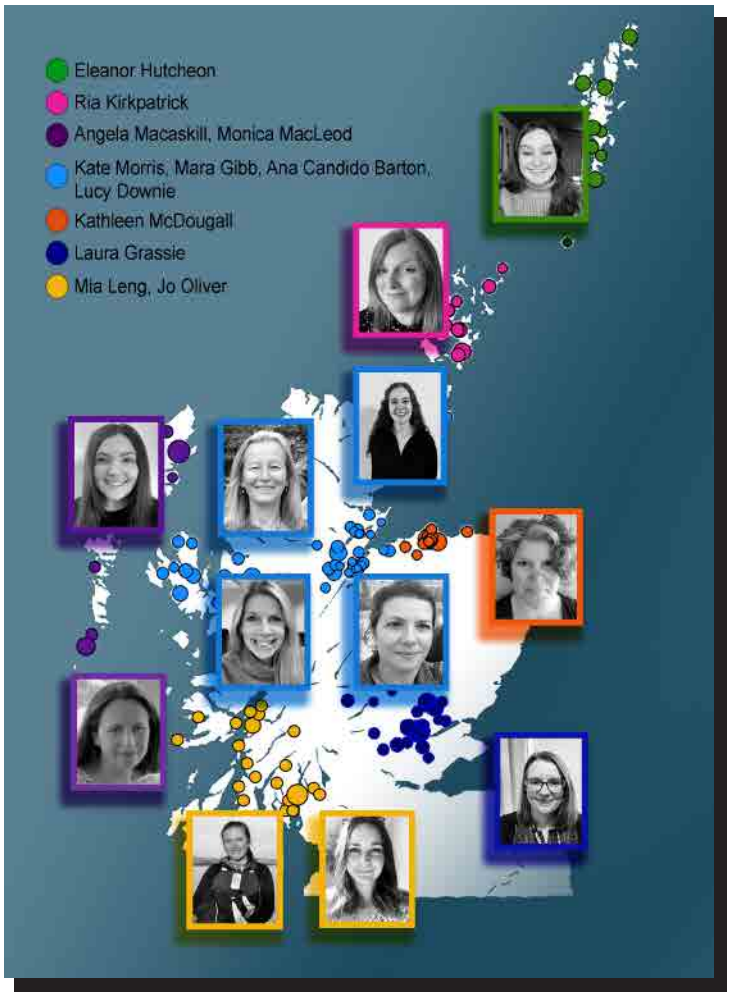
We aim to work with **STEM** partners to inform and enhance our activities in providing inspirational experiences towards **STEM** skills and careers aligned with business needs and economic growth in the local area as well as continuing to address equity of opportunity, with rural access and gender as particular areas of focus.

The UHI team works with with other agencies involved in **STEM** outreach by supporting and coordinating local plans and activities across our **STEM** ecosystem.

The UHI STEM Team

As a team we are all very passionate about **STEM** education from early years and throughout the whole education journey. The imbalance in gender and equalities requires early intervention to ensure we have the future skills and workforce across our region.

The UHI STEM Coordinators



Our expertise is varied and our skills background includes primary school teachers, secondary school science teachers, biologists, mathematician, zoologist, artist, psychologist, marine science, geologist and engineering.

You can hear from our team members about their experiences in the UHI **STEM** team and the impact that they have had by visiting:

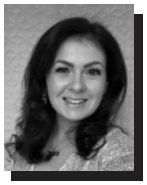
https://youtu.be/sgwYgRs3RfY

STEM Outreach Coordinators

STEM Team Summary Table

STEM Cordinator	Academic Partner	Geography
NORTHERN ISLES		
Eleanor Hutcheon	UHI Shetland	Shetland
Ria Kirkpatrick	UHI Orkney	Orkney
WESTERN ISLES		
Angela Macaskill	UHI North, West and Hebrides	Lewis & Harris
HIGHLANDS		
Ana Candido Barton	UHI Inverness	Inverness-shire including Nairn
Kate Morris	UHI North, West and Hebrides	Dingwall & Beauly
Mara Gibb	UHI North, West and Hebrides	Caithness, Sutherland & Easter Ross
Lucy Downie	UHI North, West and Hebrides	Skye & Lochaber
MORAY & ABERDEENSHIRE		
Kathleen McDougall	UHI Moray	Moray
Sara Fairley	North East Scotland College	North East Scotland College
PERTHSHIRE		
Laura Grassie	UHI Perth	Perth & Kinross
ARGYLL & BUTE		
Jo Oliver	UHI Argyll	Argyll & Bute - South
Mia Leng	Scottish Association for Marine Science	Argyll & Bute - North

Programme Coordination
Core Team members



Jilly Munro
STEM Curator
(Content & QA)

Victoria Caine
STEM Team
Administrator

Mhari Ross
STEM Technician
(Student Intern)

Dawne Bloodworth
Programme Lead

Moving On

A very big thankyou to team members who moved on during 2024/2025:

Fiona Mackenzie

Fiona is a champion for **STEM** engagement especially outdoor learning and still active in Slattadale.

Jack McIntyre

Jack is now developing his career and works for Highland Council in Economy & Regeneration.

Monica McLeod

Monica has retrained and is now a qualified secondary school science teacher working on Barra.

Maryan Cabdi

Maryan has returned to her career working with Youth Education in England.

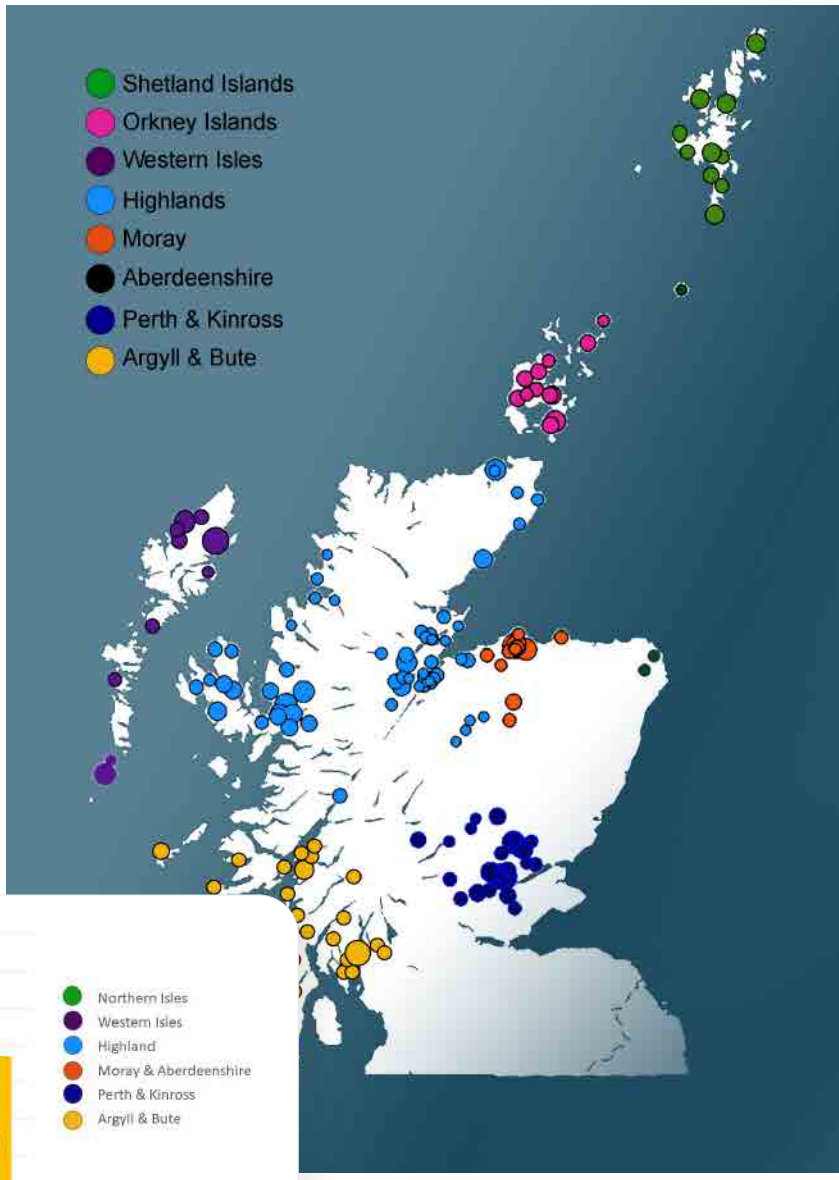
Lucy Beattie

Lucy is now working full time for Edinburgh University as a post-doctorate researcher.

What we are doing with STEM Data Mapping

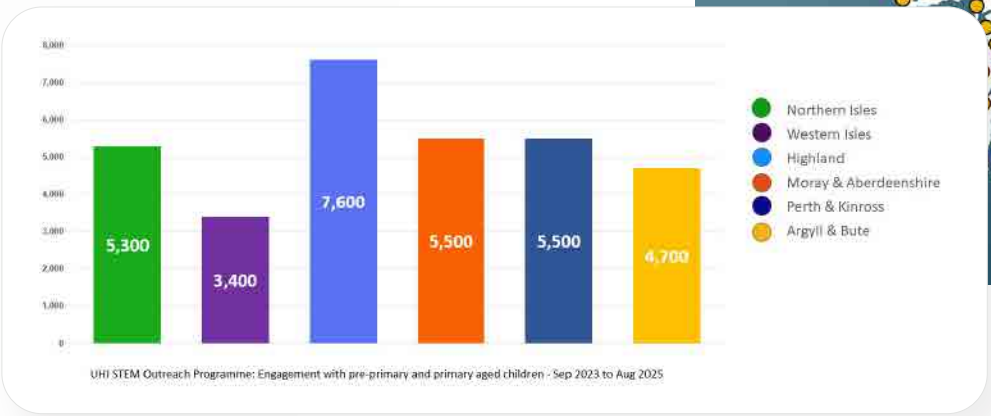
We wanted to create a geographic model that captures the reach and scope of activities delivered by the UHI **STEM** Outreach Programme demonstrating our engagement with local schools, linked to associated school groups and the eight local authorities areas we cover.

This provides a visual data set which we will continue to develop including how many children the programme has reached as a proportion of total school children in the programme.



Future Opportunity

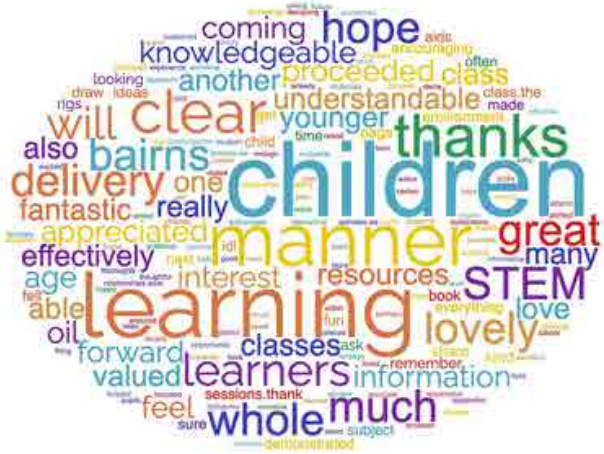
The data mapping tool with further investment could be scaled up to include data from other **STEM** education partners.



What we Achieved - Cumulative Numbers

The latest set of cumulative data indicates that, from September 2023 to August 2025, over **32,000** pre-primary and primary age children participated in Discovery Kit sessions and other **STEM** engagement activities delivered by our Outreach Team.

The numbers of girls and boys involved in the activities was roughly equal. As well as classroom-based activities, the Outreach Team were also involved in, or provided support to, over **190** other community-based **STEM** events such as science fairs, festivals and workshops. The estimated attendance at those events was over **12,000**.



Thematic Analysis undertaken from collated teachers' feedback have highlighted that access to appropriate aligned to Curriculum for Excellence **STEM** resources—including lesson plans, equipment, and consumables and the provision of support for co-delivering **STEM** engagement in class is highly valued by teachers. Teachers who provided feedback also indicated that they felt increased confidence with **STEM** topics, highly valuing the in-class support and access to **STEM** learning equipment.

*'Both myself and the pupils absolutely loved our **STEM** sessions, the children were fully engaged and involved throughout the activities. The passion and enthusiasm had a positive effect on the children's learning, she was brilliant at explaining the tasks and she helped develop and foster many skills within, from building on their own confidence and then their ability to problem solve, communicate with others and work as a part of a team. The activities were so much fun and educational."*

Teacher

'There are so many moments of watching kids develop right in front of me. Watching them work so hard at the codes during the Sphero session, and suddenly it just clicks – that look on their face is priceless.'

Teacher

"I have never seen my child come home so enthusiastic and proud of himself. The only comment I would make is that the session was so valuable to him it would be great if you had the capacity to come regularly."

Parent

The session was fantastic! It was very hands on, good pace, mix of activities, wonderful resources, fitted well with our current learning on the senses.

These sessions are vital as part of our curriculum, and it is great to have this in school. Thank You!

I feel more confident to deliver the next lesson now! These sessions are vital as part of our curriculum, and it is great to have this in school. Thank You

Absolutely brilliant session! The class loved it and were interested and engaged throughout. Notably, some children who often struggle in school and find listening challenging, were actively involved.

Clear, engaging presentation, age appropriate and good fun! Opportunity for the class teacher to observe and learn how to deliver **STEM** lessons!

Very enthusiastic and gets the kids thinking. I have valued the guidance from the **STEM** coordinator hugely. The children were very engaged. Excellent session. Thank you!

STEM Equipment & UHI STEM Discovery Kits

Discovery Kits

The UHI **STEM** Outreach Programme is a series of Discovery Kits containing themed content covering topics from each of the four main **STEM** areas.

Resources and learning plans are all aligned to the Curriculum for Excellence and are available in both English and Gaelic.

No matter where you are based in the region covered by the programme, our UHI **STEM** Outreach Coordinators will take Discovery Kits to your school and will work alongside teachers and practitioners to deliver the topic in a fun and engaging way.

Sessions are supplied at no cost to the school and there is support for teachers to help develop their own confidence in delivering **STEM** topics and increase their own **STEM** knowledge.

The Discovery Kit topics currently available are all listed on our website. You will also find the contact details for all our UHI **STEM** Outreach Coordinators and the areas they cover.

Find out more about the Discovery Kits and what's in the boxes!

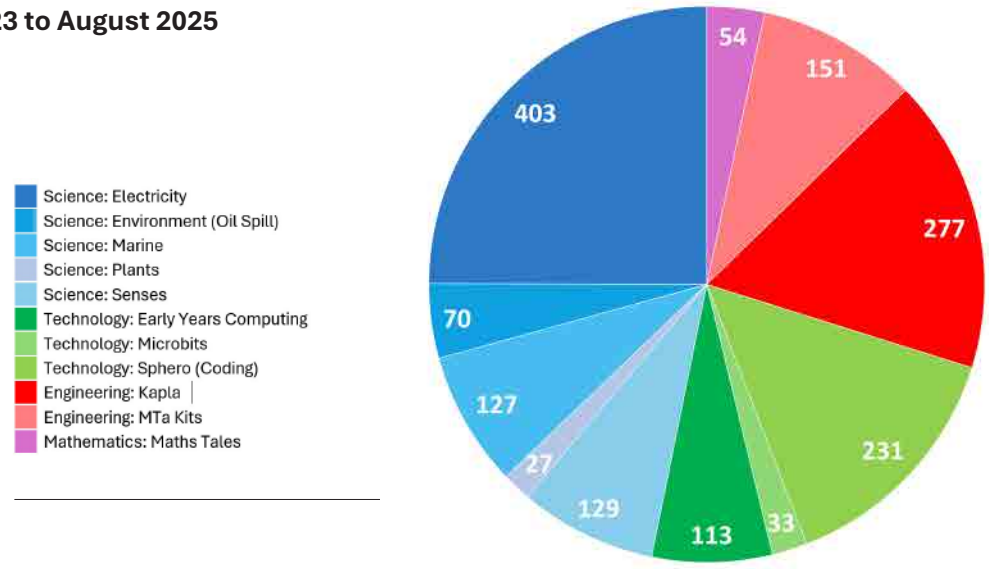
To find out more, please visit:

https://www.uhi.ac.uk/en/about-uhi/stem

STEM Equipment & UHI STEM Discovery Kits

Discovery Kits

Total STEM Outreach sessions delivered in schools September 2023 to August 2025



Plant Science Discovery Kit

STEM Education experts from UHI and the Royal Botanical Gardens, Edinburgh (RBGE) designed sessions to spark curiosity in young learners while ensuring the content of the Plant Science 'discovery kit' is both educational and engaging. With alignment to the Curriculum for Excellence and links to the UN Sustainable Development Goals, the sessions support key learning outcomes and provide an enriching learning experience.

The Plant Science Discovery Kits are a fantastic addition to our **STEM** Outreach Programme offering and are provided at no cost to schools. We hope that teachers can build confidence in their own **STEM** knowledge and to bring the wonder of plant science into their classrooms. We are hugely grateful for the opportunity to collaborate with RBGE to make this idea a reality.

Maths Tales – Early Years and Fist Stage Learners

We created the Maths Tales numeracy play bags last year to align with Maths week Scotland. They have been hugely successful and highly requested and now being used across Scotland. Photo of Newcastle Nursery in Fife using our Maths Tales Bags as part of their family learning shack that they have created collaboratively with the school they are attached to.

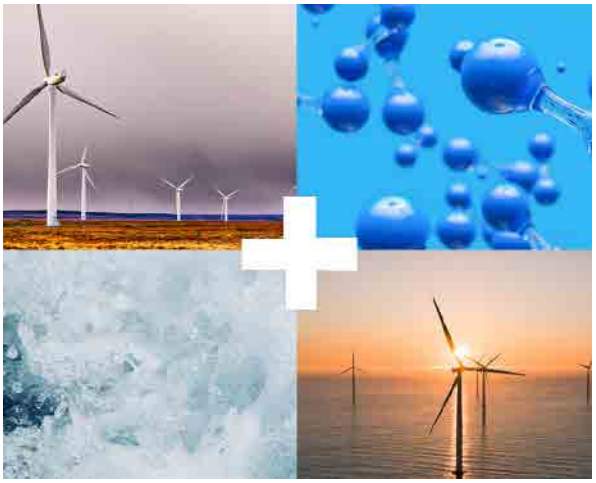
Marine Science Discovery Kit

Thank you to colleagues in Scottish Association of Marine Sciences (SAMS) for enabling us to adapt content to create a Marine Sciences Discovery Kit offering the **STEM** Outreach Programme.

STEM Equipment & UHI STEM Discovery Kits

Renewables Play Mat for Early /First Level Learners

Energy Sources and Sustainability for Second Level Learners



We are currently collaborating with external partners to develop an exciting new Discovery Kit, designed to support teachers in delivering the Energy Sources and Sustainability Curriculum for Excellence outcomes in an engaging and practical way.

The Discovery Kit will encourage learners to explore what energy is, investigate the different types of renewable energy used in Scotland, and consider how energy production and consumption impact our planet. Through practical activities, learners will be empowered to question, investigate, and discuss real-world sustainability issues, helping to make learning relevant and meaningful, while encouraging them to consider the skills they'll need for the future.

Aligned with Scotland's Learning for Sustainability approach, the kit will support the development of key skills, values, and attitudes that enable young people to live more sustainably and to think critically about global challenges.

Feedback from teachers has highlighted a need for support in this area, and the Discovery Kit has been shaped with their insights in mind. As always, activities will promote teamwork, peer discussion, and active learning experiences that foster curiosity, collaboration, and critical thinking.

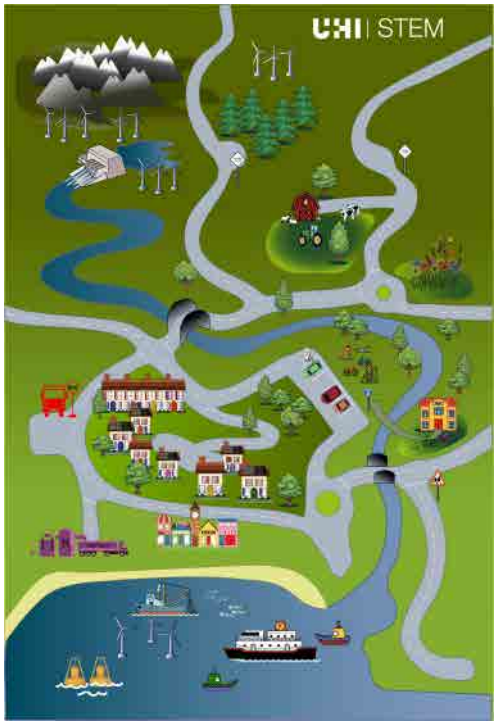
For our younger learners, we are currently developing a play-based learning opportunity that encourages learners to explore and discuss renewable energy in an engaging, hands-on way. This is designed to spark curiosity and deepen understanding of sustainability through imaginative play.

A key feature of this resource will be a bespoke play mat, tailored specifically for localities across our UHI regional geography. These mats will showcase the renewable energy opportunities and infrastructure in the local area, helping learners make real-world connections to the energy landscape around them.

To support practitioners, we will provide scaffolded conversation guides and question prompts that help facilitate meaningful dialogue and learner engagement around key concepts in renewable energy.

Through this approach, we aim to empower both learners and practitioners to engage confidently with the topic of renewable energy and its role in a sustainable future.

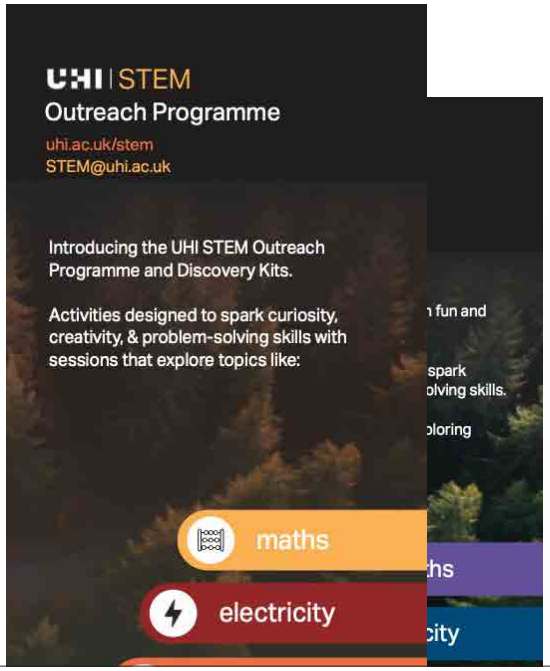
Thank you to Northlands who have contributed further resources that have enabled us to create this **STEM** education resource.



Fliers for Teachers & Parents

Introducing the UHI STEM Outreach Programme and Discovery Kits.

Activities designed to spark curiosity, creativity, & problem-solving skills with sessions that explore topics like:



What are STEM & STEM Capital?

STEM stands for Science, Technology,Engineering & Mathematics. **STEM** encourages curiosity and creativity.

It develops critical thinking, helping children prepare for the future.

Why is STEM Important?

· **STEM** is all about problem solving and learning about the world around us.

· Learning about **STEM** equips children with the tools that they need to live and work in our evolving world.

· Scotland's growing industries, like Renewable Energy and Space, need more workers.

· Learning **STEM** skills can help children to prepare for jobs in these exciting areas and be part of building a better future.

What is STEM Capital?

The experiences, knowledge and connections people have around **STEM** topics and careers combine to form their **STEM** Capital.

· Learning about **STEM** equips children with the tools that they need to live and work in our evolving world.

Children's STEM Capital can be increased by:

· Getting involved in **STEM** activities from an early age at school.

· Reading **STEM**-related books and watching **STEM** -related TV programmes.

· Encouraging parents to talk about **STEM** and to engage in simple **STEM** activities at home and visiting science exhibits, fairs, and museums.

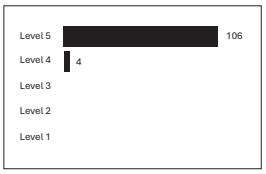
· Talking to people in **STEM** careers

Feedback from the UHI STEM Outreach Programme

We have received wonderful and very positive feedback from teachers & pupils following Discovery Kit sessions delivered by our UHI **STEM** Outreach Coordinators over the past two years.

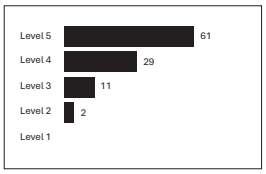
How would you rate the presentation & communication from your **STEM** Coordinator and their knowledge of the topic?

4.96
Average rating



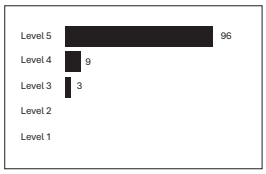
After the Lend-a-Lab session, how confident do you feel about delivering **STEM** lessons?

4.45
Average rating



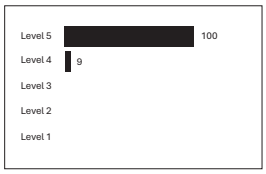
How would you rate our booking process?

4.86
Average rating



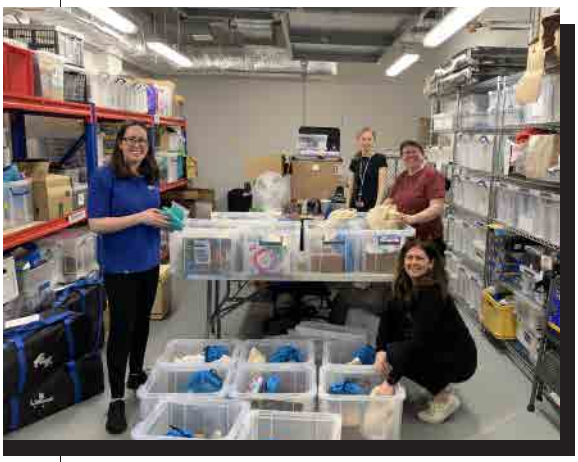
How would you rate the topic and content of the sessions, particularly the materials & technologies provided and the activities included?

4.92
Average rating



Increasing access to quality STEM Equipment

Accessibility and availability of quality **STEM** equipment enhances learning opportunities and prevents **STEM** subjects from being too abstract. We have been able to establish a 'hub and spoke' model with regard to **STEM** education equipment - ensure all team members have local equipment whilst ensuring a supply of the larger and more expensive kit is held centrally and booked out by the **STEM** Coordinators as required for use in their local schools.



Future Opportunity

We would love to scale up this model into a **STEM equipment lending library** for the whole region and we believe that this could be achieved with dedicated funding.

Highlands and Islands STEM Partnership (HISP)

The Highlands and Islands Strategic STEM Partnership (HISP) is chaired by UHI (Dean of the Science, Health and Environment Faculty) and was established as one of the 13 regional partnerships across Scotland overseeing the ambition of the Scottish Government STEM Education and Training Strategy (2017) which aims to enhance **STEM** learning and skills across the education system, fostering a highly educated workforce to support economic growth.

This membership of this group includes regional and national representative involved **STEM**, skills development and education and provides the regional infrastructure and the strategic context for influencing **STEM** education and skills development pipelines. HISP is represented at the national **STEM** leads partnership group (chaired by ESP) by the UHI Head of **STEM** Development.

Using the HISP as a strategic regional group enabled the UHI **STEM** outreach programme to establish (or support existing) local **STEM** networks/partnerships groups around the region based around our academic partners.

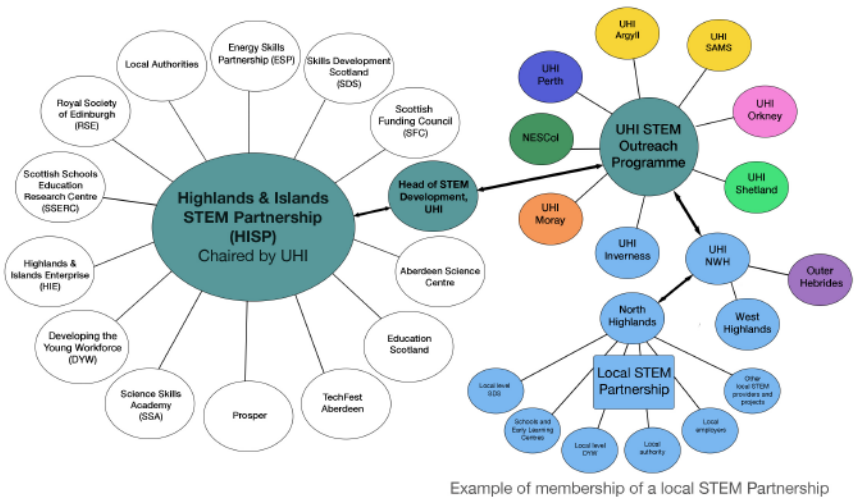
Local **STEM** partnerships have emerged at different rate reflecting local context and identified needs. As a result, we have identified that the benefits of this approach are:

Coordinate & plan **STEM** engagement facilitated by the support of events within the local network.

Building capacity, capability, knowledge, and understanding to build knowledge of **STEM** education and linking the national, regional and local collaborative opportunities.

Sharing data to support evidence-based decision making for community events and **STEM** initiatives and supporting the transition between primary and secondary education.

Regional Highlands & Islands Strategic STEM Partnerships



Example of membership of a local STEM Partnership

Working with our partners in the Offshore Wind industry, we have established a sizeable programme of **STEM** outreach and inspiration across two thirds of Scotland, with a model developed specifically for our rural context.

We have prioritised building teacher confidence, supporting primary and secondary school teachers, PGDE students and embedding training for probationers.

To harness the power of collaboration even further, we have been able to leverage expert knowledge, resources and funds with other **STEM** education providers to create new education materials.

Thank you to the RAF Youth and STEM team (Hydrogen Energy) Royal Botanical Gardens, Edinburgh (Wonderful World of Plants), Scottish Association of Marine Sciences (Marine Sciences) and Maths Week Scotland (Maths Tales).

Looking forward, we are delighted to be working in partnership with ALlenergy and Brightgreen on the latest Energy Sources Discovery Kits.

We are very grateful to Northlands for sponsoring the renewables play activities and the energy sources discovery kit.

Online Resources

We want to enable a legacy of access to resources that can be used by teachers, parents and other education and **STEM** education partners which demonstrates a coordinated approach and collaborative effort.

For more information, please visit - https://www.uhi.ac.uk/en/about-uhi/stem

Local STEMHUBs

Online local focussed STEMHUBs are being rolled out currently and will provide links to events, **STEM** education activities and organisations and skills development resources in each locality of the **STEM** Networks across our region.

Support Community Events

Each year we agree to support a number of community events across the region and provide fun activities for families to try. The largest event is the 'Boffinarium' at Belladrum Tartan Heart festival, which attracts about 4,000 children over the three days.

Some of the many other events include science festivals in Caithness, Orkney, Shetland and Strathpeffer, as well as the science weeks in Moray and Stornoway and the Energy Event in Perth. There are many more - too many to list - but we do need to say a very big thank you to our student volunteers and STEM Ambassadors who give their time to help out at these events.

More information about the STEM Ambassador Programme can be found here:

https://www.stemambassadors.scot

Space continues to be an exciting **STEM** topic and we have been able to direct schools to some great education materials available from:

https://www.sserc.org.uk/stemengagement
www.iop.org/explore-physics/mimis-space-adventure
Train like an astronaut - ESA Mission X

Locally we are supporting activities at Saxaford in Shetland and Machrihanish in Argyll. Nationally we are represented in the Space Scotland Skills Working group.

PGDE & Probationer support

We have been supporting PGDE primary students with hands on **STEM** activities and based on requests from them we have now developed a series of short videos, aimed for use during the probationary year.
The topics covered include:

1. **Science Capital**: How to support and raise science capital in the classroom.

2. **Introduction to coding in the classroom**: This video includes lots of simple ideas and tips for how to introduce coding to learners.

3. **The benefits of simple classroom experiments**: This video highlights the benefits of carrying out simple experiments in the classroom. It includes a few ideas to get started.

4. **Websites and resources to support STEM learning**: This video showcases a number of websites and resources that support STEM learning in the primary classroom. The padlet contains the links to all of the websites mentioned in the video.
https://padlet.com/uhistem/stem-resources-for-primary-teachers-in-scotland-9zoupjrcmjk0uhcz

5. **Further STEM Support**: This video highlights how to get involved in Education Scotland's STEM Nation Award, and the benefits of using STEM Ambassadors in the classroom.

Thank You

Despite Scotland's ambition, there remains a skills gap in **STEM**-related fields, particularly in building **STEM** capacity from early-stage engagement and in supporting key **STEM** influencers (parents & teachers).

Industry collaboration can support a sustainable and robust **STEM** education ecosystem as part of skills development plans to ensure a diverse workforce capable of sustaining the regional growth plan and ambition of Workforce North.

We are very grateful to our industry partners for financial support to deliver the UHI **STEM** Outreach Programme. Our current programme finishes in July 2026 and we are now seeking support for next phase of the programme.

We have a legacy of efficiency, value for money and effectiveness and our impact is immediate and long lasting. Our ambition is to continue into the next phase of the UHI **STEM** Outreach Programme from academic year 2026/27.

Future Opportunity

If you would like to be involved we would love to hear from you. Donations small and larger are ring fenced into the pooled budget for the **STEM** Outreach activities which are coordinated and delivered across the whole of the UHI region and the north of Scotland.

You can contact us by email or via website or social media. Thank you.

https://www.uhi.ac.uk/en/about-uhi/stem

STEM@uhi.ac.uk

UHISTEM # STEMNorth # ThinkUHI