

Orkney International Science Festival Schools' Programme Update

Thursday 1st – Wednesday 7th September 2022

Secondary

To register an interest please email Rebecca.ford@oisf.org including as much of the following information as possible for **each** activity you are interested in:

1. **Title of activity you are interested in (some contributors may be offering more than one activity, please specify which you would like).**
2. **Name of School /class(es) and number of pupils (for each activity)**
3. **Your preferred date/time (please check activity availability details carefully) – please list alternative date/time(s) in order of preference.**
4. **Teacher name and contact details (email/phone) for main contact.**

Activities will be allocated to try to make sure as many schools as possible get access to their preferred sessions. In-person activities will be limited by logistics and availability, so please register interest as soon as possible.

STEM Orkney - Ashleigh Kitchiner

STEM Orkney

STEM Ambassadors have been trained and are used to support and deliver sessions globally to enhance engagement across STEM subjects. As a STEM ambassador myself, I have been delivering sessions since 2016 and I had noticed that since moving to Orkney I have not delivered a single session to an Orcadian school. I could not see any requests on the stem.org.uk platform and didn't know who to contact to connect with schools.

What did I do? I got in touch with [SSERC](https://www.sserc.org.uk) and put a call out to all registered Ambassadors in Orkney. Many replied and since then I have around 20 enthusiastic Ambassadors across the archipelago waiting to deliver sessions in a range of subjects from physics, acoustics, biology, engineering, coding and much more.

Now it's time to bridge the gap and connect these Ambassadors with teachers and educators across Orkney. If you need an activity or support, please contact me at ash.kitchiner@gmail.com and we can put you in touch with the right Ambassador through the [STEM Learning platform](https://stem.org.uk).

Maria Bell – Mesomorphic, Silicon Croft

Format: Livestream and in person workshops

Suitable for: Teachers

Availability: Virtual Cuppa: Sunday 4th, Tuesday 6th, Wednesday 7th at 15:45 for 45 mins

Activity description

Shetland based software development company Mesomorphic founded their Silicon Croft initiative to support the learning of digital skills across the Highlands and Islands. Divided into three phrases; Plant, Cultivate and Growth they provide a variety of learning opportunities for educators and students from primary school through to further and higher education.!

Are you involved in primary, secondary or higher education and want to learn more about our Silicon Croft and how we are supporting digital skills across the Highlands and Islands? We will be holding a 45 minute virtual cuppa session at 1545 from 4th, 6th & 7th September to tell you about our plans.

Want to find out more or book a session? Please contact us at maria@mesomorphic.co.uk

Catherine Gemmell – Scotland Conservation Officer, Marine Conservation Society SSERC STEM Ambassador Hub

Format: Livestream Presentation

Suitable for: S1-S2

Availability: Thursday 1st September 09:30 – 10:15

Activity description

Stop the Plastic Tide

Join Catherine from the Marine Conservation Society for a virtual dive into our amazing ocean to learn about the creatures that live there, including some Orkney Sea Creature locals, and what we can all do to help celebrate, protect and recover Scotland's seas!

Ally Hughes – Project Co-ordinator, SULSA SSERC STEM Ambassador Hub

Format: Livestream Presentation

Suitable for: S1-S2

Availability: Tuesday 6th September 13:30 – 14:15

Activity description

Exploring Scientific Discoveries in Scotland

From the discovery of penicillin to the invention of the telephone, Scotland has a rich history in science exploration, and Scotland's islands play a massive role in this. Learn about newly discovered crops from Orkney, exciting archaeological discoveries about Vikings, and lighting up homes using the power of waves. Will you be the next famous Scottish scientist?

Kevin Parker – STEM Ambassador

Format: Online livestream (possibility of in person depending on demand)

Suitable for: S1–S6 (see individual activity descriptions)

Availability: Monday 5th; Tuesday 6th; Wednesday 7th September

Activity description

1. Science in the Real World Quiz. (Can be done in 30-60 minutes)

This is a multiple-choice quiz with questions in five groups - Energy, The Environment, Medicine, Food and Water, 'Its not Rocket Science its simple physics'.

Suitable for pupils from 13 upwards, a typical question set is here:

<http://www.kkitech.com/ScienceQuiz.pdf>

2. Careers in Science/Chemistry and Beyond.(1–2 hours)

This talk originally aimed at PhD students can be applied to 6th formers considering subject choice at University. 2 one hour sessions, one on my career and the second has tips around employability/working from home/resilience etc as well as a Q&A.

3. Northland Stock Market Game.(60-90 min)

4-8 Teams of 4-6 pupils buy and sell shares in 5 high tech companies, over 4 rounds of news flow. Interactive and competitive game suitable for ages 14 upwards

5. Bright Lights Inc Team and Project Management Game. (60-90mins)

3-6 teams of 4-5 pupils carry out a series of tasks including making a paper aeroplane, doing a Sudoku and a Word Search, and identifying the home towns of obscure Scottish football teams. The game is strictly divided into 'work periods' and 'meetings' with no talking during work periods and no work during meeting periods. And the tasks are interdependent. Based on typical Assessment centre activities used in candidate selection in industry, major NGOs and the Services, and designed around Belbin Team role theory. Typical game last 60-75 minutes, and can be followed up with a reflective/Q&A session of <30 mins.

See <http://www.kkitech.com/PMqgamePV.pdf>

Glasgow Science Centre

Format: In person and digital

Suitable for: S1/S2

Availability: KGS: Thursday 1st September; (isles schools also welcome to attend this event)

Stromness Academy: Friday 2nd September;

Digital for Isles Schools: Monday 5th; Tuesday 6th; Wednesday 7th September

Activity description

Schools - Powering the Future

In person - Kirkwall Grammar School and Stromness Academy

Our Powering the Future on tour programme would be available free of charge to S1/S2 pupils at KGS and Stromness Academy for in person visits on the 1st and 2nd September. This is supported by the Ingenious Awards. Pupils would take part in practical Powering the Future on tour exhibit sessions getting hands-on with a range of engaging energy themed exhibits. They will address topics like energy supply and use with a focus on affordability, security and environmental sustainability. The sessions would also include a drop in activity with an Engineer from the local Energy based sector who will be part of an engagement programme with Glasgow Science Centre giving the pupils the opportunity to meet an expert working within their own community and find out about STEM careers in the engineering sector.

Digital - Sanday Community School, Stronsay Junior High School and Westray Junior High School

As part of the Ingenious Awards funded programme we would like to offer pupils at the above schools the opportunity to take part in a Meet the Expert online sessions with Engineers from across Scotland. Pupils will explore different energy topics and find out about STEM careers in the engineering sector. We would ideally run this session on Glow Teams so that pupils have the opportunity to put their questions directly to the engineers. We would offer one session per school for Secondary pupils on the 5th, 6th or 7th September.

Vassilios Spathopoulos – STEM Ambassador – Glasgow International College & Thomai Giannakopoulou

Format: In person

Suitable for: S1 – S6

Availability: Tuesday 30th August; Friday 2nd September

Activity description

Stories from the bottom of the sea: an ancient astronomical computer (2 hours)

In this short workshop, a world famous ancient astronomical computer will be presented. Fragments of what is known as the Antikythera Mechanism were found over 120 years ago, in an ancient shipwreck off the coast of a Greek island. After decades of research, it is now known that this device was technologically 1,000 years ahead of its time, and was used as a portable planetarium, a calendar, an eclipse predictor, etc. Pupils will get a unique chance to view a replica model and to learn from it many secrets of the night sky. They will also design their own simple star clock and practice how to use it to tell the time from the stars.

These activities are supported by the Education & Outreach Small Grants Scheme of the Royal Astronomical Society

Dave Craig – Coordinator for SCDI Young Engineers and Science Clubs Scotland (YESC)

Format: In person

Suitable for: S1; S3 – S6

Availability: Thursday 1st; Friday 2nd; Monday 5th; Tuesday 6th; Wednesday 7th September

Activity description

For S1:

Mysterious Maths (1-2 hours)

A hands-on 1 to 2 hour workshop, which explores the Mysteries and the Why? of mathematics.

For S3-S6:

Soldering and Electrostatics

To investigate static electricity and its importance in when handling or manufacturing electronics, students learn how to solder and make their own charge detector.

Schools need to provide soldering irons.

Scottish Seabird Centre

Format: Online pre-recorded workshop

Suitable for: S1 – S6

Availability: Throughout the festival, once registered you will be sent a link.

Activity description

Scottish Seabirds in a changing marine environment

Duration of session: 1 hour (25–30-minute video, with pauses for group activities).

Join the Scottish Seabird Centre team to learn about the importance of seabirds and how they relate to the wider marine environment. This session will also examine the impact of climate change (including ocean warming and ocean acidification) and marine renewable energy on seabird populations.

Main Curriculum areas covered (example Secondary Third Experiences & Outcomes hit):

SOCIAL STUDIES

I can identify the possible consequences of an environmental issue and make informed suggestions about ways to manage the impact. SOC 3-08a

I can investigate the climate, physical features and living things of a natural environment different from my own and explain their interrelationship. SOC 3-10a

LITERACY

When listening and talking with others for different purposes, I can: communicate information, ideas or opinions; explain processes, concepts or ideas; identify issues

raised, summarise findings or draw conclusions. LIT 3-09a

I am developing confidence when engaging with others within and beyond my place of learning. I can communicate in a clear, expressive way and I am learning to select and organize resources independently. LIT 3-10a

SCIENCE & TECHNOLOGIES

I can sample and identify living things from different habitats to compare their biodiversity and can suggest reasons for their distribution. SCN 3-01a

By investigating renewable energy sources and taking part in practical activities to harness them, I can discuss their benefits and potential problems. SCN 3-04b

I can explain some of the processes which contribute to climate change and discuss the possible impact of atmospheric change on the survival of living things. SCN 3-05b

From my studies of sustainable development, I can reflect on the implications and ethical issues arising from technological developments for individuals and societies.

TCH 3-02a

Let's go Rockpooling! With the Scottish Seabird Centre

Duration: ~10 minutes

Become a rock pooling expert with this introductory video by the team at the Scottish Seabird Centre, North Berwick. Discover the amazing species that live in this fantastic habitat and learn how to rockpool safely and responsibly. What will the team find? Watch to find out!