

Secondary School Programme

We're thrilled to offer again a variety of in-person and online sessions for this year's School's programme.

Please complete the following booking form: <https://forms.gle/nVwHARBX2mbpiXev6>.

Alternatively, please email your enquiries with the following information to orkneyscience@gmail.com and a member of staff will be in touch:

Name of School

Class(es) and number of pupils (for each session)

Preferred date/time and list alternative date(s)/time(s) in order of preference.

Teacher name and contact details (email and phone)

Meet the Fossil Detectives by Neville & Sally Hollingworth

Suitable for: P1-S6 (Whole School Assemblies preferable)

Available to Book: Thursday 7th and Friday 8th September

A fun interactive presentation of their hobby and the discovery that turned into a BBC documentary. They'll take you on a time travel adventure from the Ice Age back to the Jurassic and the time of the dinosaurs.

Mini Circular Economy Challenge by Young Enterprise Scotland

Suitable for: P5-S4

Available to Book: Friday 8th - Wednesday 13th September

This is a 2 hour session that introduces pupils to the concept of the circular economy and will include lots of examples of businesses that are working towards a zero waste world. Children will get the opportunity to collaborate in teams to create their own circular business idea, brand it and then pitch their sustainable product or service to their peers. For more information: [What We Do | Young Enterprise Scotland \(yes.org.uk\)](https://www.yes.org.uk/what-we-do)

The 2-hour sessions will be run in your school by a member of the Young Enterprise Scotland team during the Festival. We offer these as **three 2-hour sessions** over one day to accommodate more pupils.

The Circular Economy Challenge is aimed at second and third level learners (P5-S2), however this can be adapted and differentiated to suit the needs of the school. Taking part in the Circular Economy Challenge allows pupils to:

- Develop an enterprising mindset and enterprising skills

- Develop knowledge and understanding of the concept, benefits and principles of the Circular Economy
- Increase resilience and confidence
- Understand the different roles and responsibilities involved in running a business
- Work collaboratively towards a common goal
- Develop understanding of the link between the Circular Economy, Sustainable Development and the UN Global Goals

Light workshop by Young Engineers and Science Clubs

Suitable for: P4-S2

Available to Book: Thursday 7th – Wednesday 13th September

The Sun provides warmth and light, but what *is* light and colour? Discover the science of light and colour, and how this is used in engineering.

Rocks under the Microscope by Stromness Museum

Suitable for: P5-S3

Available to Book: Friday 8th and Monday 11th September

The session will include talk by a member of the Quekett microscopy club about the thin section collection of microscope slides.

The Primary school session would be themed on discovering rock colours under the microscope, and the secondary session would be 'build your own microscope' and find out about Stromness Museum's new geology microscope project.

Silicon Croft - Scratch session by Mesomorphic

Suitable for: P5-S2

Available to Book: Thursday 7th – Wednesday 13th September

Have you heard of Scratch? It's a fun program that introduces users to how to code. During our session we will use this tool to create a fun and interactive game and learn about the four building blocks that software engineers use to make their products.

Augmented Fashion by Robert Gordon University

Suitable for: S1+

Available to Book: Thursday 7th – Wednesday 13th September

Augmented Fashion: Immersive Interactions For Sustainable Heritage In Fashion And Textiles is a value of £1.3 million project funded by the Arts and Humanity Research Council, UKRI. The project aims to determine how immersive interactions can be used to communicate the experience and value of creative, artisan fashion and textile products, with a focus on culture, provenance, heritage, the human hand and sustainable clothing consumption. The novelty of this research lies in the interdisciplinary approach and UK-China cross-cultural knowledge exchange employed across fashion and textiles and computing science with both industry and academia.

Astronomy outreach by Vassilios Spathopoulos and Thomai Giannakopoulou

Suitable for: S1+

Available to Book: Friday 8th September – Tuesday 12th September

The objective is to present a series of astronomy outreach events that concentrate mainly on the history of astronomy. To achieve this, a replica of the Antikythera mechanism (a historic astronomical device) will be employed. Participants will also engage in activities that involve using the sun to determine direction and time, as well as hands-on experience in creating a sundial.

Screen Printing & Exploring Mycelia by Lin Chau

Suitable for: P5-S4

Available to Book: Thursday 7th – Wednesday 13th September

This screen-printing activity intends to highlight the importance of mycelium. Using a silk screen, squeegee, and ink(fluorescent), to print the images of mycelium on top of the card, which has the image of trees and mushrooms pre-printed. The mycelium image would glow in the dark.

Create a card through this screen printing activity, using silk screen, squeegee, and fluorescent ink to print the images of mycelium and discuss the importance of mycelium in the world around us.

Light Fantastic by Heriot Watt University

Suitable for: S1+

Available to Book: Monday 11th September

Photonics – the optical equivalent of electronics - is an area of science you may never have heard of, but it underpins modern society. The internet is only possible due to optical fibres, lasers and exquisite photonic integrated circuits that manipulate information carrying

signals at the speed of light. High power lasers are used in countless areas of manufacturing, for welding and cutting almost any material one can think of - from iPhone screens to medical devices. Photonics even has a role to play in tackling climate change, since photovoltaics (solar panels) are also photonic devices.

In this talk, Prof. Robert R. Thomson is a Professor of Physics at Heriot Watt University in Edinburgh, will discuss a few exciting state-of-the-art applications for photonic technologies, such as remarkable single photon sensitive cameras that allow us to observe light as it propagates through thin air, new laser processing techniques that allow us to resect (cut) tissues with exceptional precision, and fibre sensors that will allow us to sense how diseases impact the lung tissues of critically ill patients.

Exploring virus integration by MRC-University of Glasgow Centre for Virus Research

Suitable for: S1-S3

Available to Book: Friday 8th and Monday 11th September

Small building blocks will be used to visualise the concept of virus integration into the telomeres of our chromosomes. Working with Professor Jim Wilson and the Orcades study, our research has found unique data for the Orkney community and we are eager to have meaningful conversations with the public about virology and genetics.

The team will show a Lego structure of DNA molecule and also a representation of a DNA sequence in Lego with associated activity, followed by puzzle related to the inheritance of the virus.

Electrostatics and electronics by Young Engineers and Science Clubs

Suitable for: S3-S6

Available to Book: Thursday 7th – Wednesday 13th September

We investigate why and how static electricity affects the manufacturing & repair of electronic hardware, and how a FET links static electricity to normal current electricity. If two periods are available, and a class set of soldering irons, students can then assemble their own charge detector.

Dynamic Earth's Planetarium Shows

Back by popular demand is the Dynamic Earth's mobile planetarium for this year's Science Festival. The team will be travelling to schools in Orkney with brand-new live shows for 2023, some of which have never been seen outside of Edinburgh! Room requirements for the planetarium includes:

- Step free access
- 7m x 7m floor space and 3.2m room height.
- At least two power sockets.
- 2 trestle tables that we can use for a presence next to the planetarium, including table-top activities
- A briefing area either next to the planetarium or nearby, to provide introduction and H&S briefing and also act as an area where your group can remove their shoes if required

- **STARRYTELLING [EY, P1]**

Sensory education workshop. This session is in two parts beginning with a story ('Bringing down the Moon') which takes place outside the planetarium. Following this we explore day & night, stars, planets and the Moon inside our planetarium.

- **YOU ARE HERE [P2-P7, S1]**

Come with us on a dramatic journey to the very edge of our solar system and back. In real-time we'll be seeing the boundaries of human exploration and following in the footsteps of some very special space missions. Our beginner-friendly space-cruise is a chance for some cosmic perspective in this topsy-turvy time and also a handy wee reminder that: You. Are. Here. There will be time to chat with Dynamic Earth's astronomers after the show too - we hope you'll join us for the ride!

<https://www.youtube.com/watch?v=b9CLlpax6AM>

- **DON'T PANIC [P3-7, S1-S6] – BRAND NEW FOR 2023**

In days where it seems like Earth is lurching from one disaster to the next, anxieties around the future of our planet mount and it seems like there isn't much we can do. We'll explore in our planetarium how there's actually a lot of cause for optimism as long as we remember - Don't Panic!

- **UNDER PRESSURE - THE OCEAN SHOW [P3-7, S1-S6]**

Come with us as we take a deep dive into the global ocean; we'll explore dark, hidden ecosystems and see the collective efforts of hundreds of marine scientists and engineers, striving to learn all we can about these enigmatic worlds. We'll also ponder on our ability to shape the future of this global ocean we all depend on.

<https://www.youtube.com/watch?v=XEewXepumDs>

- **WHAT'S UP? [P3-7, S1-S6]**

Dynamic Earth's What's Up? is an ever-changing look at the night sky and some of the more exciting astronomy and Earth-science news stories that have caught our eyes in recent weeks. In every seasonal version of the show you'll have time to gaze out on the stars and planets that are visible for our current skies, dive in to beginner-friendly guides on

astronomy topics, and be kept up to date on some of the most interesting events and discoveries happening today.

https://www.youtube.com/watch?v=cl23pHb73Zo&embeds_euri=https%3A%2F%2Fwww.dynamicearth.co.uk%2F&source_ve_path=MjM4NTE&feature=emb_title