

Science and Technology

**Biology/Physics/BGE Science/
Sessions for Teachers**



Bookings open 16 August www.nms.ac.uk/schoolbooking

To request a visit complete our form at www.nms.ac.uk/schoolbooking

Keep in touch:



For more information, contact us:

National Museum of Scotland and National War Museum
0131 247 4041
schools@nms.ac.uk

National Museum of Flight
0131 247 4238
[schools@nms.ac.uk](mailto:schoolsnmof@nms.ac.uk)

National Museum of Rural Life
0131 247 4377
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Science and technology, the natural world, art and design, world cultures and Scottish history – we cover it all at our four national museums across Scotland.



© Sandy Young

Wildlife Photographer of the Year

S1–S6

National Museum of Scotland
19 Jan–29 Apr 2018

The most prestigious photography event of its kind, *Wildlife Photographer of the Year* showcases images of the natural world's most astonishing and challenging sights displayed on large backlit panels.

If you would like to study animals more closely as part of your visit you can also book to use our *Amazing Animals* handling box free of charge.

10:15/11:45/13:15 60 mins in exhibition
£3 per pupil

Max. 33 pupils per time slot

Wildlife Photographer of the Year is developed and produced by the Natural History Museum, London.



© Chris Scott

Get Energised Science Investigation Days

S1–S3

National Museum of Rural Life
Tue 3 & Wed 4 October 2017
Tue 10 & Wed 11 October 2017

National Museum of Scotland
Mon 20 & Tue 21 Nov 2017
Mon 14 & Tue 15 May 2018

Pupils will discover more about renewable energy in Scotland through a series of hands-on, group-work activities. The day will provide an introduction to the range of renewable energies in Scotland, followed by the chance for pupils to build their own hydro turbine, and engineer a wave technology model.

10:00–14:30
with 30 minute lunch break

Max 36 pupils

Get Energised Challenge Days and Science Investigation Days are made possible by the generous support of the ScottishPower Foundation.



Free!

Get Energised Challenge Days

National Qualifications 4–5 Physics
National Museum of Rural Life
Thu 5 Oct 2017

National Museum of Flight
Wed 1 Nov 2017

National Museum of Scotland
Mon 6 & Tue 7 Nov 2017

Inspire your pupils to look at the renewable energy industry differently. *Get Energised Challenge Days* allow pupils to conduct experiments, meet industry experts and work cooperatively to solve problems. The day includes solar, wind, hydro and marine power challenges. The event concludes with a networking session with experts from STEM industries to inspire participants.

10:15–15:00
with 45 minute lunch break

Max 20 pupils (five teams) from each school at each Challenge Day. Pupils work in teams of four, competing against teams from other schools.

A free teachers' training event on renewable energy will be held on Thursday 28 September to complement the *Get Energised* activities. For event booking details visit www.nms.ac.uk/teachers

Free!

Careers Hive

S1–S3

National Museum of Scotland

Mon 26 Feb–Fri 2 Mar 2018
(Public open day on Sat 3 Mar 2018)

Careers Hive is an immersive careers education event for S1 to S3 students presented by Edinburgh International Science Festival. It highlights the exciting opportunities available to young people who engage with science, technology, engineering and maths (STEM) throughout their education and beyond. Pupils will participate in a hands-on workshop, hear talks from inspiring STEM professionals and explore an interactive exhibition where they will meet and engage with individuals currently working across a range of industries and roles. For further details and booking information visit www.sciencefestival.co.uk/careershive

3 hours (3 x 1 hour sessions)

Up to 600 pupils per day, max 25 pupils per group



© Edinburgh International Science Festival / Alan MacDonald



Animal Adaptations

S1–S3 & National Qualification Biology
National Museum of Scotland

Available throughout the year, please get in touch to check availability

S1–S3 pupils will explore how adaptations evolved through natural selection on a range of animals. Pupils will handle animal specimens, including a sawfish snout, arctic fox fur and elephant tooth, as well as replicas from our collections to investigate and draw their own conclusions.

Pupils working at National Qualification level will explore the habitats and adaptations of animals in our *Animal World* gallery, before handling real animal specimens. Pupils will then be presented with different scenarios and will have to determine if animals will adapt to survive or become extinct, and the consequences of this on their eco-system.

Between 19 Jan–29 Apr 2018 entry to our *Wildlife Photographer of the Year* exhibition is included.

75 mins
£70 per workshop
Max 30 pupils



© Sandy Young

DNA: A Question of Taste

Higher and Advanced Higher Biology
National Museum of Scotland

4, 5, 11, 12, 26 & 27 Oct, 1, 2, 15, 16, 29 & 30 Nov, 13 & 14 Dec

A full day hands-on polymerase chain reaction (PCR) workshop for Higher and Advanced Higher Biology pupils. Using their own DNA, pupils will discover and compare their version of a bitter taste receptor gene (their genotype) to their ability to taste the bitter compound (their phenotype). They will use cutting-edge equipment to carry out the modern laboratory techniques of DNA extraction, PCR, restriction enzyme digestion and gel electrophoresis. At least one teacher must accompany pupils.

Our DNA workshop is very popular and spaces are limited. This workshop has a unique booking form which will be available online from 16 August 2017 at www.nms.ac.uk/DNA

10:15–15:30
£8 per pupil

Max 24 pupils. If you have a smaller group, the museum will pair up schools to fill workshops.

Presented by The University of Edinburgh in partnership with National Museums Scotland.



THE UNIVERSITY of EDINBURGH

Career-Long Professional Development

We run regular training sessions for teachers on a variety of topics, including private views of special exhibitions. To see our latest topics visit www.nms.ac.uk/teachers

Other events and activities for schools are being developed throughout the year. For details of our latest programme visit www.nms.ac.uk/schools

You can also access free resources at www.nms.ac.uk/schools

Visit when you want

General Visits – FREE

Book a free self-led visit to any of our four museums for all class sizes. We can provide access to a cloakroom and lunchroom. Trail sheets and teachers' packs are available.

Object Handling Boxes – FREE

A range of object handling boxes to use across our museums free of charge on topics such as *Scotland's Rocks and Fossils* and *Amazing Animals*. Boxes must be booked in advance.

Curriculum Days for S1–S3 pupils – cost dependent on activities

Bring your whole year group for a day of activities at the National Museum of Scotland. We can offer a mixture of workshops, trail sheets and self-led activities on a range of topics.



© Phil Wilkinson

Materials Handling Box

Free!

S4–6

National Qualification, Higher or Advanced Higher

National Museum of Scotland

Throughout the year, please get in touch to check availability

This new teacher-led handling box will allow pupils to discover more about Material Science through hands-on and gallery-based activities which explore both familiar and unusual objects from across the museum.

- Explore a range of traditional and non-traditional materials used in a selection of museum objects and examine how their individual properties have made them uniquely suited to their purpose.
- Examine samples of new and emerging materials and explore how their properties could be used in current and future technologies.
- Compare the design of everyday objects to discover how social, environmental and technological changes have influenced their development.

60 mins

Max. 33 pupils per group



© Sandy Young

Skylab

S1–S2

National Museum of Flight

For dates visit www.nms.ac.uk/schoolsflight

Your pupils will discover how aeroplanes fly by experimenting with models in the company of pilots and engineers from the aviation industry. Weather permitting, your day will end with an aerobatic display.

10:00–14:30 with 30 minute lunch break

£70

100 pupils

The schools education programme at the National Museum of Flight has been developed with support from Heritage Lottery Fund.



STEM Careers Self-Led Trails

S1–S3

National Museum of Scotland

Available throughout the year

We have a range of trail sheets which secondary school classes can use to discover objects in the museum. Our new STEM careers trails include engineering, digital technologies, life sciences, finance and architecture.

To see the full range visit www.nms.ac.uk/trails

Adult Talks Programme

S5–S6 pupils & Teachers

National Museum of Scotland

Available throughout the year

We now offer free tickets for teachers and senior pupils to our adult talks programme at the National Museum of Scotland. Tickets must be booked in advance and all pupil tickets must be reserved by their teacher. Senior pupils over age 16 may attend unaccompanied.

For details of the latest ticket offers for teachers visit www.nms.ac.uk/teachers

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