

Science and Technology

Biology/Physics/BGE Science
& Sessions for Teachers



To book, complete our request form at 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
schoolsnmof@nms.ac.uk

National Museum of Rural Life
0131 247 4377
schoolsnmorl@nms.ac.uk

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.



© Neil Hanna

Baxter, a working robot © The Board of Trustees of the Science Museum



Exhibitions

Visit nms.ac.uk/teachers for details of our teachers' private views.

Robots

S1–S6

National Museum of Scotland

18 Jan–5 May 2019

This major exhibition tells the 500-year story of humanoid robots and what it means to be human. Set in five different periods and places, the exhibition explores the rich history, technology and culture of robots. Acting like mirrors for society, robots show how our hopes, dreams and fears have changed over the centuries. The exhibition features a unique collection of more than 100 robots, from the earliest automatons to robots from science fiction and modern-day research labs.

10:15/11:30/12:45 (60 mins)

£3 per pupil

Developed by

**SCIENCE
MUSEUM**

New Ancient Egypt and East Asia galleries

Free!

S1–S6

National Museum of Scotland

Our new permanent galleries *Ancient Egypt Rediscovered* and *Exploring East Asia* open in Spring 2019. The galleries will showcase over 1,200 outstanding objects, many of which have not been on display in over a generation.

Self-led Museum Visit

Free!

S1–S6

National Museum of Scotland
National Museum of Rural Life
National Museum of Flight
National War Museum

Available throughout the year

Whatever your topic, our museums have something to offer. Book beforehand to access our resources for schools, including lunch space and cloakrooms, where available. Plan your visit using our self-led resources available online at nms.ac.uk/selfled

From 10:30 onwards

Our Get Energised secondary programme is under development during the 2018–19 school year. Find out how you can get involved online at nms.ac.uk/getenergised

Get Energised Outreach Kit at Aberdeen Science Centre

An outreach kit for secondary schools is available to borrow from Aberdeen Science Centre. It contains activities based around wind turbines for pupils studying BGE Science and National Qualification Physics. For more information, or to book, contact education@asc.scot

Get Energised Outreach Kit is made possible by the generous support of the ScottishPower Foundation



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

DNA: A Question of Taste

Higher and Advanced Higher Biology

National Museum of Scotland

3, 4, 10, 11, 24, 25 & 31 Oct 2018

1, 14, 15, 27 & 28 Nov 2018

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.

*Please request your visit at nms.ac.uk/DNA
Bookings open 13 August 2018.*

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.

© Janet Paterson



THE UNIVERSITY of EDINBURGH



© Neil Hanna

Careers Hive

Free!

S1–S3

National Museum of Scotland

25 Feb–1 Mar 2019

Careers Hive is a careers education event 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 sciencefestival.co.uk/careershive

3 hours (3 x 1 hour sessions)

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



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 nms.ac.uk/teachers

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

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.



© Ruth Armstrong Photography

Materials Handling Box

S4–S6

National Qualification, Higher or Advanced Higher

National Museum of Scotland

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

This teacher-led handling box allows 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 nontraditional 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.

10:15/12:30 (60 mins)

£25 for 1 class, £50 for 2 or more classes

Teacher-led Object Handling Boxes

National Museum of Scotland

Discover more about a topic by using one of our object handling boxes. Containing real and replica objects, and with a range of suggested activities, these boxes can be tailored by teachers to suit the learning intentions of their class. Each session starts with an introduction by our Enabler team.

Available for:

- Animals: Ecosystems, Interdependence and the Environment
- Objects From Around the World
- Romans in Scotland
- Scotland's Early People
- Scotland's Rocks and Fossils
- Scots and Emigration
- Victorians
- Vikings in Scotland

10:15/12:30 (60 mins)

£25 for 1 class, £50 for 2 or more classes

Flying Forces

S1–S2

National Museum of Flight

Available throughout the year

Your pupils will discover how aeroplanes fly by experimenting with models to meet a number of challenges. They will also have the chance to handle pieces of real aircraft to study the way physics has shaped them.

10:15/11:45/13:15 (75 mins)

£75

Max 30 pupils per group

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



STEM Careers Self-led Trails

Free!

S1–S3

National Museum of Scotland

Available throughout the year

Our STEM careers trails include engineering, digital technologies, life sciences, finance and architecture.

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

Adult Talks Programme

Free!

S5–S6 and Teachers

National Museum of Scotland

Available throughout the year

We 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 visit nms.ac.uk/teachers

Bookings open 13 August nms.ac.uk/schoolbooking