

# Science and Technology

Biology/Physics/BGE Science  
& Sessions for Teachers



To book, complete our request form at [nms.ac.uk/schoolbooking](http://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](mailto:schools@nms.ac.uk)

**National Museum of Flight**  
0131 247 4238  
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**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.



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



## Exhibitions

Visit [nms.ac.uk/teachers](http://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](http://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](http://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](mailto: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](http://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](http://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](http://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](http://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](http://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](https://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](https://nms.ac.uk/teachers)

Bookings open 13 August [nms.ac.uk/schoolbooking](https://nms.ac.uk/schoolbooking)