

Science and Technology

**Workshops / Events /
Sessions for Teachers**



Check out what's new!



On 8 July 2016, ten new galleries will open at the National Museum of Scotland, dedicated to innovation and creativity in Decorative Art, Design, Fashion, Science and Technology.

To book, complete our request form at www.nms.ac.uk/schoolbooking

Keep in touch:



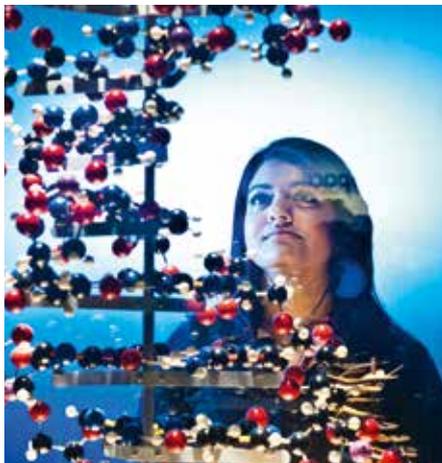
For more information, contact us:

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

National Museum of Flight
0131 247 4238
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.



Big Ideas Day: Genome Testing: A Choice?

S5–S6

National Museum of Scotland

Thu 15 Sep 2016

Would you sequence your own genome? In collaboration with world-leading experts from the University of Edinburgh, explore the rapid pace of scientific progress and debate the issues and moral challenges it seems likely to bring.

As we move from a world where it takes a billion dollars and many years to sequence one genome to one where it costs under a £1000 and takes mere hours, we will bring together scientists and policy experts to debate these topical areas and the difficult questions they raise. Is knowledge power or is ignorance bliss? Would the information help you to avoid potential pitfalls, or would the idea of a pre-determined fate change the way you live for the worse? Is there a limit to what science should be able to do?

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

Max 40 pupils from one school

Free!

Pandemic – Can You Save the World?

S1–S2

National Museum of Scotland

Mon 10–Fri 14 Oct 2016,
Mon 19–Thu 22 Jun 2017

Experience this new immersive science show as we take an action-packed journey through a global pandemic. Meet scientific heroes whose inventions have revolutionised how we fight disease, have the chance to identify the source of the outbreak and see if you can make the right choices to save humanity – the future of the world is in your hands!

10:30/11:30 (45 mins)

Up to 150 pupils per show

Big Ideas Day and *Pandemic – Can You Save the World?* are supported by the Wellcome Trust

Supported by
wellcometrust

Free!

Meet the Expert

S1–S6

National Museum of Scotland

First Thursday of every month
from October 2016

Our six new Science & Technology galleries will provide many opportunities for students to engage with objects from a broad spectrum of scientific and engineering fields.

Throughout the year we will be providing opportunities for secondary pupils to engage with people currently working in STEM careers both on gallery, and in small hands-on sessions. These will include:

Expert-led demonstrations in new, different or emerging technologies

Short talks that explore the science behind some key objects or gallery themes

Expert-led debates, topical science and Q&A sessions focusing on different industries and careers

A timetable of topics will be available on our website from August 2016.

60 mins

Max 30 pupils

Free!

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



Careers Hive

S1–S3

National Museum of Scotland

February 2017

Careers Hive is an immersive careers event for S1 to S3 students presented by Edinburgh International Science Festival. Focusing on the challenges humanity faces and how we might solve these. Careers Hive introduces some of the science, technology, engineering and maths (STEM) careers which can help to build a better world. For further details, and to book for this event, please visit

www.sciencefestival.co.uk/careershive

3 hours

Up to 600 pupils per day



Free!



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 9 December 2016 and 23 April 2017 includes entry to our *Monkey Business* exhibition.

75 mins

£70 per workshop

Max 30 pupils



Monkey Business Exhibition Visit

S1–S6

National Museum of Scotland

Fri 9 Dec 2016–Sun 23 Apr 2017

Explore the world of primates, from the tiny mouse lemur to the mighty gorilla. Find out what has caused them to become endangered and what we can do to help. Featuring taxidermy specimens and articulated skeletons of monkeys, apes, lemurs, lorises and bushbabies, alongside models, engaging interactives, stunning photography and film.

90 mins

£3 per pupil

Max 30 pupils per timeslot

DNA: A Question of Taste

Advanced Higher Biology

National Museum of Scotland

2016: Wed 12–Thu 13 & Wed 26–Thu 27 Oct,
Wed 9–Thu 10 & Wed 23–Thu 24 Nov,
Wed 7–Thu 8 Dec

2017: Wed 11–Thu 12 & Wed 18–Thu 19 Jan

A full day hands-on polymerase chain reaction (PCR) workshop for **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. *Presented by University of Edinburgh in partnership with National Museums Scotland.*

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.

Our DNA workshop is very popular and spaces are limited. This workshop now has a unique booking form which will be available online from 17 August 2016 at www.nms.ac.uk/DNA

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/schools and click on the 'Teachers' section.

Teachers' Orientation Days

National Museum of Scotland

Sat 1 Oct 2016, Sat 4 Feb, Sat 29 Apr 2017

10:00–14:00

A hands-on networking session to assist with planning your visit, completing risk assessments, and finding your way around the museum.

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.



Skylab

Free!

S1–S2

National Museum of Flight

Check website for dates

Your pupils will discover how aeroplanes fly by experimenting with models in the company of pilots and engineers from the aviation industry.

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

100 pupils



© Ruth Armstrong Photography

Get Energised Challenge Days

Free!

National Qualifications 4–5 Physics

National Museum of Rural Life

Wed 5–Thu 6 Oct 2016

National Museum of Scotland

Mon 7–Tue 8 Nov 2016

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. This year, new additions include a networking session with experts from STEM industries to inspire participants, and one winning team per challenge.

9:45–15:00

with 30 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.

Get Energised Science Investigation Days

Free!

S1–S3

National Museum of Rural Life

Wed 28–Fri 30 Sep 2016

Mon 10–Wed 12 Oct 2016

Max 40 pupils

National Museum of Scotland

Mon 21–Tue 22 Nov 2016

Mon 8–Thu 11 May 2017

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.



My World of Work Live! at the National Museum of Scotland

Free!

My World of Work Live! inspires young people's interest in science, technology, engineering and maths (STEM) careers.

For primary 7 to S3 pupils, its interactive activities are hands-on and engaging, empowering young people to make informed decisions about their future. Museum objects are used to spark discussion on the wealth of opportunity STEM careers offer, and challenge young people to see where STEM subjects could take them.

Before and after their visit, pupils can go to myworldofwork.co.uk to find information and tools to help them explore a range of careers across a variety of industries. You'll also find support resources to help pupils make the most of their visit and continue learning back in the classroom. You can also use self-led STEM trail sheets during your visit, which will guide your pupils round the museum galleries and encourage them to think about their skills and the jobs available to them now, and in the future.

More information online
www.nms.ac.uk/mywow



Bookings open 17 August www.nms.ac.uk/schoolbooking