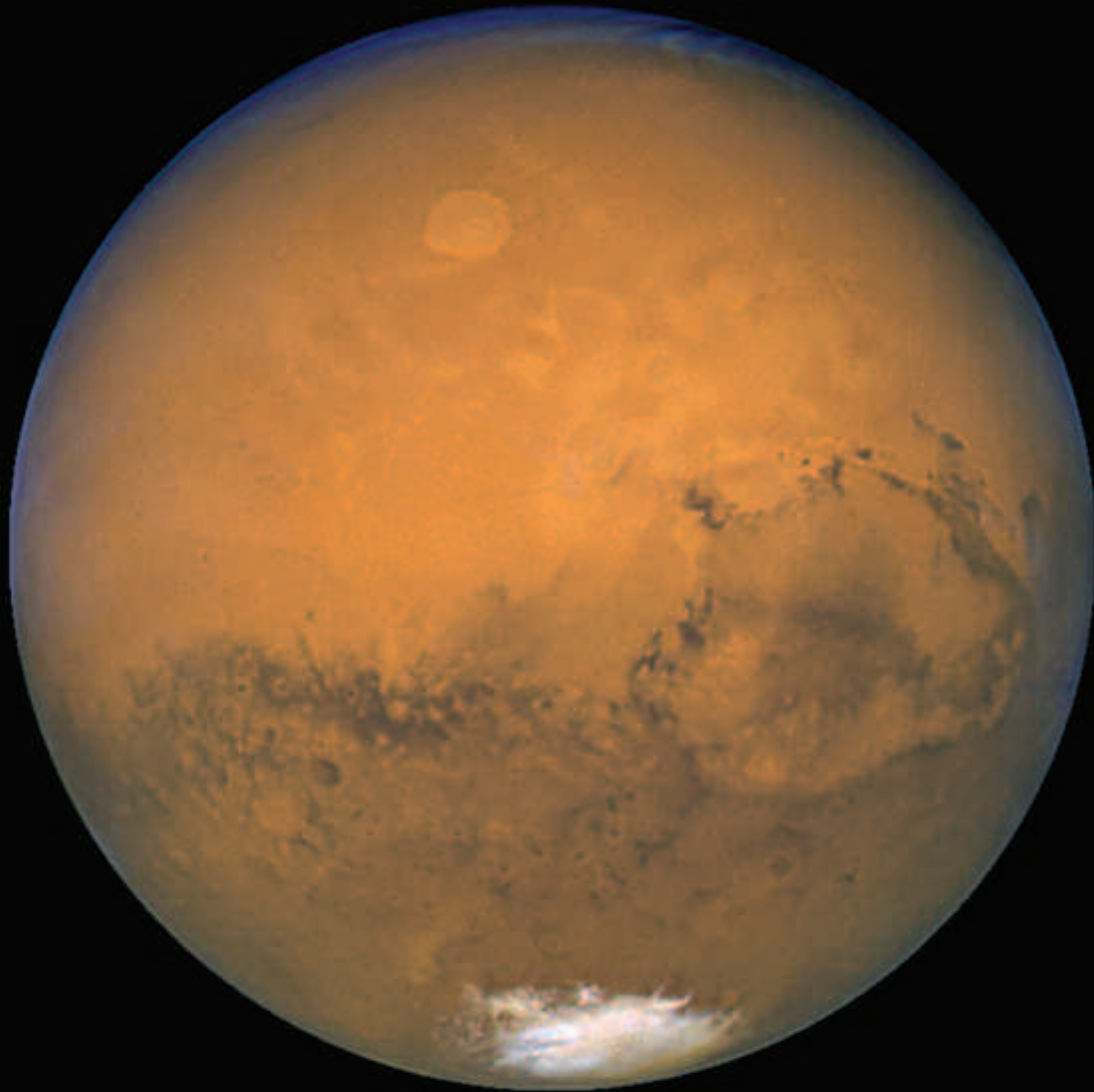


Royal Observatory, Greenwich programme for secondary schools, 2008–09

All pre-booked school sessions are free of charge



Because it has no oceans,
the planet Mars has the same
land surface area as the Earth.

National Maritime Museum, Queen's House and Royal Observatory, Greenwich

a school visit

A school visit to the Royal Observatory, Greenwich offers a superb day out and a memorable experience for students.

The Observatory is home to Greenwich Mean Time and the Prime Meridian (Longitude 0°), and is one of the most important historic scientific sites in the world. It was founded by Charles II in 1675 and is, by international decree, the official starting point for each new day, year and millennium. It was also the official residence of the Astronomer Royal until the 1950s.

Following extensive redevelopment, the Observatory offers a wide range of new facilities for visiting schools. These include the award-winning Time galleries, the interactive Weller Astronomy Galleries, the Lloyd's Register Learning Centre and the Peter Harrison Planetarium. Other facilities include the Meridian galleries, the Great Equatorial Building and the Altazimuth Pavilion. Cloakroom and lunch room facilities are also available.

The Royal Observatory and the Queen's House are part of the National Maritime Museum, Greenwich, which are all situated within the Maritime Greenwich World Heritage Site.



Top tips for planning a successful visit

Book early

Sessions are popular and time slots are limited. We recommend booking as early as possible to avoid disappointment. All sessions must be booked in advance. See section on Booking a Visit for details of how to book.

Arrange a pre-visit

In order to work out practical details, we advise that you try to visit the Observatory before your trip. This is particularly important for self-guided activities. Entrance to the Royal Observatory is free of charge.

Self-guided activities

Key Stage 3 and 4 students must be supervised at all times in the Royal Observatory, Queen's House and National Maritime Museum. For self-guided groups of more than ten students, please inform our Bookings team in advance.

Read your welcome pack carefully

Your booking confirmation form and (if applicable) your teachers pack will provide you with an itinerary for the day of your visit and a host of additional information. Further information is available at www.nmm.ac.uk/schools

Plan your journey carefully

We will always do everything we can to accommodate school groups who arrive late. However, due to high demand, we regret it is not always possible to reschedule missed pre-booked sessions. See 'How to get to the Royal Observatory, Greenwich' on the back cover.



2009 is the International Year of Astronomy
www.astronomy2009.org

PLEASE NOTE

Cancellation of a pre-booked session less than 28 days before your visit, or bringing fewer than half your booked number, will incur a fee of £150 for a full study day, or £75 for a single session. All cancellations must be received in writing, by post or e-mail, by our Bookings team.

How to book a visit

Please telephone or e-mail to arrange your visit, ensuring you have completed the following check list.

- You have the date of your visit and time of arrival ready, preferably with a range of possible alternatives.
- You can provide a description of the learning needs of your group, including any Special Education Needs.
- The number of adults attending is sufficient to meet the minimum requirement of one adult for every ten pupils.

Please remember to enquire about relevant support materials for your visit and the availability of the lunch room.

Booking staff will be happy to provide advice on getting around the site and will post resources, site plans and an itinerary with your confirmation to help brief students and group leaders prior to your visit.

T: **020 8312 8575**
F: **020 8312 6522**
E: **bookings@nmm.ac.uk**

How to book a videoconferencing session

Make the most of your videoconferencing facilities with a live link to the Royal Observatory, Greenwich. Videoconferences can be booked through either the Janet Collaborate or the Global Leap websites

<http://www.janetcollaborate.ac.uk>
<http://www.global-leap.com>

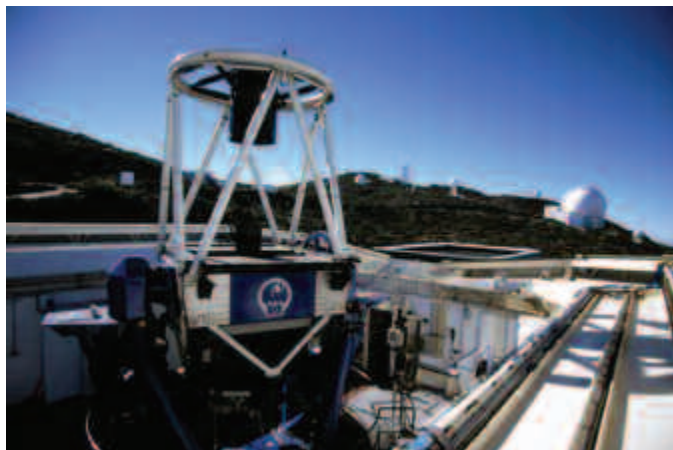
For full details of the sessions please visit our website
www.nmm.ac.uk/schools

© RecycleNow Partners



Maritime Greenwich is a beautiful and famous World Heritage Site with thousands of visitors.

Please help us to look after Greenwich and the Museum by disposing properly of all litter and other waste in the bins provided.



Liverpool Telescope, Canary Islands: used in 'Hunting for Asteroids'

key stages 3 and 4

planetarium shows

The programme for Key Stages 3 and 4 includes a live planetarium show, a session in the Lloyd's Register learning centre, a visit to the Weller Astronomy Galleries and time in the lunch room, with the opportunity to visit the Time and Meridian galleries. This programme can accommodate up to 90 students.

Exploring Space

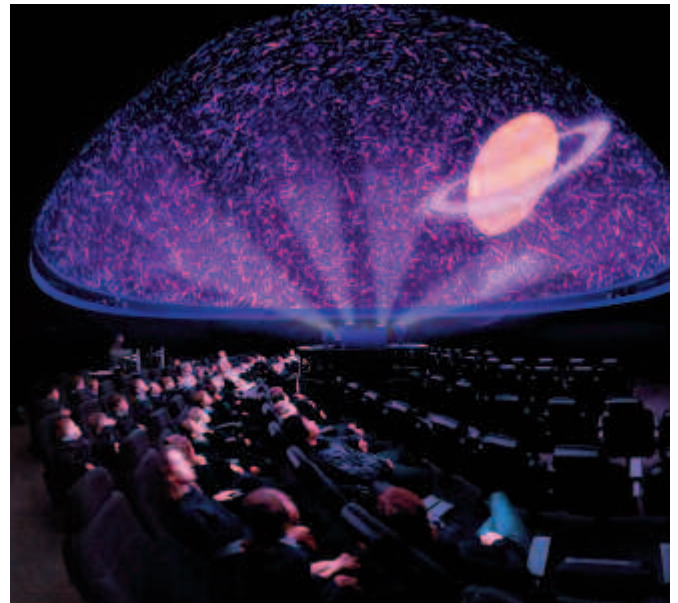
Key Stage 3

This digital planetarium show, presented by an astronomer, offers a visually striking guided tour of the skies as they appear from the Earth. Students will examine the apparent path of the Sun across the sky and how it varies with the seasons. They investigate the Moon's changing appearance and how the stars can be used to navigate. The show also involves a virtual flight around some of the planets of the solar system.

Wednesdays and Thursdays

10.40 / 11.40

**Sessions accommodate 60 students
and last 45 minutes**



A Guide to the Universe

Key Stage 4

This impressive digital planetarium show, presented by an astronomer, offers a guided tour of the night sky as it will appear from Earth on the day of the class visit and into the near future. Students will explore the science behind the stars, from star formation in nebulae, to supernovae and black holes. They will also find out about space missions designed to uncover the secrets of the universe.

Wednesdays and Thursdays

10.40 / 11.40

**Sessions accommodate 60 students
and last 45 minutes**



key stages 3 and 4

learning sessions for students

Understanding the Seasons

Key Stage 3

This session is a unique opportunity to use the Observatory's large models to view the Earth from space and observe in three dimensions the way the planet moves, giving rise to the seasons. Students will also consider how seasonal changes vary in different locations and explore the scale of the solar system.

Life in the Solar System

Key Stage 3

Find out about our solar system in this engaging discovery session, investigating the Sun, planets, moons, asteroids and comets. The session explores the possibility of life existing elsewhere in the solar system. Using digital voting technology, group discussion, space-probe imagery and newspaper articles, students are encouraged to explore our developing understanding of the solar system.

Hunting for Asteroids

Key Stages 3 and 4

Explore the asteroid belt using a range of ICT resources in this impressive practical session. Working with real astronomical photographs obtained specifically for your session, students identify asteroids – some previously undiscovered – and determine their velocity using simple calculations. This session is delivered in collaboration with the National Schools' Observatory using images from the Liverpool Telescope in the Canary Islands.

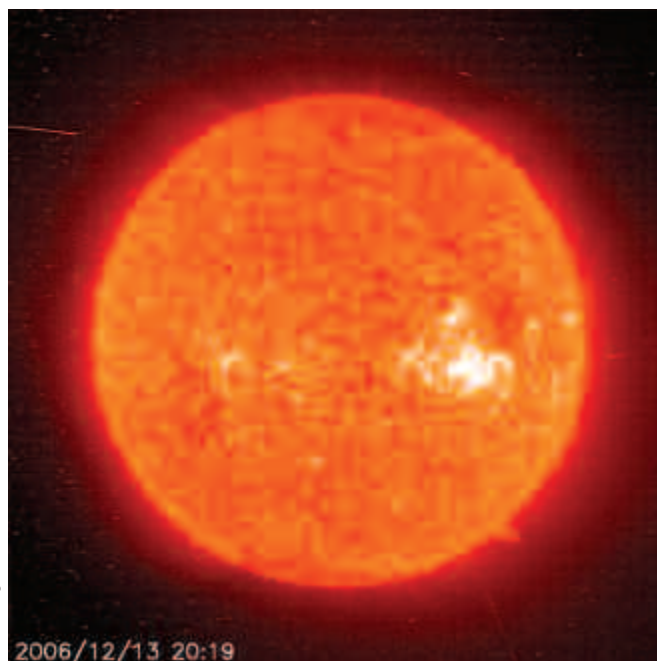


Asteroid Ida with moon Dactyl; © NASA

Wednesdays and Thursdays

10.35 / 11.35 / 12.35

Sessions accommodate 30 students and last 45 minutes



Sun Spotting

Key Stages 3 and 4

Summer Term

In this session students will discover how and why astronomers observe the Sun. The session includes an opportunity to observe the Sun safely using special telescopes and other solar observing equipment with the assistance of an astronomer. Single classes will be divided into two groups to facilitate the delivery of the programme. If weather does not permit observing, a replacement programme will take place in the Discovery Space.



Thursdays

10.35 / 11.35 / 12.35

Sessions accommodate 30 students and last 45 minutes

Videoconferencing

Why not supplement your visit to the Royal Observatory, Greenwich with a videoconferencing session? For information on videoconferencing sessions, please refer to section on Booking a Visit.

key stages 3 and 4

gallery visits

The Weller Astronomy Galleries

Key Stages 3 and 4

Book a session in our interactive Weller Astronomy Galleries. Discover the wonders of the universe in 'Astronomy Inspires', try your hand at being an astronomer in 'Astronomy Explores' and unravel the mysteries of the universe in 'Astronomy Questions'

The Time galleries, Meridian galleries and Meridian Courtyard

Key Stages 3 and 4

A visit to the earliest parts of the Observatory makes an excellent additional activity before or after your education programme. Stand astride the Prime Meridian of the World with one foot in the eastern hemisphere and one foot in the western hemisphere. Explore the Time galleries and discover the connection between time and the Sun, Moon and stars. Look at the instruments astronomers used to carry out their work, including the giant 28-inch telescope, the largest of its kind in Britain.

Wednesdays and Thursdays

Self-guided

All areas are also open to general public

The Weller Astronomy Galleries accommodate 30 students



All sessions are free and must be booked in advance



Study Days

Key Stage 4 and Post-16

Cross-curricular

We offer separate study day programmes for students of A-level Physics and GCSE Science (including GCSE Physics) and GCSE Astronomy. Please consult our website: www.nmm.ac.uk for full details of each study day before contacting our Bookings Team.

A-Level Physics

**16 October / 27 November / 22 January/
5 March / 2 April / 13 May
10.30 – 14.30**

GCSE Science

**13 November / 19 March / 30 April
10.30 – 14.30**

GCSE Astronomy

**5 February
10.30 – 16.45**

Study Days can accommodate 90 students

Free of charge



Open Evening at the Royal Observatory, Greenwich

Come to the Royal Observatory, Greenwich and find out what the Observatory has to offer for students at Key Stages 3 and 4, and Post-16. Visit the new astronomy centre, enjoy a range of taster sessions, enjoy a planetarium show in the 120-seat Peter Harrison Planetarium, observe the stars through our telescopes and talk to our astronomers and education officers. Food and refreshments will be provided. Detailed instructions on after-hours access to the Observatory will be provided on booking.

Saturday 22 November 2008 17.30 – 20.30

90 places are available

Tickets £15.00 per person

To book your place please request a booking form
T: **020 8312 8575** E: **bookings@nmm.ac.uk**
or book via our website www.nmm.ac.uk/schools

Cutting Edge Science into the Classroom: Astrophysics (LNC08001)



Key Stage 4 Science

We will be delivering a special day of CPD, including talks from professional astronomers and a range of practical activities to transfer back into the classroom. This programme is booked through the Science Learning Centre London.

Thursday 3 July 10.00 – 15.30

30 places are available

Please refer to the Science Learning Centre website, <http://www.sciencelearningcentres.org.uk/> to book or for further information.



Whirlpool Galaxy M51;
© NASA/ESA, S. Beckwith (STScI), and The Hubble Heritage Team (STScI/AURA)

Bringing the Universe down to Earth



This professional development programme offers secondary science teachers a unique opportunity to build their confidence in astronomy and space science and explore a range of practical activities that may be transferred into the classroom.

Please consult our website for full details of the study day programme before contacting our Bookings Team.

Thursday 17 July 2009 10.00 – 15.30

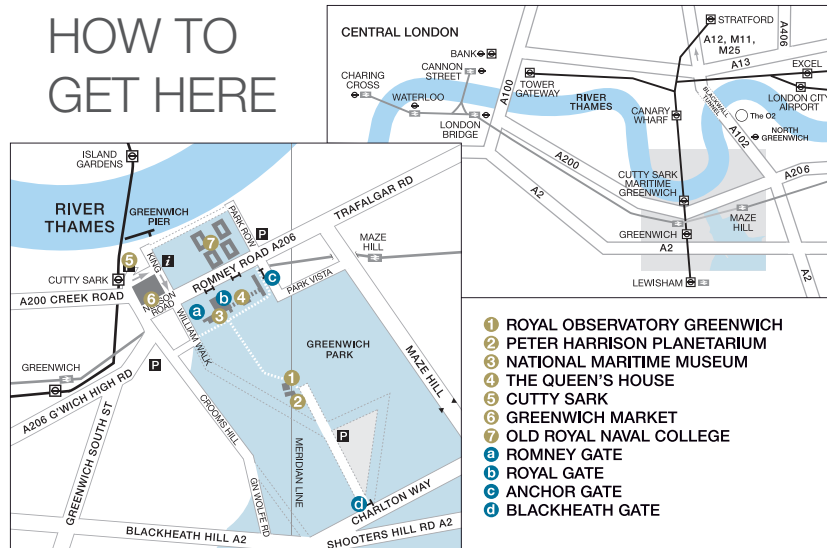
90 places are available

£35.00 per teacher, including lunch, tea and coffee
Student teachers free

T: **020 8312 8575** E: **bookings@nmm.ac.uk**

how to get to the

Royal Observatory, Greenwich



The Royal Observatory, Greenwich is situated in the middle of Royal Greenwich Park. If you are arriving by coach or on public transport the Observatory is reached following a 5–10 minute walk through the Park.

By Rail

Docklands Light Railway

- Cutty Sark, (10 minute walk via King William Walk)

Mainline

- Maze Hill (10 minute walk via Park Vista)
- Blackheath (15 minute walk across the heath)
- Greenwich (15 minute walk via King William Walk)

Travel times from London to Greenwich are approximately 20 minutes from Charing Cross, Waterloo East, Cannon Street or London Bridge

By Road

Recommended road connection from the M25 via A2 Junction 2 or M11 / A12 Blackwall Tunnel.

By Bus

To Greenwich 177 / 180 / 188 / 199 / 286 / 386
To Blackheath 53 / 54 / 202 / 380

Coach Parking

Free coach parking is available in Charlton Way.

London Travel Information

T 020 7222 1234

W www.tfl.gov.uk

Opening Times

10.00 – 17.00 daily

Last admission

Half an hour before closing

Closed

24 – 26 December

Bookings Unit

T 020 8312 8575

F 020 8312 6522

E bookings@nmm.ac.uk

Learning and Interpretation

E schools@nmm.ac.uk

W www.nmm.ac.uk/learning

National Maritime Museum

London SE10 9NF

www.nmm.ac.uk

Royal Observatory, Greenwich

www.rog.nmm.ac.uk