

Royal Observatory, Greenwich programme for secondary schools 2009–10



Saturn has more than 200 moons
but only seven are spherical

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

why visit the Royal Observatory, Greenwich

A 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 agreement, the official starting point for each new day, year and millennium. It was also the residence of the Astronomer Royal until the 1950s.

We offer a wide range of facilities for visiting schools. These include the award-winning Time Galleries, the interactive Weller Astronomy Galleries, the Lloyd's Register Educational Trust Learning Centre and the Peter Harrison Planetarium. Other facilities include the Meridian Galleries, the Great Equatorial Building and the Altazimuth Pavilion. Lunch-room facilities are also available.



The Royal Observatory, Greenwich is part of the National Maritime Museum, which includes the National Maritime Museum Galleries and the Queen's House.

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 the section on Bookings Information for details of how to book.

Arrange a pre-visit

In order to work out practical details, we advise that teachers and group leaders try to visit the Observatory before a trip. This is particularly important for self-guided activities.

Self-guided activities

KS3 and KS4 students must be supervised at all times. For self-guided groups of more than ten students, please inform our bookings team in advance.

Teacher's pack

A pack will be sent confirming your booking and will include a range of information including your itinerary, and any relevant pre-visit material and resources. Further information is available at nmm.ac.uk.

Aim to arrive early

Carefully consider the time required to reach the Observatory. We will always do everything we can to accommodate school groups who arrive late, but due to high demand it is not always possible to reschedule pre-booked sessions.

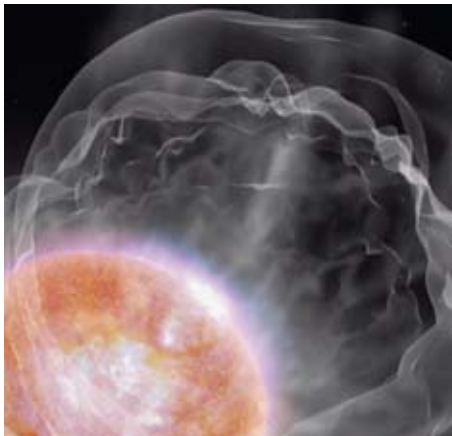
key stages 3 and 4

planetarium shows

A single planetarium show carries a charge of £45 for a group of up to 16 students and £90 for a group of up to 32 students. One adult per eight students will be admitted for free.

Planetarium programme

The planetarium programme for secondary school groups includes a state-of-the-art 25-minute, pre-recorded show, a 15-minute live show presented by an astronomer and a short Q&A session.



Star Life

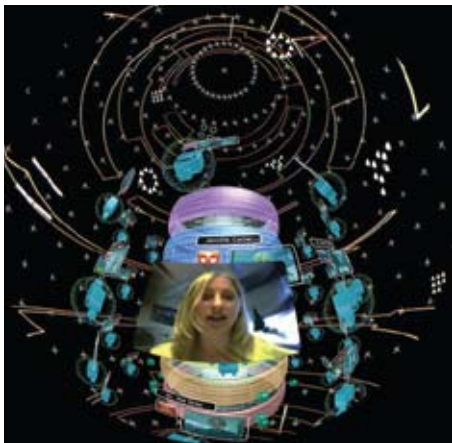
This show is a captivating exploration of how stars are born, grow up, grow old and die, from nebulae to supernovae, pulsars and black holes.

Thursdays, 3 September to 23 July

Invaders of Mars

This show is an inspiring account of our ongoing exploration of the 'Red Planet', with visual sequences based on real images and data.

Wednesdays, 3 September to 14 October



We are Astronomers

This visually striking show explores how digital technology has changed the face of astronomy, influencing the way scientists work.

Wednesdays, 19 October to 10 February

Astronomy Bites

This live show, presented by an astronomer, accompanies all the above shows and offers a whistle-stop tour of key sights visible in the night sky in the coming month.

**Wednesdays, 3 September to 10 February
Thursdays, 3 September to 23 July**



Planetarium shows

10.30 / 11.30 / 12.30 / 13.30

Programmes accommodate one or two classes and last 50 minutes

Also open to the general public

All sessions must be booked in advance

key stages 3 and 4

learning sessions for students

Learning sessions

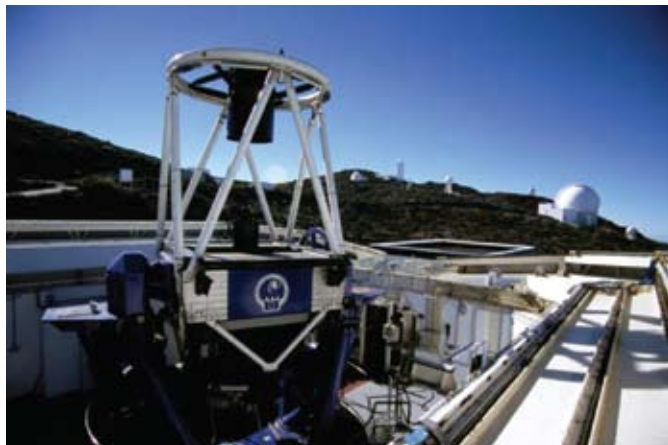
Learning sessions are free. The following include a visit to the Weller Modern Astronomy Galleries and a time slot in the lunch room. Your group will also have the opportunity to visit the historical Observatory site and Time Galleries. Planetarium shows are not included.

Hunting for Asteroids (KS3/4)



In this special practical session students look for real asteroids and analyze their motion to see if they are a threat to the Earth. Delivered in collaboration with the National Schools' Observatory, students use photographs obtained by the Liverpool Telescope in the Canary Islands to carry out this work.

Thursdays, 3 September to 12 February



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

Understanding the Seasons (KS3)

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. Pupils will also consider how seasonal changes vary in different locations and explore the scale of the solar system.

Wednesdays, 3 September to 10 February

Life in the Solar System (KS3/4)

In this engaging session students investigate the ongoing search for life in our solar system. Using practical activities, group discussion and digital voting technology, pupils are encouraged to think about searching for life on other solar system bodies.

Thursdays, 22 February to 28 May

10.30 / 11.30 / 12.30 / 13.30

Sessions accommodate one class and last 45 minutes. Free of charge

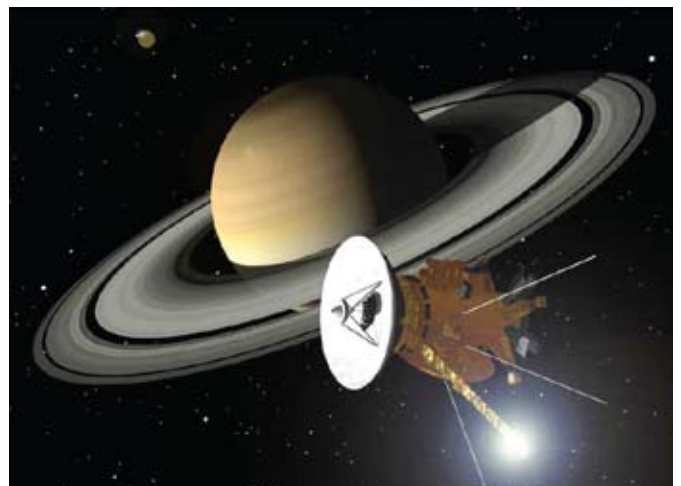
Space Update (KS3/4)

This short session, led by an astronomer, offers students a chance to find out about breaking stories in astronomy and space science, with opportunities for Q&A. This programme is only offered to groups of five to eight classes.

Thursdays, 3 September to 27 May

10.30 / 11.00 / 11.30 / 12.00 / 12.30 / 13.00 / 13.30 / 14.00

Sessions accommodate one class and last 20 minutes. Free of charge



Cassini approaches Saturn (Artist's impression) © NASA

key stages 3 and 4

gallery visits

The Weller Astronomy Galleries (KS3/4)

Book a free session in our interactive modern 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'.

Wednesdays and Thursdays 3 September to 23 July

10.30 / 11.00 / 11.30 / 12.00 / 12.30 / 13.00 / 13.30 / 14.00

Slots accommodate one or two classes and last 30 minutes. Free of charge

Self-guided

Also open to the general public



The Historic Observatory (KS3/4)

A visit to the historic Observatory site makes an excellent addition to your learning 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.

Wednesdays and Thursdays 3 September to 23 July

10.30 / 11.00 / 11.30 / 12.00 / 12.30 / 13.00 / 13.30 / 14.00

Time slots accommodate one or two classes and last up to 60 minutes. Free of charge

Self-guided

Also open to the general public

Temporary Exhibitions

Look out for an exciting programme of small temporary exhibitions taking place in the Astronomy Learning Centre throughout the year, starting with the Astronomy Photographer of the Year exhibition in September 2009. Visit nmm.ac.uk for more information.

All sessions must be booked in advance

key stage 3, 4 and post-16

study days

We offer study-day programmes for KS3, KS4 and post-16 students. All study-day programmes make use of the Planetarium and carry a charge. Please see our website for further information.



The Copernican Revolution

KS3 Science and History

Using an array of unique resources, this programme offers KS3 students an opportunity to explore an incredible scientific revolution from both an historical and a scientific perspective.

Wednesdays 18 November, 3 February

10.30 to 14.30

**Accommodates 128 students (four classes)
£90 for up to 32 students (includes planetarium)**

KS4 GCSE Astronomy

This study-day programme offers GCSE astronomy students enriching opportunities to study curriculum-relevant material through various media. With access to astronomers, the modern astronomy galleries, the learning centre's digital space and the state-of-the-art planetarium, it's an experience that's out of this world.

Thursday 10 December

11.00 to 17.00

**Accommodates 128 students (four classes)
£90 for up to 32 students (includes planetarium)**

Meet the Scientists

KS4 Science

Our KS4 study-day programme offers students an opportunity to meet with and talk to a range of scientists from various fields of astronomy and space science. Find out how science is done, how you become an astronomer and what astronomers actually do.

Thursdays 8 October, 11 February, 25 March

10.30 to 14.30

**Accommodates 128 students (four classes)
£90 for up to 32 students (includes planetarium)**

Astronomy for Astrophysicists

A-level Physics

We offer study-day programmes tailored to meet the needs of a wide range of A-level courses. Subjects include optics, cosmology and stellar evolution. Our programmes are tailored to meet the needs of groups.

**Thursdays 17 September, 19 November,
21 January, 4 March**

10.30 to 14.30

**Accommodates 64 students (two classes)
£3 per student (includes planetarium)**



Cancellation of a pre-booked session less than 28 days before your visit, or bringing less than half your booked numbers, will incur a fee of £150 for a full study day, or a fee of £75.00 for a session. All cancellations must be received in writing, by post or e-mail, by our Bookings team.

For Planetarium bookings payment by card must be received 14 days before your visit. We regret that no refunds can be made if numbers are reduced after making a booking or in the case of late arrivals and cancellations.

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 the 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 educational needs
- the number of adults attending is sufficient to meet the minimum requirement of one adult for every ten students at KS3

Information on how to pay for planetarium shows will be provided on contacting the Bookings Team.

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

Bookings 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 allow you to brief students and group leaders prior to your visit.

T: **020 8312 6608**
F: **020 8312 6522**
E: **bookings@nmm.ac.uk**



**Educational
Trust**

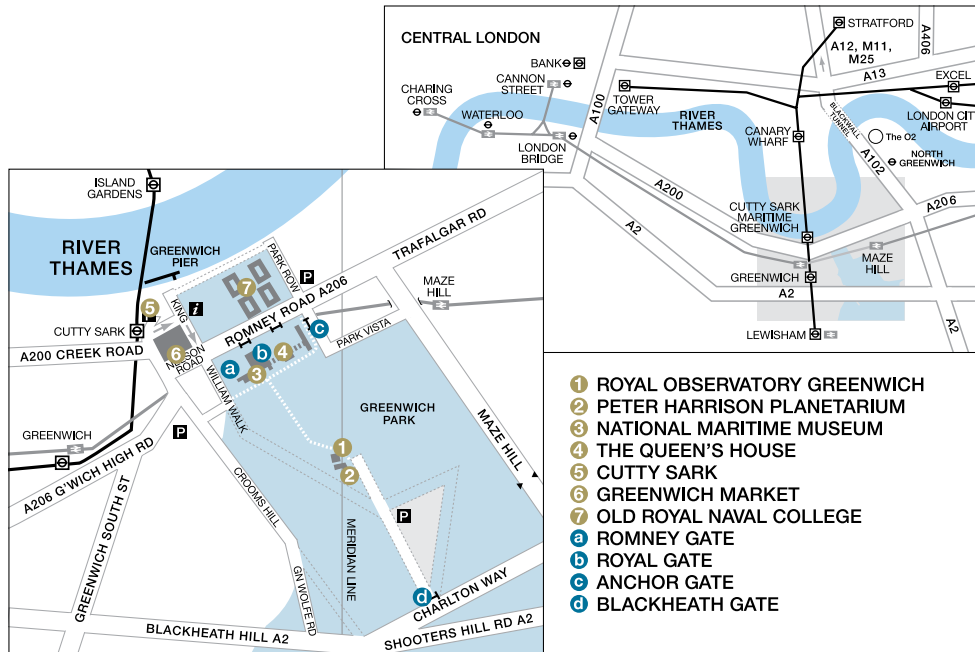
The Lloyd's Register Educational Trust (LRET) is an independent charity working to achieve advances in transportation, science, engineering and technology education, training and research world-wide for the benefit of all.



Winner of the
Sandford Award for
Heritage Learning

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

how to get to Greenwich



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

By Rail

- Cutty Sark, Docklands Light Railway (10-minute walk via King William Walk)
- Maze Hill, British Rail (10-minute walk via Park Vista)
- Blackheath, British Rail (15-minute walk across the heath)
- Greenwich, British Rail (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 Blackheath 53 / 54 / 202 / 380
To Greenwich 177 / 180 / 188 / 199 / 286 / 386

Coach Parking

Free coach parking is available on 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 6608
F 020 8312 6522
E bookings@nmm.ac.uk

Learning and Interpretation

W www.nmm.ac.uk/schools

National Maritime Museum

London SE10 9NF
W www.nmm.ac.uk

Royal Observatory, Greenwich

W www.rog.nmm.ac.uk