



# Primary Programme Workshops and Planetarium Shows 2023/24

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## INTRODUCTION

This document details the content of the workshops and planetarium shows we have on offer to choose from for your students' unique astronomy learning experience.

For early years and Key Stage 1 groups we offer a **Discovery Day**, and for Key stage 2 groups we offer a **Discovery Day**, a **Space Spectacular Day**, or a **Digital Outreach Session**. Depending on which onsite option you choose your visit can be made of: a planetarium show, an interactive workshop or a self-facilitated astronomy activity, a self-facilitated visit to the historic North Site and a timeslot in the lunchroom. For a digital outreach session, we have a selection of workshops available for KS2.

If you haven't already, please read through the *Primary Programme Guide* which explains how the programme works, how much each option costs, and how to book your sessions.

## OUR PRIMARY PROGRAMME WORKSHOPS AND PLANETARIUM SHOWS

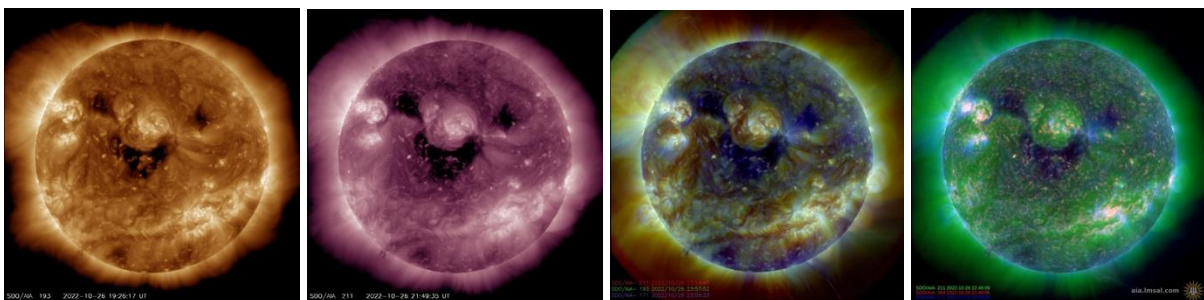


Image: SDO | Solar Dynamics Observatory (nasa.gov)

## WHO DEVELOPS AND RUNS THE SESSIONS?

All of our content is developed by the Astronomy Education team in collaboration with the teacher's forum. All sessions are tested and evaluated with the teacher forum and also with school groups to ensure that the content developed is exactly what teachers are looking for and what students will thoroughly enjoy! The sessions are then run by real astronomers so there is always an expert available to answer any questions your students have about astronomy.

Workshops for Early Years Foundation Stage and Key Stage 1 students were developed in collaboration with early years specialists. These sessions are 30 minutes long and introduce basic ideas of light, dark, night and day and the seasons through physical activity, music, and story.

Key Stage 2 workshops are 45 minutes long and delivered by Royal Observatory astronomers. They focus on concepts of light and shadow and the Sun-Earth-Moon system through interactive exploration of large-scale astronomical and/or digital models and student experiment. Please speak to our Bookings team about any special needs requirements for your pupils.

## ONSITE SCHOOL PROGRAMME

### WORKSHOPS

Our interactive workshops take place in one of three purpose-built learning spaces and are designed to encourage active learning and hands-on scientific enquiry. Workshops only run on **Discovery Days**.



### Space Watch

*This show runs during Space Spectacular Weeks only.*

**Session level: KS2**

**Session length: 45 minutes**

**Key points covered** – forces, gravity, and motion, our solar system, environments.

**Show summary** – satellites play a vital role in observing not just our home planet but other planets in our solar system too. In this demo-filled workshop, students will discover how satellite observations are used to study the Earth's environment. They'll use this knowledge to become planetary scientists and explore the similarities and differences between the Earth and Mars. They will then go on a journey beyond our solar system to find out if there is a world out there in the depths of space that might be like the Earth, so buckle up for an out of this world adventure!

### Moon Walking

**Session level: EYFS**

**Session length: 30 minutes**

**Key points covered** - simple space science and space exploration concepts including: planets, the Sun, and the Moon. This workshop uses original music along with genuine NASA footage from the Apollo Moon missions.

**Workshop summary** – through the use of music, song, movement, role-play, images, and video the class will be invited to go on a fun-filled adventure to the Moon. The group will be asked to: sing along with some well-known nursery songs, build an imaginary spaceship, and role-play a journey to the Moon. They will try to imagine the rocket take-off and landing and explore the how differently their bodies would move in low gravity on the Moon.

### Seasonal Explorers

**Session level: KS1**

**Session length: 30 minutes**

**Key points covered** - simple scientific concepts such as day and night, observable changes in the seasons and a basic introduction into why we have them on Earth. This workshop uses original music and bespoke models to bring the concepts covered to life.

**Workshop summary** – the children will go on a real adventure with Ted the Bear. Ted really needs the children's help because Ted has been in space for a very long time and has completely forgotten what it is like on Earth! Through music, song and role-play the students will help to explain the different seasons to Ted and what each is like. They will use specially created models and songs to learn all about the seasons. They will then choose just the right clothing for each season to make sure Ted doesn't get too hot or cold but is just right.

### Sun, Earth, and Moon

**Session level: KS2**

**Session length: 45 minutes**

**Key points covered** – the Earth, Sun and Moon, their relative sizes, distances, orbital periods and motion. Bespoke equipment including a tellurium is used throughout to explain scientific concepts.

**Workshop summary** – in this workshop exploring the Sun, Earth, and Moon system students will be asked to think about the similarities, differences, and the relative scale and shape of these objects. Students will take part in a series of interactive elements that encourages them to think about the Earth and Moon's motion through space and how this relates to the concept of time (days, months, years). They will investigate why the tilt of the Earth's axis causes the seasons and will explore the seasons in both hemispheres.



### Our Moon: Phases and Eclipses

Session level: KS2

Session length: 45 minutes

**Key points covered** – the movement of the Moon relative to the Earth, aspects of light and shadows, the Earth, Moon and Sun system. Bespoke equipment including a tellurium is used throughout to explain scientific concepts.

**Workshop summary** – In this workshop, students explore our closest neighbour in space – the Moon. Through the use of tactile models as well as images taken by spacecraft and the Apollo astronauts, students will explore the different features found on the lunar surface. They will use their knowledge of the motion of the Moon around the Earth to explain the observed lunar phases. Using the concepts of light, shadows and reflection, students will investigate the phenomena of solar and lunar eclipses.

### Shadows and Sundials

Session level: KS2

Session length: 45 minutes

**Key points covered** – the Earth's rotation to explain day and night, the apparent motion of the Sun and its use as a timekeeper, longitude, shadows, and other aspects of light and dark.

**Workshop summary** – through the use of large-scale models and images, students will explore night and day on the Earth. They will be introduced to longitude and how it allows us to calculate the local time in cities all over the world. They will investigate the relationship between the Sun's position in the sky, shadows on the Earth, and timekeeping. Students will construct their own sundial which they can use for timekeeping after their visit.

## PLANETARIUM SHOWS

Planetarium shows take place in the Peter Harrison Planetarium and are delivered live by Royal Observatory astronomers. Our state-of-the-art digital planetarium provides an inspiring, immersive, and interactive learning experience, allowing students to examine the day and night-time sky, fly through our Solar System or enjoy visually stunning pre-recorded shows about the latest discoveries in astronomy.



**Ted's Space Adventure****Session level: EYFS, KS1****Session length: 30 minutes****Key points covered** – main bodies in our Solar System and the differences in their environments.

**Show summary** - this charming, interactive show for younger visitors follows Ted the Bear and Plant on their adventures through the Solar System. They explore the different environments of each of the worlds they visit to find out if they might be able to live there, learning simple facts about them along the way.

**Universe On Your Doorstep****Session level: KS2****Session length: 45 minutes**

**Key points covered** – main bodies in our Solar System including the Sun, Earth, and Moon, why we see different phases of the Moon.

**Show summary** – this amazing, interactive show takes students on a journey around the Solar System and beyond. Starting from our own Peter Harrison Planetarium, they'll be transported to a special view of the Earth from space to see how it moves, before traveling a bit further away, to explore the Moon and its lunar phases. They'll become astro-navigators, viewing the constellations, and using Polaris to find the direction of north. Next, they'll fly out to view the Solar System, visiting a rocky planet, the asteroid belt, an outer planet, and dwarf planets in the Kuiper Belt. Venturing even further out, they'll be introduced to extrasolar planets, before being wowed by our stunning Milky Way Galaxy and its place in the local Universe.

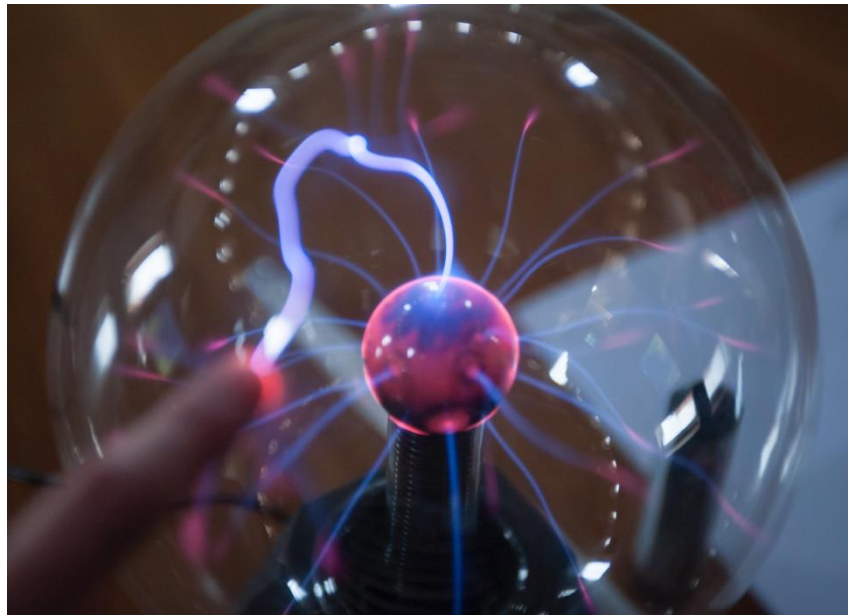
**We Are Guardians***This show runs during Space Spectacular Weeks only.***Session level: KS2****Session length: 45 minutes**

**Key points covered** – aspects of our Solar System, lunar phases, size and scale of different stars, forces in action.

**Show summary** – Final Frontier is a show all about space exploration – amazing! This action-filled show packs a lot, so buckle up and get ready to do some serious exploring. It looks at the challenging conditions of space, the types of things we must be prepared to encounter should we travel there, and the distances and scales involved in going on such a mission. This show also highlights the people involved in space science and showcases some of the greatest contributions and ambitions of scientists and engineers. Final Frontier shows us just why using our imagination is very important when it comes to heading out on our adventure into space.

## SPECIAL EDUCATIONAL NEEDS AND DISABILITIES: AURORA DAYS

**Aurora Days** for the 2023/24 academic year will typically run twice a term and include specially designed sessions for SEND groups.



While you are of course welcome to visit at any time with SEND groups **Aurora Days** are dedicated slots where we hand the Observatory over to you without any other school groups on site. This means that we are able to dedicate more time to you answering your space questions and making your visit as enjoyable and as easy as possible.

We are developing our **Aurora Day** programme further throughout the 2023/24 academic year and have a SEND forum to help inform the programme. If you would like to join, please take a look at our website for more details (<https://www.rmg.co.uk/schools-communities/networks-forums>), we would love to have you with us. **Aurora Days** are made up of the following components where you can choose one workshop and one planetarium show.

### PLANETARIUM SHOWS

Planetarium shows take place in the Peter Harrison Planetarium and are delivered live by Royal Observatory astronomers. On **Aurora Days** we have:

**Show Name: Starry Skies**

**Session Level: there is flexibility to tailor this show to fit your needs.**

**Session length: 45 minutes**

**Show summary** – this show takes the audience on a tour of some of the most beautiful aspects of our Solar System. It was developed in collaboration with our local autism spectrum disorder visitors and their families and has consistently received fantastic feedback since it launched. It is presented live by one of our astronomers and runs at a much calmer pace than many of our other school shows. The lighting levels used are higher for this show, so the planetarium never becomes pitch black, and the music and narration are kept to a minimum. If your students have any questions about space at the end, our astronomer will be there to answer them.

If your students are working at KS2 level and are able to access a show that runs at a more moderate pace with more content, then speak to our astronomers who can talk to you about an alternative offer.

## WORKSHOPS

Our multi-sensory, interactive workshop takes place in one of three purpose-built learning spaces and is designed to encourage active learning and hands-on scientific enquiry.

**Workshop Name: Searching the Solar System**

**Session level: these workshops are linked to the KS2 curriculum**

**Session length: 30 minutes**

**Workshop summary** – in this workshop students will be encouraged to compare the similarities and differences between our planet Earth and other planets in our Solar System. We will explore parts of the Solar System using multi-sensory demos and practical activities to help students understand more about some of their closest neighbours in space. There are a number of different activities that can be done as part of this workshop, and you are able to choose a selection which will be the most interesting and applicable to your students. Different activities are pitched at different levels, from KS1 up to KS3, so we can tailor this workshop to suit your needs. Please be sure to chat to a member of the ROG Education team when you are planning your visit so they can advise.

## DIGITAL OUTREACH PROGRAMME

### ONLINE WORKSHOPS

Our interactive online workshops are delivered via Zoom or Teams and are designed to encourage learning and scientific enquiry through participation.



Key Stage 2 digital workshops are 45 minutes long and delivered by Royal Observatory astronomers. They focus on the contents of our solar system and the Sun-Earth-Moon system through interactive elements like video clips and activities to help get your students thinking and inquiring about space.



### Exploring our Solar System

Session level: KS2

Session length: 45 minutes

**Key points covered** – contents of the Solar System: planets, the Sun, moons, and other space rocks.

**Workshop summary** – Students take a journey through our amazing Solar System in this interactive digital session. Together with a Royal Observatory Greenwich astronomer they will explore the different types of space objects from the Sun all the way through to space rocks and learn a little more about them along the way. This session will include a number of interactive elements such as video clips and activities to help get students thinking and talking about the wonders of our Solar System. A question-and-answer segment will finish up the session so they can ask any big space questions they may have. The session will then be followed up with activities for students to try afterwards to give their brains a real workout.

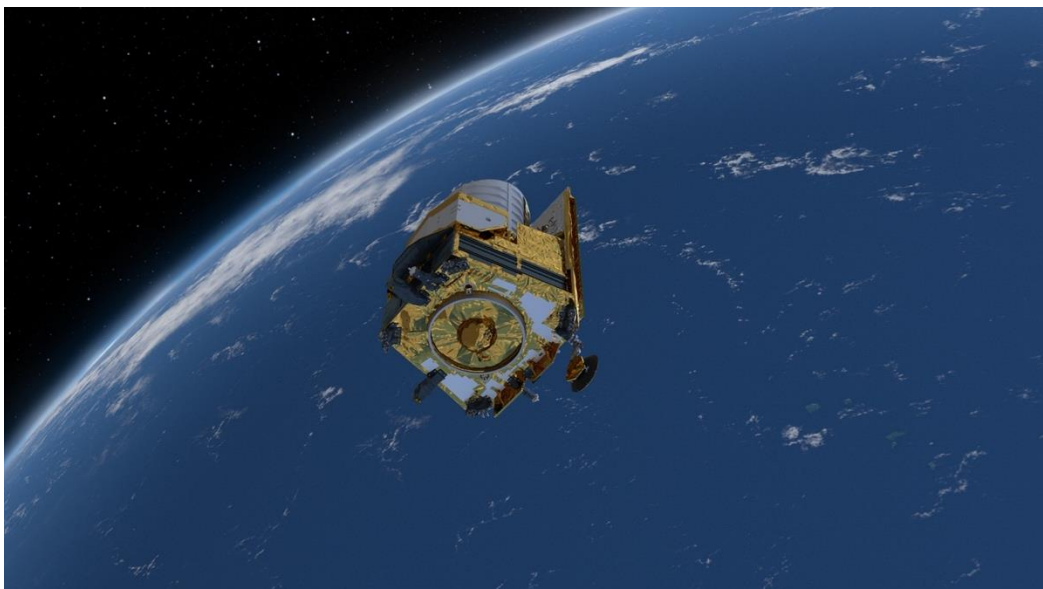
### Sun, Earth, and Moon

Session level: KS2

Session length: 45 minutes

**Key points covered** – the Earth, Sun and Moon, their relative sizes and motion. Days, months, years.

**Workshop summary** – In this digital session, students will explore the Sun, Earth, and Moon system with a real Royal Observatory Greenwich astronomer. Together they will investigate the similarities, differences and the relative scale and shape of these amazing objects. The Earth and Moon's motion through space and how it relates to the concept of time (day, month, year) will also be explored. The session will include a number of interactive elements such as video clips and practical activities to encourage students to think about how the Sun, Earth and Moon system works. A Q&A segment is included as part of the session so they can ask any big space questions they may have. The session will then be followed up with activities for students to try afterwards to test what they have learned.



## SUPPORTING RESOURCES FOR TEACHERS

We have a large selection of resources available on the website that have been developed with our teacher's forum. They can be used after your session as a follow-up or before to introduce new topics. Resources linked to our workshops which include background reading for teachers, discussion questions, classroom activities and extension work for advanced students are available online on the website. We also have brand new videos that can be used as part of a science lesson:

<https://www.rmg.co.uk/schools-communities/all-astronomy-science-resources>

<https://vimeo.com/royalobservatory>

We also have a number of FREE digital blogs and podcasts with guest scientists and astronauts to keep your students excited and intrigued with all things space science and astronomy:

<https://www.rmg.co.uk/stories/astronomy/guide-night-sky>

<https://www.rmg.co.uk/schools-communities/royal-observatory-greenwich-schools-podcasts>

You can also find FREE trails for KS1 and KS2 on our website:

<https://www.rmg.co.uk/schools-communities/visit-guides-activities>

All you need to do is download, print, and bring along on the day! These trails are great if you are looking for help structuring your group's time during the self-directed parts of your visit.

For more information on accessibility please have a look at our website

<https://www.rmg.co.uk/plan-your-visit/facilities-access>, as well as our dedicated Aurora Day page which contains our visual story for anyone that would like to see in advance what to expect when visiting the site:

<https://www.rmg.co.uk/schools-communities/special-educational-needs-aurora-days>

## CONTACT US

For any queries regarding the booking process or making any changes to your booking, please contact the Bookings team on [bookings@rmg.co.uk](mailto:bookings@rmg.co.uk) or call 0208 312 6608.

For content related questions please contact the Astronomy Education team on [rogeducation@rmg.co.uk](mailto:rogeducation@rmg.co.uk).