



Getting to Know SOHO

Studying the Sun

Classroom Activity

Overview

Age Range:

Prep. Time:

0

Lesson Time:

1 hour

Cost per activity:

Low (print costs)

Includes the use of:

Worksheets

Outline

In this activity, students are introduced to the ESA/NASA joint mission, SOHO and the instruments on board it.

They look into SOHO's orbit and its position in the Solar System relative to the Sun and Earth. They perform mathematical calculations and apply scientific concepts within their curriculum to this real-life context. Students are able to develop their understanding of concepts such as speed and distance calculations and gravitational potential energy.

Pupils will Learn:

- The use of specific instruments on SOHO
- Why it is important to study all aspects of the Sun's activity
- Using equations

Lesson Plan:

Overview of the time required to complete lesson.

Description	Time	Notes
Introduction to the subject	10 min	Read through 'GettingToKnowSOHO_background.pdf'
Activity 1	35 min	Activity in student guide

Online Observatory: onlineobservatory.eu

The online observatory collaboration consists of the following partners:

Baldone Observatory, Brorfelde Observatory, Cardiff University, Harestua Solar Observatory, Helsinki Observatory



Assessment	15 min	Questions in step 15 of the student guide
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Introduction to the subject:

Students will need to read the background information on SOHO, provided in the 'GettingToKnowSOHO_background.pdf'. You will probably wish them to do this individually or in pairs.

Optional Video: <https://youtu.be/LJAcrorHx8I>

Activity 1:

- Ensure students have the relevant student guide, either one each or one per pair/group

Introduce the activity as a series of steps for the students to fill out. All the information they need is in the background reading and all the tasks are in the student guide.

1. Students view the sets of images and answer the related questions.
2. Compare the SOHO equipment with parts of the sun and the role it plays.
3. Consider the orbital paths of Earth and satellites around the Sun.

Assessment:

All questions available in the student guide, model answers are in the 'modelanswers_GettingToKnowSOHO' document.

The Sun is a very active and complex astronomical body. Many different instruments, sensitive to a variety of wavelengths of light are required in order to study its entirety.

This activity enables students to learn about some of the current research in science and due to its effects to life on Earth, why it is important to study solar activity. Students are able to practice and develop their skills of inquiry and comprehension and also see how this real-life scenario is relevant to the scientific concepts and mathematical formulae in their curriculum.

Further Activities:

Once students have carried out the activity and completed their Student Worksheets, you make want to discuss some of the reasons for why scientists study the Sun and why it is important.

Below are some suggested points you may want to raise:

- Weather

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- Global climate change
- Satellites, communication and navigation systems
- Electric power stations
- Radiation hazards for satellites
- Radiation hazards for astronauts

Background Material/Knowledge:

SOHO = Solar Heliospheric Observatory

Sunspots = a spot or patch that appears from time to time on the sun's surface, appearing dark by contrast with its surroundings. They are regions of reduced surface temperature caused by concentrations of magnetic field flux that inhibit convection. Sunspots usually appear in pairs of opposite magnetic polarity.