

Information and Resources

Observing Our Sun and Solar System

Saturday, May 31, 1:45 - 5:15 pm

Session Overview

How have we learned about our Sun and our Solar System? Throughout history, we have developed new tools to find answers to our questions, allowing us to explore further. As one mechanism for celebrating the 400th anniversary of Galileo's telescopic discoveries, we will step through a series of explorations of the Sun, Venus, and Jupiter, as key objects observed by Galileo that represent the vast diversity of our Solar System. With each step, we will discuss the wonder and questions that arise from our observational activities. Our search for answers will guide us to the next direction for exploration.

Overarching Resources

Strange New Planet

http://athena.cornell.edu/educators/lp_05.html and

<http://mars.jpl.nasa.gov/classroom/pdfs/MSIP-MarsActivities.pdf>

Strange New Planet brings insight into the processes involved in learning about planetary exploration. This activity demonstrates how planetary features are discovered by the use of remote sensing techniques.

Sun-Earth Connection Education Forum

<http://sunearth.gsfc.nasa.gov/>

This Web page links to a variety of educational resources focusing on the Sun and its influence on Earth. These resources share the exciting discoveries and knowledge from NASA Sun-Earth Connection missions and research programs.

Solar System Exploration

<http://solarsystem.nasa.gov/educ/index.cfm>

This Web page links to a variety of educational resources focusing on NASA missions exploring the planets in our Solar System. These resources share discoveries and knowledge from NASA Solar System Exploration missions and research programs.

Astromaterials Research Research Exploration Science Education

<http://ares.jsc.nasa.gov/Education/>

These pages include many excellent investigations into the Moon, meteorites, Mars, craters, astrobiology, and more.

Lunar and Planetary Institute

<http://www.lpi.usra.edu/education/>

This Web page links to diverse portfolio of content-rich space science educational programs and resources, organized within space science themes, and presented in a learning environment that meets the needs of the intended audiences.

Naked-Eye Observations

Solar System Simulator

<http://space.jpl.nasa.gov/>

Educators can use this to observe the positions of planets, spacecraft, moons, and more.

Telescopic Observations

Phases of Venus

Modified from http://www.lpi.usra.edu/education/pre_service_edu/GolfballPhases.shtml

This modeling activity uses golf balls and blacklights to allow students to produce observations mimicking the Moon's.

Ordering Sunspots

<http://www.spaceweathercenter.org/resources/05/05.html> or
<http://soho.nascom.nasa.gov/classroom/docs/Spotexerweb.pdf>

Students learn that the Sun has many observable features, including sunspots, that can be plotted and analyzed. In one of several activities, students use solar images of sunspots to determine the Sun's period of rotation.

Sun-Earth Viewer

http://sunearth.gsfc.nasa.gov/sunearthday/media_viewer/flash.html

The NASA Sun-Earth Media Viewer is a Flash-based viewer. It allows visitors to zoom and pan live NASA solar and Earth images. It includes a scale tool. The viewer also contains video interviews with scientists and detailed scientific animations and visualizations.

Solar System Simulator

<http://space.jpl.nasa.gov/>

Educators can use this online software to generate views of the bodies of our planetary system at any date from any artificial or natural point of observation. It can be used, for instance, to observe the phases of Venus, the positions of the Galilean moons as data for developing models of motion or calculating Jupiter's mass.

Spectroscopic Observations

Venus spectrum activity

modified from Nova Teachers Origins: Where Are the Aliens?

http://www.pbs.org/wgbh/nova/teachers/activities/3113_origins.html

This activity can teach how planetary spectra can be used to search for life on other worlds, as students analyze a mystery planet's spectrum for potential signs of life.

The Electromagnetic Spectrum

www.nsta.org/main/news/stories/science_teacher.php?news_story_ID=48612

Provides an activity that allows students to identify substances based on the visible spectra they emit.

Detecting Ultraviolet Light: The Ritter Experiment

http://coolcosmos.ipac.caltech.edu/cosmic_classroom/classroom_activities/ritter_experiment.html

Participants use glass prisms, blueprint paper, and household ammonia to perform a version of the experiment in which ultraviolet light was first discovered.

Listening to the Sun

<http://www.gsfc.nasa.gov/gsfsc/spacesci/solarsounds/solarsounds.htm>

Information, images, and sound files demonstrating the Sun's "heartbeat."

Student Observation Network: Tracking a Solar Storm

http://son.nasa.gov/tass/radiowaves/ob_radiojove.htm

Current and archived data of the Sun's radio emissions are available on-line.

Observations in Space

Matching Magnetic and Active Regions:

http://soho.nascom.nasa.gov/explore/lessons/matching_activity.html

Students match up pairs of magnetic images and extreme ultraviolet light images of the Sun, demonstrating the connection between magnetic activity and solar activity. These images were taken by SOHO, an observatory in orbit around the Sun.