

Moon Phases Resources

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

Resources:

Our goal is to make all of our activities and resource information freely available. Many of these are searchable at <http://www.lpi.usra.edu/education/resources/>. We have included our powerpoints from our workshops so that you may access them for yourselves, to download and share with other educators. Downloading the powerpoints will give you access to the notes for each slide—we have included comments, resources, and Web sites in the note section. The powerpoints are not intended to be used directly in K-12 classrooms. You may edit them to use as appropriate.

The powerpoints are located **near the bottom** of the following pages:

Lunar Phases: http://www.lpi.usra.edu/education/resources/standards/lunar_phases.shtml

Other Sites:

Today, we used activities and referred to items you can find at the following sites.

Stellarium: <http://www.stellarium.org/>

Stellarium is planetarium software that shows exactly what you see when you look up at the stars. It's easy to use, and free.

Web Sites and Activities – Phases of the Moon

Aspire

An organized and engaging website from The University of Utah's Aspire program shares a wealth of information about lunar phases utilizing a lunar cycle animation. It is accompanied by thought-provoking questions presented in an engaging way for children ages 10 and up. Challenging quizzes will motivate viewers to learn more about this often misunderstood phenomenon. Also available in Spanish.

<http://aspire.cosmic-ray.org/index.php>

Astronomy Simulations and Animations

A compilation of various online programs on astronomical topics. This site includes links to several lunar phases simulators, an eclipse simulator, and more.

<http://astro.unl.edu/animationsLinks.html>

Zoom Astronomy: The Moon

The changing faces of the Moon's surface are presented in a clear and detailed illustration for younger and older children along with the explanations for different Moon "names" and a brief narrative of Moon phases. This site offers a blank Moon-phases diagram for labeling, a Moon coloring page and quiz, and links to several other Web sites.

<http://www.enchantedlearning.com/subjects/astronomy/moon/Phases.shtml>

A Private Universe

Offers an in-depth Moon-phasing lesson using a light bulb and Styrofoam balls. A thorough explanation of phases is also presented along with an inquiry-based exercise in which students choose graphic illustrations to demonstrate both the correct and incorrect assumptions often made.

<http://www.learner.org/teacherslab/pup>

Windows to the Universe



Provided by the University Corporation for Atmospheric Research (UCAR), shares a brief explanation of Moon phases for beginner, intermediate, and advanced learners enhanced by a link to special names given to particular phases, a graphic of lunar eclipses, and Galileo's drawings of the phases of our Moon.
<http://www.windows.ucar.edu>

Space.Com

Provides up-to-date information on our Moon and lunar events for skywatchers, including Moon phasing.
http://www.space.com/spacewatch/sky_calendar.html

The Astronomical Applications Department of the U.S. Naval Observatory

Presents easily accessible data pertaining to Moon phases, including tables, images, illustrations, Moon phases by date, and "what the Moon looks like today." Information and images are useful for all ages. Text is appropriate for young adults and up.
<http://aa.usno.navy.mil/data>

Lawrence Molnar of Calvin College's Department of Physics and Astronomy

Offers an interactive Java tool designed to enable older children to develop an understanding of the geometrical reasons behind the phases exhibited by our Moon. Students view and manipulate animations and "quiz" themselves on their knowledge.
<http://www.calvin.edu/~lmolnar/moon/index.html>

StarChild

Produced for NASA by the Goddard Space Flight Center, offers an educational and entertaining site that allows viewers of all ages to have fun with Moon phasing.
http://starchild.gsfc.nasa.gov/docs/StarChild/solar_system_level2/moonlight.html

The "Project Astro" site

A collaborative effort between The National Optical Astronomy Observatory and the Astronomical Society of the Pacific, includes video clips demonstrating Moon phasing from both space and Earth perspectives, along with an expository narrative suited for older children and young adult audiences.
http://www.noao.edu/education/phases/phases_demo.html

Some Basic Astronomy Demonstrations for Early Elementary Ages from William P. Blair

A description of several classroom activities for investigating lunar phases, Earth-Moon distances, and lunar eclipses.
<http://fuse.pha.jhu.edu/~wpb/globe.html>

Oreo Moon Phases

Paper Plate Education presents "Oreo Moon Phases", an activity that will give children ages 5 to 12 a real "hunger" for knowledge.
<http://analyzer.depaul.edu/paperplate/Oreo%20Moon%20Phases.htm>

The Moon Project

Put together by several science teacher-educators to teach their pre-service students about science in general. The site offers Moon Phase calendars and additional Moon web links. Suitable for adults.
<http://web.bsu.edu/moon/>

Inconstant Moon

Offers pictures, calendars, and music that can be enjoyed by all ages.
<http://www.inconstantmoon.com/>

Websites - Eclipses

Lunar Eclipse Papercraft Model



Children can cut out a downloadable template and, with careful folding, create a rather intricate model of one of the causes of eclipses. Note that there is the possibility of introducing misconceptions that we should see eclipses every month. Appropriate for children ages 8–13.

http://cp.c-ij.com/english/3D-papercraft/science/s_l_eclipse_e.html

Astronomy Online

Determine your east-west latitude using old lunar-eclipse-based navigational methods. This site was created for the 1997 lunar eclipse, but the math exercises still can be used.

<http://www.eso.org/outreach/spec-prog/aol/market/collaboration/luneeclipse/eclipse97.html>

Space.Com

This site includes a top ten lunar eclipse fact sheet, a basic viewer's guide, a minute by minute eclipse guide, a wonderful "Anatomy of an Eclipse" diagram, and an 'all about the moon' segment.

http://www.space.com/scienceastronomy/top10_eclipse_030513-1.html

Windows To the Universe

Good site for adults and children. Includes tables of recent and future lunar eclipses.

<http://www.windows.ucar.edu/tour/link=/moon/eclipse.html>

Eclipse

Good site for a comprehensive source of educational information about the history, science, and observation of all types of eclipses.

<http://www.earthview.com/>

NASA Eclipse: Sun-Earth Connection

The first from NASA's Sun-Earth Connection gives detailed information for all solar and lunar eclipses from 2004 through 2006. A timetable of upcoming eclipses is also offered. The viewer can click on the eclipse date to see a map and diagram of an eclipse or click on the Region of Eclipse Visibility to see a detailed description of an eclipse. The second Sun-Earth Connection site provides the necessary links to lunar eclipse photography, lunar eclipse eye safety links, and links to reports and observation tips.

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

<http://sunearth.gsfc.nasa.gov/eclipse/SEhelp/eclipsePhoto.html>

U.S. Naval Observatory's Astronomical Applications Department

Provides viewers with information on past and future lunar eclipse dates, circumstances, and visibility. Their Lunar Eclipse Computer database also enables viewers to retrieve eclipse-related information about any location on Earth.

<http://aa.usno.navy.mil/data/docs/LunarEclipse.html>

<http://aa.usno.navy.mil/data/docs/UpcomingEclipses.html>

Lunar Eclipse 2105

Fun, scientifically accurate story of an eclipse being viewed from our Moon by a young boy. This is a great launch for other lunar eclipse activities.

http://science.nasa.gov/headlines/y2003/04nov_lunareclipse2105.htm

Hands-On Earth Science Eclipse Scale Model

On a sunny day, using Styrofoam balls, boards, and glue, children ages 8–15 can head outside to investigate why we have eclipses.

<http://www.ohiodnr.com/geosurvey/edu/hands10.htm>

Solar and Lunar Eclipses Web Quest

Students search the Internet to collect information on lunar eclipses to build their understanding of the relationship between the Sun, Moon, and Earth. Students convey their understanding by writing about and illustrating what they learned.

http://www.ioncmaste.ca/homepage/resources/web_resources/CSA_Astro9/files/html/module3/lessons/lesson6/eclipses.html

