

Seasons Resources

<http://www.lpi.usra.edu/education/step2012/participant/seasons/>

Websites

Stellarium

Stellarium is planetarium software that you can use with students to observe the Sun's rising and setting positions and path across the sky for various locations and dates. It's easy to use, and free.

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

Universe at Your Fingertips—

An online astronomy resource guide offering a large suite of activities pertaining to seasons for all age groups. Also provided are links to other Web sites.

The Seasons and the Sun in the Sky

<http://www.astrosociety.org/education/activities/astroacts02.html#3>

The Sun

<http://www.astrosociety.org/education/activities/astroacts05.html#9>

Seasons Activities

Eyes on the Sky, Feet on the Ground is a collection of fully illustrated online astronomy activities from Harvard University for older children. In-depth explanations accompany each activity.

http://hea-www.harvard.edu/ECT/the_book/Chap2/Chapter2.html

PBS Learning Media: Why Do We Have Seasons?

Students can explore seasons using an interactive, developed as part of the NASA Planetary Sciences Collection.

<http://www.pbslearningmedia.org/resource/npls13.sci.ess.seasons/why-seasons/>

Exploration of the Earth's Tilt and Seasons

Graphing Activity by Que Tal? Designed for ages 12–16 and includes a detailed explanation of seasons along with a “tool box” of links to other sites.

<http://www.currentsky.com/activities/sunclock>

Seasons Interactive

This visual program allows users to observe the Sun's motion across the sky at various inclinations, for different times of the year.

http://highered.mcgraw-hill.com/sites/007299181x/student_view0/chapter2/seasons_interactive.html

Astronomy Simulations and Animations

A compilation of various online programs on astronomical topics. This site includes links to paths of the Sun and sun motions simulators, ecliptic, daylight hours, and more.

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

University of Wisconsin's CIMSS Applets

These are focused on weather and climate, but two relate to seasons:

There's an applet that allows the student to compare the Earth's position, the hours of sunlight by latitude, and more: <http://cimss.ssec.wisc.edu/wxfest/Seasons/seasons.html>

Another looks at the angle of incidence and solar energy:

<http://cimss.ssec.wisc.edu/wxfest/SunAngle/sunangle.html>

SkyTellers

This program includes a dvd with Native American myths and legends about the Universe. The SkyTeller's web Site at the Lunar and Planetary Institute includes information, activities, and resources on a variety of astronomical subjects. Educators can also order the dvd and play the stories for their classes.

Seasons <http://www.lpi.usra.edu/education/skytellers/seasons/>

Sun <http://www.lpi.usra.edu/education/skytellers/sun/>

Starchild--Seasons

Children of all ages will enjoy this site from NASA's Goddard Space Flight Center, which includes the audio track from Vivaldi's "The Four Seasons," as well as a graphic depicting Earth's position during the different seasons in our two hemispheres.

http://starchild.gsfc.nasa.gov/docs/StarChild/solar_system_level2/activity.html

National Geographic Xpeditions –A Reason for the Seasons

Offers educators a detailed and comprehensive collection of seasons activities and lesson plans for all ages. Also helpful are lesson extensions and related links.

<http://www.nationalgeographic.com/xpeditions/activities/07/season.html>

Journey North's Mystery Class

Invites children ages 12-16 to locate "mystery classes" in cities around the world by analyzing data about sunlight and seasons. Educators will enjoy this free instructional Web site and may order a one-hour video and fifty-page workshop guide to supplement it.

<http://www.learner.org/jnorth/workshops/GuideOnline.html>

Native American Indian Resources Site

Beautifully parallels the Lakota story of seasons with the corresponding scientific explanation, including illustrations. Appropriate for older children and young adults.

<http://www.kstrom.net/isk/stars/starkno3.html>

Bad Astronomy—What Causes the Seasons

What do students *really* think is the reason for the seasons? Phil Plait reveals and dispels everyday misconceptions about seasons in his "Bad Astronomy" Web site. Good resource for educators.

<http://www.badastronomy.com/bad/misc/seasons.html>

US Naval Observatory—Seasonal Data

The Astronomical Applications Department of the U.S. Naval Observatory presents seasonal data pertaining to equinoxes, solstices, perihelion, and aphelion — both past and future — for young and older adults.

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

Blue Marble: The Next Generation

Satellite imagery of our planet stitched together to form completely cloudless maps of our world, for each of the four seasons.

http://www.nasa.gov/vision/earth/features/blue_marble.html