

Earth, Moon, & Sun System

Overview Sheet

Essential Question

How do the Earth, Moon, & Sun affect each other?

Vocabulary

Earth	mantle	crust	core
equinox	solstice	seasons	Moon
mare (<i>pl.</i> - maria)	waxing	waning	crescent
gibbous	solar eclipse	lunar eclipse	umbra
penumbra	Sun	fusion	convection zone
radiative zone	photosphere	chromosphere	corona
main sequence	sunspots	solar wind	nebula
supergiant	supernova	giant star	white dwarf
neutron star	black hole	binary star system	Hertzsprung-Russell (HR) diagram

Objectives

1. Describe the characteristics and special features of the Earth
2. Explain the reason(s) for the seasons on Earth
3. Describe the characteristics and special features of the Moon
4. Differentiate between a waxing and a waning moon
5. List and describe the lunar phases
6. Compare and contrast a lunar and solar eclipse
7. Explain how the Moon's gravity causes tides
8. Describe the characteristics and special features of the Sun
9. List and explain the life cycle of stars
10. Describe a binary star system
11. Explain how a Hertzsprung-Russell (HR) diagram is used to describe the luminosity and surface temperature (or life cycle) of stars

Helpful Websites

- <http://www.kidsastronomy.com/> (astronomy overview)
- <http://burro.astr.cwru.edu/stu/index.html> (astronomy overview)
- <http://www.kidsastronomy.com/academy/index.htm> (astronomy overview + interactive)
- <http://nssdc.gsfc.nasa.gov/planetary/planetfact.html> (planets)
- <http://www.nineplanets.org/> (planets overview + interactive)
- <http://www.enchantedlearning.com/subjects/astronomy/tutor/solarsystem/1/> (solar system + tutorial + interactive)
- <http://www.solarviews.com/eng/homepage.htm> (solar system overview)
- <http://csep10.phys.utk.edu/astr161/lect/index.html> (solar system overview)
- http://www.windows.ucar.edu/cgi-bin/tour.cgi?link=/our_solar_system/solar_system.html&sn=0&cd=false&cdp=/windows3.html&art=ok&frp=/windows3.html&fr=f&tour=&sw=false&edu=elem (solar system overview)
- <http://www.harcourtschool.com/activity/blast/index.html> (solar system + overview + interactive)
- <http://www.solarviews.com/eng/> (solar system overview)
- <http://www.astronomytoday.com/astromy/solarsystem.html> (solar system overview)
- <http://www.seasky.org/solarsystem/sky3.html> (solar system overview + interactive)
- <http://space.jpl.nasa.gov/> (solar system + simulator)
- <http://daphne.palomar.edu/jthorngren/tutorial.htm> (seasons overview)
- <http://www.teachersdomain.org/resources/ess05/sci/ess/eiu/seasonsgame/index.html> (seasons overview + interactive)
- <http://janus.astro.umd.edu/astro/seasons/> (seasons + interactive + manipulate the seasons)
- <http://www.teachersdomain.org/resources/ess05/sci/ess/eiu/seawifs/index.html> (seasons + global view + interactive)
- http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::800::600::/sites/dl/free/0072482621/78778/Seasons_Nav.swf::Seasons Interactive (seasons + simulation + interactive)
- <http://science.nasa.gov/headlines/y2000/interplanetaryseasons.html> (seasons + interplanetary)
- <http://www.usatoday.com/graphics/weather/gra/gseasons/frame.htm> (seasons + animation)
- http://esminfo.prenhall.com/science/geoanimations/animations/01_EarthSun_E2.html (seasons + animation)
- <http://home.hiwaay.net/~krcool/Astro/moon/moonphase/> (moon phases overview)
- http://www.k111.k12.il.us/king/phases_of_the_moon.htm (moon phases overview)
- <http://www.sumanasinc.com/webcontent/animations/content/moonphase.html> (moon phases + animation)
- http://aspire.cosmic-ray.org/labs/moon/lunar_phase3.swf (moon phases + animation)
- http://www.classzone.com/books/earth_science/terc/content/visualizations/es2503/es2503page01.cfm?chapter_no=visualization (moon phases + animation)
- http://www.ioncmaste.ca/homepage/resources/web_resources/CSA_Astro9/files/multimedia/unit3/phases_moon/phases_moon.html (moon phases + interactive)
- http://www.harcourtschool.com/activity/moon_phases/ (moon phases + interactive)
- <http://www.nasm.si.edu/events/apollo30th/moontheater/phases.html> (moon phases overview + interactive)
- <http://jove.geol.niu.edu/faculty/stoddard/JAVA/moonphase.html> (moon phases + interactive)
- <http://www.astro.wisc.edu/~dolan/java/MoonPhase.html> (moon phases + interactive)
- <http://tycho.usno.navy.mil/vphase.html> (moon phases + interactive)
- http://sunshine.chpc.utah.edu/labs/moon/lunar_phases_main.html (moon phases + interactive + lab)
- http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::800::600::/sites/dl/free/0072482621/78778/Lunar_Nav.swf::Lunar Phases Interactive (moon phases + simulation + interactive)
- <http://www.earthview.com/tutorial/causes.htm> (eclipse overview)

More on back



- http://teacher.scholastic.com/activities/science/moon_interactives.htm (solar eclipse + interactive)
- <http://www.mreclipse.com/Special/SEprimer.html> (solar eclipse overview)
- <http://www.mreclipse.com/Special/LEprimer.html> (lunar eclipse overview)
- http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::800::600::/sites/dl/free/0072482621/78778/Eclipses_Nav.swf::Eclipse Interactive (eclipse + simulation + interactive)
- <http://www.wnorton.com/college/geo/egeo/animations/ch15.htm> (tides + animation)
- http://www.wiley.com/college/strahler/0471480533/animations/ch19_animations/animation3.html (tides + animation)
- <http://www.sfgate.com/getoutside/1996/jun/tides.html> (tides + animation)
- <http://www.space.gc.ca/asc/eng/educators/resources/astronomy/multimedia/module3/tides/tides.swf> (tides + animation)
- <http://www.mmscrusaders.com/newscirocks/tides/tideanim.htm> (tides + animation)
- <http://kingfish.coastal.edu/marine/Animations/Tides/Tides1.html> (tides + animation)
- <http://www.seasky.org/cosmic/sky7a01.html> (star overview)
- http://sunshine.chpc.utah.edu/labs/star_life/starlife_main.html (star life cycle overview)
- <http://library.thinkquest.org/17940/texts/star/star.html> (star life cycle overview)
- http://map.gsfc.nasa.gov/universe/rel_stars.html (star life cycle overview)
- http://www.ioncmaste.ca/homepage/resources/web_resources/CSA_Astro9/files/multimedia/unit2/star_lifecycle/star_lifecycle.html (star life cycle + animation + interactive)
- http://199.6.131.12/en/scictr/lab/byo_star/index.htm (build your own star)
- http://www.astro.cornell.edu/academics/courses/astro201/hr_diagram.htm (HR diagram overview)
- <http://cas.sdss.org/dr6/en/proj/advanced/hr/> (HR diagram overview)
- <http://www.mhhe.com/physsci/astronomy/applets/Hr/frame.html> (HR diagram overview + interactive)
- http://aspire.cosmic-ray.org/labs/star_life/hr_interactive.html (HR diagram + interactive lab)
- <http://www.astro.ubc.ca/~scharein/a311/Sim/hr/HRdiagram.html> (HR diagram + simulator + interactive)
- http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::800::600::/sites/dl/free/0072482621/78780/HR_Nav.swf::H-R Diagram (HR diagram + simulation + interactive)
- http://www.sciencenetlinks.com/interactives/moon/moon_challenge/moon_challenge.html (moon phases + game)
- <http://www.quia.com/rd/11412.html> (moon phases + game)
- <http://www.spaceday.org/conmgmt/index.php?option=displaypage&Itemid=60&op=page&SubMenu=> (games)
- <http://www.quia.com/rr/37247.html> (seasons + game)
- http://www.seasky.org/sky_games.html (space + games)
- <http://curious.astro.cornell.edu/index.php> (astronomy + Q & A)
- <http://www.virginiasol.com/test/space.htm> (solar system + quiz + interactive)
- <http://www.quia.com/quiz/236496.html> (solar system + quiz + interactive)
- <http://www.kidsastronomy.com/fun/index.htm> (astronomy + games + interactive)
- <http://amazing-space.stsci.edu/resources/explorations/trading/directions.html> (solar system + game + interactive)
- http://www.acme.com/jef/singing_science/ (space + songs)
- http://www.windows.ucar.edu/tour/link=/games/space_sense_intro.html&edu=elem (space + quiz + interactive)
- <http://www.songsforteaching.com/sciencesongs.htm> (space + songs)