

A Full Spectrum of NASA Resources for Earth and Space Science Education

FOR EDUCATORS ■ K–12 • Higher Education • Informal Education





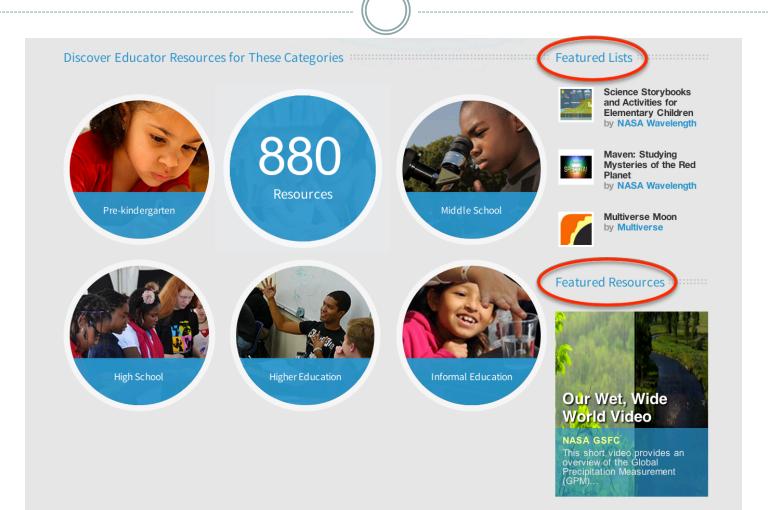
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Let's get started!



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NASA Multimedia

NASA Apps ScienceCasts

NASA Science News



ScienceCasts

▶ Appearance of Night-Shining Clouds Has Increased

NASA Simulation Portrays Ozone Intrusions From Aloft



▶ Construction to Begin on NASA Spacecraft Set to Visit Asteroid in 2018

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Image of the Day

the Day



Get Ready for Your Closeup: #GlobalSelfie

Students and teachers around the world are invited to participate in a celebration of Earth Day with NASA's

#GlobalSelfie event! On Earth Day (April 22), take a moment to go outside and capture a selfie of either yourself, your friends, or your entire class, and submit it using the hashtag #GlobalSelfie - these images will be used by NASA to create a mosaic image of Earth, starring you!

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Finding and Supporting the E in STEM

NASA @ NSTA!

Women's History Month, Part 2

Solar Week - Celebrate the Sun-Earth Connection!

Women's History Month, Part 1

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Created 2014.04.09

0 comments



Finding and Supporting the E in STEM

To accomplish NASA satellite mission objectives, scientists and engineers much find a synergy between their disciplines. With the Next Generation Science Standards (NGSS), educators need to do the same. NASA Wavelength can help you appreciate the distinction between the two, how they work together, and how they relate to NGSS. Read more

Created 2014.04.02

1 comment



NASA @ NSTA!

Are you ready for a fun-filled week of science education at the 2014 NSTA National Conference in Boston? We are! From April 3-6, NASA will be at the conference, presenting sessions covering Earth and space science. A handy Google calendar shows all the NASA sessions and workshops, with times and locations. Sessions will include activities, lesson plans, and other educational resources and projects - most available online. Stop in to see what's available to liven up your science lessons! Read more

Created 2014.04.01

0 comments

Categories

- Heliophysics
- Special Events Girls in STEM
- NGSS

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Women's History Month, Part 2

We know from educational research that all students develop learning style preferences. SciGirls is a PBS show that features bright, curious middle school girls solving everyday problems using science and engineering. The producers have created a list of proven strategies for engaging girls in STEM called The SciGirls Seven. NASA Wavelength's search capabilities enable you to select educational resources that employ instructional strategies demonstrated to motivate girls. Some of these instructional strategies include hands-on learning, cooperative learning, problem-based learning, and open inquiry. Read more

Created 2014.03.20

0 comments



Solar Week - Celebrate the Sun-Earth Connection!

Do you know your solar flares from your sunspots? How does solar energy actually work? Why is the Sun so important to life on Earth? Learn all about the Sun with Solar Week! This bi-annual celebration (in Spring and Fall) encourages students in grades 5-9 to explore the wonders of our nearest star. This week features daily games and activities, as well as curriculum for educators. to allow students to follow along for a week of solar study! Read more

Created 2014.03.18

0 comments



Women's History Month, Part 1

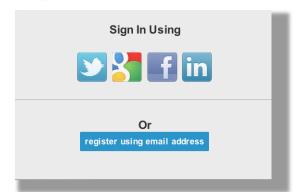
Women's History Month is a great time to encourage girls to consider careers in STEM. Seeing women who work in science and engineering inspires and motivates girls because it's easier for them to identify with female role models who have interests and backgrounds similar to their own. However, getting girls to consider STEM careers needs to overcome not only gender stereotypes they share about scientists and engineers, but also the social pressure they face in middle and high school. They need to see cool, smart women in STEM jobs in order to visualize themselves in these careers. Read more

Created 2014.03.13

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How to Register

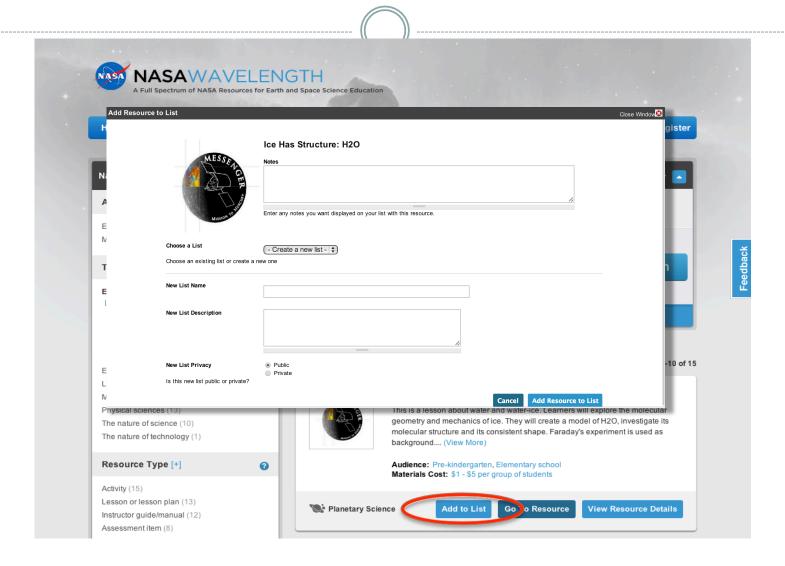




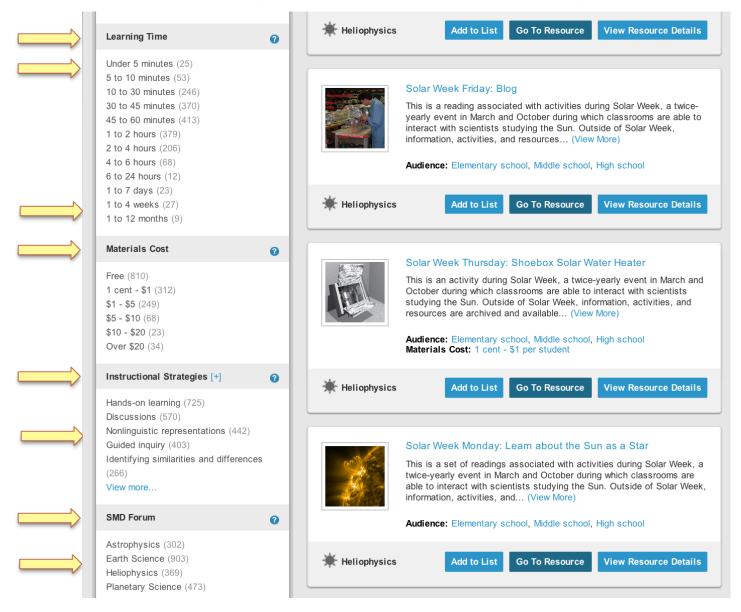
Sample User Profile Page

Contact NASAWavelength					
Your name *					
	John_Doe				
Your e-mail address *					
	John_Doe@strategies.org				
То	NASAWavelength				
Subject *					
Message *					
Send yourself a copy.					
	Send message				

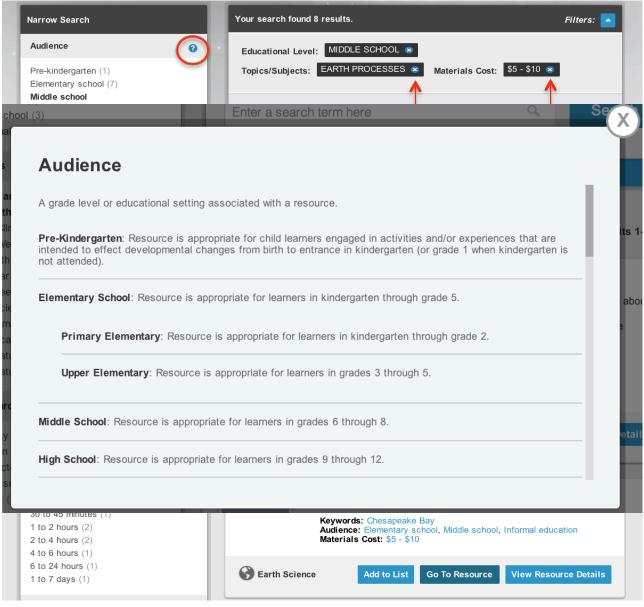
How to List build



How to Search for Resources



Search by Filtering



Search Results



Back to Search



Earth Science

Water Cycle Webquest

Students are introduced to the Global Precipitation Measurement (GPM) satellite mission and its role in studying the water cycle. This webquest provides links to eight websites, allowing middle school students to explore the water cycle and its impacts on Earth's weather and climate. Through online videos and articles, students follow a water molecule through the cycle, discover the connection between the water cycle and global water/heat distribution, examine the role of solar energy, and assess the importance of fresh water.

Keywords: Evaporation; Condensation; Precipitation; Run-off; Water vapor; Salinity

Add to List

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Source

NASA GSFC

Last modified 2013

8

Audience Education Level: Middle school

Audience Refinement: Educator and learner

0

Topics
Ea

Earth and space science:Earth processes:Climate
Earth and space science:Earth processes:Earth's energy budget
Earth and space science:Earth processes:Geochemical cycles
Earth and space science:Earth structure:Atmosphere
Earth and space science:Earth structure:Ocean and water
Physical sciences:Heat and thermodynamics

Physical sciences: Energy

Benchmark: 4B/M7

Water evaporates from the surface of the earth, rises and cools, condenses into rain or snow, and falls again to the surface. The water falling on land collects in rivers and lakes, soil, and porous layers of rock, and much of it flows back into the oceans. The cycling of water in and out of the atmosphere is a significant aspect of the weather patterns on Earth.

Alignment Strength: Related

Click to view this benchmark in the AAAS Strandmap

Benchmarks: 4B/E3, 4B/M7, 4B/M9, 4E/E2b

User Lists

This resource is part of these lists:



Hydrology by Nancy B. SIlls

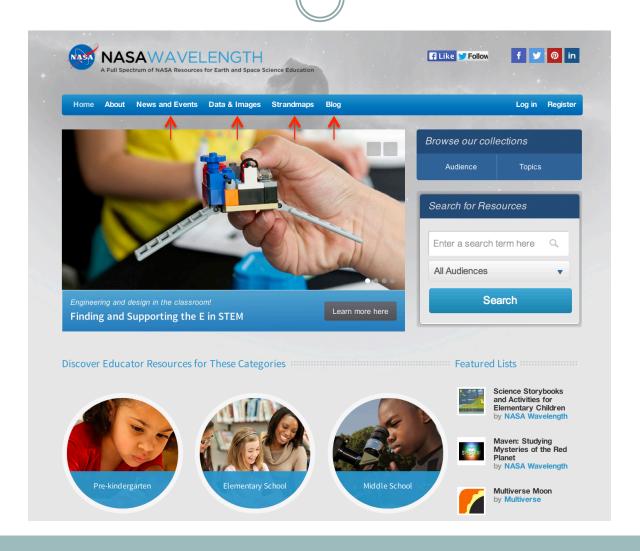


GPM Resources
by Morgan Woroner

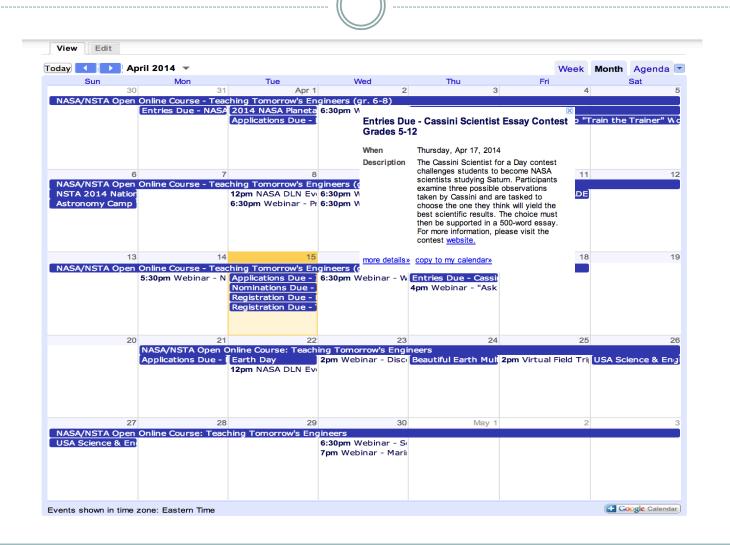


Earth's Systems- NSTA 2014 by Dorian Wood Janney

Other Features



News & Events



Data & Images



Advanced

Access full scientific datasets and/or analysis tools for conducting research and analysis.

Legend:	Earth	Moon	☀ Sun	Planets	* Universe
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Educators Guide to NASA Earth Science Images and Data thtp://nasaesw.strategies.org/images-data-educators-guide-to-nasa-earth-science-images-and-data/	This 16-page booklet illustrates multiple NASA sources that allow educators to incorporate real Earth science data and images in their teaching. Sample resources as well as firsthand accounts of how these are being used in the classroom or informal education setting are included. Includes sections on introductory, intermediate, and advanced sources of data and images.
EOSDIS - Earth Data Website Http://earthdata.nasa.gov/data	NASA's Earth Observing System (EOS) comprises a series of satellites, a science component and a data system, which is called The Earth Observing System Data and Information System (EOSDIS). EOSDIS distributes thousands of Earth system science data products and associated services for interdisciplinary studies. Almost all data in EOSDIS are held online and accessed via ftp.
Giovanni ↔ http://disc.sci.gsfc.nasa.gov/giovanni	Giovanni is a Web-based application developed by the GES DISC that provides a simple and intuitive way to visualize, analyze, and access vast amounts of Earth science remote sensing data without having to download the data. Giovanni is an acronym for the GES-DISC (Goddard Earth Sciences Data and Information Services Center) Interactive Online Visualization ANd aNalysis Infrastructure.
Hera: Astronomical Data Analysis Over the Internet **- http://heasarc.nasa.gov/hera/	Hera is the data processing facility provided by the HEASARC at the NASA GSFC for analyzing FITS format. astronomical data files. Hera provides all the preinstalled software packages, local disk space, and computing resources needed to do general processing of FITS format data files residing on the user's local computer, and to do advanced research using the publicly available data from High Energy Astrophysics missions. Qualified students, educators, and researchers may freely use the Hera services over the internet for research and educational purposes.
Planetary Data System ** http://pds.nasa.gov/	The PDS archives and distributes scientific data from NASA planetary missions, astronomical observations, and laboratory measurements. The PDS is sponsored by NASA's Science Mission Directorate. Its purpose is to ensure the long-term usability of NASA data and to stimulate advanced research.

Strandmaps



Strandmaps

View

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Science Literacy Strandmaps are a tool to find resources from the Wavelength collection that relate to specific science and math concepts. The maps illustrate connections between concepts as well as how concepts build upon one another across grade levels. Clicking on a concept within the maps will show NASA Wavelength resources relevant to the concept, as well as information about related AAAS Project 2061 Benchmarks, as well as common misconceptions and assessments.

Following are links to AAAS strandmaps that are most relevant to NASA Earth and space science.

The Physical Setting

- Galaxies and the Universe
- Stars
- The Solar System
- Weather and Climate
- Changes in Earth's Surface
- Plate Tectonics
- States of Matter
- ▶ Energy Transformations
- Gravity
- Waves
- Electricity and Magnetism

The Nature of Science

- ► Evidence and Reasoning in Inquiry
- Scientific Investigations
- Scientific Theories
- Science and Society
- The Scientific Community
- Scientific World View

Common Themes

- Systems
- Models
- Patterns of Change
- Scale

The Living Environment

> Flow of Energy in Ecosystems

The Designed World

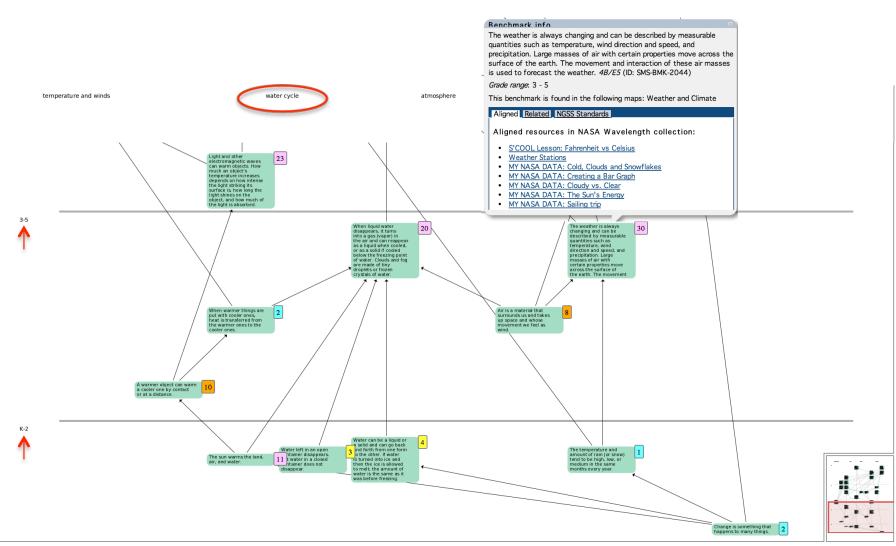
Energy Resources

Habits of Mind

- Computation and Estimation
- Communication Skills

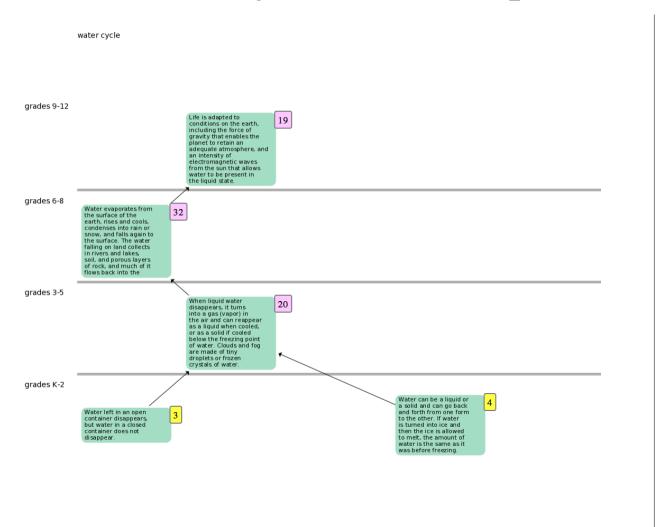
The Nature of Technology

➤ Technology and Science





Water Cycle Strandmap







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