



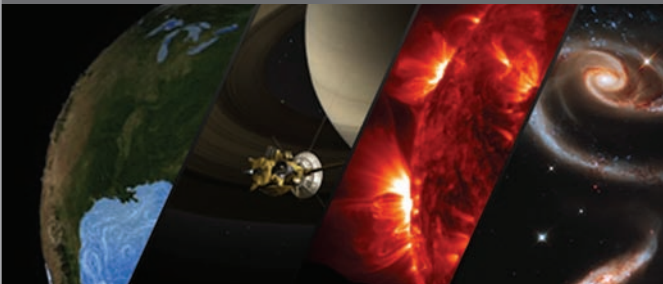
A Reviewed Collection of NASA Resources for Earth and Space Science Education

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



NASA WAVELENGTH.org

NASA • SCIENCE DATA & IMAGES



Visit NASAWAVELENGTH.org to find NASA science data and images in the following categories:

INTRODUCTORY ■ These science images, animations and visualizations do not need special software or tools to be accessed and used. The resources can be used to illustrate a concept, to engage students, to develop an educational exhibit, program or product, to learn about the latest science discoveries, and more.

INTERMEDIATE ■ Access science data and tools designed for use in the classroom and informal education settings, and by citizen scientists.

ADVANCED ■ Access full scientific datasets and analysis tools for conducting research and analysis.

EDUCATION • NEWS & EVENTS

LEARN ABOUT UPCOMING professional development workshops, online webinars, contests, fellowships, internships, symposiums, and other opportunities for educators and students.

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<https://twitter.com/NASAwavelength>

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SAMPLE • RESOURCE COLLECTIONS



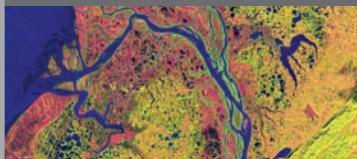
Electromagnetic Spectrum
<http://bit.ly/WavelengthEMS>
Image credit: NASA.



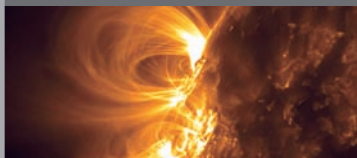
Engineering Design Activities
<http://bit.ly/WavelengthEngineering>
Image credit: NASA.



Kinesthetic Activities
<http://bit.ly/WavelengthKinesthetic>
Image credit: Mid-continent Research for Education and Learning (McREL).



Landsat Activities
<http://bit.ly/WavelengthLandsat>
Image credit: NASA/USGS.



Magnetism
<http://bit.ly/WavelengthMagnetism>
Image credit: NASA.



Planetarium Shows
<http://bit.ly/WavelengthPlanetarium>
Image credit: The Adler Planetarium.

ABOUT • NASA WAVELENGTH

NASA WAVELENGTH.org is your pathway into a reviewed collection of Earth and space science education resources. Use NASA Wavelength to quickly and easily locate resources—and share your discoveries through social media, email and more!

NASAWAVELENGTH • HOME PAGE

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 Or
 register using email address

Featured Collections ■ These highlight groups of resources related to current events or topics of interest.

Browse and Search the Collection by Topic, Audience or Keyword ■ Hitting search (without a specific search term) finds everything in the collection, which can be filtered by a number of categories.

Register and Sign In ■ Once signed in, you can create and share custom lists of resources.

Audience "Bubbles" ■ These show resources organized by audience level. Hover over a bubble to see the number of resources targeted to that audience category; click on a bubble to access the selection.

Featured Lists and Resources ■ Discover something new with these rotating selections.

Connections ■ Connect to the broader family of NASA science news, images and multimedia. Learn more about NASA science education resources and programs through our blog.

Read All About It: Science News for your Class
 Written by Theresa Schwartz, IGES and Cassie Smith

NASAWAVELENGTH • SEARCH RESULTS

Audience
 Pre-kindergarten (1)
 Elementary school (16)
Middle school
 Grade 6 (5)
 Grade 7 (4)
 Grade 8 (4)
 High school (13)
 Higher education (1)
 Informal education (10)

Topics
 Earth and space science
 Astronomy (1)
 Earth structure (1)
 Solar system (26)
 Engineering and technology (9)
 Mathematics (4)
 Physical sciences (4)
 The nature of science (8)
 The nature of technology (1)

Resource Type [+]
 Activity (19)
 Lesson or lesson plan (14)
 Instructor guide/manual (10)
 Student guide (7)
 Informative text (3)
 View more...

Learning Time
 5 to 10 minutes (2)
 10 to 30 minutes (6)
 30 to 45 minutes (3)
 45 to 60 minutes (1)
 1 to 2 hours (4)
 2 to 4 hours (8)

Materials Cost
 Free (9)
 1 cent - \$1 (1)
 \$1 - \$5 (4)
 \$5 - \$10 (1)

Instructional Strategies [+]
 Hands-on learning (11)
 Nonlinguistic representations (9)
 Discussions (7)
 Cooperative learning (5)
 Identifying similarities and differences (4)
 View more...

Advanced Searches ■ Narrow your search with any combination of these categories. The number of related items are shown in parentheses.

Filters ■ See what filters are applied to search results; add and clear filters to narrow or expand the results.

Share Search Results ■ Send the search link via email, social media, or through an ATOM feed. Search results are updated with the latest NASA Wavelength content.

Feedback ■ Send feedback directly to the site staff with this easy-to-use form.

Add to List ■ Create custom lists of resources that you can share.

View Archived Copy ■ Access an archived copy if the main link is down.

Comet on a Stick
 In this activity, learners replicate the scientific processes of observing, explaining, revising and communicating about a model of a comet. Learners construct a model of features of a comet using an assortment of common craft supplies... (View More)
Audience: Elementary school, Middle school, High school, Informal education
Materials Cost: \$1 - \$5 per group of students

Comets
 This is a detailed historical lesson about comets, distant icy world observers on Earth. Learners will consider the essential question "comets?" They will practice observation and "noticing" skills as... (View More)
Keywords: Kinesthetic activity
Audience: Pre-kindergarten, Elementary school, Middle school
Materials Cost: \$1 - \$5

NASAWAVELENGTH • INDIVIDUAL RECORD

Comet on a Stick
 In this activity, learners replicate the scientific processes of observing, forming an explanation, revising and communicating about a model of a comet. Learners construct a model of features of a comet using an assortment of common craft supplies. This activity relates to several NASA comet missions such as Deep Impact, Stardust, Stardust-NEXT, and EPOXI and can be used to emulate a process that scientists and engineers follow on all missions.

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Source
 Mid-continent Research for Education and Learning (McREL)
 Last modified 2009

Audience
 Education Level: Elementary school, Upper elementary, Middle school, High school, Grade 8, High school, Grade 10, Informal education: Elementary school programming, Informal education: Middle school programming, Informal education: High school programming, Informal education: General public, Informal education: Youth public, Informal education: Families
 Audience Refinement: Educator

Topics
 Earth and space science: Solar system: Asteroids and comets
 Earth and space science: Solar system: Planetary science
 Engineering and technology
 The nature of science: The scientific process

Resource Type
 Activity

Learning Time
 2 to 4 hours

AAAS Benchmarks & Assessments ■ These link to the Science Literacy Strandmap Service. Strandmaps are a tool to find resources from the NASA Wavelength collection that relate to specific science and math concepts. The maps illustrate connections between concepts and how concepts build upon one another across grade levels.

Click on a Benchmark to bring up a strandmap where the Benchmark appears, including a list of NASA Wavelength resources that align to the Benchmark.

Hover over a Benchmark to show the full Benchmark text.

Benchmark: 11B/E4
 Models are very useful for communicating ideas about objects, events, and processes. When using a model to communicate about something, it is important to keep in mind how it is different from the thing being modeled.
 Alignment Strength: 100% of benchmark addressed >= 50% of lesson focuses on benchmark
 Click to view this benchmark in the AAAS Strandmap.

Click on a concept within the map to show NASA Wavelength resources that align or are related to the Benchmark. Some Benchmarks may also include related assessments, misconceptions, and Next Generation Science Standards (NGSS).