



CRS

COMMUNITY RESOURCES FOR SCIENCE
practical support for great science teaching

ESTABLISHED
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Websites

Climate Change

ASTER Earth Image Database

<https://asterweb.jpl.nasa.gov/>

Grade Levels: 4th;5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Background;Teacher Background

ASTER = Advanced Spaceborne Thermal Emission and Reflections Radiometer. This site has several different ways of looking at and exploring the details of this great source for data on planet earth

Challenger Center for Space Science Education

<https://www.challenger.org/stem-resources/>

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;

Website Types: Student Online Activities;Teacher Activities

Using space exploration as a theme, the Challenger Center web site offers a large searchable database of hands-on lessons related to the solar system and earth sciences, as well as podcasts, webcasts and interdisciplinary design challenges to do in your classroom.

Earth Wind Map

<http://earth.nullschool.net/>

Grade Levels: 5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Online Activities

This interactive map shows the current pattern of wind across the planet. With your cursor you can move the point of view around to see any point on the globe you prefer. Click on the word Earth in the lower left corner to get more info.

ESA Kids

<http://www.esa.int/esaKIDSen/index.html>

Grade Levels: 3rd;4th;5th;8th

Website Types: Student Background;Student Online Activities

ESA Kids has tons of fun activities, neat lab and art activities, and interesting facts for students to explore. There is also a great vocabulary index and some news bulletins so students and teachers can stay up-to-date with new space discoveries.

Explaining climate change science & rebutting global warming misinformation

<https://skepticalscience.com/>

Grade Levels: 3rd;4th;5th;6th;7th;8th;9th;10th;11th;1

Website Types: Student Background;Teacher Activities;Teacher Background

Scientific skepticism is healthy. Scientists should always challenge themselves to improve their understanding. Yet this isn't what happens with climate change denial. Skeptics vigorously criticise any evidence that supports man-made global warming and yet embrace any argument, op-ed, blog or study that purports to refute global warming. This website gets skeptical about global warming skepticism. Do their arguments have any scientific basis? What does the peer reviewed scientific literature say?

How to Predict the Weather by Reading Clouds - Video

<http://www.youtube.com/watch?v=DJC1zpjBxul>

Grade Levels: 5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Videos;Teacher Background;Teacher Videos

5:18 Video with some basics on how to read weather maps, but more on cloud types, what they look like and what they mean. At about minute 4:40 it becomes a commercial for his build your own boat website, but you can stop video before that begins.

How to Read a Weather Chart

<http://www.wikihow.com/Read-a-Weather-Map>

Grade Levels: 5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Background;Teacher Background

Nice summary of how to read a weather chart

How to Read a Weather Maps

<http://about.metservice.com/about-metservice/learning-centre/how-to-read-weather-maps/>

Grade Levels: 5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Teacher Background

Nice in depth but easy to understand description of how to read weather maps. Comes from a weather service in New Zealand.

How to Read a Weather Maps - Video

<http://www.youtube.com/watch?v=bd7DcVnrSL8>

Grade Levels: 5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Videos;Teacher Background;Teacher Videos

5:15 Nice description of how to read weather maps. Narrator has a non-American accent

Kid's Earth Science Enterprise

<https://spaceplace.nasa.gov/menu/earth/>

Grade Levels: 3rd;4th;5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Background;Student Online Activities;Teacher Background

Kids can learn about earth, land, water, and natural hazards and learn how NASA studies these different topics.

Milagro - Air Pollution in MegaCities like Mexico City

<http://www.windows.ucar.edu/tour/link=/milagro/megacities.html&edu=elem>

Grade Levels: 5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Background;Teacher Background

This site addresses atmospheric pollution made by humans. It touches on atmospheric science and chemistry. It's Beginner, Intermediate and Advanced buttons alters the level of vocabulary and complexity to make this a good resource for students at different levels of study

MinutePhycis

<https://www.youtube.com/user/minutephysics>

Grade Levels: 2nd;3rd;4th;5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Videos;Teacher Videos;Teacher Blogs

This YouTube Channel has a great assortment of short videos showing all things physical. Fun and Educational

National Atlas

https://nationalmap.gov/small_scale/

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Background;Student Online Activities;Teacher Activities;Teacher Background

This is a site that contains all kinds of data in map form. Geology, history, biology, political boundaries, environment, climate. You can print some maps yourself, order others, and use many online.

NOVA's Earth system science collection

<http://www.pbslearningmedia.org/collection/earth-system-science/>

Grade Levels: 4th;5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Background;Student Videos;Teacher Background;Teacher Videos

NOVA's Earth system science collection highlights important Earth processes normally invisible to the human eye. The standards-based media resources below expose the intricate web of forces that sustain life on Earth, allowing educators to explore the astonishing beauty and complexity of our dynamic planet with their students. For additional classroom resources, visit NOVA Labs <http://www.pbs.org/wgbh/nova/labs/>, a new digital platform where students can actively participate in the scientific process. NOVA Labs participants can take part in real-world investigations by visualizing, analyzing, and sharing the same data that scientists use. Try your hand at classifying clouds and investigating the role they play in severe tropical storms, research solar storms using images from NASA telescopes, or explore ways to make the most of renewable energy sources and use real data to design your own virtual power systems.

Ocean and Climate Literacy: Essential Principles and Fundamental Concepts

<https://oceanservice.noaa.gov/education/literacy.html>

Grade Levels: PK;TK;K;1st;2nd;3rd;4th;5th;6th;7th;8

Website Types: Student Background;Teacher Activities;Teacher Background

The Ocean Essential Principles and Fundamental Concepts, and Climate Essential Principles and Fundamental Concepts present a vision of an ocean and climate-literate society. Many scientists and educators collaborated to produce these guides, building on efforts to define ocean and climate literacy and identify the principles and concepts of ocean and climate science that should be included in K-12 curricula. A practical resource for educators, these guides outline the knowledge required to be considered ocean and climate literate in accordance with the National Science Education Standards (NSES). Educators can use the concepts and principles in these guides to fulfill many of the NSES content standards. The Essential Principles and Fundamental Concepts outlined in these guides represent content that does not always fall neatly within particular disciplines. As a result, many Fundamental Concepts illustrate more than one Essential Principle. This demonstrates the interdisciplinary nature of ocean and climate sciences.

Ocean Today

<http://oceantoday.noaa.gov/>

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;

Website Types: Student Background;Student Videos;Teacher Background;Teacher Videos

This NOAA website has videos of all kinds relating to the ocean and climate change.

Practical Uses of Math and Science (PUMAS)

http://pumas.jpl.nasa.gov/examples/index.php?order_by=grade

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;

Website Types: Teacher Activities;Teacher Background

The PUMAS examples are aimed primarily at helping pre-college teachers enrich their presentation of topics in math and science. You may find a number of examples that relate to your area of interest, perhaps written in different styles, and possibly taking different approaches to the material. There may also be comments/lesson plans filed with some of the examples, written by previous users. Use these examples as a resource -- Select, adapt, recontextualize, and present the material to your students in a way that you judge will best meet your students' needs, abilities, and interests.

Predicting Weather - NASA Connect Video

<http://www.youtube.com/watch?v=dqpFU5SRPgY>

Grade Levels: 5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Videos;Teacher Background;Teacher Videos

5:53 NASA Connect segment explaining how scientists use satellites to predict weather. The segment explores the Afternoon Constellation, or the collection of satellites known as the 'A' Train as well as weather balloons, weather stations and local weather observers.

San Francisco Bay Wind Streaklines

<http://www.met.sjsu.edu/wind/streaklines.shtml>

Grade Levels: 5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Background;Teacher Background

This new visualization scheme was developed independently by Nick Thompson who has kindly allowed us use of it. While this may initially appear to be a time-series animation it is instead a dynamic rendering of particle streaklines. Rather than evolving through time the animation is describing the flow of the wind at a given time.

Scientists @ the Smithsonian

<http://www.smithsonianeducation.org/scientist/>

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;'

Website Types: Student Background;Teacher Background

Scientists aren't just nerds who wear lab coats. All kinds of people become scientists. And scientists do all kinds of things. Watch and read about these scientists at the Smithsonian. What kind of scientist would you like to be?

SciJinks Weather Activities and Info

<http://scijinks.jpl.nasa.gov/teachers>

Grade Levels: 5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Teacher Activities;Teacher Background

Several lessons, printable games and posters, and activity ideas from the GOES-POES project.

Spark - Weather and Atmospheric Science Classroom Activities

<https://spark.ucar.edu/activities>

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;'

Website Types: Student Background;Student Online Activities;Teacher Activities;Teacher Background;Teacher Videos;Worksheets

Website includes K-12 classroom activities for the following topics: Weather, Climate Change, Sun-Earth Connections, and Atmosphere and Chemistry. Spark engages people in the wonder and relevance of science. We focus on scientific literacy, workforce development, and community engagement. Our overarching goal of this plan is to make an impact on public understanding of atmospheric science concepts and process. Atmospheric and related sciences includes not only sciences associated with advancing understanding of the Earth--?Sun system, but also the computational and engineering sciences and technology that afford those advances.

Super Storm Sandy Weather Images - Science Friday

<https://www.sciencefriday.com/segments/seeing-sandy-from-space/>

Grade Levels: 5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Videos

An in depth look at satellite images of Super Storm Sandy that hit the East Coast of the US in October 2012.

Videos from the Joides Resolution Expeditions - Newfoundland

<http://youtu.be/dp8pez3PLQ4>

Grade Levels: 3rd;4th;5th;6th;7th;8th;9th;10th;11th;1

Website Types: Student Videos;Teacher Background;Teacher Videos

Episode FOUR "STORMY SCIENCE" captures the intense moments surrounding major decisions of Expedition 342. High drama and high stakes science makes this expedition really exciting. What impact events are we finding in our cores? How do you recognize that an impact event occurred? Experience the thrill of the unexpected in Episode 4: Stormy Science. Wait, is there gold in that core?!

Vortex: Unraveling the Secrets

<http://www.nssl.noaa.gov/noaastory/>

Grade Levels: 5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Background;Teacher Background

This project, Verification of the Origins of Rotation in Tornadoes Experiment, helps teachers and students understand facts about tornadoes and shows how the scientific method of making observations, collecting data, and developing and testing hypotheses to reach an informed conclusion is used.

WatchKnowLearn.org

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

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;'

Website Types: Student Background;Student Videos;Teacher Background;Teacher Videos

This website has free educational videos on all topics (including science) for all age levels. There is specifically a section for younger learners.

Wind Map of the United States

<http://hint.fm/wind/index.html>

Grade Levels: 5th;6th;7th;8th;9th;10th;11th;12th

Website Types: Student Background;Teacher Background

Visualization of the current wind patterns across the US. Great for when wind events like hurricanes are happening. They also have a gallery of snap shots from past wind events

Windows to the Universe

<http://www.windows2universe.org/>

Grade Levels: 2nd;3rd;4th;5th;6th;7th;8th;9th;10th;11th

Website Types: Student Background;Student Online Activities;Teacher Activities;Teacher Background

Extensive website of all areas of earth science. Lots of nice images. Games, worksheets and puzzles. Some real data on atmospheric science. You can use the free version with advertizements scrolling at top or sign up for membership with no advertizements