



Looking for ideas to get your students excited about math and science?

USGS provides many resources to inspire and engage your students.

And we've made those resources easy to find...

The Democratic Caucus of the House Science Committee on Science Presents:

# USGS Resources for Teachers

<http://sciencedems.house.gov/resources/USGSResources.htm>

Prepared at the direction of Representative Mark Udall,  
Member, House Committee on Science

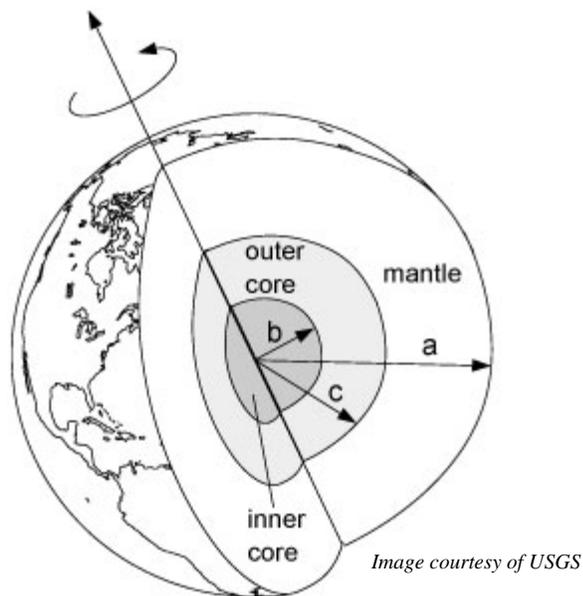


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The anatomy of the Earth.

The mantle has a radius (a) of 6371 km, the inner core has a radius (b) of 1215 km, and the outer core has a radius (c) of 3485 km.

The outline below and the pages that follow detail the variety of USGS information located at “Science Education and You” on <http://sciencedems.house.gov>

Our website further breaks down the categories listed below to help you easily find useful educational tools and resources.

### Resources for Teachers

General Websites

Visual Resources

Regional Educational Resources

Opportunities for Schools and Classrooms

Professional Development Opportunities for Educators

### Resources for Students

K-8 Resources

High School Resources

Undergraduate and Graduate Resources

Amazing Images

Fun and Games

Younger Kids

Older Kids and Adults



*Image courtesy of USGS*



## An Easy Path to USGS Science Disciplines

The USGS consists of five science disciplines: biology, geology, geography, water and geospatial information. Each of these disciplines maintains an individual website where you can find specific information about the research and programs taking place within that particular area. In addition, most of these individual websites offer their own unique resources for students and educators.

**Biological Resource Discipline** <http://biology.usgs.gov/>  
**National Biological Informational Infrastructure** [www.nbio.gov/](http://www.nbio.gov/)  
**National Wetlands Research Center** [www.nwrc.usgs.gov/](http://www.nwrc.usgs.gov/)  
**US Coral Reef Task Force** [www.coralreef.gov/](http://www.coralreef.gov/)

**Geology** <http://geology.usgs.gov/>  
**Astrogeology Research Program** <http://astrogeology.usgs.gov/>  
**Coastal and Marine Geology Program** <http://marine.usgs.gov/>  
**National Cooperative Geologic Mapping Program** <http://ncgmp.usgs.gov/>  
**Volcano Hazards Program** <http://volcanoes.usgs.gov/>  
**Landslides Hazards Program** <http://landslides.usgs.gov/index.php>  
**Earthquake Hazards Program** <http://earthquake.usgs.gov/>  
**National Geomagnetism Program** <http://geomag.usgs.gov/>  
**Global Change Research** <http://geochange.er.usgs.gov/>  
**Energy Resources Program** <http://energy.usgs.gov/>  
**Mineral Resources Program** <http://minerals.usgs.gov/>

**Geography** <http://geography.usgs.gov/>  
**Remote Sensing Program** <http://remotesensing.usgs.gov/>  
**Geographic Analysis and Monitoring Program** <http://gam.usgs.gov/>  
**Science Impact Program** [www.usgs.gov/science\\_impact/](http://www.usgs.gov/science_impact/)  
**National Hazards Support System** <http://nhss.cr.usgs.gov/>

**Geospatial Information** [www.usgs.gov/ngpo/](http://www.usgs.gov/ngpo/)

**Water** <http://water.usgs.gov/>  
**National Streamflow Information Program** <http://water.usgs.gov/nsip/>  
**Local Offices for Water Resources** [http://water.usgs.gov/local\\_offices.html](http://water.usgs.gov/local_offices.html)  
**National Water-Quality Assessment (NWQA) Program** <http://water.usgs.gov/nawqa/>  
**Toxic Substances Hydrology Program** <http://water.usgs.gov/nawqa/>  
**Ground-Water Resources Program (GWRP)** <http://water.usgs.gov/ogw/gwrp/>  
**Water Resources Research Institute Program** <http://water.usgs.gov/wrri/>  
**Water Information Coordination Program** <http://water.usgs.gov/wicp/>

## USGS General Websites

### USGS Learning Web

Here you'll find K-12 lesson plans, ideas for classroom activities, education materials, homework help and more.  
Website: <http://interactive2.usgs.gov/learningweb/>

THE LEARNING WEB



*Image courtesy of USGS*



*Image courtesy of USGS*

### BRD Learning Room – For Teachers

The Biological Resources Discipline within the USGS maintains this website to provide information about the scientific research taking place and the conservation of our natural resources. The “Teachers Only” section of the “Learning Room” site provides links to federal and non-profit organizations with educational resources.  
Website: [http://biology.usgs.gov/features/learningrm/lr\\_teachers.html](http://biology.usgs.gov/features/learningrm/lr_teachers.html)

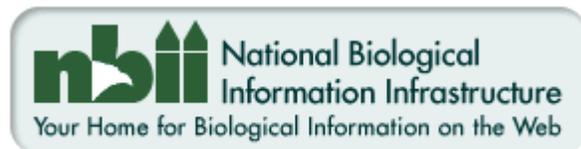
### USGS - Science in Your Watershed

A watershed is an area of land that drains into a lake or river and provides water for drinking, wildlife, irrigation and industry. This site offers a substantial inventory of educational resources focused on water education, watershed education and Geographic Information Systems (GIS) education.



*Image courtesy of USGS*

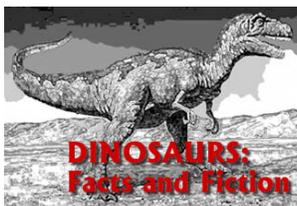
The resources are cataloged into headings that make it easy for you to find what you need. You can also enter your location and find specific information and local activities within your own watershed. Website: [http://water.usgs.gov/wsc/wshed\\_education.html](http://water.usgs.gov/wsc/wshed_education.html)



*Image courtesy of USGS*

### NBII - Teacher Resources

The National Biological Information Infrastructure (NBII) maintains an extensive site for biological information, as well as resources for teachers, digital images, activities in your state and current biological issues (both national and international) such as the loss of biodiversity, invasive species and wildlife diseases. The “Teacher Resources” site provides curriculum ideas, activities in your state, biological information and ideas for classroom activities. Website: [www.nbii.gov/education/index.html](http://www.nbii.gov/education/index.html)



*Image courtesy of USGS*

USGS – Educational Resources for Paleontology Educational resources for teachers and students who are interested in paleontology and related earth and biological science disciplines. This site includes informational links about dinosaurs, fossils, geologic time and plate tectonics.  
Website: <http://geology.er.usgs.gov/paleo/eduinfo.shtml>

**Science.gov - Resources for Kids, Parents, and Teachers**

A wide public access collection of resources for kids, parents and teachers related to education in all areas of science. Website: [www.science.gov/browse/w\\_133A.htm](http://www.science.gov/browse/w_133A.htm)

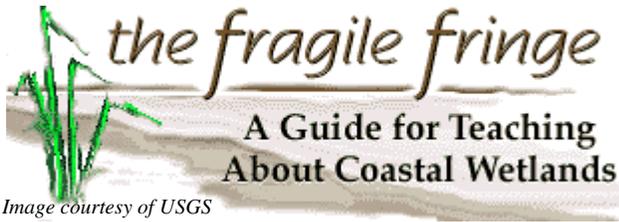


Image courtesy of USGS

**USGS “The Fragile Fringe”**

This site is a guide to teaching about wetlands and is located within the website for National Wetlands Research Center (NWRC), which provides information about wetland ecology, data, maps and links to hot topics around the country.

Website: [www.nwrc.usgs.gov/fringe/ff\\_index.html](http://www.nwrc.usgs.gov/fringe/ff_index.html)

**Volcano Resources for Educators**

This site provides educators with fact sheets and education material related to plate tectonics and volcanic activity around the world. Website: <http://volcanoes.usgs.gov/educators.html>



Photo courtesy of USGS



Image courtesy of USGS

**US Global Change Research Program - Educational Resources**

This site is a portal to many other sites with educational resources and

information for educators and students, including environmental education and outreach. Also included is a link to “Ask Doctor Global Change” where you can find answers to questions about global change research. Website: [www.usgcrp.gov/usgcrp/education/default.htm](http://www.usgcrp.gov/usgcrp/education/default.htm)



Image courtesy of USGS

**NBII – Biodiversity and Environment Education**

NBII has compiled an extensive list of educational resources for K-12 science educators. This website contains many ideas for classroom activities, useful teaching tools, and information about funding and award opportunities for students and teachers, as well as study abroad programs. The resources are divided into age-specific categories. Website: [www.nbii.gov/education/biodiversity.html](http://www.nbii.gov/education/biodiversity.html)



Image courtesy of USGS

**USGS Geography Educational Materials**

The Geography Discipline within the USGS maintains this site to provide educational resources explaining the mapping sciences and earth resources. Included are downloadable teaching packets and links to other sources of educational resources related to the USGS science disciplines. Website: <http://erg.usgs.gov/isb/pubs/pubslists/edu.html>

### **USGS Geologic Outreach and Education**

This USGS website highlights geologic information helpful for the public, educators and students. Topics include general geology, geologic hazards, geology and the environment, maps and publications. Website: <http://geology.er.usgs.gov/outreach.html>



*Photo courtesy of USGS*



*Photo courtesy of USGS*

**USGS Learning Web, Water Educational Resources** This site links to the “Water Science for Schools” with information on many aspects of water including pictures, data, maps and an interactive center. In addition, you’ll find a publication that describes ground-water and a list of educational materials and activities related to water. Website:

[http://interactive2.usgs.gov/learningweb/explorer/topic\\_water\\_links.asp](http://interactive2.usgs.gov/learningweb/explorer/topic_water_links.asp)

**Earth Science Week** A national and international event organized by the American Geological Institute (AGI) to help the public gain a better understanding and appreciation for the Earth Sciences and to encourage stewardship of the Earth. The website offers tools for educators including classroom activities, how to find local events and geoscience organizations, images, Earth Science Week kits for teachers and many other educational resources. Website: [www.earthsciweek.org](http://www.earthsciweek.org)



*Image courtesy of AGI*



*Image courtesy of Peace Corps*

### **Peace Corps, Resources for Educators**

A useful website for teachers wanting to include global education in their lesson plans. Educators of science, social studies, mathematics and geography will benefit from the information within this website,

which includes lesson plan ideas for K-12 students, maps and graphs for visual aides, “destination” lessons on different areas of the world and a special link to “Earth Day for Educators.”

Website: [www.peacecorps.gov/wws/educators/index.html](http://www.peacecorps.gov/wws/educators/index.html)

**Classroom Earth** Classroom Earth is a non-profit organization that promotes environmental education by providing educational resources for K-12 teachers. Included on this website are classroom programs, after-school programs, and home school programs. There is also a “Best of the Web” link that provides an extensive list of other environmental educational resources.

Website: [www.classroomearth.org/](http://www.classroomearth.org/)



*Image courtesy of Classroom Earth*

## Visual Resources

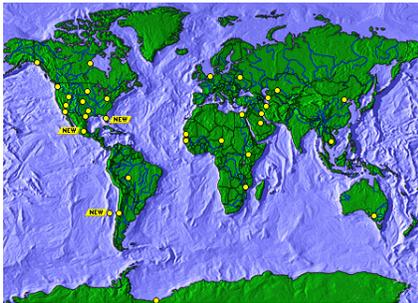
### Picturing Science – USGS Online Science tours

Fun, photographic tours of natural landscapes and wildlife.

Website: [www.usgs.gov/picturingscience/](http://www.usgs.gov/picturingscience/)



*Photo courtesy of USGS*



*Image courtesy of USGS*

### USGS Earth Shots

Very detailed satellite images of local and global importance to environmental change, including informational articles explaining change in specific areas.

Website: <http://edc.usgs.gov/earthshots/slow/tableofcontents>

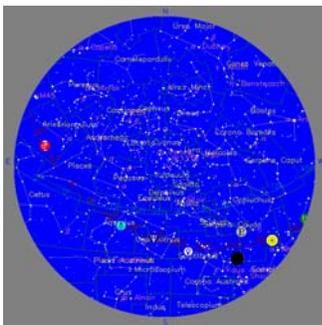
### 3D Photo Tours of National Parks

This site provides 3D photo tours featuring the geology and natural history of our national parks. Photo tours can be viewed in 3D (with 3D glasses) or as standard images.

Website: <http://3dparks.wr.usgs.gov>



*Photo courtesy of USGS*



*Image courtesy of Your Sky*

Your Sky This is an interactive planetarium where you can produce maps of the sky for any time and date, viewpoint and observing location. Just choose a nearby city and any point in time, past or future, and see a map of the sky! Website: [www.fourmilab.ch/yoursky/](http://www.fourmilab.ch/yoursky/)



*Image courtesy of USGS*

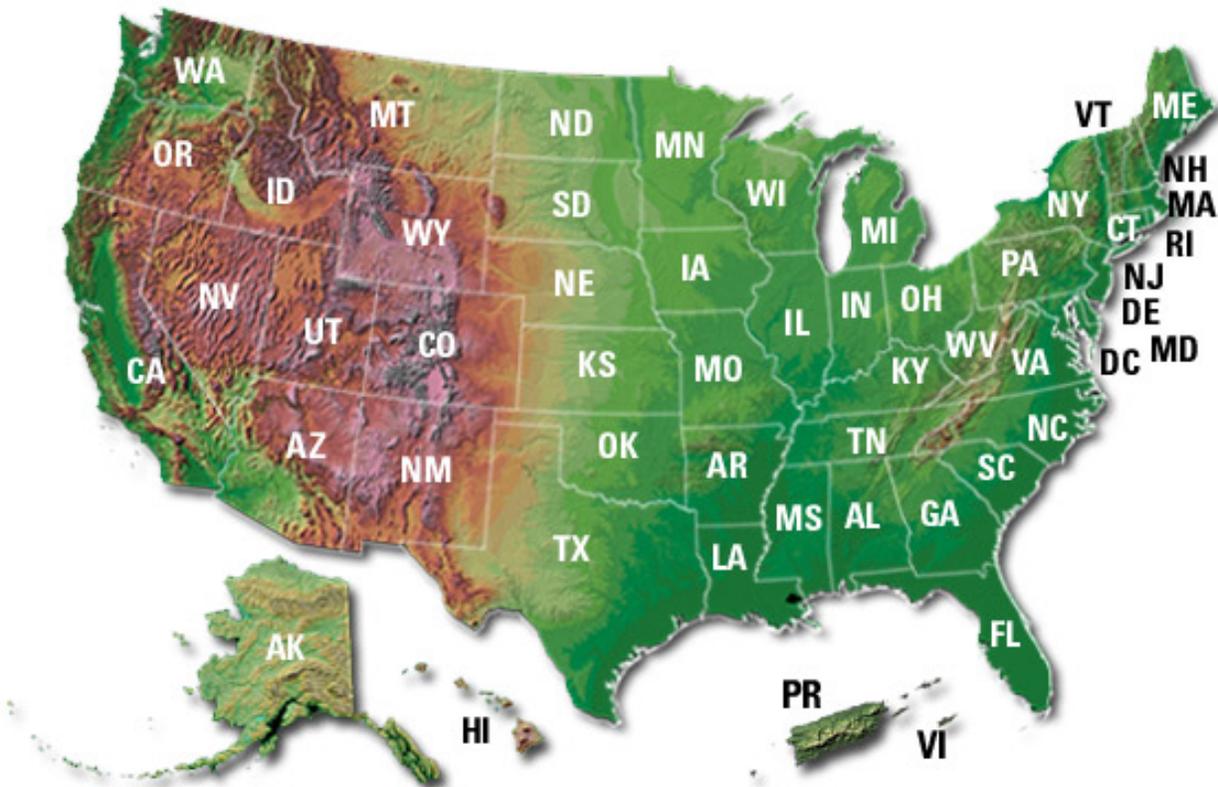
USGS Maps and Images This site provides an array of planetary maps, including GIS maps, topographic maps, interactive maps and satellite images.

Website: <http://astrogeology.usgs.gov/DataAndInformation/ImagesAndMaps/>

## Regional Educational Resources

### Science in Your State

Just click on your state and get real-time information about stream flows, groundwater, geology, recreation or find state USGS Science Centers. Website: [www.usgs.gov/state](http://www.usgs.gov/state)



*Image courtesy of USGS*

**USGS Offices by State** Another nationwide map that provides access to all USGS offices in your state, including visitor's centers, Fish and Wildlife Cooperative Research Units, and Science Centers. Website: [http://interactive2.usgs.gov/contact\\_us/index.asp](http://interactive2.usgs.gov/contact_us/index.asp)

**USGS Water Research Program by Region** Just choose your state and quickly get real-time water information, including stream-flow, ground water and water quality data.

Website: <http://water.usgs.gov/>

Map of real-time stream-flow

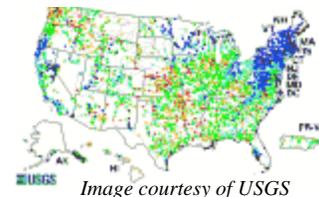


Image courtesy of USGS



Image courtesy of USGS

**USGS Science Center Locations**

Here you'll find links to the Biological Resources Discipline's (BRD) Regional Offices and Science Centers. For each location on the map there are more research stations listed throughout that particular region.

Website: [http://biology.usgs.gov/pub\\_aff/centers.html](http://biology.usgs.gov/pub_aff/centers.html)



Photo courtesy of USGS

**Patuxent Wildlife Research Center, Educational Information for Students and Teachers**

PWRC conducts research related to birds, amphibians and reptiles, ecology, wetlands and communities, contaminants, wildlife monitoring, populations and biodiversity. Their website contains biological information about wildlife, including species identification tools and tutorials, as well

as educational handouts and research methods. Also included is a link to "Ask-A-Biologist" where you may ask any question within the disciplines listed above.

Website: [www.pwrc.usgs.gov/educatnl/](http://www.pwrc.usgs.gov/educatnl/)



Photo courtesy of USGS



Photo courtesy of USGS

**USGS South Florida Ecosystem History Project, Kids Corner**

Find information about the south Florida ecosystem, what USGS scientists are studying and how they are helping to preserve this endangered ecosystem. Website: <http://sofia.usgs.gov/flaeco/hist/kidscorner/>

**Fish of the Great Lakes (Wisconsin Sea Grant)**

This link provides information about the fish of the Great Lakes, including illustrated anatomy lessons, the latest research news and identification guides for both native and non-native species.

Website: [www.seagrant.wisc.edu/greatlakesfish/kids.html](http://www.seagrant.wisc.edu/greatlakesfish/kids.html)



Fish of the Great Lakes Wisconsin Sea Grant

Image courtesy of USGS



Image courtesy of America's Wetland

**America's Wetland** America's Wetland is a public interest campaign organized to raise awareness of the impact of Louisiana's wetland loss and increase support for efforts to conserve and save coastal Louisiana. Here you'll find educational materials, activities and an "Info Central" section for more information about wetlands.

Website: [www.americaswetland.com](http://www.americaswetland.com)

## Enrichment Opportunities for Students, Schools, and Educators



Image courtesy of USGS

**USGS-Schoolyard Geology** Find useful geology lessons and activities to teach students about geology right in your own schoolyard. Website: <http://education.usgs.gov/schoolyard/index.html>

### **Rocks and Minerals and Mineral Collecting**

This site provides an informational guide to identifying and collecting rocks and minerals.

Website: <http://geology.er.usgs.gov/eastern/rocks.html>



Photo courtesy of USGS



Photo courtesy of USGS

### **Wandering Wildlife**

Brought to you by USGS Alaska Science Center, you can choose between six different species to watch as scientists track animal movement with satellite and radio telemetry across the Arctic.

Website: [http://alaska.usgs.gov/science/biology/wandering\\_wildlife/](http://alaska.usgs.gov/science/biology/wandering_wildlife/)

**USGS Water Science for Schools** Here you'll find a picture gallery, an activity center and a list of other water-related links for additional information about water, water use, the water cycle and more.

Website: <http://ga.water.usgs.gov/edu/>

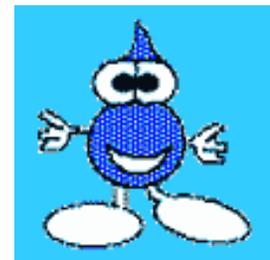


Image courtesy of USGS



Image courtesy of USGS

### **USGS – BRD Volunteer Opportunity**

Volunteers are collecting data to help assess purple loosestrife (an invasive plant species) in their regions. Your class can volunteer to help!

Website: [www.nwrc.usgs.gov/special/purplel/index.htm](http://www.nwrc.usgs.gov/special/purplel/index.htm)

**“Ask-A-Geologist”** Do you have a question about volcanoes, earthquakes, mountains, rocks, maps, ground water, lakes or rivers? Visit this site to ask a real geologist your earth science questions.  
Website: <http://walrus.wr.usgs.gov/ask-a-geologist/>



Image courtesy of USGS



Image courtesy of USGS

**“Ask a Doctor”** Ask a real scientist questions about global change research. Provided by the U.S. Climate Change Science Program, this reference service is meant to assist students, educators, researchers, decision makers and the general public in finding information and data relevant to global environmental change.

Website: <http://gcrio.custhelp.com/cgi-bin/gcrio.cfg/php/enduser/home.php>

### Urban Bird Studies

This group of studies conducted by private citizens, including K-12 students, is coordinated by the Cornell Lab of Ornithology and is partly funded by the National Science Foundation. Citizens gather data on urban birds, and scientists at Cornell use the data to answer scientific questions about urban birds. A great classroom project! Website: [www.birds.cornell.edu/programs/urbanbirds](http://www.birds.cornell.edu/programs/urbanbirds)



Image courtesy of Cornell Lab of Ornithology



Smithsonian  
Institution

Image courtesy of Smithsonian Institution

### Encyclopedia Smithsonian

This website offers answers to your questions about topics from A to Z.

Website: [www.si.edu/resource/faq/start.htm](http://www.si.edu/resource/faq/start.htm)

### US Fish and Wildlife Service, Student’s Page

Explore and learn about wildlife and their habitats and how you can help conserve, protect and enhance them. There is also a link to the **Educator’s Page** which includes curriculum resources and activities, community service projects, professional development opportunities, background information, and contacts and other links.

Website: [www.fws.gov/educators/students.html](http://www.fws.gov/educators/students.html)



Image courtesy of US Fish & Wildlife Service