

PreK-8 Resources for Activities

- **Beetle Busters**
(resource for PreK-8's "Invasive Species," Biodiversity's "Global Invaders," and Focus on Forests' "Forest Invaders")
Help stop the Asian Longhorned Beetle (ALB) from destroying U.S. Forests. Produced by the U.S.D.A.'s Office of Animal Plant and Health Inspection Service, the [Beetle Busters website](#) presents information about this invasive pest along with curriculum materials and a poster for grades 4-12.
- **The Scoop on Solar Power**
(resource for PreK-8's "Renewable or Not?," "Energy Sleuths," and "Resource Go Round," as well as the Energy & Society Kit and GreenSchools! program)
Check out the American Chemical Society's [podcasts exploring solar power](#). Two episodes examine the technology behind solar power, and two episodes describe the Solar Decathlon, an international contest in which college students around the world compete to build innovative solar homes.
- **Encounters: Wild Explorer**
(resource for PreK-8's "Picture This!," "Habitat Pen Pals," "Charting Diversity" and "Web of Life", as well as Forests of the World's "Mapping the World's Forests")
The public radio program *Encounters: Radio Experiences in the North* explores the natural history of Alaska and the Far North. [An accompanying website](#) offers K-12 teachers links to the episodes as well as resources, such as slideshows, videos, and sound clips, introducing the animals and habitats of the regions: beavers, bears, caribou, humpback whales, boreal forests, moose, and others.
- **Nab the Aquatic Invader**
(resource for PreK-8's "Invasive Species," Biodiversity's "Global Invaders," and Focus on Forests' "Forest Invaders")
[Nab the Aquatic Invader](#) teaches students in grades 4-10 about aquatic invaders and the problems they create in the Atlantic, Pacific, Gulf, and Great Lakes regions. Produced by NOAA and the Sea Grant Program, the website features games and activities in which student detectives must "nab" critters in each locale that are damaging the environment. The website also includes extensive background information on each species.
- **Check Your School's Climate Impact**
(resource for PreK-8's "The Global Climate", as well as Focus on Forests' "Monitoring Forest Health" and "Climate Change and Forests" and GreenSchools! program)
High school students can investigate the link between greenhouse gas emissions, climate change, and everyday actions at their high school. Using [EPA's Climate Change Emission Calculator Kit](#) (Climate CHECK) students can learn about climate change, estimate their school's greenhouse gas emissions and conceptualize ways to mitigate their school's climate impact. Students gain understandings of climate-change drivers, impacts, and science; produce an emission inventory and action plan; and can even submit the results of their

emission inventory to their school district. You can [compare the energy use](#) of your school with other schools nationwide, and earn the ENERGY STAR for your school if it qualifies as a top performer.

- **The Smithsonian Institution's Tree Banding Project**
(resource for PreK-8's "How Big is Your Tree?" and "The Global Climate," as well as Focus on Forests' "Monitoring Forest Health" and "Climate Change and Forests")

Citizen science programs involve students and teachers contributing to ongoing scientific work. Sign up to participate in [The Smithsonian Institution's Tree Banding Project](#) and contribute to research about tree biomass, and how trees respond to climate. Students around the globe will monitor the rate at which their local trees grow, and [learn how that rate corresponds](#) to Smithsonian research, as well as compare their work to other students world-wide. Schools will be selected for participation based on location and when they apply. If selected, the Smithsonian will mail a kit that includes everything students will need to get started.

30 Fascinating Facts about the Boreal Forest

(resource for *Forest of the World's* "What Is a Forest?" and "Mapping the World's Forests" and the *Focus on Forest* module)

The Boreal forest is the world's largest land-based biome. Spreading over continents and covering many countries, the Boreal forest plays a significant role in the planet's biodiversity and its climate. Here are [30 facts you want to know](#) about this forest domain.

Invasive Forest Insects Cost Billions

(resource for PreK-8's "Invasive Species," *Focus on Forests*' "Forest Invaders," and *Biodiversity's* "Global Invaders")

This article from *ScienceDaily* describes how homeowners and taxpayers are paying for damages caused by invasive tree-feeding insects that are inadvertently imported along with packing materials, live plants, and other goods.

How Nature Makes Soil, And You Can Too

(resource for PreK-8's "The Forest of S.T. Shrew," "Nature's Recyclers," "Field, Forest and Stream," "Watch on Wetlands," and "Soil Stories")

Use this [Soil Creation video](#) to teach (or learn!) a thing or two about the magic of soil. The footage reveals a few choice places where nature likes to make soil (it's not where you'd think!)—and tells viewers how to take advantage of that in your own garden.

“Recycle-Bowl” Competition

(resource for PreK-8’s “Renewable or Not?,” “Reduce, Reuse, Recycle,” “Make Your Own Paper,” and “A Look at Aluminum,” as well as PLT’s *GreenSchools!* program)

[Keep America Beautiful](#) is announcing the launch of “Recycle-Bowl,” the first comprehensive nationwide recycling competition for elementary, middle and high school students. Registration for the recycling competition is now open on the [Recycle-Bowl website](#). The competition runs from October 17 through November 12. At the close of the four-week competition, the school in each state that collects the most recyclable material per capita will win \$1,000. A national champion will then be chosen from among the statewide winners to receive an additional grand prize of \$2,500. To learn more about the competition, join Keep America Beautiful for a one-hour educator Recycle-Bowl [kickoff webinar](#) on August 30, 2011 at 4 (EDT).

Looking Into The Past

(resource for PreK-8’s “Then and Now,” “Planning the Ideal Community,” “In The Good Old Days,” and “Did You Notice?,” as well as *Places We Live’s* “Mapping Your Community Through Time”)

Photographer [Jason E. Powell](#) is reviving historic photos by going back to the actual place where they have been taken and then inserting that old image in the landscape of a new photo. The results are spectacular... some sites have the same building facades as they did back in the late 1800s and early 1900s, while other sites have lost all their historic elements. [Looking Into The Past](#) features images of streets, homes and government buildings in Washington DC, and towns in Virginia, West Virginia and Maryland.

How Did Native Americans Really Make Maple Sugar?

(resource for PreK-8’s “We All Need Trees,” “People of the Forest,” and “Native Ways”)

This article, found in [SciTech Communications](#), explains how grade school students in Grand Rapids, Michigan, helped figure out the historically accurate way Native Americans made maple sugar. The findings may change the way that hundreds of nature centers nationally demonstrate maple sugaring.

A Look at Technology and the Environment

(resource for PreK-8’s “Renewable or Not,” “A Peek at Packaging,” and “Reduce, Reuse, Recycle”)

This [educational website, developed by Hewlett-Packard](#), explores various aspects of technology, including the creation and distribution of electronics, their responsible disposal, and more. The website also features a poster that illustrates the product life-cycle of a computer, which includes educational information and considerations at each stage from design and manufacturing to reuse/recycling. Finally, you can reinforce concepts by downloading and distributing take-home family activities.

Interactive Earth Science Demonstrations - Volcanoes

(resource for PreK-8's "Nothing Succeeds Like Succession" and *Focus on Forests*' "Story of Succession")

These educational animations, produced by Incorporated Research Institutions for Seismology and sponsored by the National Science Foundation, contain [text, graphics, and video links on volcanoes](#) (more!). The "[Background](#)" document for volcanoes provides specific information on the eruption of Mount Saint Helens, including typical seismograph images. All animations are available for online preview or QuickTime download.

Life of the Forest Posters

(resource for PreK-8's "Tree Cookies," "Tree Factory," "To Be A Tree," "Looking at Leaves," and more)

Learn about tree rings, seeds, leaves, bark, and needles and how trees eat, drink, and breathe using these colorful posters from the International Paper Learning Center. Each 16 x 20 inch poster features photos and fact about the topic (e.g., did you know that "happy" trees produce evenly spaced rings?) and includes an accompanying handout. K-6 teachers can [order a free poster set](#) or [download them directly](#) from the web.

The Global Water Experiment

(resource for PreK-8's "Water Wonders" and PLT's *Forests of the World* secondary module)

Participate in a global experiment: [Water: A Chemical Solution](#). Participants explore water quality issues through various exercises, then share their experiment results with the global science community.

Maple Sugaring Curriculum Connections

(resource for PreK-8's "We All Need Trees," "A Few of My Favorite Things," and "Three Cheers for Trees")

Explore a seasonal timeline of the [maple sugaring process](#), along with ideas for incorporating maple sugaring into science, math, history, art, and language arts activities. Learn ways that student can explore ratios (e.g., it takes 40 parts maple sap to make 1 part maple syrup) or keep a journal of their observations during the sugaring process.

Science News for Kids

(resource for PreK-8's "Can It Be Real?," "Habitat Pen Pals," "Charting Diversity," and more)

Can lizards learn? Will the Sun's cycle stay the same? Find answers to these and other life mysteries at [Science News for Kids](#). The site presents timely science stories categorized by subject, along with suggestions for hands-on activities, books, articles, and web resources.

(resource for PreK-8's "We All Need Trees," "Three Cheers for Trees," "Resource-Go-Round," "Trees for Many Reasons," and more)

Hull-Oakes Lumber is the last steam-powered commercial saw mill in the country, and is one of the few mills capable of cutting large timbers up to 85 feet long. The mill has been on the National Register of Historic Places since 1996. Large long timbers are still used in railroad trestles, the restoration of historic structures, and for the spars and masts of ships. Visit [this website](#) to learn more about the mill's operations and see some great photographs of the process.

(resource for PreK-8's "We All Need Trees," "Pass the Plants, Please," and "People of the Forest")

DooF ("food" spelled backwards) is a fast-paced television series that teaches students ages 6-11 about where food comes from and interests them in good food, because it's healthy and tastes good! The accompanying website, www.foodbackwards.com, offers recipes, food-related videos and stories, a blog, and food-literacy materials.

(resource for PreK-8's "Living with Fire" and "Nothing Succeeds like Succession")

Educators can find age-appropriate information to [teach children about fire safety](#) from the U.S. Fire Administration Fire Safety for Kids site. Targeted at K-4 students, the website includes fire discussion points, activity sheets in both Spanish and English, and games that reinforce fire lessons. Student can look for fire hazards in an interactive Hazard House game and earn a Junior Fire Marshal certificate when they successfully complete a quiz.

(resource for PreK-8's "Invasive Species," *Biodiversity* module's "Global Invaders," and *Focus on Forest's* "Forest Invaders")

Did you know that the United States spends more than \$100 million a year on combating invasive plants in wetland areas alone? Find this and other interesting facts about invasive species in [Invasive Plants](#), an online document from the U.S. National Arboretum, most appropriate for middle and high school levels.

(resource for PreK-8's "Renewable or Not?," "Reduce, Reuse, Recycle," and "Energy Sleuths" and PLT's *Energy & Society Kit*)

At www.windturbines.net, visitors can join a community of wind energy professionals and access facts, maps, information, videos, and news stories about the use of wind technology worldwide. Check out [this popular video](#), which describes a propeller-free turbine design that can be used in residential homes.

(resource for PreK-8's "The Forest of S.T. Shrew," "Nature's Recyclers," and "Soil Stories")

[S.K. Worm](#), the official annelid of USDA's Natural Resources Conservation Service, answers students' questions about soil. The questions, which appeal to elementary and middle school students, include Does soil have parents? What does the weather do to soil? How does water stay in the soil? Why do plants like soil? Can we keep the soil from washing and blowing away? Once students have read each answer, they can download a "soil diploma" attesting to their new found knowledge.

(resource for PLT's *GreenSchools!* program)

This California-based Green Schools Initiative encourages K-12 teachers, students, and parents to explore local schools to discover how environmentally friendly (or unfriendly) they are. Teachers and students can take an online quiz and [generate a report card](#) for their school. The site also includes profiles of successful Green Schools, suggestions for "teaching green," and tips on finding green products for the classroom.

(resource for PreK-8's "Picture This!," "Habitat Pen Pals," "Can It Be Real?," and "Life on the Edge")

Middle and high school students can click on EPA's plant and animal pictures to learn about 12 threatened or endangered species, such as the black-footed ferret, small whorled pogonia (an orchid), mission blue butterfly, whooping crane, American burying beetle, bald eagle, Eastern Indigo Snake, Fresno kangaroo rat, Kemp's Ridely sea turtle, black lace cactus, Florida manatee, and the shortnose sturgeon. A related coloring book for younger students is available.

(resource for PreK-8's "Signs of Fall," "Looking at Leaves," and "Tree Lifecycle")

The [US National Arboretum](#) has collected online resources on the science of fall foliage. The resources include "The Science of Color in Autumn Leaves," a document describing the hows and whys of color change in leaves; an extensive photo gallery of trees in fall color; and a list of "Selected Plants Providing Colorful Autumn Foliage."

(resource for PreK-8's "We All Need Trees," "People of the Forest," "Rain Reasons," and "Tropical Treehouse," as well as PLT's *Forests of the World* module)

[Canopy in the Clouds](#) provides an immersive video experience that presents an up-close look at a tropical montane cloud forest. Visitors click on numbered links to access video clips and background information for teachers and information for grades 6-8 on topics such as water, weather, soils, ecology, and the science processes.

(resource for PreK-8's "Schoolyard Safari," "The Closer You Look," "Planet Diversity," "Are Vacant Lots Vacant?," "Trees as Habitats," and more)

US Fish and Wildlife's [Neighborhood Explorers Game](#) for 8-11 year olds allows students to take an interest in their own backyards. Students learn about nature as they complete games in the Neighborhood Explorers (NX) clubhouse and earn points for observing nature in person. Students are asked to record observations of bugs, birds, and other wildlife found in their own backyards. Students then submit their findings online and can compare statistics and generate reports. The website also offers ideas for conservation activities that students can do at home.

(resource for PreK-8's "Web of Life," "Habitat Pen Pals," and "Every Drop Counts")

[Baobab Planet](#) is an online game that helps develop ecological consciousness of students aged 6-12, as they work to assemble a tree house among the branches of a planet shaped like a baobab tree. Student can also complete adventure-filled missions, such as rescuing wildlife or preventing depletion of the ecosystem's water supply. An [accompanying website](#) allows parents and teachers to participate by setting specific missions targeting particular cognitive and learning skills. The complete website is also available in [Spanish](#).

Energy Quest (*resource for PreK-8's "Renewable or Not?," "Energy Sleuths," "Pollution Search," "Waste Watchers," along with PLT's Energy & Society Kit*)

Energy Quest is an effort by the California Energy Commission to provide resources to teachers and students all about energy: its different forms, how it is generated, its sources and how to protect and conserve it. The [Energy Quest website](#) is arranged in easy-to-use tabs that lead to a rich, comprehensive supply of teaching material. The website's interactive interface is useful and educational to both teachers and students alike.

2012 AF&PA Recycling Awards (*resource for PreK-8's "Reduce, Reuse, Recycle," "Make Your Own Paper," "A Look at Aluminum," and PLT's GreenSchools! program*)

Each year the American Forest & Paper Association (AF&PA) Recycling Awards recognize outstanding paper recycling efforts. Enter your business, community, or school program today for the chance to win a **\$2,000** cash prize, original framed artwork, and recognition in local and national media. Winners and finalists will also be featured on the [paperrecycles.org](#) website. The awards are organized into three categories: school, business, and community, and the deadline is February 10, 2012. [Apply today!](#)

Soil Explorers (*resource for PreK-8's "Soil Stories," "The Story of S.T. Shrew," "Nature's Recyclers," and "Field, Forest, and Stream"*)

The [Soil Explorers website](#), sponsored by the Bureau of Land Management, is designed just for kids. Learn about the importance of soil, soil food webs, soil facts, and more. A brief assessment is even included to test soil knowledge.

My Garbology (*resource for PreK-8's "Reduce, Reuse, Recycle," "Make Your Own Paper," "A Look at Aluminum," PLT's Municipal Solid Waste Module, and PLT's GreenSchools! program*)

We toss items into the trash every day - about 4.4 pounds per person per day, on average. With garbology, the study of waste, students can learn about waste reduction and steps they can take to reduce the amount of trash on the planet. [This website's interactive interface](#) allows students to learn about the recycling, reusing, composting, and disposing of several everyday items.

ARKive's "Survival" App (*resource for PreK-8's "Web of Life," "Life on the Edge," "Habitat Pen Pals," and "Planet Diversity"*)

Use your mobile device to race against the clock in a battle for survival! Tap, drag, scroll, swipe and pinch your way through a series of quick-fire mini-games to reveal the identity of some of the world's most endangered animals. Full of real-life photographs, [this fun and educational application](#) tests speed, agility, endurance and intelligence, essential skills needed to become a Top Survivor.

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