Newsfeatures

Put the "Fun" in Fungus

Mycology (the study of fungi) can have a positive effect on everyone's lives. Learn more about fungi by visiting a webpage compiled by a University of Wisconsin-La Crosse biology professor, Tom Volk. His webpage is located at http://botit.botany.wisc.edu/toms/fungi/.

The website includes a search function so you can type in a few key words, a genus name, or common name to find out more about your favorite fungus or identify a fungus in your backyard. Check out the frequently asked questions and if you don't find your answer, you are invited to contact Dr. Volk with your question. You will also find a fungus of the month, holiday fungi, info for teachers, intro to fungi, and lots of pictures.

Dr. Volk is an award-winning professor in the Department of Biology at UW-La Crosse, where he teaches general mycology, medical mycology, plant–microbe interactions, Latin and Greek for scientists, and plant biology.

Training Manual Gets Good Grade

A new training manual titled *Teaching Organic Farming and Gardening: Resources for Instructors* is now available from the Center for Agroecology and Sustainable Food Systems (you can see more about the manual at the website http://zzyx.ucsc.edu/casfs/training/manual/).

The manual is based on the course material presented in the Center's six-month apprenticeship training program and covers practical aspects of organic farming and gardening, applied soil science, and social and environmental issues in agriculture. Units contain lecture outlines for instructors and detailed lecture outlines for students, field and lab demonstrations, assessment questions, and annotated resources lists. Although much of the material has been developed for field or garden demonstrations and skill building, most of the units can also be tailored for a classroom setting.

The 600-page manual is available from the Center for $45, including tax, shipping, and handling. To order, send a check or money order made payable to UC Regents to: CASFS, 1156 High Street, Santa Cruz, CA 95064, attn: Teaching Manual. Please be sure to include your mailing address.

The manual is also available to download in PDF format for free from the Center's website (www.ucsc.edu). If you have questions about the resource guide, or questions about ordering, please send an email message to TrainingManual@ucsc.edu or call 831-459-3240.

Have a Successful Science Fair

Find resources to hold a successful science fair, from getting kids on track to judging the final experiments. Go to discoveryschool.com (http://school.discovery.com), and click on "Science Fair Central."

This site can help students come up with a project idea, get started, discover information, and learn what the final project should look like. Teachers and parents can learn how to coordinate advice and help. You will find a Soup to Nuts Handbook, Project Ideas, Links & Books, Questions & Answers, and tip sheets for astronomy, biology, chemistry, earth science, and physical science.

While you are there, check out the Discovery Channel Young Scientist Challenge, the only science contest of its kind for students in grades 5 through 8!

Ag in the Classroom Website Approved by AAAS

The website for Agriculture in the Classroom (AITC; www.agclassroom.org) has been reviewed by the Board of Reviewing Editors of the American Association for the Advancement of Science (AAAS) and has been approved for use in classrooms.

It was featured among the recommended resources on Science NetLinks (www.sciencenetlinks.com), a comprehensive homepage for science educators created by the AAAS. Science NetLinks is part of a partnership called MarcoPolo that provides free, high-quality Internet content for K–12 teachers. Science NetLinks offers teachers easy access to unique and timely supplemental resources, and highlights the types of exemplary resources available on the Internet. Before a site can be approved by Science NetLinks, it goes through an extensive vetting process by Science NetLinks staff and is then sent to an outside reviewer, who reviews the site based on a strict set of criteria. If the reviewer finds that a site meets those criteria, then that site is included on Science NetLinks.

For more information on Agriculture in the Classroom, contact Kathleen Cullinan at 202-720-7926 or kcullinan@csrees.usda.gov.

Fun Fish Facts

Ever wonder how scientists determine the age of a fish? Looking to define a technical fishing term? What is the NOAA? Learn these answers by visiting the National Fisheries Institute (NFI) webpage (www.nfi.org).

The site includes a "Just for Kids" section, which links to the National Oceanic and Atmospheric Administration (NOAA) page when you click on "Education" and "Fun Facts about Fish and Fisheries." The NOAA's many educational activities are distributed across the agency. This website has been designed to help students, teachers, librarians, and the general public access the many educational activities, publications, and booklets that have been produced.

You can also click on "About Seafood" and "Fishery Research Vessel." There are pages for teachers, students, and everyone.

The NFI helps educate children by maintaining a website page designed just for kids. Visit and see for yourself, and learn about fisheries.

Learn more in a fish field guide. You can find many fish field guides, both for children and adults: *National Audubon Society Field Guide to Fishes: North America*; *National Audubon Society First Field Guide: Fishes*; *A Field Guide to Freshwater Fishes: North America North of Mexico*; *McClane's Field Guide to Saltwater Fishes of North America*; *Peterson First Guide to Fishes of North America*.

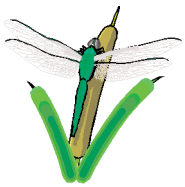
Turn a Garden into a Classroom

The National Gardening Association (NGA) has a website just for kids.

Across the country, garden and habitat projects are inspiring students to connect with and serve their communities. When teachers link learning goals with projects that engage students in meeting genuine community needs, everyone wins. Join the School Garden Registry and see hundreds of descriptions of school garden projects and classrooms wanting to cultivate email pals! There are links to teaching tools, activities, grants and resources, partner projects, and more.

The NGA has long been recognized as a national leader in garden-based education. This includes providing horticultural and teaching expertise, resources, and networking opportunities to help kids in schools and communities grow. Learn how to turn a garden into an outdoor classroom.

The National Gardening Association website is available at www.kidsgardening.com.



TV Science Shows

The National Science Teachers Association (NSTA) is pleased to support the third season of DragonflyTV, the PBS science show for kids ages 9 to 12. Featuring out-of-this world science performed by down-to-Earth kids, DragonflyTV is a program by and for kids. Whether it is Arizona students probing for life on Mars, a group of California "river rats" exploring water hydraulics while shooting down the American River, or some Minnesota hockey players creating "slapshot science," DragonflyTV is a source for fun and engaging classroom investigations.

DragonflyTV offers free Educator's Guides (which are also provided in the NSTA journals); an interactive website; and classroom packs of DFTV Zines, a fun science journal for kids. And this season, DragonflyTV offers exciting new educational features, including Super Do-Its that encourage students to explore a cool science question and post their findings online at www.dragonflytv.org, and Science Fact or Fiction, featuring students' favorite young celebrities debunking common science misperceptions.

For more information and show times, visit the DragonflyTV website at www.dragonflytv.org or send an email to dragonflytv@tpt.org, to learn more.

Egg Color and Freshness Facts

White eggs…brown eggs…Egg shell (and yolk) color may vary, but color has nothing to do with egg quality, flavor, nutritive value, cooking characteristics or shell thickness.

Color. The shell color comes from pigments in the outer layer of the shell and may range from white to deep brown. The breed of hen determines the color of the shell. Breeds with white feathers and ear lobes lay white eggs; breeds with red (brown) feathers and ear lobes lay brown eggs. White eggs are most in demand among American buyers. In some parts of the country, however, particularly in New England, brown shells are preferred. The Rhode Island Red, New Hampshire, and Plymouth Rock are breeds that lay brown eggs. Since brown-egg layers are slightly larger birds and require more food, brown eggs are usually more expensive than white eggs.

Yolk color depends on the diet of the hen. If she gets plenty of yellow–orange plant pigments known as xanthophylls, they will be deposited in the yolk. Hens fed mashes containing yellow corn and alfalfa meal lay eggs with medium yellow yolks, while those eating wheat or barley yield lighter-colored yolks. A colorless diet, such as white cornmeal, produces almost colorless yolks. Natural yellow–orange substances such as marigold petals may be added to light-colored feeds to enhance yolk color.

Sometimes there is a greenish ring around hard-cooked egg yolks. It is the result of sulfur and iron compounds in the egg reacting at the surface of the yolk. It may occur when eggs are overcooked or when there is a high amount of iron in the cooking water. Although the color may be a bit unappealing, the eggs are still wholesome and nutritious and their flavor is unaffected. Greenish yolks can best be avoided by using the proper cooking time and temperature and by rapidly cooling the cooked eggs.

Freshness. So shell color has nothing to do with freshness…what does? How recently an egg was laid has a bearing on its freshness but is only one of many factors. The temperature at which it is held, the humidity, and the handling all play their part. These variables are so important that an egg one week old, held under ideal conditions, can be fresher than an egg left at room temperature for one day. The ideal conditions are temperatures that do not go above 40°F and a relative humidity of 70 to 80%.

How important is "freshness"? As an egg ages, the white becomes thinner and the yolk becomes flatter. These changes do not have any great effect on the nutritional quality of the egg or its functional cooking properties in recipes. Appearance may be affected, though. When poached or fried, the fresher the egg, the more it will hold its shape rather than spread out in the pan. On the other hand, if you hard cook eggs that are at least a week old, you will find them easier to peel after cooking and cooling than fresher eggs.

Find more basic egg facts at the American Egg Board website, www.aeb.org; email aeb@aeb.org.

Free Booklets Just for Asking

Hey Educators! Looking for more teaching resources? Have you heard of the *Kansas School Naturalist*?

Kansas School Naturalist is available free to teachers, school administrators, public and school librarians, youth leaders, conservationists, and others interested in natural history and nature education. Some past issues include information on biological smoke detectors, Kansas crab spiders, carpenter ants, and feral pigeons.

The booklets are a mainstay of nature education in classrooms, labs, and fieldwork. Grants and the grassroots contributions of readers are the major source of funds. To sign up or to obtain more information, contact: *Kansas School Naturalist*, Department of Biology, Box 4050, Emporia State University, Emporia, KS 66801.

Uncover Calcium Sources

What are good sources for dietary calcium? Calcium from anywhere is not extremely absorbable by the body, but the calcium you get from dairy products is among the best sources out there.

In an article in a 2000 issue of the *Journal of the American College of Nutrition*, researchers examined "The Bioavailability of Dietary Calcium." Their research showed the calcium absorption rate from milk and cheese was about 32%—that is, the body absorbed about 32% of the calcium available in the product. That is compared with 13.2% from spinach, watercress, and other products rich in oxalates. (Oxalates tend to bind to calcium, limiting the body's ability to absorb it.) The absorbability of other types of calcium, such as calcium citrate, calcium carbonate, and calcium citromalate ranged from 23 to 37%.

This is not surprising to nutritionists. Nutrition textbooks will tell you that only about 20 to 40% of dietary calcium is absorbed by adults, with dairy products on the high end of the scale. Calcium is just one of those minerals that is not easily absorbable.

This means that dairy products should not be dismissed, even if half of their calcium goes right through you. In fact, the authors of the dietary calcium study noted that, "it is well worth remembering that milk and milk products are by far the main source of calcium in our diet."

Adults up to age 50 should consume 1000 milligrams a day; adults over 50 should get 1200 milligrams; and adolescents between 9 and 18 should get 1300 milligrams a day. These recommendations all take into account calcium absorbability factors.

A cup of milk has about 300 milligrams of calcium. A 6-ounce container of flavored yogurt has about 250 milligrams. A 3/4-ounce slice of low-fat, pasteurized processed American cheese has about 140 milligrams.

For reliable websites on nutrition information, check out the Nutrition Navigator from Tufts University at http://navigator.tufts.edu/. This website rates web-based nutrition advice on accuracy, depth of information, how recently the site has been updated, and its usability.

Information from The Ohio State University Extension and the Ohio Agricultural Research and Development Center. Send questions to Martha Filipic, 2021 Coffey Road, Columbus, OH 43210-1044; filipic.3@osu.edu.

Water Science Basics

Looking at water, you might think that it is the most simple thing around. Pure water is colorless, odorless, and tasteless. But it is not at all simple and plain and it is vital for all life on Earth. Where there is water there is life, and where water is scarce, life has to struggle or just "throw in the towel."

So what is it about water that makes it so important to us? And what is it about water that makes it water? Answers to these questions and more are found at the Water Science for Schools website.

The Water Science for Schools website explores the physical and chemical properties of water and why water is so critical to living things. You can click on "Water Basics" and learn more about: water properties, common water measurements, capillary action, the water in you, and a true-false quiz.

The Water Science for Schools website, sponsored by the U.S. Geological Survey, is found at http://ga.water.usgs.gov/edu/mwater.html.

Wake Up and Smell the Coffee

There is a book that explains how small farmers around the world can grow crops while caring for the land. The book, titled *A Cafecito Story*, is a modern fable about coffee growers.

Here is a short summary of the book: A teacher from Nebraska (Joe) goes on vacation in the Dominican Republic, a country in the Caribbean. He meets a farmer (Miguel) who grows coffee. Miguel shows Joe, whose father was a farmer, exactly how he grows his coffee: cool under shade trees, few or no chemicals, birds and butterflies welcome. The traditional way.

But Joe also learns something else. The price farmers get for their coffee has crashed. Miguel is thinking of selling his farm because he cannot support his family on it. The buyer plans to grow coffee, too—but in a different, modern way: in full sun using chemicals. All Miguel's trees would be cut down and the birds would lose a place to live, along with Miguel and his family. Joe does not want that so he stays to help. There is more to the story (and the ending is happy).

A Cafecito Story was written by Julia Alvarez and was printed in 2001 by Chelsea Green Publishing. It is not specifically a child's book, but it is relatively short (72 pages).

Information from The Ohio State University College of Food, Agricultural, and Environmental Sciences (specifically, the Ohio Agricultural Research and Development Center and Ohio State University Extension). For more information contact Kurt Knebusch, 1680 Madison Ave., Wooster, OH 44691, knebusch.1@osu.edu.

8 Common Plant Myths

Over the years a number of ideas have come to be accepted as part of the conventional wisdom of plant care. Unfortunately, some of these practices are inappropriate for houseplant owners growing plants. No wonder so many people believe they just don't have green thumbs.

Myth 1: Plants grow bigger in bigger pots. Fact: The fastest growing plants are those that are moderately potbound. Frequently repotted plants put much of their energy into growing more roots, at the expense of leaves and flowers. Plants in large pots are also much more likely to suffer from root rot.

Myth 2: Ailing plants will benefit from plant food. Fact: Plant food or fertilizer is not medicine. It is intended for healthy plants that are growing vigorously and are using up the essential nutrients in the soil. You cannot force plants to use more nutrients than they need. Excess nutrients accumulate in the soil and burn tender roots and cause leaf discoloration. Ailing plants absorb fewer nutrients than healthy plants.

Myth 3: Indoor plants need lots of direct sunlight. Fact: Only some indoor plants benefit from direct sun. Many common indoor plants are shade lovers that suffer from "sunburn" when exposed to the direct rays of the sun.

Myth 4: Yellow leaves and brown tips mean over watering. Fact: These common symptoms have many possible causes including too little water, inadequate light, excess fertilizer, fluoridated water, hard water, and poor soil quality.

Myth 5: Misting plants will increase the humidity for plants. Fact: Misting plants once or twice per day increases the hu-

midity by so little that it has no practical value for humidity-loving plants. Misting does help keep plants clean, however.

Myth 6: Most indoor plants need high humidity to thrive. Fact: Most of the commonly available indoor plants are commonly available because they have proven their ability to adapt to the very dry environments found indoors in winter. Although most indoor plants, except for succulents, come from naturally humid habitats, many can survive quite well in low humidity, just so they receive adequate moisture through their roots.

Myth 7: Chemical pesticides are the only effective way to eliminate plant pests. Fact: There are many safe and effective treatments for plant pests. These treatments include such safe products as dish soap, rubbing alcohol, horticultural oils, silicon, sand, sticky traps, diatomaceous earth, and hot pepper.

Myth 8: Most indoor plants go dormant in the winter. Fact: Most indoor plants come from tropical regions that are warm all year. Unlike temperate zone plants, tropical plants grow actively all year long. Indoors in northern climates the winter months bring shorter hours of daylight. This reduction in light will cause plant growth rates to slow, leading some observers to believe they are dormant.

Information taken from the Horticultural Help website, available at www.horticulturalhelp.com/myths.html.

Earth Science Images for Educators

The Earth Science World ImageBank is a service provided by the American Geological Institute (AGI) where educators—and the public—can download photos and also submit their own photos.

The SSSA President, Tom Sims, would like to see more soils photos submitted. Educators with appropriate soil science–related images should consider submitting them to the website.

This ImageBank is designed to provide quality geoscience images to the public, educators, and the geoscience community. You can browse categories or search for images using an advanced search feature.

The website is found at www.earthscienceworld.org/imagebank/.

Blind as a Bat

Bats are not really blind but most of them have poor eyesight. They see by using sound waves. Bats produce a series of high squeaks, which are reflected back by objects in the area. This is called *echolocation*.

So why would bats in some parts of the country show an unexplained tendency to collide with the blades of wind turbines, used for wind energy? Conservationists, industry officials, and federal agencies are joining forces to address this unexpected side effect of renewable wind energy.

Bat Conservation International (BCI), the American Wind Energy Association (AWEA), the U.S. Fish and Wildlife Service, and the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) are forming an unusual alliance to learn why these collisions occur and how they can be prevented.

"Our purpose is to work together to identity causes and solutions as quickly as possible," said Merlin Tuttle, Founder and President of BCI. It seems that migrating bats were killed in collisions with wind-power turbines during summer 2003 in West Virginia and Tennessee; fatal encounters were also reported in Minnesota and Wyoming.

Bats are vital to the health of the environment and to many human economies. They are primary predators of night-flying insects, including many major agricultural pests. Some bats pollinate plants and others dispense seeds. It is not at all clear why some bat species seem susceptible to collisions with the turbines, and that information likely will be critical in developing effective preventive strategies.

In addition to attempting to prevent collisions, the group will suggest methods to help site wind projects in locations that may be safer for bats. Short-term efforts may also include testing potential bat deterrents and developing tools to help document bat interactions with the turbines.

Wind energy requires no mining for fuel and produces no air or water pollution. Participants hope to find solutions that support the continued growth of wind power production in concert with wildlife conservation.

For more information, contact Kristin Hay, Bat Conservation International, khay@batcon.org. Other websites about bats can be found at http://www.cccoe.k12.ca.us/bats/bat_link.html.

Make Your Own Maple Syrup

Anyone with sugar maple trees in their backyard can produce their own syrup, according to Gary Graham, an Ohio State University Extension natural resources specialist.

"Sugar maples are ideal for backyards," Graham says. "They're adaptable so they can grow in a lot of places. However, They don't like their roots to be wet for extended periods of time, and they don't do well in compacted soil, but there are other maple trees that can be used in those situations."

Sugar maples (*Acer saccharum* Marsh.) and black maples (*Acer nigrum* Michx. f.) are the most common trees used for syrup because of their sap sugar content. To collect the sap you need a spout, containers, time, and a little hard work.

A single tree, 10 inches to 12 inches in diameter (measured 4.5 feet off the ground), can handle one tap. A tree that is 15 inches or more in diameter can handle two taps.

Each tap should provide enough sap for about one quart of syrup, but not without a lot of boiling. The sugar content of a typical maple tree's sap is usually about 2% sugar, most of the rest being water. It takes about 42 gallons of sap to produce 1 gallon of syrup.

"Maple syrup production is a very sustainable activity," Graham says. "Tapping maple trees and collecting sap does not kill the tree. The tap hole captures a very small portion of the tree's sap. Maple trees can live to be hundreds of years old under the right conditions, and many sugar makers in Ohio are tapping the same trees that the generation before them tapped."

"People who make maple syrup do it for the tradition, the history, the family," he says. "It's a very family-oriented activity and that's why a lot of people like it."

To learn more about maple syrup production and getting started, reference the forestry series fact sheet F-36-02, "Hobby Maple Syrup Production," found at http://ohioline.osu.edu/for-fact/0036.html. Information from Ohio Agricultural Research and Development Center, Ohio State University Extension; 330-263-3776 (Wooster), 614-292-2011 (Columbus).

BIOTECHNOLOGY

Teach Biotechnology with Interactive Lesson Plans

Teaching about biotechnology is now easier with interactive lesson plans from Pioneer Hi-Bred International, Inc. The new online resource is specifically designed to help middle and high school science and vocational teachers explain biotechnology and its effect on food production. The educational outreach program and associated web-based lesson plans are available at www.pioneer.com/education.

This latest addition to the Pioneer Hi-Bred website is an extension of a curriculum that has been classroom-tested for nearly 5 years. The site offers standards-based lesson plans, materials, and learning activities created by the Pioneer Educational Support Program staff, teachers, scientists, and other educational professionals. Educators can modify the five modules to meet their individual needs and the interests of their students.

Pioneer first began conducting workshops on the application of biotechnology in 2000 in response to educators' requests. In subsequent years, teachers have more fully integrated the program into classrooms and needed an online resource for the training materials. Pioneer will be adding and modifying lesson plans to the new website as suggestions come in from teachers around the country.

To request more materials or information, educators may also contact the Pioneer Educational Services staff at 800-247-6803, extension 3364 or 3175.

Science News for Kids

Science News for Kids is a new website devoted to science news for children of ages 9 to 13. You will find the website at www.sciencenewsforkids.org/.

Some of the topics found in the Article Archive are agriculture, earth, environment, plants, weather, and more. Click on pages such as SciFairZone, LabZone, and TeacherZone.

The goal of the website is to offer timely items of interest to kids, accompanied by suggestions for hands-on activities, books, articles, web resources, and other useful materials.

The emphasis is on making the website appealing by offering kids opportunities to comment on the subject matter, ask questions of scientists featured in articles, try out mathematical puzzles, and submit their own work for possible web publication. The website offers teachers creative ways of using science news in their classrooms.

Science Service, the publisher of *Science News*, is a nonprofit corporation based in Washington, DC.

That Bear in the Hat Isn't Wrong

Not all forest fires are bad. In fact, sometimes scientists and forest workers start forest fires on purpose.

Why? Several reasons: One is to get rid of dead wood and brush before it can build up and fuel a wildfire, a hot, huge, out-of-control fire that sometimes hurts both trees and people.

Instead, a cooler, smaller, managed fire—a prescribed wildland fire—is used to burn the "fuel" in the forest but not destroy the trees themselves.

Another reason is this: From time to time, some lands actually need wildland fires—to spur the growth of seeds and new plants, to keep some plants from taking over, or to be a better place for wildlife.

That bear in the hat is not wrong. Accidental, human-caused wildfires should be prevented. But controlled, well-managed, prescribed wildland fires are safe and actually help the land.

For more information on wild fires, go to: www.nifc.gov/preved/comm_guide/wildfire/.

Information from The Ohio State University Extension and the Ohio Agricultural Research and Development Center. Send questions to Kurt Knebusch, News and Media Relations, 1680 Madison Ave., Wooster, OH 44691, knebusch.1@osu.edu, (330) 263-3776.

WSSA Undergraduate Research Award—Year 2005

The Weed Science Society of America (WSSA) has developed an Undergraduate Student Research Grant designed to encourage and involve exceptional undergraduates in agricultural research. Interested faculty members are encouraged to identify potential award candidates and discuss the possibility of sponsoring a research project. Awards may be used as a stipend, for research budget expenses (travel, supplies, etc.), to defer fees, to defray living expenses for summer research, or any combination of these items.

Award. Up to $1000 for support of undergraduate research to be conducted over a minimum of one quarter/semester during 2005. This award may be used to defray the cost of research supplies or as a stipend. Support of a faculty sponsor is required. Awards will be made to the student, to be administered by the faculty sponsor's department.

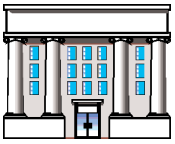
Applicant. The applicant is an undergraduate student with a strong interest in weed science. Students majoring in all related disciplines may apply.

To Apply. Applicants should prepare a 2- to 3-page research proposal including name, address, phone number, title, objective, experimental approach, discussion, budget, and references. The discussion section of the proposal should describe the expected results and their possible significance to weed science. The student should provide a cover letter in which general academic and career goals are discussed. A copy of the student's academic transcripts should also be provided.

Faculty Sponsor. Any faculty member who is actively engaged in weed science research is qualified to be a sponsor. The faculty sponsor should review the research proposal with special attention to the budget; the distribution of funds should be approved by both the student and sponsor. In addition, the sponsor should provide a letter of reference including a statement of his/her willingness to supervise the proposed research and to provide needed space, equipment, and supplies above those requested in the proposal. The sponsor is encouraged to assist the student in presenting his/her results at a regional WSSA meeting.

How to Apply. The completed proposal, academic transcripts, cover letter, and faculty letter of support should be forwarded to: Dr. John Jachetta, Dow AgroSciences, 9330

Zionsville Road, Indianapolis, IN 46268-1054; phone: (317) 337-4686, fax (317) 337-4649, email jjjachetta@dow.com. Proposals should be received no later than 15 Nov. 2004. Funding decisions will be made by 24 Jan. 2005 and presented at the 2005 WSSA National Meeting General Session.



Science Museums on the Web

Looking for some science information? Now you can visit a museum…online. Here are some online museums that feature topics from healthy hearts to geology to molecules.

The Dynamic Earth website is found at www.mnh.si.edu/earth/ and is sponsored by the Smithsonian National Museum of Natural History. The website is worth visiting to discover rocks on and below the earth's surface and to find out about mining.

The Heart: An Online Exploration website is found at www.fi.edu/biosci/index.html and is developed by The Franklin Institute Science Museum with support from Unisys Corporation. You can explore the heart, discover the complexities of its development and structure, follow the blood through the blood vessels, learn how to have a healthy heart and how to monitor your heart's health, and look back at the history of heart science.

The Virtual Museum of Minerals and Molecules is a web-based focal point and resource for 3-D visualizations of molecules and minerals. This site, by the University of Minnesota and University of Wisconsin Minerals & Molecules Project, is found at www.soils.wisc.edu/virtual_museum/index.html. You can zoom in, rotate, and view the molecules from all angles, much as with a real molecule. The 3-D visualizations are incorporated into stand-alone HTML instructional modules that combine text, graphics, molecular formulae, highlighting features, electron micrographs, and other appropriate instructional aids and materials. These modules are offered free for instructional use.

Careers in the Life Sciences

Want to find out more about careers? Visit a useful careers website found at www.theaps.org/education/k-12misc/careers.htm that summarizes various career topics in the life sciences. You will find information about the agricultural sciences, zoology, biology, plant pathology, biotechnology, entomology, and more.

The website is sponsored by the American Physiological Society, a nonprofit society devoted to fostering education, scientific research, and dissemination of information in the physiological sciences.

Astronomy and Weather Info

Talking about weather is one way to bring science into the classroom. Here are several websites to uncover facts on weather and astronomy.

Current Sky Almanac is available at www.stardate.org/nightsky/. Check out this month's moon phases of the moon. Find other interesting things to see in the night sky.

Comets and Meteor Showers is available at www.comets.amsmeteors.org/. Find out when you can see any comets or meteor showers. Learn more about meteors and view movies of past comets and meteors.

The Aurora Page is available at www.geo.mtu.edu/weather/aurora/. Get background information on the northern lights. There are many links to pictures.

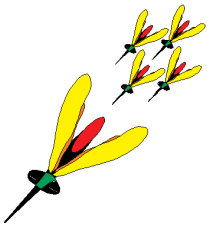
NASA Homepage is available at www.nasa.gov. Discover the latest news in space exploration. Find out launch schedules for Space Shuttle missions.

NASA Jet Propulsion Laboratory is available at www.jpl.nasa.gov/. Discover good information about Earth, the Solar System, and space exploration. There are plenty of images and educational links.

Eclipse Terminology is available at www.MrEclipse.com/Special/SEprimer.html. What is a penumbra? Follow this link to learn about basic terms for describing an eclipse.

International Space Station Viewing is available at www.spaceflight.nasa.gov/realdata/sightings/. When can you see the international space station at night? Find the nearest city from the NASA website and get times for viewing.

Weather Calculator is available at www.nws.noaa.gov/er/box/calculate2.html. Convert temperatures, wind speeds, humidity, and air pressure. Calculate wind chill and the heat index.



What Good are Mosquitoes?

What good are mosquitoes? It seems all they do is make us itch. They also sometimes spread diseases, which is a more serious problem. Examples of mosquito-borne diseases include malaria, yellow fever, and West Nile virus.

So mosquitoes are not exactly friends, at least not to humans. But they are friends to flowers. They slurp, suck, and otherwise feed on sugary plant juice and nectar. In doing so they pollinate flowers. And that is an important job in nature.

Mosquitoes in turn are eaten themselves. They are chock full of protein—42% as larvae—they are good food for fast-growing baby fish and birds.

Note to readers: the protein-content figure comes from a Michigan State University report. The U.S. Centers for Disease Control and Prevention has a swarm of information about mosquito-borne diseases at www.cdc.gov/ncidod/diseases/list_mosquitoborne.htm; included in the site is "Neato Mosquito: An Elementary Curriculum Guide." An Environment Canada article about mosquitoes as a food source and about their ecological role overall is available at www.taiga.net/yourYukon/col186.html.

Information from the Ohio State University College of Food, Agricultural, and Environmental Sciences—specifically, of the Ohio Agricultural Research and Development Center (OARDC) and of Ohio State University Extension. Send questions to Kurt Knebusch, News and Media Relations; knebusch.1@osu.edu; 330-263-3776.

USGS Celebrates 125 Years

The U.S. Geological Survey is celebrating 125 years of science (1879–2004). Following are a couple excerpts from Director Chip Groat.

"For 125 years, the USGS has provided the Department of the Interior, the Nation, and the world with the science needed to make important decisions and safeguard society. I am delighted to have the opportunity to mark this significant anniversary…"

"As an unbiased science organization, our scientists are dedicated to the timely, relevant, and impartial study of the landscape, our natural resources, and the natural hazards that threaten us. We are proud of our work…"

See the entire message at website http://www.usgs.gov/125/.

Visit the Engineering K–12 Center

Engineering is everywhere. It gives shape to our world. Everyone knows things like cars, computers, airplanes, and bridges are all products of imaginative engineering.

But so are bubble gum, baseball bats, movie special effects, roller coasters, and synthetic human tissue replacements. Engineers have a hand in designing, creating, or modifying nearly everything we touch, wear, eat, see, and hear in our daily lives. Their innovations fuel economic growth, fortify national security systems, improve health care, and safeguard the environment.

An engineering education starts with a creative child's first lesson in science or math. The teacher who delivers that lesson, and all those who follow, is an engineering educator, and our mission at the American Society for Engineering Education (ASEE) is to help engineering educators do their jobs as well as they can. Especially now, with U.S. science and math learning in decline and technology increasingly driving global change, the job of delivering this education is harder, but more important, than ever.

The ASEE Engineering K–12 Center seeks to identify and gather in one place the most effective engineering education resources available to the K–12 community. From comprehensive data on outreach programs to career guidance materials to hundreds of links and readings related to engineering education, the ASEE Engineering K–12 Center offers immediately useful, easily accessible materials tailored to all parties with an interest in engineering education.

The ASEE Engineering K–12 Center website is available at www.engineeringk12.org/.