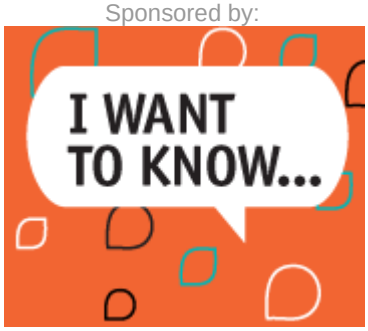
June 2009: Free For All

Who doesn't like free stuff? With summer upon us, we want to give you as many free resources as we can to help you plan for next year. This annual Free For All issue of *Science Class*—the online companion to *Science Scope*, NSTA's journal for middle school teachers—brings you free stuff from NSTA, the government, and more. So take a seat, have a look, and click away!

Free For All from NSTA

NSTA offers many resources and services at no charge—some are available only to NSTA members, but many are available to all. See what NSTA has to offer:



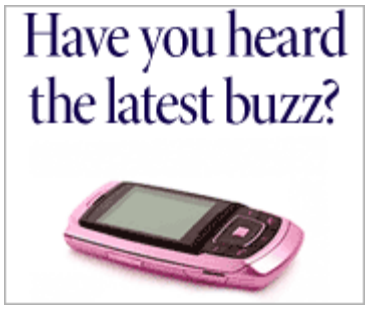
[Science Teachers' Grab Bag]

Need a classroom resource—at little or no cost? The online NSTA Science Teachers' Grab Bag lists free or inexpensive ones for teachers. From lesson plans to online activities to videos, teachers can find an array of resources for their classrooms. These resources can be searched by keyword, cost, or type, and are listed in the order they are posted. Short descriptions and website links accompany each listing.

[NSTA Calendar]

If you're looking for science education events or programs, visit the online NSTA Events Calendar. Opportunities can be searched for by date range, ongoing events, location, category, or grade level. Short descriptions accompany each opportunity, with links to the event or program website.

[Blick on Flicks]



We all love watching movies. But we also love science. And sometimes the two do not mix! To help us sort the good science from the bad in movies and other visual media, Jacob Clark Blickenstaff provides expert commentary, pointing out where the physics is twisted, the chemistry fudged, or the biology stretched on behalf of the story—without losing sight of the fact that movies are meant to entertain. Blickenstaff helps turn "bad science" into teachable science for middle level and high school students.

[NSTA Recommends]

Read reviews of the latest science-teaching materials, and take the guesswork out of purchasing. NSTA's online review service, NSTA Recommends, helps you find the best supplemental books, videos, DVDs, and computer software on the market. Our reviewers evaluate each product on the basis of classroom applicability, standards connections, and overall value. Search more than 3,400 reviews by grade level, subject, or keywords.

[Evolution Resources]

Looking for books and articles on evolution? NSTA has compiled a wealth of print and online resources on this very subject. There is even a Q&A section on teaching evolution in the classroom!

[Science Objects]

You are teaching a subject for the first time, or for the first time in a long time. You need a content refresher now. Where can you find help that is engaging, high-quality, easy to access—and affordable, too? From NSTA's latest ready resource: Science Objects! Science Objects provide all teachers of science open access to these valuable new resources—at no cost. The resources can be filtered by subject and grade level.

[NSTA Press Books]

Did you know that you can access a chapter of many new NSTA Press books online for free? Simply click on the book of your choice, and scroll down to the "Read a sample chapter" link.

[*NSTA Reports*]

NSTA Reports, NSTA's newspaper published nine times a year as a free member service, is the Association's timely source of news and information for and about science educators of all levels. It includes national news on science education and education in general; information on teaching materials; announcements of programs for teachers; and advance notice about all NSTA programs, conferences, and publications.

Lab Out Loud
In this biweekly podcast, hosts and science teachers Brian Bartel and Dale Basler, discuss science news and science education with leading scientists, researchers, science writers, and other important figures in the field. A selection of links and notes accompanies each episode, enabling the listener to dig deeper into the topics discussed.

SciPacks
SciPacks are 10-hour, online learning experiences that you can use to help you better understand the content you teach. SciPacks are aligned with the National Science Education Standards. Each SciPack contains:

- Up to five self-paced, interactive, online learning experiences called "Science Objects" that use an inquiry-based approach with engaging simulations and embedded questions.
- An e-mail content Wizard to address your individual questions; these knowledgeable content experts respond via e-mail within 48 hours.
- A pedagogical component to assist you in translating the content for your classroom.
- The opportunity to pass a final assessment and print a certificate from NSTA demonstrating your understanding of the content addressed within the SciPack.

Teachers are encouraged to seek approval in advance from their district for continuing education credits that may be ascribed for passing the final assessment. NSTA is establishing relationships with the department of education in states across the United States to formalize the recertification value for completing a SciPack, or series of SciPacks. Select SciPacks are available for free!

NSTA List Server
We want to help you keep in touch with your colleagues. NSTA's lists are group e-mail discussions that allow members to exchange information in a peer-to-peer forum. NSTA members who subscribe (at no extra cost) can now select from 12 topic areas: biology, chemistry, computer science, Earth science, elementary, environmental science, general science, physical science, physics, technology education, new teacher, and retired teacher. The lists remove geographical boundaries from member communication and are available to NSTA members—right now. Colleagues on the list server can share ideas, get information, and ask questions on important issues. The list server is quick and simple to use, so you can easily stay current on trends in science education. The lists are available 24 hours a day, 7 days a week, so information from you peers is available when you need it.

Ms. Mentor

Do you have a question you would like to ask a veteran science teacher? Try our newest blogger, Ms. Mentor! Ms. Mentor was a middle school life and physical science teacher for 16 years and a high school computer science teacher for 11. She had a brief stint in higher education and recently retired as a regional administrator. "Retired" is a misnomer, however—Ms. Mentor continues blogging, reviewing technology, and birding wherever and whenever her fancy takes flight. Blog topics have included science kits, writing in science classes, and formative assessments.

SciGuides
NSTA's online resource, SciGuides, will transform the way you use the internet to plan and provide science instruction to your K–12 students. SciGuides will enable you to quickly and easily locate targeted science content information and teaching resources from NSTA-approved websites and will provide instructional tools and strategies to put them into practice.

NSTA News Digest
Looking for the top stories in science and education? NSTA News Digest has the day's leading news at the click of your mouse! Search by News Categories (i.e., Top Stories, Science, Education, or Legislative News) or Science and Education Topics. Click on a story's link, and it will take you straight to the source for easy printing and class distribution.

SciLinks
SciLinks is an exciting partnership between progressive U.S. textbook publishers and NSTA. If your textbook has SciLinks, you and your students will have the best internet science sources at your fingertips, including

- websites to extend and expand students' understanding;
- science news to add context to classroom learning;
- activities to bring science alive; and
- experts to answer questions and satisfy curiosity.

SciLinks is a free service to those with SciLinks-enabled textbooks and to NSTA members. And SciLinks is easy to use—just log on to the SciLinks site and enter a SciLinks number from the margin of your textbook. You will be offered a smorgasbord of teacher-approved internet resources tied to that specific point in your book.

Free for All from the U.S. Government

Environmental Protection Agency's Schools Chemical Cleanout Campaign
EPA's Schools Chemical Cleanout Campaign (SC3) aims to ensure schools avoid hazards associated with mismanaged chemicals. SC3's online resources can help K–12 schools develop a successful management plan for chemicals

found everywhere from the maintenance closet to the chemistry lab. Download the public service announcement PDFs "You Work Hard to Keep Your Students Safe from Bullies and Drugs. But What About Chemicals?" and "Is Chemical Safety Part of the Equation?"

National Institute of General Medical Sciences (NIGMS) Materials
The homepage for *Findings*, an online magazine from NIGMS, contains Doing Science, a four-lesson middle school curriculum supplement focusing on inquiry and ways to develop testable questions.

U.S. Department of Education
Problem Solving in Technology-Rich Environments
The National Assessment of Educational Progress (NAEP) prepared this lengthy report on the efficacy of using technology to evaluate student skills not easily measured by conventional paper-and-pencil means. Two scenarios were created for the study and administered to a nationally representative sample of eighth graders: The Technology-Rich Environment (TRE) Search scenario required students to find and synthesize information about scientific helium balloons from a simulated web environment; the TRE Simulation scenario asked students to conduct increasingly complex experiments about relationships among buoyancy, mass, and volume. Students' scores were intended to assess their abilities in scientific inquiry, scientific exploration, scientific synthesis, and computer skills. The test data were then analyzed to determine how well they measured these skills. Researchers looked at internal consistency, compared student scores to prior knowledge, and examined correlations within the TRE scenarios' results. Their findings indicate the TRE approach functioned well as an assessment device.

National Aeronautics and Space Administration (NASA)
Do-It-Yourself (DIY) Podcasts
The DIY Podcast activity engages students in science, technology, engineering, and mathematics as they combine clips from NASA with their own materials to create an original podcast. NASA provides complete instructions, along with a set of audio and video clips, photographs, and information about space-related topics such as Newton's laws and spacesuits. Students choose a topic, then select related NASA clips to download, such as scenes of astronauts training for missions or experimenting in space. Using a camcorder, digital audio recorder, or computer, students can record their own audio or images and use readily available, free software to combine them with the NASA materials. Students are encouraged to distribute their podcasts through social networks, websites, and other means. The DIY Podcast blog notes when additional topic modules are available and offers tips and suggestions for incorporating the DIY Podcast into your classroom.

U.S. Department of Energy (DOE)

Human Genome Project Education Resources
Because the DOE must assess potential health risks from any new energy resources it develops, it long had an interest in researching the human genome. DOE worked with the National Institutes of Health on the Human Genome Project (HGP), which produced educational resources. Teachers can download publications on the basic science behind HGP, as well as K–12 curriculum modules and lesson plans, teacher guides, software, slide sets, and posters. Links lead to tutorials, videos, webcasts, teacher training and workshop opportunities, and genetics websites in Spanish.

Peace Corps Challenge
Teachers can access interdisciplinary lesson plans for grades 3–12 on topics including water contamination, malaria, sanitation and disease, and soil runoff. The site also describes service learning and enrichment opportunities and offers language lessons.

NASA/National Oceanic and Atmospheric Administration (NOAA)
SciJinks Weather Laboratory
Students in grades 4–8 will learn about weather through interactive games, illustrated text, and fun facts. The How and Why section provides simple, concise answers to familiar questions (Why is the sky blue?), while the Weather and People section relates weather folklore from around the world (for example, ancient Egyptians believed the Sun sailed across the sky in a shallow boat). More than 20 ideas for weather-related science fair projects are described. Teachers will find classroom materials to download, including activity guides on weather-related topics and posters on clouds, satellites, global weather patterns, and ocean science.

U.S. Department of Energy (DOE)
Fossil Energy Study Guides and Activities
The DOE has compiled a toolkit for fossil energy education. The materials include printable study guides and classroom activities emphasizing the roles played by coal, natural gas, and petroleum in everyday life and familiarizing students with the science and technologies that can help make using fossil fuels cleaner. The toolkit also contains online interactive energy lessons for middle school students.

U.S. Department of Education (ED)
The Psychology of Learning: How to Organize Your Teaching
Visitors to ED's Doing What Works website will find answers to a very important question: What can teachers do to ensure their students are learning? The site's Psychology of Learning section presents research-based instructional strategies aimed at improving students' memory and strengthening their understanding of skills and concepts. The four strategies described are

- spacing learning over time,
- alternating solved problems with problems to be solved,
- connecting abstract ideas with concrete contexts, and
- asking higher-order questions.

In each case, the research base for the method is explored, examples of the method in practice are provided, and step-by-step instructions for implementing the method, including planning templates, are detailed.

Free for All Teachers of Science

TweenTribune
Read the day's most compelling news from a tween's perspective. Visitors to the Tween Tribune site can also contribute links to stories they'd like to share, submit their own stories and photos, and comment on the stories they read. Teachers can opt to have TweenTribune automatically generate pages showing their students' comments and the stories they wrote about. The list of topics includes animals, science, and technology.

Sixth-Grade Classroom Blog
Missouri teacher Joe McClung's blog includes his science lessons and labs, descriptions and examples of student work, and links to additional resources and online networking.

Resources for English-Language Learners
A teacher from Sacramento, California, has compiled a collection of science-related links helpful to teachers of English-language learners. Larry Ferlazzo takes a K-12 approach to his daily posts on the latest web-based teaching ideas he's come across. Many of the resources he identifies have all-student applications. His website also contains resources for other subjects.

Alcohol's Effect on the Mind and Body
This lesson for middle school science teachers explains the short- and long-term effects that alcohol has on the mind and body. Materials include background information, a detailed lesson outline, research questions, and related resources on the physiological effects of alcohol. A network for teachers and students interested in this topic has also been established.

Polymer Education Materials
Read a polymer overview complemented by brief explanatory lectures; download 20 hands-on physical science activities related to polymers for K–9 students; and learn about workshops and short courses for educators, as well as award and grant opportunities.

Spigot Science Magazine

Spigot Science Magazine for Kids and Classrooms, for elementary and middle school students, publishes five issues annually. Each issue has a theme (recent examples include ecosystems, trees, and simple machines) and features articles incorporating across-the-curriculum planning, current happenings, research projects, and online links. Register to download new and archived issues and the accompanying teaching guide, Trickles.

Writing in Science
An essay from *Teacher* magazine describes the strategy one middle school teacher used to bring more writing into the science classroom. The technique outlined in "Best Practices: Writing for Fun (and Learning)" prepares students for research writing by first having them write science-based fiction within a research framework.

Project Idea for Middle School
On shop teacher Galyn Wiemers's blog, he describes an interesting class project: He writes the names of cities around the world on small clay pots, asks students to choose a pot and plant seeds in it, and then has students water the seeds according to the amount of rain that falls in the city named on the pot.

Video-Making for the Classroom
Animoto offers educators a cutting-edge teaching tool: the ability to create (or to have students create) short films for the classroom. Users e-mail their images and sounds to Animoto, and minutes later a customized video has been generated. The video can then be posted and embedded elsewhere or downloaded for in-class presentations. Examples of how educators have used the service are provided.

If you would like to read another level of *Science Class*, or if your colleagues would like to subscribe, please go to http://www.nsta.org/publications/enewsletters.aspx.

Science Scope is seeking manuscripts.
View our Call for Papers.