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SciGuides help bring web into instruction

By Robert Brumfield, Assistant Editor, eSchool News
April 4, 2005

The National Science Teachers Association (NSTA), the world's largest association of science educators, unveiled a new web resource, SciGuides, to about 16,000 attendees and exhibitors at its National Convention in Dallas April 1.

NSTA describes SciGuides as an online "science toolbox" for science educators. It features specially developed guides to quickly locate science content information on the web. Each subject-specific SciGuide includes teaching resources from NSTA-reviewed science web sites. NSTA says teachers can use SciGuides to transform content offered on the site into effective classroom resources by locating and incorporating online lesson plans, tips for teaching the subject matter, and effective student assessments.

The SciGuides now available cover a range of science topics--but evolution, which is at the center of a national debate over science curriculum, isn't yet one of them.

"Evolution is such a unifying, core scientific concept, there will eventually be a SciGuide on it," said Gerry Wheeler, executive director of NSTA. He said the topics covered in the first group of SciGuides relate to the specific interests of the donor institutions that put up the initial funding for the project, and he noted that NSTA already offers a position paper and other guidance on the subject of evolution in the classroom (see the links at the end of this story).

According to an informal survey conducted recently by NSTA, 92 percent of teachers who participated said they use online resources to supplement their science teaching. Respondents identified core content information and interactive simulations as the two most frequently used resources. But two-thirds of respondents said they had difficulty finding resources online, and 49 percent said they needed additional help integrating web resources effectively in their classroom.

Those who did not use online resources cited a lack of

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time to search for them and the inability to find high-quality online materials as major barriers to their use of the web. And 72 percent of the teachers polled expressed concern about students' potential exposure to inappropriate web-based resources while online.

Though the figures are by no means conclusive, they do suggest a general need among science educators for a service that directs them to reliable online content. NSTA is positioning SciGuides as a solution to such concerns.

Wheeler said the SciGuides grew out of a program called SciLinks, established in 1999 to help teachers find online materials to supplement science textbook materials (see "[Internet links turbocharge new science textbooks](#)").

"SciLinks is a partnership with textbook publishers meant to provide science links to supplement the lessons taught in science textbooks," Wheeler said. "With SciLinks, when you log onto our web site, it asks who you are, what page you're on in the textbook, and provides you with a dozen or so embedded web sites."

Wheeler added, "SciGuides is really a suped-up SciLinks. We're hoping this is going to be every bit as big as the SciLinks project."

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continued

SciGuides are organized by major science topics, such as genetics or matter. Teachers can link to approximately 100 web sites on each topic. The sites are also organized by grade level and are continually updated by educators and pedagogical experts working with NSTA. All SciGuides content is aligned to the National Science Education Standards (NSES).

Each SciGuide begins by presenting the user with a content description that is then narrowed down into specific themes. Themes are broken down into keywords that link to targeted internet activities, interactive simulations, science resources, and other topics. For instance, the content heading of "organisms" breaks down into the subcategories of "community," "ecosystems," and "environments." These subcategories include links that further provide examples of "animal species," "population," "habitat," and many other related subjects. Educators can specify the age range of their students to ultimately receive interactive information on the dietary habits of geckos in the Mojave Desert for fifth-graders.

NSTA experts evaluate links to web content based on quality of writing, content accuracy, authority, and resource integration. Sites also are rated on their elements of inquiry, how effectively they explain the science behind the concept, opportunities for communication and collaboration, and online interactivity. A filtering tool allows the user to sort the materials to produce just the kinds of items they need, like hands-on investigation or assessment.

Each SciGuide offers a teachers' resource section with suggestions on how to integrate the internet into lessons in circumstances that range from a one-computer classroom to a wireless media lab. Each one includes samples of student work from the lesson, a downloadable version of the lesson, a vignette about how the lesson was used, and an audio clip that describes implementation.

"I was looking for an activity for my sixth-grade 'Properties of Matter' unit," said Mary Patterson, science department chair at Hamilton Middle School in Houston. "[SciGuides] led me to several web sites that helped me to better understand properties of matter and what my students needed to learn. Plus, it gave me

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some great examples of how students might misinterpret this science concept. I was much more prepared to teach this activity and make sure the kids understood the science behind it."

Eleven SciGuides now are available to NSTA members and school districts for \$4.95 per unit. Non-members can purchase SciGuides for \$5.95 per unit. Bulk rates can be negotiated with NSTA. Units can be found for K-12 students on topics such as the properties of objects and materials, life cycles and inherited traits, organisms, atomic structure and chemical bonding, genetics, and more.

A number of federal organizations donated funds to help build the SciGuides resource, including NASA, the National Oceanic and Atmospheric Administration (NOAA), the National Ocean Service, and NOAA's Office of Education and Sustainable Development. According to NSTA's Wheeler, each SciGuide takes about \$30,000 to \$40,000 to build, and more SciGuide subjects are in development.

Links:

SciGuides

<http://sciguides.nsta.org>

NSTA position on evolution

<http://www.nsta.org/positionstatement&psid=10>

NASA

<http://www.nasa.gov>

National Oceanic and Atmospheric Administration

<http://www.noaa.gov>

National Ocean Service

<http://www.nos.noaa.gov>

Office of Education and Sustainable Development

<http://www.oesd.noaa.gov>

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