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## Science Education Web Sites

IN THIS ISSUE, WE ANNOUNCE THE FIRST OF 12 WINNERS OF A COMPETITION FOR WEB SITES THAT best promote science education. Each month this year, *Science* will publish an essay by the creators of a winning Web site that describes their online resource. This month's featured site focuses on teaching and learning genetics, and it originates from the University of Utah (see p. 538). The *Science* Prize for Online Resources in Education (SPORE) recognizes outstanding freely available online materials that enrich science education. There were nearly 100 entries for 2009 from many nations. They spanned diverse subjects, ranging from astronomy, chemistry, and physics to geology and biology. Most sites targeted students, ranging from elementary through graduate school, whereas others focused on the general public. Many included videos, animations, real-world data sets, or teaching materials.

A panel of 16 scientists and nine teachers performed the challenging task of selecting the winners from the excellent entries. In the end, two that were judged to be of the very highest quality were nevertheless not chosen. The Physics Education Technology (PhET) Web site, created at the University of Colorado, Boulder, was considered ineligible because *Science* had

recently published an Education Forum that describes how to use PhET's physics simulations.\* In fact, this article provided the inspiration for the SPORE contest. An entry from the Howard Hughes Medical Institute (HHMI) was also not selected; although it produces an outstanding education Web site ([www.hhmi.org/biointeractive](http://www.hhmi.org/biointeractive)), HHMI is *Science*'s partner in producing the Education Forum, and we felt uncomfortable awarding them one of only 12 slots.

Why did *Science* create such a competition? There are many prizes for those who produce excellent scientific research, but only a few awards for educators. Yet being an outstanding science educator is as demanding and valuable to society as being an exceptional research scientist. And, as it does for research, highlighting education excellence sets a standard for others to aim at, while simultaneously emphasizing the enormous value of the endeavor. There is another important reason for the recognition that this competition brings. The World Wide Web is a fantastic information resource, but it can be overwhelming. Many had hoped, for example, that the U.S. National Science Digital Library Project might go a long

way toward solving this problem.\*\* But the collection of science education Web sites that resulted, although a valuable resource, contains so many entries that additional guidance seems warranted. With a limit of 12 Web sites a year, *Science* aims to make it easier to find valuable materials, both for one's intellectual growth and for teaching.

This last point raises a broader issue. When I began my academic career as an assistant professor at Princeton University in 1966, I sought to learn everything about what others had discovered previously, before beginning my research on chromosome replication. Yet when I taught, I rarely sought to build on what other teachers had developed before me. This difference between how scientists approach their research and their teaching goes a long way, I believe, to explain why the quality of university science education lags so far behind the quality of science itself.

Through the Web, a rapidly expanding OpenCourseWare Consortium, with more than 150 universities from 36 nations, makes different approaches to teaching readily observable globally. Based on this wide visibility, many more contests can be developed to reward innovation in science education. Scientific societies might, for example, annually recognize the best 1-month teaching modules for an introductory science course in college, or provide an award for the best set of laboratory modules for a science class that are inquiry-based and require only modest resources (thereby being readily exportable). The nomination process for *Science*'s 2010 SPORE contest has just begun ([www.aaas.org/go/spore](http://www.aaas.org/go/spore)). According to Wikipedia, a "spore is a reproductive structure that is adapted for dispersal and surviving for extended periods of time in unfavorable conditions." Analogously, we hope that SPORE seeds the proliferation of many other education awards, adapted for dispersal and survival in the world of education.

— Bruce Alberts

10.1126/science.1187267

\*C. E. Wieman et al., *Science* 322, 682 (2008). \*\*J. Mervis, *Science* 323, 54 (2009).

