

More *Science* in the Classroom

About a year ago, Bruce Alberts and I announced the launch of *Science* in the Classroom (scienceintheclassroom.org), an online resource of annotated research papers published in *Science*, with associated teaching materials designed to help pre-college and college students understand how science moves forward as a structured way of revealing the laws of nature. Since its fledgling beginning last year, the project has expanded its subject diversity and continues to add articles at the rate of two per month. These articles have reached about 3000 users per month. But now it is time to take this project to the next level—and you can help, by annotating new papers and designing creative activities to accompany them.

The project depends on contributors who are graduate students or Ph.D.-level scientists with a solid understanding of the scientific method and a talent for translating specialized terms into language that is accessible to pre-college and college students. Volunteers are asked to contribute about 10 hours to annotate a scientific article. To date, the response from biologists has been strong, but volunteers from other fields, especially physical scientists, would ensure more choice of topics for students and educators in all classrooms. This activity might particularly appeal to scientists interested in exploring a career in education or writing.

Indeed, *Science* in the Classroom has been used in college-level science writing courses and introductory general science courses. Using existing annotated papers as examples, students analyze, annotate, and review additional *Science* papers for posting to the *Science* in the Classroom library. They benefit by carefully deconstructing how a well-written research paper is composed. Through the annotation process, they broaden their vocabulary, and reviewing a paper sharpens critical-thinking skills. A byline on the *Science* in the Classroom website identifies the student group that annotated a particular paper.

The current collection of articles is an excellent pedagogical tool for understanding the science process:

proposing a hypothesis, collecting evidence, testing the hypothesis, analyzing the results, and drawing conclusions. Understanding that science is an organized approach to objectively assessing evidence (whether from experiments, field observations, or models) is a good first step to counteracting the misconception that science is a static collection of facts. However, proper scientific methodology is more than just those steps. Hands-on engagement is an important part of the learning process. Therefore, *Science* in the Classroom is looking for creativity in the activities that complement the articles. For example, in “A Tiny Fungus is Causing Big Problems,” the activity that accompanies the *Science* paper allows students to count bats exiting

a cave from video footage and then determine the population through the same process used by the researchers (hint: It isn’t easy!). In “Replicating Photosynthesis,” the authors provided data on cathode materials that were not included in their research paper. Instead of being lost in a lab notebook, the data are available for students to perform the same calculations that the authors used (including applying the gas law, something every science student learns but rarely uses in context) and generate a data figure similar to those published in *Science*. Well-designed activities effectively connect students to the material they are learning—both the process and the subject matter. I challenge educators to get involved by

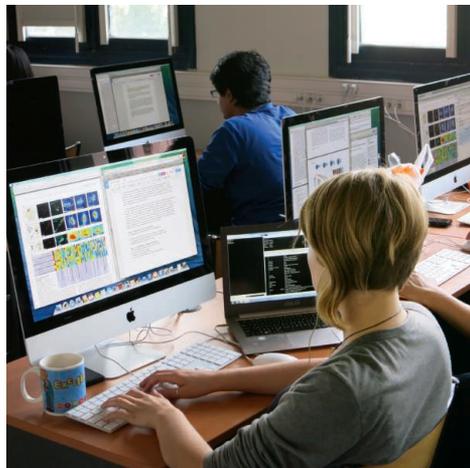
working with the authors of a *Science* paper to create more of these associated activities.

Student volunteers* grow as science translators while demystifying science for others. As graduate student Stephanie Redmond from the University of California, San Francisco, reflected, “I realized that helping people look at things in a slightly different way can allow them to get it. It doesn’t have to be scary. Especially in high school and the early college years, people get turned off to science for no good reason!”

– Marcia McNutt



Marcia McNutt
Editor-in-Chief
Science Journals



...it is time to take this project to the next level—and you can help...