mechanics. Some science teachers question their ability to properly correct a student's grammar or sentence construction. A detailed rubric provides the tools necessary to correct student work with confidence (Figure 1). Or, this could be an excellent opportunity to collaborate with a language arts colleague.

The assignment has three content requirements. First, students are asked to describe and analyze the science in the story. Is the science believable? Is it accurate? Because the assignment is an essay, not a book report, students are required to state opinions and support them with evidence. To help students understand the content and structure of essay writing, I spend 15 minutes explaining how to write and support an opinion.

For the second and third requirements, students compare and contrast the book and the movie. What elements do they share? What elements are different between the two media? Why are they handled differently? Which writer (book author or screenplay writer) is more effective or believable? Why is the story more effective or believable in this medium?

I have used this assignment in two different states and find it aligns well with each state's science and language arts standards. Because of the wide range of titles, it is impossible to categorize the lesson to specific content standards, although individual books may be aligned with life science or physical science. However, this assignment does exemplify the standards of history and nature of science and science in personal and social perspectives in the *National Science Education Standards* (National Research Council, 1996).

My students enjoy working on this assignment, and I enjoy correcting it. Because the students choose different books, I do not become weary of assessing the same thing over and over again. Exploring scientific issues through popular fiction gives students a different perspective than they would get from most high school courses. When a book or movie uses scientific principles students have studied in depth, the science becomes real to students—not only in the story but in the classroom as well.

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## Investigating Science Careers Online

The Internet has become an integral part of students' lives, and educators need to find ways to use this technology in their curricula. If we accept the Internet as an educational tool, "additional exposure to content by means of the Net will help to solidify the students' knowledge and aid them in having ownership of the key principles and standards that students are expected to achieve" (Newberry, 1999, 51). The question we must answer, then, is how to use this technology.

An easy way to use the Internet in the classroom is to have students use it to research careers in science

and engineering. This information can be found on many websites, such as those of industrial corporations, science career centers, and those containing personal profiles of scientists. When students investigate the ways individuals contribute to the field of science, they enrich their awareness of the nature of science.

The *National Science Education Standards* states that students should appreciate that, "women and men of various social and ethnic backgrounds—and with diverse interests, talents, qualities, and motivations—engage in the activities of science and engineering" (National Research Council, 1996, 170). Using the Internet to help students understand how science works and learn more about the men and women in different science careers enriches the instructional setting.

Many science-related companies in the United States and abroad employ large numbers of scientists and engineers. Examples of these companies as well as science career centers are included in the Internet resource list in Figure 1.

To begin an Internet research project, teachers can use the following generic lesson plan that may be adapted for specialty areas. The class should be divided into groups of two to four students, depending on the

**FIGURE 1**

**Science career Internet sites.**

For a more extensive directory of science career related websites, visit *home.olemiss.edu/~dnschill/science_careers/.*

**Career networks**

Science careers, diversity: How variety matters
*Recruit.sciencemag.org/feature/advice/diverse.shl*

Profiles of various scientists: A PBS site
*www.pbs.org/safarchive/5_cool/53_career.html*

**General science**

Careers resources: 7th grade–College
*www.nalusda.gov/ttic/Kids/careers.htm#coll*

Women in NASA
*Quest.arc.nasa.gov/women/*

**Biology**

Biological sciences career exploration links: Occupational
*www.uhs.berkeley.edu/Students/CareerLibrary/links/header.cfm?FIELD=4&OCCUP=true#Botany_&_Plant_Sciences*

Careers in microbiology
*www.asmusa.org/edusrc/edu21.htm*

**Chemistry**

Today's chemist at work
*pubs.acs.org/journals/tcwoe7/index.html*

U.S. Department of Labor: Chemical engineers
*Stats.bls.gov/oco/ocos029.htm*

**Physics**

Physics careers: Information archives
www.aip.org/aip/careers/careers.html

Physics jobs online
*www.physicsweb.org/TIPTOP/FORUM/JOBS/*

**Engineering**

Engineering your future
*www.asee.org/precollege/html/engineering.htm*

Description of aeronautical engineer
*Jobguide.thegoodguides.com.au/text/jobdetails.cfm?jobid=202*

**Forensic science**

Careers in forensic science
*www.forensicdna.com/careers.htm*

**Environmental science**

Center For Environmental Citizenship:
*www.envirocitizen.org/enet/jobs/index.asp*

Internships and jobs in the environmental science industry
The Environmental Career Organization:
*www.eco.org*

**Medicine**

Professional Profile:
Paul Cobza, Doctor of Osteopathy, Surgeon
*www.review.com/career/article.cfm?id=career/car_ppsur_drPaul&surgeon=1*

**Specific companies**

Eastman Kodak: Profiles of professionals
*www.kodak.com/US/en/corp/researchDevelopment/careers/profiles/index.shtml*

Monsanto
*www.monsanto.com/monsanto/people/work_life/default.htm*

number of available computers. The teacher may use the Internet resources provided in Figure 1 to choose the specialty areas or sites that the students investigate.

For example, a physics instructor may ask students to only research careers in physics and assign three different sites for each group to investigate. Another possibility is to assign each group to a different science topic and require them to use each resource in that specific field. For example, a chemistry class studying acid/base reactions may investigate companies involved in the production of chemicals pertinent to a particular content area. The method of assigning tasks to the groups, number of students per group, and time allotted for this lesson is best left to the discretion of individual instructors.

Three categories of suggested questions for assessing student research are listed below. These questions are dependent on the resource being used for the investigation. Each group should answer at least one question from the scientific investigation category.

### Scientific investigation

During your examination of this site, could you find any references to particular:

- Scientific theories we studied? What were they, and how were they referenced?
- Units of measurement that we studied or used in class? What were they, and how were they referenced?
- Scientific historical figures who we studied in this class? Who were they, and how were they referenced?
- Materials and/or instruments that we studied or used in this class? What were they, and how were they referenced?

### Company investigation

- What product(s) does this company produce, and/or in what type of scientific research does this company engage?
- What type of scientists and engineers does this company employ? Describe the typical duties of these scientists and/or engineers.
- What degree levels (for example, B.S., M.S., Ph.D.) do scientists and engineers that work for the company have?
- Is this a global company? In what countries does this company do business?
- Was this company profitable during the past 2–3 years? 3–10 years? 10–20 years?

### Career investigation

- What career did you research?
- Provide a typical job description for a person in this profession.
- What are the degree levels held by persons in this profession?
- Are there any regions of the nation or world that have a need for persons in this career?
- What is the typical pay scale for this profession when starting, after 5 years, after 10 years, and after 20 years?
- Are there any unique risks for persons in this profession?

To augment their research, students should contact a company representative to learn more about the company. Students also could choose a societal challenge that has inspired scientific research and is addressed by a particular company. Or, they could select an interesting and controversial issue, such as gene research, or concern, such as air pollution, related to one of the companies they research. They can gather information from the Internet and use data retrieval charts to organize the pros and cons of their chosen issue and engage in discussions of these issues.

Using the Internet to study a company and its science personnel provides an easy way for students to learn about how science works as well as various science careers. Using this strategy after specific science concepts have been taught in a science classroom gives relevance to the topic and provides students with a purpose for their learning. Furthermore, this type of lesson helps students understand the differences between basic and applied science as well as the difference between what a scientist faces in a laboratory and what an engineer may face at a manufacturing plant. We encourage science teachers to take advantage of the Internet and develop similar lessons in their classrooms.

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