Career Focus on Science and Technology

Grade Level: 9–12

Subject/Content: Science/Biology

Summary of Lesson

Students will understand the demands of current science professions as well as the contributions past scientists have made to these professions.

Focus Question

What are current professions in the area of science and how have historic figures shaped these careers?


Procedures:

Steps/activities by teacher:

- Generate a list of at least twenty historical figures who have contributed to the understanding of science for your students.
- Help students access the Biography in Context, U.S. History in Context, and World History in Context databases to search for these individuals. During their search, students should note what the historical figure's profession was, the figure's major contribution to science, and the year the contribution was made.
- See the Global Studies tie-in below.
- Generate a second list of at least twenty job opportunities in the area of science.
- Ask students to research these professions. Be sure the students' notes about these professions include general job descriptions, qualifications, salary ranges, etc.
- Divide the students into groups of four to share the information they have found.
- Bring in the classified section of the newspaper to show students how job postings are listed in the newspaper.
- Ask the student groups to create classified ads for the professions they have researched. The group should divide up the professions between the four members. Each member is responsible for creating classified ads for their assigned professions.
- Have students use the computer to compile their ads into a single page that resembles the classified section of the newspaper.
- Ask student groups to divide up the scientists they researched earlier. Each student is now responsible for "applying" each scientist to at least one classified ad that the group has created by completing a short job application for the
scientist. An application may simply include the scientist's name, address, qualifications, past experiences in the particular field, and personal references.

- See the English tie-in below.
- Be sure that students mix creativity with factual content when creating their mock job applications.
- Allow student groups time to exchange classified pages. Ask students to critique other groups' ads and provide constructive feedback.
- The "applications" students create can be used as a study tool. Have students read various applications to the class without saying the name of the scientist. Ask the other students to guess which scientist is being referred to in each application.

Steps/Activities by student(s):

- Access the Biography in Context, U.S. History in Context, and World History in Context databases to search for the list of individuals your teacher has assigned to you. Make note of each figure's profession, the figure's major contribution to science, and the year the contribution was made.
- Research the list of professions provided by your teacher to find out more about them. Be sure to take note of the general job description, qualifications necessary for the job, salary ranges, etc.
- Share the information you find with your group members.
- Construct a classified section of a newspaper that resembles the example your teacher has provided. Divide up the professions among your group's members. Each member is responsible for creating want ads for these professions.
- Use the computer to compile your group's completed want ads onto a single page to make it resemble the newspaper's classified section.
- Divide up the scientists you researched earlier with your group members. Have each scientist "apply" to at least one want ad your group has created. Complete a short job application for the scientist. Some of the information on the application may be fictional; however, most information should be factual.
- Exchange classified pages with other groups and critique each other's work.

Outcome:

Students will recognize great contributors to the history of science and familiarize themselves with current scientific career options.

Related Activities: This activity can be easily integrated with the activities suggested.

English

Creating "job applications" for the scientists can also be an opportunity for students to learn about cover letter writing or resume writing.

Global Studies
Students have an opportunity to research the historical perspective of the era during which each figure made his or her contribution to science. Students may research the history of scientific thought during the time period to better understand the challenges each scientist faced.

**Learning Expectation**

As a result of activities, students will recognize and understand the work of scientific pioneers and understand the demands of current and future of scientific professions.

**National Science Education Content Standard(s):**

- As a result of their activities in grades 9–12, all students should develop:
- NS.9-12.5(E) understandings about science and technology
- NS.9-12.7(G) an understanding of historical perspectives

**ISTE NETS for Students**

- **1. Creativity and Innovation**
  Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:
  - B. create original works as a means of personal or group expression.

- **2. Communication and Collaboration**
  Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:
  - A. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
  - D. contribute to project teams to produce original works or solve problems.

- **3. Research and Information Fluency**
  Students apply digital tools to gather, evaluate, and use information. Students:
  - B. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
  - C. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
  - D. process data and report results.

- **6. Technology Operations and Concepts**
  Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:
  - A. understand and use technology systems.

**Information Power; Information Literacy Standards:**

**Standard 7:** The student who contributes positively to the learning community and to society is information literate and recognizes the importance of information to a democratic society.