

Social and Emotional Learning

Lesson Title: **Top Skill Wanted: Communication – Lesson 1 of 4** Grade Level: **High School**

Project and Purpose

Students analyze communication skills through a partner work in an art activity and in discussing an article.

Essential Question

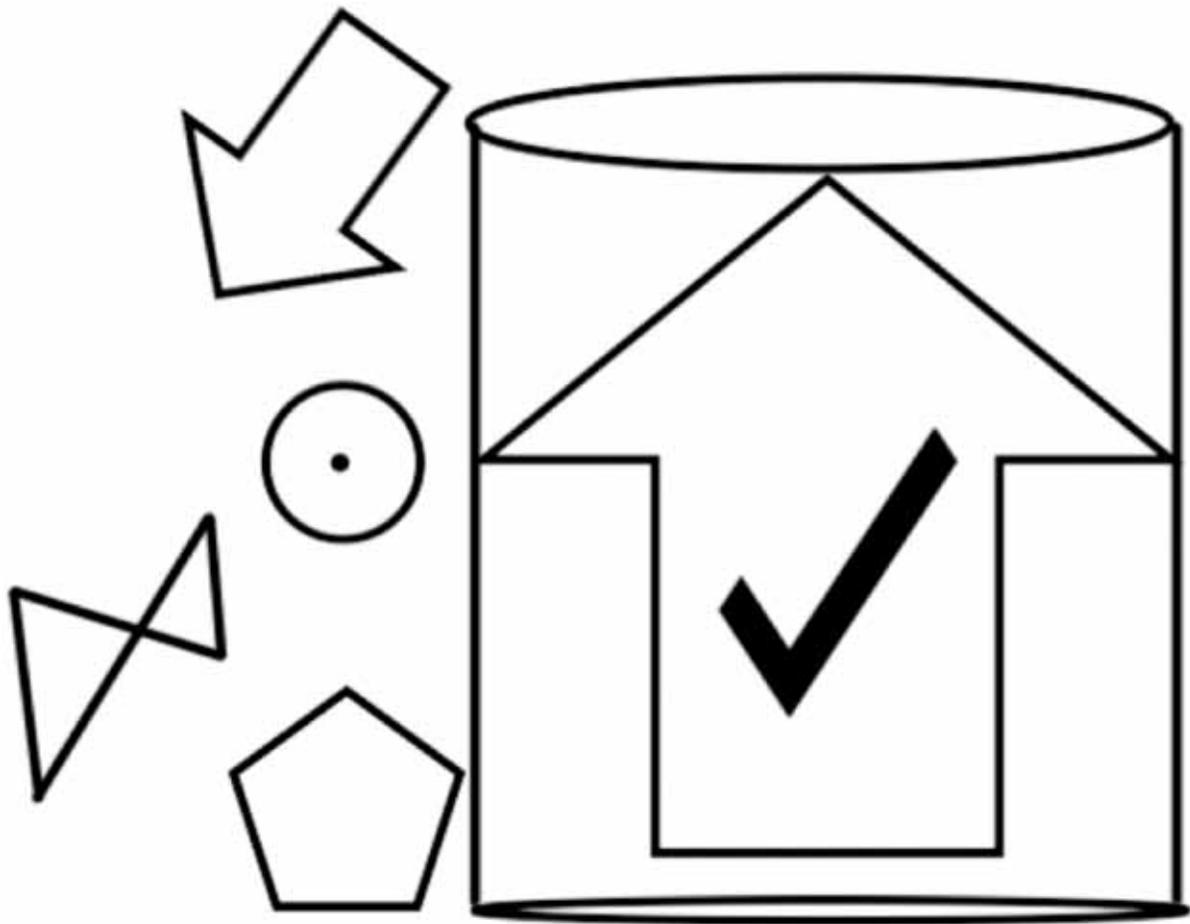
Why are soft skills like communication important for school and career?

Materials

- Unlined paper, pencils, and something to lean on to draw (desk, clipboard, hardcover book, etc.)
- Copies of 3 images (projected or individual copies for teams of students)
- Copies of Note: “10 Skills and Competencies for Science Majors” by Ian Render

Teacher

1. Ask students to list what they consider to be the five most important communication skills. This list might include: speaking clearly, using appropriate and specific vocabulary, active listening, using eye contact, patience, being open to new ideas, refraining from criticism, trying not to talk at the same time, asking clarifying questions, etc.
2. Explain that students will test a few of their communication skills by working in pairs to draw pictures that appear on the screen/board. One person will be the communicator, and the other will be the artist. The communicator will look at the picture and accurately explain to the artist, who may not see the picture, what and how to draw the picture.
3. Have the artist face away from the projection and have the communicator sit back-to-back facing the projection. If using paper copies, have the pairs sit back-to-back and give the communicator the copy of the picture.
4. Give the communicators two (2) minutes to describe what and how to draw the picture to their partners.
5. At the end of the two minutes, have each artist show their partner the picture. Have pairs discuss what communication techniques were used, which worked, and how they can improve.
6. Have the partners switch roles.
7. Show the second image and allow communicators three minutes to describe this new image to their artists. At the end of three minutes, have the artist show their drawing to the communicator and once again discuss the communication techniques used as well as what worked and what needs improvement.
8. If time, have students switch partners and try one more round of the activity and discussion with the third image.



Article: 10 Skills and Competencies for Science Majors

Ian Render, Undergraduate Research Assistant
Collegiate Employment Research Institute Recruiting Trends
Note 3-2011

National attention has focused on increasing the number of graduates in STEM (science, technology, engineering, and mathematics) graduates from our colleges and universities.

Every effort must be made to insure that students are prepared for the scientific workplace.

However, science graduates, unlike their counterparts in engineering and computer science, do not have an external accreditation organization that prescribes skill and competency requirements for graduation. However, scientific societies, such as ACS (American Chemical Society) and AAAS (American Association for the Advancement of Science), have identified concepts and competencies that science graduates should demonstrate as they enter the workforce.

Science education places its focus on learning and gaining mastery of the discipline of study and basic laboratory techniques. Less attention has traditionally been given to broader workplace skills, such as communication, teamwork, and contextual practice. This situation is changing as evidenced by the recent report from AAAS entitled "Vision and Change" where science educators were charged with embedding some of these skills into the curriculum.

In an attempt to learn how well science graduates are transitioning into the workplace and establishing their careers, we asked only those employers in our national recruiting study who anticipated hiring physical and biological science majors what key competencies they believe scientists should possess. Respondents are typically human resource professionals but the sample does include some laboratory managers and production line supervisors. The results presented in this short note are a first step in obtaining a general understanding of science-based skills and competencies needed in the workplace. The next step would be to address similar questions to laboratory or field supervisors.

"Most faculty agree that to be scientifically literate students need to understand a few overarching concepts: Evolution; Pathways and Transformations of energy and matter; Information flow, exchange, and storage; Structure and function; Systems. As important, undergraduates need to understand the process of science, the interdisciplinary nature of the new biology, and how science is closely integrated within society. Students also should be competent in communication and collaboration, as well as have a certain level of quantitative competency, and a basic ability to understand and interpret data.": Vision and Change

A total of 257 respondents who expect to hire physical and biological science majors (this excluded K-12 schools who were looking for elementary, middle school, and high school teachers) provided feedback to this open-ended question: "What are the key skills and competencies that physical and biological science majors have to demonstrate to obtain employment in your organization?"

Their comments were sorted into common categories and tabulated. We arrived at 10 Skills and Competencies that appeared to be important for success in a scientific-focused work environment. The following skills are ordered based on the frequency they were mentioned.

1. Balance of technical knowledge with interpersonal skills, including the ability to communicate technical information to non-technical people. (29%)
 - "Ability to communicate effectively and work collaboratively in a team."
 - "Develop good working relationships with customers and staff."
2. Command of the basics: write, communicate, summarize, and report, including the ability to maintain confidential material. (18%)
 - "Ability to collect, record, and report data accurately."
 - "Ability to gather and process data, draw appropriate conclusions, and communicate those conclusions in a cogent presentation."
 - "Sadly, an area that is greatly lacking has become verbal and written communication skills. We have encountered Ivy League graduates with awful grammar and spelling errors on their resumes. We pay people to deal with the highest levels of the Armed Forces, the DOD and other Federal agencies. When they can't even write a proper sentence or address a letter to one of these women or men, it is embarrassing and hurtful to our business."
3. Genuine mastery of their discipline of study, allowing them to contribute educated opinions. (16%)
 - "High level of achievement in their field and a strong quantitative background."
 - "Often students are trained to regurgitate information they've read elsewhere, but the highly-qualified students are those that can analyze, digest and produce original insight."
4. Experience: have professional training which can include internships, cooperative education, undergraduate research projects, and summer work engagements in professional settings before entering the workplace. (15%)
 - "Appropriate training, credentials."
 - "Experience with multiple lab tests and types of equipment, following protocols, test methods, procedures."
5. Ability to adapt knowledge to different contexts. (14%)
 - "Practical application of their academic knowledge."
6. Diverse skills in problem solving and scientific method with a strong analytical mind. (14%)
 - "Ability to think on feet, problem solve."
 - "We need the new hire to have critical thinking skills, be able to apply research findings, write clearly, be a flexible problem solver."
 - "Highly analytical thinking with demonstrated talent for identifying, scrutinizing, improving, and streamlining complex work processes."
7. Ability to adapt to the professional business environment. (12%)
 - "Ability to hit the ground running."
 - "Understand the regulations and their application to different businesses."
 - "They need to be able to see the big picture. They need to be able to multi-task, deal with conflict, be organized and project orientated."
8. Having skills in several diverse science backgrounds. (11%)
9. A strong knowledge of technology, including the ability to use various computer programs. (11%)
10. Clinical and laboratory skills, as well as an ability to conduct field work. (7%)
 - "Good thesis work, including familiarity with laboratory procedures, equipment, and protocols."

Soft Skills Statistics

- **85% of a person's job success is a product of interpersonal skills;**
- **only 15% of (a person's job) success is the result of technical knowledge.**

Charles Riborg Mann, published in 1918 by the Carnegie Foundation

The top three most sought-after soft skills by employers are:

- 1. Communication (57.9%)**
- 2. Organization (56.5%)**
- 3. Teamwork Skills (56.4%)**

LinkedIn study, August 2016

What do these two studies tell you about the importance of communication?
