

**CLASSROOM ACTIVITY**

STEM Skill Transfer

OBJECTIVES

During this lesson, students will:

- consider the skills that STEM professionals use in their day-to-day jobs
- explore how STEM skills can be applied to solve problems across careers
- analyze their STEM skills and describe their potential to contribute to various careers and solutions

OVERARCHING QUESTION

How can we transfer our STEM skills to solve problems across a variety of careers?

STANDARDS

Next Generation Science Standards

- M.S. Engineering Design
 - Science and Engineering Practices:
 - Asking Questions and Defining Problems: Asking questions and defining problems in grades 6–8 builds on grades K–5 experiences and progresses to specifying relationships between variables, and clarifying arguments and models.

Common Core English Language Arts

- Science and Technical Subjects:
 - RST.6-8.2: Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
- Writing:
 - W.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- Speaking and Listening:
 - SL.2: Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

Instructional Note:

The following activity has been designed so you can tailor it to your current mode of instruction.

- The *Introduce*, *View & Reflect*, and *Conclude* sections can be presented virtually, by video, or through a shared document.
- The *Challenge* section is designed for students to complete independently at home using the accompanying Challenge handout. Students can fill either print and fill out the handout or answer the questions separately in a format that can be shared with you.

ACTIVITY OVERVIEW

Introduce

1. Begin by asking students to share some of the different roles that STEM professionals play in society, thinking especially about our world's current situation with COVID-19. If needed, kickstart the brainstorming with an idea like: Epidemiologists are STEM professionals who are acting as COVID-19 detectives. They are investigating everything from how the virus began, who is most at risk, how it is transmitted, and how to slow its spread.
2. Encourage students to choose one STEM career that interests them and brainstorm a list of skills that this career may require. Encourage students to brainstorm specific content skills as well as other fundamental skills. For instance, while a nurse would need to know patient care procedures, he or she would also need communication skills.

If helpful, you may share the U.S. Bureau of Labor Statistics [Occupation Outlook Handbook](#). A quick search in the "Search Handbook" box will bring students to career overviews for most STEM careers.

3. Invite students to share the STEM career they selected and the skills that someone in this career may use to solve problems.
4. Tell students that they are about to watch a short video that profiles how Ms. Uni Blake, a STEM professional at the American Petroleum Institute (API), is using her varied STEM background to work on three areas related to COVID-19.

View & Reflect

1. Before the class watches the *API Career Profile Video*, instruct students to pretend that they have their own STEM career and are interested in interviewing Ms. Blake for a job at their company.
2. Tell students that as they watch the video, they will be responsible for taking notes on the different skills that Ms. Blake possesses.
3. Share the *API Career Profile Video*. Students may find it helpful to view the video more than once.
4. When the video is complete, instruct students to go back to their notes and circle any skills that would be transferrable (or useful) in other STEM positions. Encourage students to share the skills that they jotted and circled, and discuss how and why these skills would be useful across a wide range of STEM careers.

CHALLENGE

1. Explain that the class will now be challenged to consider the diverse STEM skills that they each have and how they could apply them to a variety of careers.
2. Share the *Challenge* handout and review the instructions before encouraging students to work independently.

CONCLUDE

1. If possible, encourage students to share the two internships they selected, as well as the STEM skills they possess that could help them succeed in both positions.
2. Wrap up by facilitating a discussion around the following questions:
Note: If this is not possible, students may also reflect independently.
 - Why are a combination of content skills and skills like the 4Cs important in STEM careers?
 - How do these skills prepare STEM professionals for solving the world's biggest problems?

CHALLENGE

Directions: Read the Background section below to learn more about some of the different skills that could help you succeed in a STEM career. Then complete steps 1–3 as you consider how your own skills could help you tackle a variety of STEM career paths.

STEM Skills Background

When people talk about STEM skills, what exactly are they referring to? The truth is...It varies! Many different skills could help you succeed in a STEM career.

In general, STEM skills fall into two main categories. First, there are content-specific skills that will help you tackle science, technology, engineering, or math problems. For instance, an understanding of the scientific method, the ability to write code, experience with the engineering design process, and/or knowledge of statistics could help you accomplish tasks in specific STEM roles.

Apart from content-specific skills, other broader STEM skills will help you succeed across all STEM careers. Several of the most important ones are called the 4 Cs:

- Creativity: Can you think outside the box in original ways?
- Communication: Can you effectively share your thoughts, ideas, and questions and understand the messages of others?
- Critical thinking: Can you analyze information to solve problems and form your own opinion?
- Collaboration: Can you work effectively, respectfully, and flexibly with others?

Step 1—Reflect

Consider your STEM skills. What content skills do you have in science, technology, engineering and/or math?

Content Skills	4 Cs Skills
Think about the classes you have taken in each subject, as well as your accomplishments outside of school. What do you specifically know how to do in each content area?	When and how do you exhibit each of these skills? Be as specific as possible!
Science	Creativity
Technology	Communication

Content Skills	4 Cs Skills
Engineering If you have never taken an engineering class, have you ever brainstormed, designed, built, tested, or improved a solution to a problem?	Critical Thinking
Math	Collaboration

Step 2—Explore

Visit stemcareerscoalition.org/careers-portal and choose three careers. For each one, watch the *Career Profile Video*. You may also read the accompanying *Career Profile PDF* for more information. As you do, jot notes in the chart below.

STEM Career Title	What responsibilities does this job have? What problems do people in this career try to solve?

Step 3—Apply

Pretend that each of the careers above is looking for an intern who can apply their STEM skills to help solve the problems described above. Choose two different careers and consider how you can transfer and apply your STEM skills to be successful in each position. Then, complete the two job applications on the following pages.

Position Wanted: _____internship

1. What STEM skills can you bring to this position? Check off the skills you possess *and* write in at least two other applicable skills that you can offer.

- Collaboration
- Communication
- Creativity
- Critical Thinking
- _____
- _____
- _____
- _____

2. How will the STEM skills that you selected and wrote in above help you succeed in this internship? Explain at least three skills in more detail.

3. Every career strives to solve problems. Describe one problem that this career tries to solve. Then explain how you could apply your STEM skills to help work toward a solution.

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- Collaboration
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