


# Challenge 1: What can STEM do for communities?

## Get Prepared

 **Challenge Goal:** Learn about STEM, with a focus on how engineering can help communities

 **Time Needed:** 45 minutes

 **What You Will Need:**

### Printouts

- **Activity Sheet A: Engineering in Our Community**

### Materials

- Samsung tablets
- scissors
- paper
- pens or pencils
- notebook/folder/binder

### Before You Begin:

- Get prepared for the **Building Blocks** program by working with your administrative team to make sure all tablets are connected to your location's Wi-Fi.
- Take the time to locate the apps in the “Apps” section of the tablet so you can direct kids to find them when they need to.

- Because kids will have activity sheets and notes throughout the program, consider giving them notebooks, folders, or binders to use.

**Note:** Kids may use the activity sheet printouts or they may follow along on their tablets at: [www.scholastic.com/sparks2](http://www.scholastic.com/sparks2).

### Connect With the Home:

Before you begin the **Building Blocks** program, send home the **Council-to-Home Communication: Program Overview** to explain to parents and guardians what their child will be learning.

After you've begun the first unit, send home the **Council-to-Home Communication: Unit 1 Overview** so family members will know what types of activities are involved in Unit 1 of the program.



## Spark Exploration: STEM Careers

10 mins.

1. Explain that educators use the term STEM to help us think about science, technology, engineering, and math as a group, rather than as separate subjects. Ask: **Why do you think it would be valuable to learn about these things together, rather than separately?** (In the world outside of school, these subjects are intertwined, so learning about them together makes it easier to see how they apply to real-life jobs.) Briefly discuss some examples of familiar STEM-related jobs (veterinarian, accountant, architect, etc.) and talk about how STEM subjects are used within them (veterinarians use science and technology, accountants use math and engineering skills, etc.).
2. Share this fun fact: Did you know 20 percent of all jobs in the U.S. are in STEM fields? That's about 26 million jobs!\*
3. Have kids use the tablets to open the **STEM Career Flip Book** and turn to the first page (featuring the food scientist and wildlife biologist). Ask kids what they think food

scientists and wildlife biologists do. If necessary, provide background with the following information:

- Food scientists study food to: make new food and flavors, invent foods for astronauts and soldiers, research ways to package food to keep it from going bad, and test foods for vitamins and minerals, as well as for germs.
- Wildlife biologists study wild animals and their ecosystems to: find out how they interact with other species and the environment, find out how their health helps the planet and human survival, and to protect wildlife species.

After the discussion, explain that you will continue to discuss careers from the **STEM Career Flip Book** on future days.

### Goal Selection:

**What goals would someone in these careers set out to achieve?**

\*National Math & Science Initiative

## Challenge 1: What can STEM do for communities? (continued)

### Setting the Strategy: Engineering in the Community 10 mins.

1. Kick off a group discussion by asking: **What do you think people with STEM careers can do to help solve problems in or improve communities?** (Answers may include: STEM careers provide valuable services like health care; or that technology and engineering can make communities safer and improve how they function.)
2. Kids may be familiar with science, technology, and math as part of their daily lives, but less so with engineering. Discuss kids' prior knowledge about this topic by asking:
  - **What is engineering?** (Engineering combines science and math to improve the world around us.)
  - **What do engineers do?** (There are dozens of types of engineering careers. Some engineers create and construct buildings, bridges, and other structures. Other engineers design planes and cars. Still others clean up oil spills, create new computer technology, or formulate new chemical compounds.)

### Shifting Gears: STEM Challenge! 10 mins.

Take the idea of engineering in the community further. Hand out **Activity Sheet A: Engineering in Our Community** and ask kids to work together to identify aspects of their community that have benefitted from engineering. This could include safety matting on playgrounds, community-wide Wi-Fi service, solar-powered buildings, etc.

### Use the Tablets! 15 mins.

#### Wrap-up Session and Reflection Activity:

Ask kids to imagine themselves improving their community with an engineering project. Kids will need to reflect on what they might want to change in their neighborhoods, what they would build, and what the benefit of their engineering projects would be. Then have them use the **FlipaClip—cartoon animation app** to create a short animation that answers the question, “What engineering project can improve my community and how?”



TEAM MEMBERS: \_\_\_\_\_

## Engineering in Our Community

When you walk through your neighborhood, what do you see? Maybe new bike lanes are being built. Buildings might have ramps for people with disabilities. There could be street signs with flashing lights to warn drivers to slow down in school zones. Cool examples of engineering are all around us!

**Instructions:** As a team, list the types of engineering you've seen in your neighborhood in the middle column of the chart below. Then think of engineering projects that could improve people's lives in your community, and write those in the last column.

Types of Engineering	Our community has...	Our community could use...
<b>Public Buildings</b> (like museums, town halls, post offices, libraries)		
<b>Structures</b> (like bridges, water towers, dams)		
<b>Technology</b> (like lighting and traffic control)		
<b>Utilities</b> (like sewage systems, storm drains, electrical lines)		
<b>Public Facilities</b> (like parks, piers, recreational areas)		
<b>Transportation</b> (like roads, bike paths, sidewalks, buses, trains)		