


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

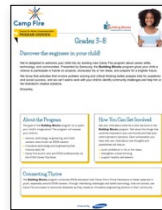
- Samsung tablets
- scissors
- paper
- pens or pencils
- notebook/folder/binder

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 council'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/sparks3.



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 the program is about.



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 5 mins.

1. Familiarize kids with the idea of STEM by asking: **Has anyone heard of the acronym STEM? Can you explain what it stands for?** (STEM stands for science, technology, engineering, and mathematics.)
2. Have kids use the tablets to open the **STEM Career Flip Book** and skim the careers in the book. (Note: You'll go more in depth with the **Flip Book** in later activities.)

Ask: **Can you name some specific careers that would fall under STEM?** (Answers may include careers that involve: computer programming, medicine, and engineering.)

Goal Selection:

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



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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 achieve goals in 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! 15 mins.

Take the idea of engineering in the community further. Have kids pair up to name the engineering aspects in their own neighborhoods. Hand out **Activity Sheet A: Engineering in Our Community** and ask kids to work together to imagine engineering solutions for their communities. Explain that solutions may need to be revised as new challenges appear. Have kids come up with different solutions to solve the same problem.

Use the Tablets! 15 mins.

Wrap-up Session and Reflection Activity:

Ask kids to imagine themselves improving their neighborhoods with an engineering project. Kids will need to reflect on what would have to change in their neighborhoods, what they would build, and what the benefit of their engineering project 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

If you want to see engineering in action, all you need to do is look around! When you walk through your neighborhood, what types of engineering projects might you spot? 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. Engineering can be found everywhere!

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. Imagine what your ideas could do!

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