Challenge 5: What is the connection between community needs and innovative design?

Get Prepared

Challenge Goal: Reflect on examples of technological innovations that benefit society

Time Needed: 45 minutes

Note: Kids may use the activity sheet printouts or they may follow along on their tablets at: **www.scholastic.com/sparks3**.

What You Will Need:

Printouts	Materials
• Activity Sheet F: Talk About It!	• Samsung tablets • pens or pencils

Sparks Exploration: STEM Careers (optional)

If you have time, you can start Challenge 5 by having kids use their tablets to access the **STEM Career Flip Book**. Introduce the software developer and web developer in the technology section. Explain that technology is a growing field with the ability to influence everyday life. Tell them when they use cell phones, apps, and computers, they are benefiting from the work of software developers and web developers.

Goal Selection:

Ask them what needs they think software and web developers consider when they develop projects in the future. Remind them to reference the **STEM Career Flip Book** if they need more information. (Make sure they understand that software developers design games and computer systems, while web developers design websites and web programs.)

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

1. Start this activity by asking: *What goals guide design in engineering?* Responses should draw on information learned in the previous activity, as well as considerations such as the function behind a design and whether it's visually appealing and cost-effective to build.

2. Remind kids that innovative engineering solves specific problems. When working on a new design, engineers have a particular goal in mind that will offer a solution to a current issue or an unmet need in a community.

3. Explain that community improvement strategies are not just structural. Technological innovations can also solve community problems. Have kids use their tablets to view three examples of helpful technological innovations:

   ▪ **Google Self-Driving Cars (California):**
   To help cut down on traffic accidents, Google created a car that drives itself:
   http://nyti.ms/1i5NSHt

   ▪ **Bluefin-21 Submersible (Maryland):**
   An underwater robot helps search for a missing Malaysia Airlines plane that disappeared after takeoff in March 2014: http://nyti.ms/1ibMp2l

   ▪ **Soccket (New York):**
   A new soccer ball generates electricity to provide power in underdeveloped areas of the world: http://wapo.st/1hE9OEW

Challenge 5: What is the connection between community needs and innovative design? (continued)

Shifting Gears: STEM Challenge! 20 mins.

Break kids into their design teams. Pass out **Activity Sheet F: Talk About It!** for each team to complete as a group. In this activity, kids will reflect, share, and write down their opinions on what types of engineering improvements they'd like to see in their neighborhoods. Encourage teams to delve deeper into their communities for problems that need solving.

Use the Tablets! 15 mins.

Based on their teams' responses to **Activity Sheet F: Talk About It!** have kids brainstorm ideas for an innovation that could benefit their community. Explain that each community problem could have many different solutions. Encourage teams to come up with different innovative ideas and choose their favorite one. They can draw on paper or use the **Picasso app** on the tablets to draw sketches of their innovations.

Camp Fire

NAME: _____

Talk About It!

Reflect on what would make your community a better place to live. If you have opinions on this matter, now's your opportunity to share them!

Instructions: Complete this community survey with your team by talking about the questions below. Write down your team's responses on this sheet and compare everyone's answers. What do you all agree on? What do you disagree on?

Ideas for Our Community

1. **Want places to play?** Do we have enough places for physical activity (like public pools, sports centers, basketball courts, soccer fields, playgrounds, and parks) in our neighborhood? If not, what types of places would you like to have?	
2. **Want to fix things that are broken?** What things in our neighborhood need to be fixed or replaced (like boarded-up buildings, old streetlights, or uneven sidewalks)?	
3. **Want to make dangerous areas safer?** Are there areas in the neighborhood that are dangerous (busy street corners, dark lots, open construction areas)? What could be done to make these areas safer? Could empty buildings or lots be turned into something great for the neighborhood?	
4. **What does your neighborhood need?** What other things do you imagine could make your neighborhood better?	