


Activity 6: How do engineers create innovative designs?

Get Prepared

 **What kids will do:** Brainstorm solutions to a community-based engineering problem, then turn their ideas into an innovative design

 **Time needed:** 45 minutes

 **What you will need:**

Printouts

- **Activity Sheet G: Brainstorm!**
- **City Council Letter Template** (optional)

Materials

- Samsung tablets
- pens or pencils
- paper
- completed **Activity Sheet F: Talk About It!** (from Activity 5)

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

Connect With the Community (optional):



Once kids have completed Unit 2, they will have invented an innovative design to meet a need in their community. Wrap up the unit by helping them share their great ideas with their city council representative. Have them research the name and

address of their city council representative. Then ask them to use the downloadable **City Council Letter Template** to write a letter that presents their ideas and asks for support for their neighborhood.

Introduce Them to STEM Careers 10 minutes

Have kids open the **STEM Career Flip Book** on the tablets and flip to the Engineering careers to read about a drafter. Explain that engineering projects take a team of STEM professionals. Ask:

- **When do you think a drafter would be involved in a building project?**
(After an architect or engineer has

come up with the idea for the project and before it gets built.)

- **What purpose do you think a drafter serves?** (Plans out how an idea will work in real life, identifies problems with the design idea, and demonstrates how much space and materials may be needed to build.)



Engineering in the Community 10 minutes

Direct kids to separate into their design teams and look back over the responses on **Activity Sheet F: Talk About It!** from the previous activity. Have them debate which community issues are of the greatest importance and why. From the top issues, they'll pick one they'd like to tackle with an innovative engineering project.

continued on next page →

STEM Activities for Kids Ages 10–13

Unit 2: Brainstorming and Designing Innovations

BOYS & GIRLS CLUBS
OF AMERICA

Activity 6: How do engineers create innovative designs? (continued)

STEM Challenge! 25 minutes



Hand out **Activity Sheet G: Brainstorm!** to each kid. Instruct teams to think of a possible idea for an innovation that could help address their chosen community issue. If kids have time, instruct them to start sketching a draft of their design ideas. They may use the **Picasso app** to sketch out their designs on the tablets or they may use separate sheets of paper. If kids do not have time to sketch their ideas, wrap up the activity by having them write detailed notes on their ideas. Have them save their sketches and notes for the next activity.

NAME: _____

Brainstorm!

It's not always easy to come up with solutions to a problem. It helps to brainstorm to create a list of possibilities. Use this activity to spark a flood of ideas!

Instructions: Write the important community issue your team would like to fix in the “Problem or Need” square below. Then come up with an innovation that could be a potential solution. Next, consider what it will take for your innovation to work. The diagram below will help you map out your thoughts so you don’t get stuck.

