

STEM Together Series: BGCFLG Paper Towers

Grade Level: K-8

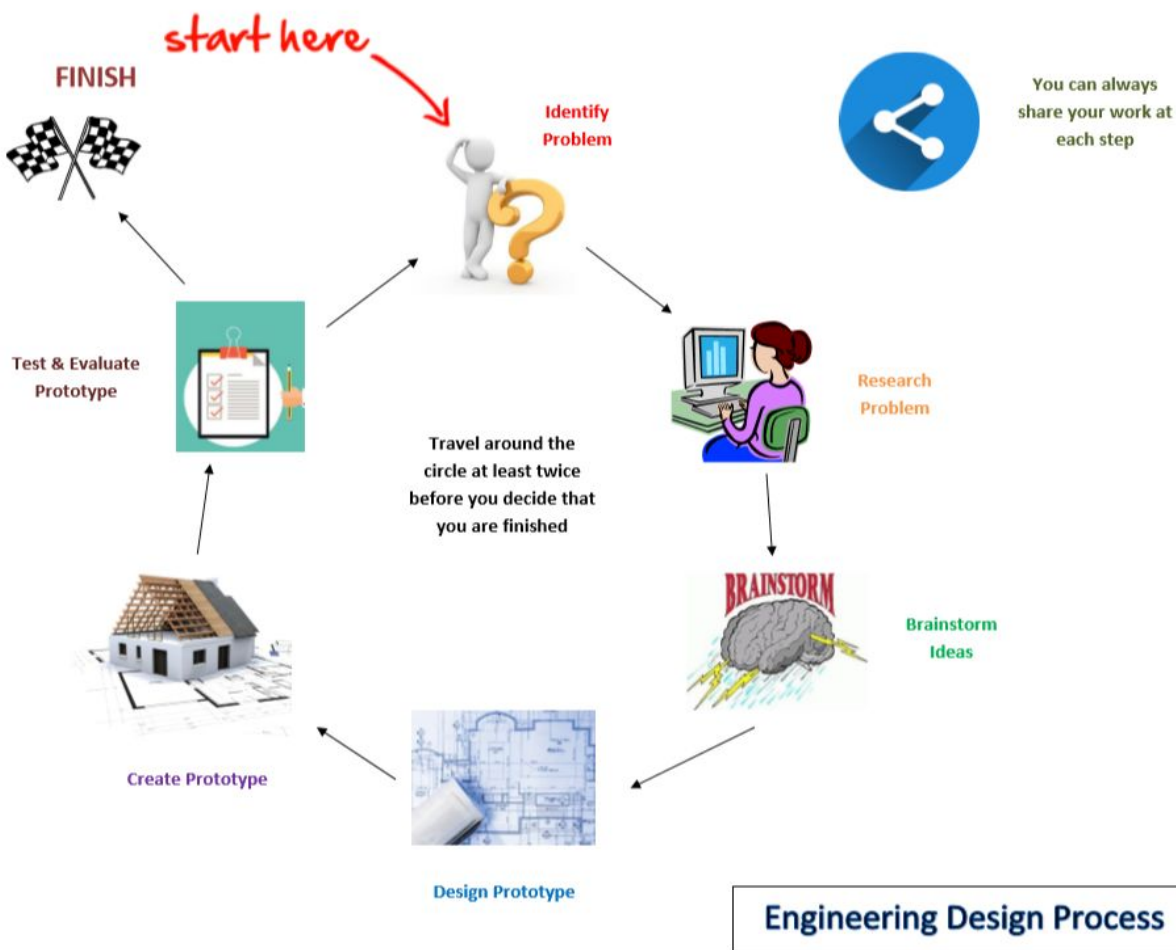
Prep time: 5 minutes (gather the materials needed)

Project time: 30 minutes

Description: Calling all engineers! Are you ready for a challenge? Join the Boys & Girls Club in participating in the Paper Towers Design Challenge! Using only newspaper and tape you will have to construct your very own building that can withstand the strength of the wind. Can you rise to the challenge?

Materials:

- Scrap paper
- Writing utensil (a pencil is best)
- 3 sheets of newspaper
- Tape (12 inches)
- Scissors
- 8 inch x 8inch piece of cardboard or a small book (This will be used as a fan to create wind, any flat, sturdy object will do)
- Ruler or measuring tape



Steps:

1. Go through the **Engineering Design Process** to determine the steps an engineer uses when making a structure.
2. **Problem:** We need to build vertically to save space. The goal is to make the tallest structure that will not topple over in the wind. We will create our own wind by blowing or fanning from an arm's length away.
 - a. **Constraints** (Make your prototype using the following criteria):
 - i. Only use 12 inches of tape
 - ii. Only use 3 sheets of newspaper
 - iii. Must be at least 12 inches high
 - iv. Cannot be taped to the surface it stands on or anything else
3. **Brainstorm** ideas
4. **Design** your building, draw your design on a piece of paper
5. Share your design with the group.
6. **Build** your tower, remember to try your best with the constraints!
7. Share your prototype
8. **Test & Evaluate:** stand one arm's length away from your structure and blow on the structure
 - a. If the structure stays upright, then your structure passes. Move onto a second test involving cardboard/a small book to create a stronger wind force. Standing and arms length away, members will flap their arms up and down holding the piece of cardboard to generate wind. If their structure stays standing, they pass the second test, if it falls over, they can redesign to pass the challenge
 - b. If it is knocked over, it doesn't pass the challenge
9. Share your results with the group
10. **Redesign and retest** your tower
11. Share your results and what changes they made in the redesign on this Padlet page - <https://padlet.com/lkosaketh/BGCFLGpapertowers>