Techbridge Girls@Home

Design A Tool

techbridge girls 20 YEARS

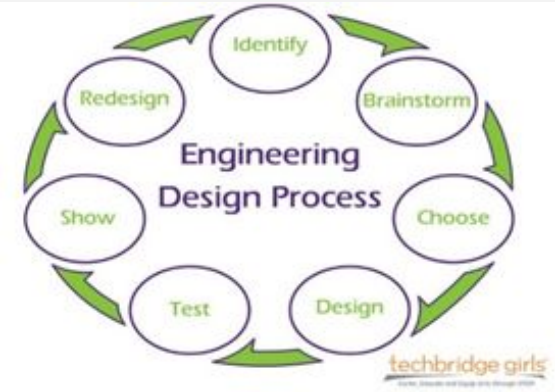
Techbridge Girls is committed to supporting our community by providing access to high-quality at-home STEM activities for our girls and curating resources for families and educators. The below activity was designed to empower girls to lead fearlessly by learning and teaching others while sheltering in place.

Have you ever had a toy fall in a hard to reach place - such as behind the couch, or under a fence? Let's design a tool that can successfully pick up a hard to reach toy.

1 Get your materials.

Source materials around the house, such as: a paper bag, cardboard, paper clips, rubber bands,, string, straws, skewers or toothpicks, popsicle sticks, tape, paper, and pipe cleaners. Please also grab designing materials such as a pencil, scratch paper, and small object to be retrieved.

2 Build your design.



Our problem has been identified - creating a tool to pick up a toy in a hard to reach place. Create a testing site by placing your small object in a paper bag. Your goal is to create a tool that will carefully pick up the object without touching the paper bag.

When brainstorming your tool design, make sure to include 3-5 materials. While designing, reflect about the shape of the object you are trying to retrieve.

Now it's time to test! Remember, your tool can't touch the sides of the paper bag. Remember, if your tool doesn't work the way you imagines then that's ok! Reconsider the Engineering Design Process and brainstorm how you redesign your tool!

ASK: How does your tool work? What step of the Engineering Design Process is most challenging for you? How did it feel to complete this challenge? Can you use your new tool to pick up other items in your home?

3 Share!

With permission from your parents or guardians, please post a photo of your completed project on Facebook, Twitter, or Instagram, and tag @techbridgegirls so we can see your great work!

CAREER CONNECTION: Mechanical Engineers design different types of machines and tools like engines or refrigerators. Product design is a specific type of Mechanical Engineering that focuses on making smaller scale tools, like kitchen utensils. Average starting salaries for Mechanical Engineers are $65,000- $90,000.

We are proud to support our girls' STEM journeys by providing resources to overcome barriers and to thrive and lead in STEM.