



## Virtual STEAM Mobile—Robotics

Design a Robot! (Daisy, Brownie, Junior)

### Badge Requirements:

- Daisy Robotics 1, What Robots Do: Steps 1-3
- Daisy Robotics 3, Design a Robot, Steps 1-3
- Brownie Robotics 2, Designing Robots: Steps 3-5
- Brownie Robotics 3, Showcasing Robots, Steps 1-2
- Junior Robotics 2, Designing Robots, Steps 1-5
- Junior Robotics 3, Showcasing Robots, Steps 1-2

### Suggested Materials

- Paper
- Pencil
- Crayons, markers, colored pencils, etc.
- Craft supplies for girls to make prototypes
  - Aluminum foil, Popsicle sticks, tape, cups, etc.

### Introduction

- What is a robot?
  - A robot is a programmable, self-controlled device that has electronic, electrical, or mechanical parts. It is a machine that functions in place of a living agent. Robots don't have to look or act like humans but they do need to be flexible so they can perform different tasks. It is a machine that moves and can be programmed.
- What are some examples of robots?
  - Think about what you see in stores, at home, in movies, in TV, in books, etc.
    - Rumba, Wall-E, Transformers, robot at Giant named Marty

### Activity

- Design a Robot
  - Purpose and Function
    - All robots have a name, a purpose, and function
      - Purpose: why it was made, its job
      - Function: how it does something/job
    - Example
      - Name: Wall-E
      - Purpose: Clean the earth
      - Function: collects trash and compacts the trash into cubes
  - Planning our Robot
    - Brainstorm jobs or challenges that you would want help from a robot to accomplish.
    - After choosing the purpose, what will the robot need to accomplish this?
      - How does the robot move, how does it take in information, how does it get its power, etc.
    - Take 10-15 minutes to design a robot with paper, pencil, and coloring supplies
      - Draw the robot and add a list of materials or other details.
      - Include the name, purpose, and function of your robot.
  - Creating a Prototype
    - Pass out craft supplies for the girls to bring their plans to life
    - Take as much or as little time as you want!
    - Let them know it's okay if their prototype doesn't look exactly like their plans! Things change and improve all the time!
    - After the designated time is over, tell the girls they will now share/present their robots

- Showcasing Robots
  - Have the girls come up one at a time to present their robot
    - Talk about the drawing and their prototype
      - Do they look the same or did you change your design?
      - How did you come up with the purpose and function of your robot?
      - If you were to make this robot in real life, what kind of supplies would you need?
        - Metal, wire, light bulbs, batteries, wheels, etc.
      - How can your robot help make the world a better place?

- Example of a Robot Prototype
  - Used the following materials
    - Paper cup
    - Aluminum foil
    - Pipe cleaner
    - Pompom
    - Stickers

