



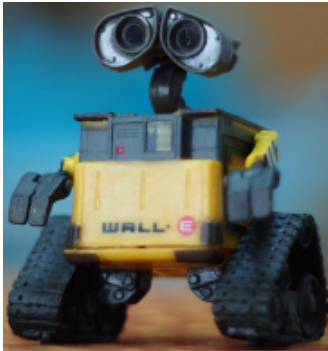
Daisy STEM



Badge in a Box

What Robots Do (Robotics 1)


Overview for Leaders	<p>These kits are designed to allow a leader to conduct a Daisy meeting with less planning, less effort, and less cost.</p> <p>Most activities will try to minimize the amount of reading required because Kindergarteners aren't ready for it.</p> <p>In the kit, there are activities and supplies. Many supplies are provided, but not all. Make sure to look at the Materials list for the activities so that you have some lead time to order or shop. Normal troop supplies, such as scissors and markers, will be needed. Those are specified. Copies may need to be made.</p> <p>Materials or game pieces for each activity are designed so that 12 girls can do the activity at a time. Near the end of this Leader Guide, there are ideas for other activities that either take more preparation, more lead time, or more supplies and money. If something catches your fancy, you can pursue it. However, the supplies will not be in this kit and will need to be acquired.</p> <p>Please be a sister to the next troop when using these materials. Put them away in the same manner as you received them and report any broken/missing items when returning the box to Badgerland.</p>
This Activity Matches These Badge Requirements	<ol style="list-style-type: none"> 1. Learn about robots 2. Find out what robots can do 3. Team up to design your own robots
Outcomes	<p>Overall</p> <ul style="list-style-type: none"> • Strong sense of self: Girls have confidence in themselves and their abilities, and form positive identities. • Positive values: Girls act ethically, honestly, and responsibly, and show concern for others. • Challenge seeking: Girls take appropriate risks, try things even if they might fail, and learn from their mistakes. • Healthy relationships: Girls develop and maintain healthy relationships by communicating their feelings directly and resolving conflicts constructively. • Community Problem Solving: Girls desire to contribute to the world in purposeful and meaningful ways, learn how to identify problems in the community, and create 'action plans' to solve them. <p>STEM</p> <ul style="list-style-type: none"> • STEM Interest: Girls are excited about STEM subjects and want to learn more about them. • STEM Confidence: Girls have confidence in their STEM skills and abilities. • STEM Competence: Girls think scientifically to solve problems.

	<ul style="list-style-type: none"> STEM Value: Girls learn the importance and relevance of STEM to people and society.
Materials Troop Needs to Supply and Preparation Actions	<ul style="list-style-type: none"> Markers/crayons (Activity #3) Make copies of activity sheets from the master. Depending on your copier, you may be able to leave the master in the sleeve and just lay it on the copier bed. (1 per Girl Scout)
Contents in the Box	<ul style="list-style-type: none"> 0. Master set of activity sheets 00. Leader's Guide 01. Learn about Robots laminated match game (6 sets) 02. White board 03. Dry erase markers 04. Six-sided dice (12) 05. Laminated Roll-a-Robot game sheets (12)
#1: Game: Learn about Robots Match Game 	<p>Materials:</p> <ul style="list-style-type: none"> Learn about Robots match game (6 sets, 1 per pair of girls, provided) The sets are color-coded on the back of the card so it is easy to sort them after this activity. <p>Preparation: None required.</p> <p>Activity:</p> <ol style="list-style-type: none"> Split the girls into groups of 2. Give each group a set of laminated match game cards. Instruct the girls to spread the cards out, face down. They may want to lay them out in a big square, a circle, or some other way. During this game, girls will try to make matches of the robots on the cards. During each turn, one girl will flip over two cards. If they match, she gets to keep her pair and play moves on to the next girl. If they do not match, she flips them back over and play moves on to the next girl. The game continues until all matches have been found.
#2: Activity: What Can Robots Do Brainstorm	<p>Materials:</p> <ul style="list-style-type: none"> White board (provided) Dry erase markers (provided) <p>Preparation: Complete Activity #1 before moving on to this activity.</p>



Activity:

1. Spread out the cards from the match game or invite each girl to choose one robot card.
2. Ask the girls what some of the pictured robots do. What are their jobs? What is their purpose? How can they tell?
3. On the white board, write or draw pictures based on the girls' comments or guesses about robot tasks/jobs.
4. Ask the girls - "Are these kinds of activities games? Fun? Play? Or are they work words? Chores?"
5. The key insight for girls to understand is that **robots do work** to assist people.
6. Below is a key to all of the robots featured on the cards. **Girls do not need to identify the robots correctly! Let them use their imaginations.**
 - a. **Delivery Robot:** These robots deliver food, especially on college campuses where leaving food at the door of a dormitory or apartment may be difficult for a human driver.
 - b. **Lawn Mower Robot:** This robot uses sensors to cut grass. It works similarly to indoor vacuum robots.
 - c. **Robot Arm:** Programmable arms can perform many of the same functions as human arms, but may be used in situations that are dangerous for humans.
 - d. **Robot Vacuum:** This robot uses sensors to vacuum (and sometimes mop) floors.
 - e. **Robotic Prosthetic Arm:** Robotic prosthetics use sensors to detect muscle activity to help an amputated limb function normally.
 - f. **Wall-E Trash Robot:** Wall-E collected trash and pressed it into cubes.
 - g. **Farming Drone:** Farming drones are used to inspect crops, manage irrigation (watering), and keep track of livestock.
 - h. **Surgical Robot:** Robots can be used by surgeons and doctors to provide safer and faster surgical procedures for patients.
 - i. **Android:** An android is a human-like robot.
 - j. **Robot Dog:** Robot dogs are used by police and military officials to perform search and rescue operations in places that are not safe for people.
 - k. **Restaurant Delivery Robot:** These robots deliver food in a restaurant, reducing the need for human staffing.
 - l. **Android:** An android is a human-like robot.
 - m. **R2D2:** This "droid" was featured in the Star Wars movies. It served several functions, including file storage and playback, as well as co-piloting and engineering during flights.
 - n. **Toy Robot:** This robot is a toy for children. It may help kids learn about programming and/or engineering.

	<p>o. Mars Rover “Curiosity”: This robot was deployed on Mars to explore, photograph, and take samples of the Martian surface.</p> <p>p. Astronaut Robot “Robonaut”: Robonaut is an android. It was used on the Space Station in 2011 to measure air movement, perform maintenance, and help astronauts.</p>
<p>#3:</p> <p>Craft: Roll-a-Robot</p> 	<p>Materials:</p> <ul style="list-style-type: none"> • Dice (12) (provided) • Laminated Roll-a-Robot game sheets (12) (provided) • Copies of Robot Body sheets (1-6) (master provided; copies need to be made by troop) • Markers/crayons (troop provides) <p>Preparation:</p> <p>Each girl will only need one body sheet for her robot. To save paper, you may want to print just a few of each body type and roll again if you run out of a specific body, OR you may want to print a set of copies for each girl so they can make one of each body type. Do whatever works best for your troop.</p> <p>Activity:</p> <ol style="list-style-type: none"> 1. Give each girl a Roll-a-Robot laminated game sheet, a six-sided die, and some drawing utensils (markers, crayons, etc). 2. Explain the game: “You will use a random roll of the die to design a unique robot that is all your own. Roll your die. Find the body part that matches the dots on your die. You will roll six times to choose a body, a head, arms, legs or wheels, and more! Each time you roll for a body part, use your markers/crayons to draw the body part on your body paper.” 3. Have each girl roll her die for a Robot Body shape (Roll #1). Give her the correct body page so she can draw on the other body parts. 4. Guide girls through the remaining rolls of the dice, adding all of the body parts. The “Flair” section can go anywhere on or next to the body, wherever it works best for her. 5. Girls can give their robot a special name and add special decorations. 6. Ask girls to share their designs and share a story or description of their robot. What is it called? What kind of work does it do?

Optional:

Craft: Toilet Paper Tube Robots



Bonus activity: no materials provided in the kit but the details are here.



Materials to be provided by troop:

- Toilet paper tubes (1 per girl)
- Bamboo skewer or sharpened pencil (1 per adult, to make holes)
- Pipe cleaners (2 per girl)
- Glue sticks or clear tape
- Construction paper
- Pony beads
- Small stickers
- Googly eyes
- Scissors
- Paint or paint pens (optional)

Preparation:

1. Paint or use paint pens to color the toilet paper tubes in advance of girls' arrival. Decorate the tubes with different colored paint or make them all a single color (such as silver or gold).
2. Use a pencil or bamboo skewer to poke a parallel hole in the tube, about $\frac{1}{3}$ of the way from one end (the "top") of the tube. This will be where girls thread a pipe cleaner through the body to hold the robot arms.

Activity:

1. You can use this activity to supplement the Roll a Robot activity or as an extra craft. To supplement for the Roll-a-Robot activity, provide one component of the toilet paper tube creation for each roll:
 - a. First roll: Toilet paper tube body. Decorate with construction paper, markers, glue.
 - b. Second roll: Googly eyes and markers to make the face.
 - c. Third roll: Pipe cleaner for arms. After pushing them through the body, try curling the arms around a pencil to make them squiggly or bend them in wacky directions.

	<ol style="list-style-type: none"> d. Fourth roll: Second pipe cleaner for antenna, hair, hands, or other “flair.” Use tape or glue to fasten to the body as needed. e. Fifth roll: Pony beads, stickers, paper, markers to add buttons to the body. f. Girls can give their robot a special name and add special decorations. g. Ask girls to share their designs and share a story or description of their robot. What is it called? What kind of work does it do?
Optional: Movies & Books about Robots	<p>There are many movies, television shows, and books about robots that are great for your Daisy Girl Scouts. Check out some of the resources below.</p> <ol style="list-style-type: none"> 1. Robots (2005) 2. Wall-E (2008) 3. The Iron Giant (1999) 4. Terra Willy (2019) 5. Big Hero 6 (2014) 6. Star Wars (A New Hope) (1977) 7. Short Circuit (1986) 8. The Jetsons (1962-63, 1985-87) 9. Ask the StoryBots (2016-2019) 10. Transformers (1984-87) 11. My Teacher is a Robot by Jeffrey Brown 12. How to Code a Rollercoaster by Josh Funk 13. Your Very Own Robot by R.A. Montgomery 14. Curiosity: The story of a Mars rover by Markus Motum 15. Maya and the Robot by Eve L. Ewing 16. Welcome to your awesome robot by Viviane Schwartz
End	<p>Great! You have completed the Daisy What Robots Do Badge (Robotics 1). Hope you had fun!</p>
Supplies	<p>Consumables to be replenished by Badgerland</p> <ul style="list-style-type: none"> ● Dry erase markers (as needed) ● White boards (as needed)