

DAISY BADGES TO DO AT HOME



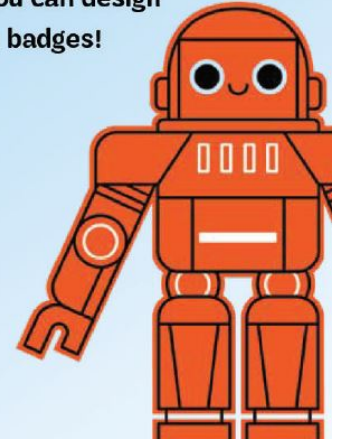
Daisy Robotics

Find out what robots do and how you can design your own by earning three robotics badges!

Badge 1:
What Robots Do

Badge 2:
How Robots Move

Badge 3:
Design a Robot



To earn this badge, please complete all steps for each badge.

STEPS	BADGE REQUIREMENTS	Badge 1: What Robots Do
Step 1	Learn about robots.	A robot is a machine that runs automatically. You've seen them on TV and in movies, but do you think you could tell a robot from something that's not? Discover robots in your everyday world as you search for robots and learn about engineers, the people who create them.
Step 2	Find out what robots can do.	Now that you know what a robot is, start to design your own, just like an engineer. What's your robot's name? What can it do? Robots are made to do things that are too boring, dangerous, or difficult for us. Sketch a quick picture of your robot, and with an adult, check online to see robots created by other engineers.
Step 3	Team up to design your own robots.	When engineers design a new robot, they brainstorm common and complicated problems that it could solve. Once they know what they want their robot to do, they create a plan to design and build it. Ask a family member to give you a household problem, and then design a robot that can solve it.

STEPS	BADGE REQUIREMENTS	Badge 2: How Robots Move
Step 1	Learn about the parts of a robot.	Robots are simple machines that do what engineers tell them to do. They are made up of many different parts, each with its own important job to help the robot to work. Some of these create the body, like its wheels, and others, like wires and sensors, help robots to understand their worlds. Explore the different parts that are used in a robot.
Step 2	Find out how robots move.	Without instructions to tell them what to do, robots are just simple machines. Computer engineers, or programmers, create algorithms, or sets of step-by-step instructions, that are coded into the robot so they can move and act automatically. Do you think you can be a robot? Have a family member be a "programmer" and follow her/his' commands, and discover how robots move.
Step 3	Make a robot move.	Programmers create algorithms that instruct robots on how to move and react. Do you think you could create a program to navigate a robot to a prize? Create a step-by-step algorithm to lead a stuffed animal or family member, the "robot," along a Robot Trail to explore how programmers create algorithms for their robots.

STEPS	BADGE REQUIREMENTS	<u>Badge 3: Design a Robot</u>
Step 1	Plan your robot.	As you know, robots solve problems both big and small. Engineers look for problems in our world and build robots that fix or solve them. If you could build a robot that would solve a problem you have every day, what would your robot do? What would it look like? What parts would it need? Brainstorm and sketch robots that you could design to make your life easier.
Step 2	Create a prototype.	Now that you have all your ideas down on paper, take a look, and choose the robot design that you think will do the best job at solving your problem. Now is your chance to build a prototype of your robot. Engineers create prototypes, a quick way to show an idea to others or to try it out. It can be as simple as a drawing or created with common materials, such as cardboard, paper, and string. But remember, you're creating a robot, not a simple machine, so you'll also need to create a step-by-step program for your robot prototype to "run."
Step 3	Get feedback on your robot.	Once engineers create a prototype, they test it to find ways to improve and redesign their new products. Work with a family member to test your robot prototype. Tell your partner how to move the prototype according to your program so you can "debug" or fix problems before you share your prototype with your entire family and/or troop leader (via a photo and/or text/email). After you share, gather feedback and ideas, like an engineer, on how to improve your robot's design and make it even better!

TIP

Here is a website where your child can gain how-to's on creating simple, homemade robots:

Brushbots

<https://researchparent.com/homemade-spinning-brushbot/>

Robot Car

<https://researchparent.com/simple-homemade-robot-car/>

Wigglebots

<https://researchparent.com/learn/technology-engineering/robotics/>