

2017 New Junior Badges and Journeys

Robotics Badges

Programming Robots

Robots are simple machines made of many different parts that are programmed to run automatically. Programmers are the engineers that create step-by-step instructions, or algorithms, that tell robots how to understand and respond to their environment. Start by engineering a simple machine that helps a robot to land then learn about the robot brain. After, create programs for your friends to make images using tangrams and complete an obstacle course before coding on a device.

1. Learn how robots work
2. Discover the robot brain
3. Learn about programming
4. Try simple programming
5. Code a robot

When I've earned this badge, I will know how robots receive instructions in a way similar to the human brain. I will be able to create simple programs that could be run by a robot.

Designing Robots

Robot are simple machines that run automatically, made of many different parts, each with its own important job to help the robot. Sometimes, engineers use biomimicry to design robots that look like or are inspired by humans, animals, and nature. Increasingly, engineers are able to create robots that continue to learn about their environment. Work in teams with your fellow Juniors to explore artificial intelligence (AI), then think about how technology and robotics can help the world. After, it's time to put it all together and design your own robot! Work like engineers to plan and build a prototype of your robot that solves a global problem. Test and share your robot prototype with other Juniors for ideas on how to make it even better.

1. Discover the future of robots
2. Determine your robot's expertise
3. Plan your robot
4. Create a prototype
5. Get feedback on your robot

When I've earned this badge, I will know how to plan, build, and share feedback like an engineer by creating a prototype of a robot that solves a global problem.

Showcasing Robots

After engineers build their robots, they show them to other engineers and enter them into challenges and competitions. Now that you have your robot prototype, it's time to create a presentation and share your design with others. After, learn about robotics teams and competitions and see a robot in action!

1. Create a presentation to share how you designed your robot
2. Tell others how you designed your robot
3. Learn about robotics competitions
4. Learn about robotics teams
5. See robots in action

Note: Unlike the other Robotics badges, these Steps include options. You may be able to complete multiple steps, particularly for Step Three through Step Five, at once.

When I've earned this badge, I will have shared my prototype and design process with other. I will see a robot in action and learn about robotics teams and competitions.

Outdoor Journey

1. **Camper** - An overnight trip in the great outdoors brings you closer to nature—and to your Girl Scout sisters. In this badge, plan a camping adventure! You might watch a sky full of stars, cook a meal on a stick, or share silly stories around the campfire. And you'll definitely learn some new outdoor skills as you take part in this favorite Girl Scout tradition.

1. Start planning your adventure
2. Gain a new camping skill
3. Find your inner camp chef
4. Try a new activity

Head out on your trip -- and have some nighttime fun!

When I've earned this badge, I'll know how to have a great overnight camping trip at a campsite or cabin.

2. **Animal Habitats** - Imagine meeting a monkey or kicking up dust with a kangaroo. These animals live in the wild, so we don't get to spend time with them in their natural homes—their habitats. But that doesn't mean we can't find out more about where they live, how they play, and how we can help them!

1. Find out about wild animals
2. Investigate an animal habitat
3. Create an animal house
4. Explore endangered habitats
5. Help protect animal habitats

When I've earned this badge, I will know more about wild animals and how to protect their homes.

3. **Eco Camper** - Whenever you step outdoors, you are a guest in nature's home. This is especially true when it comes to camping. Whether or not you've been camping before, you will earn this badge by learning how to protect the environment on your trip. It will shape the way you camp forever!

1. Learn the Leave No Trace Seven Principles
2. Plan meals with the environment in mind
3. Prepare a minimal impact campsite
4. Have fun with Leave No Trace
5. Take a conservation hike

When I've earned this badge, I'll have learned skills for minimal impact camping and know how to protect the environment when I go outdoors.

4. Take Action Project

Engineering Journey

1. **Think like an engineer**
 - a. Engineers Create
 - b. Jump into Design Thinking!
 - c. Design Challenge: Paper Structure
 - d. Design Like and Engineer
 - e. Engineers to the Rescue!
 - f. Design Challenge: Emergency Shelter
 - g. Shake it Up
 - h. Design Challenge: Pop Fly
2. **Take Action Project**

Computer Science Journey

1. Think like a programmer

- a. Create Your Own Code
- b. Jump Into Computational Thinking
- c. Tangram Algorithms
- d. Snack Algorithms
- e. Solving Challenges with Computational Thinking: Mad Glibs and Functional Suncatchers
- f. Tech Collages
- g. Personal Innovations
- h. Videos
 - i. code.org/girlscouts/TangramAlgorithms/OverviewVideo
 - ii. code.org/girlscouts/TangramAlgorithms/ActivityVideo
 - iii. code.org/girlscouts/MadGlibs/OverviewVideo
 - iv. code.org/girlscouts/MadGlibs/ActivityVideo
 - v. code.org/girlscouts/ComputationalThinking/DemoVideo
 - vi. code.org/girlscouts/FunctionalSuncatchers/DemoVideo
 - vii. code.org/girlscouts/FunctionalSuncatchers/OverviewVideo
 - viii. <https://www.youtube.com/watch?v=d1MdyeXy0v0>
 - ix. code.org/girlscouts/PersonalInnovations/ActivityVideo

2. Take Action Project

Outdoor STEM Journey <https://scistarter.com/girlscouts/volunteer/landing> for videos

1. Think Like a citizen scientist

- a. Sensing Nature
- b. Becoming Citizen Scientists (using Scistarter videos)
- c. Observing with Detail and Precisions
- d. Choose Citizen Science Project (from Scistarter videos)
- e. Animal Tracking Field Notes
- f. Conduct Citizen Science Project

2. Take Action Project