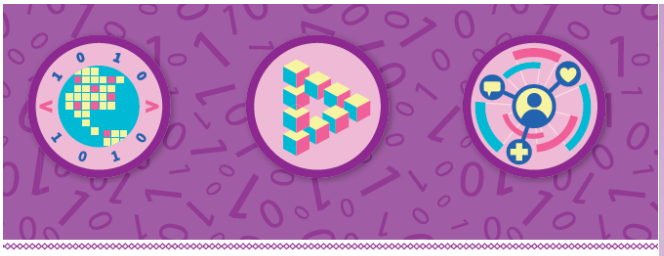
JUNIOR BADGES TO DO AT HOME



Junior Coding for Good

Find out how to create computer programs, games, and apps that solve problems and help others by earning these three badges.

Badge 1:
Coding Basics

Badge 2:
Digital Game Design

Badge 3:
App Development

To earn this badge, please complete all steps.

STEPS	BADGE REQUIREMENTS	Badge 1: Coding Basics
From tablets and laptops to microwave ovens, cars, and even stoplights, we use computers every day to help us in all sorts of ways. But how do the computers know what to do? People write instructions for them! When you learn to "talk to computers" by writing code, you'll be able to tell computers what to do!		
Step 1	Create algorithms for a computer that follow a sequence.	**Giving directions to someone can be tricky.** Giving directions to a computer is even trickier. Why? A computer can only do exactly what you tell it to do, in exactly the order you tell it. A computer can't ask questions or figure out what to do on its own if your directions are unclear. The directions that programmers write is called an algorithm. The order of the directions is called a sequence. Sometimes the order of actions matters, and sometimes it doesn't. Imagine you're setting up a campground. You need to find a flat space and clear away rocks and sticks BEFORE you set up your tent. The sequence of your actions matters in this case
Step 2	Use loops to improve your algorithm	**Have you ever read the directions on a shampoo bottle?** They often say, "Apply shampoo to your hair. Lather, rinse, repeat." Lather means rub the shampoo around in your wet hair to make lots of bubbles. Rinse means use lots of water to wash the bubbles out. And repeat means—do it all again! "Lather" and "rinse" are the steps in a hair washing algorithm. "Repeat" is a loop. It means do the same thing—lather and rinse—over and over again. Lather is a nested loop, because you need to rub the shampoo around on your head in lots of different places—on the top, on both sides by your ears, and in the back. You repeat, or loop, lathering. That repeated action happens within the loop of washing your hair twice. Programmers use loops to tell computers to repeat actions in their programs. Loops make programs shorter, easier to write, and easier for computers to understand.
Step 3	Keep your code interesting with conditionals	**Computers are great at doing the same thing over and over again.** To make them even more useful, programmers have figured out how to get computers to react to different situations. They write programs that say if one thing happens, do this. If it doesn't, do that. These computer commands are called conditionals, and you write them using an IF/ELSE statement. For example, if you didn't have the option to wear different jackets to match the weather, you'd always have to wear the same coat. But, with a conditional, you can give options: IF it's snowing, wear a warm coat. ELSE wear a light jacket. By writing code that includes conditionals, such as determining different coats depending on the weather, programmers can make code more flexible and more interesting.

Step 4	Create your own set of commands that use conditionals	**Being a leader means you have to make lots of decisions.** So, when you're a leader, it's a good idea to prepare for what could happen and how you would react to all kinds of situations and surprises. For example, if you're planning a camping trip, what will you do if it rains? Are any of your friends allergic to certain foods? What kinds of meals should the troop plan? Programmers do the same thing when they write conditionals in their code. They think about different situations in the program and tell the computer what to do IF that situation comes up.
Step 5	Learn about women in computer science	**Part of being a leader is thinking ahead, imagining what problems might come up, and figuring out how to solve them.** The first computer program was written by a woman, and women have been leading the way ever since! Their leadership and creativity have shaped the world of computer science in many ways. They've designed and built new kinds of computers, invented new programming languages, and even used computers to design ships and send people to the moon! What kinds of problems would you like to solve with the help of computers?