# Communicate in Code

Grade Levels
**2–5**

## Did You Know?

The machines, computers, and robots around us read special code languages that tell them exactly what to do. People, called coders or programmers, write this language for technology to read. Whether or not your child pursues a career in computer programming, it's important for children to understand the technology around them. While we can only imagine what the future of technology will look like, knowing how to code is one way for your child to prepare for their high-tech future!

## Help Them Lead at Home

**Talk:** With your family or caregiver, discuss the concept of a code. What does the term mean to your child? Explain that a code is a system of symbols (usually in the form of words, letters, shapes, or figures) that stand for something other than itself. In other words, codes usually have a secret meaning! Codes are used for many different things, and today you will explore a couple different ways that codes are used.

**Do:** *Human Codes:* Look over the Top Secret Code Sheet and read the directions together. Explain that as a family, you are going to create a secret alphabet code by developing a special symbol to represent every letter of the alphabet. Once your code is complete, write each other notes using these symbols! Then exchange your notes and use your Top Secret Code Sheet to decode each message. It may be helpful for your child to write each alphabet letter above the symbol once they have decoded it, so they can easily see how the letters make up a word!

*Machine Codes:* Now that you have practiced writing secret codes, explain that codes are also used by non-humans: machines, computers, and robots all use code too! There are special code languages that tell machines exactly what to do. Some code languages are very simple, and others are more complicated, but they all provide step-by-step instructions for the machine. There are many different resources that help children learn to code, but one (or both!) of the following websites are great starting points:

- NASA offers a collection of computer science resources for all ages. Explore the fundamental concepts of computers using games and simulations or investigate binary code by completing a paint by the numbers. You can even practice coding human "robots"! **https://www.nasa.gov/audience/foreducators/computer-science-educational-resources.html**

**Attention Parents and Caregivers:** Is your girl interested in the environment and in protecting our planet? Then Girl Scouts is the place for her. Girl Scouts' "It's Your Planet–Love It!" program gives her the opportunity to take the lead on issues such as clean water and air, noise pollution, climate change, agriculture, and more. This activity is powered by Girl Scouts of the USA. Girl Scouts is the place for every girl, and it always will be. **SIGN UP NOW.**

**Check out no-cost resources for you and your girl to extend the learning at home: http://bit.ly/GirlScoutsDE**

## Top Secret Code Sheet

**Directions:** Work with your parent or caregiver to develop a secret symbol for every letter of the alphabet. How simple or how complex you make each symbol is up to you! Just be sure that every letter has its own unique symbol.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| G | H | I | J | K | L |
| M | N | O | P | Q | R |
| S | T | U | V | W | X |
| Y | Z | **Challenge:** Use this space to develop symbols for punctuation marks... such as periods, commas, question marks, and exclamation points! | | | |

Girls Get **STEM**
Unleash Your Inner Scientist