Precoding for Preschoolers

Educators are interested in learning more about how to teach coding appropriately to young children. While preschoolers are unlikely to spend time coding computers, they can develop skills through fun and engaging hands-on games that will prepare them for coding when they are older. These are known as precoding skills.

What is coding?

Coding, or programming, is how we communicate with computers. When people write code, they are writing a set of instructions for the computer to use. Learning to code is, in a way, learning to communicate with others, learning to give and receive directions, and learning how to solve problems. Because coding and computer programming are such valued skills in our modern society and workforce, children are now learning to code in schools and at home, and computer science standards are integrated into K–12 education. In addition, children often find coding fun and challenging.

Getting ready for computational thinking

Computational thinking is learning to solve problems like a computer scientist. Fortunately, preschoolers are born problem-solvers. They love to try new learning activities in the classroom, especially games! Preschoolers might not have the fine motor skills to use a computer keyboard quickly, nor are many of them reading or writing just yet. However, most young children can pick up precoding skills through fun games that can prepare them for the computational thinking and computer science that will be introduced in elementary school and beyond.

The activities are different, but the skills are the same

The precoding activities preschoolers engage in may look much different than the coding adults or older children do on computers, but they're built on the same principles. Young children thrive when they learn using concrete hands-on materials, and with precoding there is no difference!

Hands-on games, not computers for young children

Precoding skills for young children include learning through games where they focus on concepts such as patterning (red, red, yellow, red, red, yellow), sequencing (what comes first, what comes second and third), and navigation (forward, back, left, or right). Board games, puzzles, and Legos are great ways to give children creative experiences building skills they can later use when they learn to code computers. These hands-on games introduce young children to the concepts of coding in a fun and practical way.

Preschoolers can learn many valuable precoding skills, including:

- Problem-solving: How do I use this controller to move the robot across the floor?
- Spatial awareness: How can I turn this puzzle piece around to make it fit?
- Early literacy and vocabulary: How can I describe the pattern I am seeing?
- Turn-taking with peers and other social skills: How can I wait patiently for my turn?

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