FIRST programs ..... www.firstinspires.org

FIRST Lego League Jr.	Grades K-4	Build Lego models and do a project
FIRST Lego League	Grades 4-8	Build and program a Lego robot
FIRST Tech Challenge	Grades 7-12	Build, program, and drive a robot
FIRST Robotics Competition	Grades 9-12	Build, program, and drive a robot

VEX programs ..... www.vexrobotics.com

VEX IQ	Grades 2-8	Build, program, and drive a robot
VEX Robotics Competition	Grades 5-12	Build, program, and drive a robot

Other robotics competitions

BotsIQ	www.botsiqpa.org
SeaPerch	www.seaperch.org
Best Robotics, Inc.	www.bestinc.org

Code-A-Pillar - $35	Age: 3-6
Why we love it: Code-A-Pillar is great for younger children to learn to code. Each tail section does a different task, and they can be arranged in any order to move in different patterns! Code-A-Pillar does not require any additional hardware, just open floor space and AA batteries.	

Girl Scouts initiative

Quasics is committed to helping our local Girl Scout Troops earn STEM badges and explore their interests in Robotics, Engineering, and Programming. To date we have visited over 375 Girl Scouts and helped them earn 350+ STEM badges! To learn more about our Girl Scouts initiative, visit our website. To have Quasics visit your Troop, email us at contact@quasics.org

WWW.QUASICS.ORG

Technology that we recommend

Arduino Starter Kit - $90	Age: 8+

Why we love it: The Arduino is able to read inputs (light falling on a sensor, a finger on a button, a Twitter message, etc.) and turn them into output (activating a motor, turning on an LED, publishing something online, or whatever you want. It's a great introduction to both basic electronics and programming, especially since it makes it so easy to have "real world" effects from what you do.

Things to consider: While the Arduino *is* a computer, you generally need to have access to a "normal" computer (PC, Mac, or Linux) in order to program it; a smart phone generally cannot act as a substitute here.

https://store.arduino.cc/usa/arduino-starter-kit

Raspberry Pi 3 Starter Kit - $80	Age: 8+

Why we love it: The Raspberry Pi is a small device that can act as a miniature computer once you program it. With its portable size and the ability to connect to both Wifi and Ethernet, the Raspberry Pi is an excellent choice for your child's first personal computer. There are many guides online to help with setup. In addition, setting up the Raspberry Pi can teach your child fundamental wiring and programming skills.

Things to consider: Although the Raspberry Pi is also a computer, a "normal" computer (PC, Mac, or Linux) is necessary to code it, and additional parts are required (SD card, power supply, monitor, etc.). However, there are starter kits available that will include most of the necessary components.

https://www.canakit.com/raspberry-pi-3-starter-kit.html

Lego Mindstorms EV3 $349	Age: 10+
Why we love it: Lego Mindstorms help kids learn to design, build, and program small scale robots. Legos are easy for children to relate to because they may already have experience with regular Legos. Your child can learn to code and design robots through various online tutorials and projects. *Things to consider:* Lego Mindstorms work best with another device (such as an iPad or computer) to code the robot and drive remotely (with a mobile device). https://www.lego.com/en-us/mindstorms/products/mindstorms-ev3-31313	

Software that we recommend

- Scratch / Scratch Jr. - programming languages geared to kids (https://scratch.mit.edu)
- Stencyl - programming similar to Scratch but also has non-drag-and-drop coding (http://www.stencyl.com/)
- MCreator - learn to code Minecraft mods, then play with them in-game (requires a Minecraft account - $27, and Minecraft Forge - https://files.minecraftforge.net/) (https://mcreator.net/)
- Piskel.com - draw 2D sprites and animations, useful for Scratch, Stencyl, and MCreator (https://www.piskelapp.com/)
- Tinkercad - learn to 3D model (https://www.tinkercad.com)
- Codeacademy - learn various programming languages (https://www.codecademy.com/)
- Code.org - programming projects geared to kids (https://code.org/)
- CodeCombat - coding through levels of a RPG video game (https://codecombat.com/)