



HOMESCHOOLING? LEARN HOW TO TEACH YOUR CHILDREN PROGRAMMING

According to a [UNESCO estimate](#), about 91% of the world's student population is affected by the suspension of classes. This current period of uncertainty due to COVID-19 and not knowing when we will return to normality mean we must adapt to this new way of life, even if it's just for a short time.

It's important that you as parents help your children adapt to our new normal, and one of the ways of doing that is to support their remote learning. This can be daunting, especially when your kids are learning skills that may not have existed when you were at school, like programming and robotics. But teaching your kids programming - or at least supporting their learning in this subject - is simpler than you may think.

What is programming?

If you like to cook and try out new recipes, you are actually executing a "program" - or more precisely an algorithm - which is nothing more complicated than following a set of instructions. Programming a computer is like writing a recipe. You are simply providing a set of instructions.

If you can write recipes with precise instructions, you can also write simple computer programs and teach your children how to do that, too. Writing computer programs is simply about writing instructions that a computer can execute, such as running simulations or controlling robotic motions.

Even if you have zero experience in computer programming, learning it is easy (and fun!) especially if you start with visual-based programming languages.



It's a good idea to begin with simple drag-and-drop programming languages. The important thing is that you get familiar with the [basic grammar of a programming language](#). The specific codes and syntaxes may vary between different programmes, but the basic logical principles are the same. For example, one principle is that instructions should not be contradictory.

Here are some computer programming languages that you can learn and teach your kids, especially those who are in middle school:

- [Scratch](#) – this is a visual-based programming language that is best for creating animations, interactive stories, art, and music
- Python – the semantics and syntax of this programming language are very similar to natural language. See some [simple examples of Python programs](#) here
- Javascript – this language is great for web development. Your child can create two-dimensional web-based games
- Java – this is best for intermediate students. It has similar coding as Javascript but your child can create apps and mobile games with Java

Five ways to teach your child programming at home

1. If your child has zero knowledge of computer programming, you can start with algorithm games. You can demonstrate algorithms through fun games like creating flowcharts of precise “if-then” instructions on how to do familiar things. For example, you can create an “if-then” flow chart for a scavenger hunt inside your house.
2. Buy a hands-on [programming and electronic kits like the Arduino Starter Kit](#). Getting physical with computing is a great way to learn - it really helps children understand and retain knowledge. With Arduino, you can create programmable devices simply by following step-by-step instructions in the kits and you don't need any previous experience or knowledge in programming.
3. Discover Python programming through [Minecraft](#). Build and maintain virtual worlds using cube elements. It's an engaging and very popular way for children to take their first steps in programming.
4. Let your kids be in control. They'll be able to understand programming more completely if they are the ones typing on the keyboard and clicking with the mouse rather than watching you do it. They'll also learn more effectively from any mistakes they make.
5. Check out resources like [Code.org](#) and [Code with Google](#) for more background and computer science information on programming, as well as tons of helpful tools.



Why is it important for middle school kids to learn to program?

Programming teaches logical and systematic problem-solving skills. From creating the algorithm to coding them using a programming language, programming develops higher-level thinking abilities.

Computer programming is also an excellent way to learn the mathematics behind the programming languages. It is a way for kids to appreciate the practical applications of mathematics in computer programming and electronics.

Additionally, programming and electronics are employable skills that can further be developed in high school, college, and beyond. Even as a hobby, these skills are scalable into income-generating pursuits that middle school kids could find very useful later in life. Teaching your kids programming at home can be a turning point that can help them in their future careers.