






STEM 101

Coding in the Classroom Beginner's Resources

Many of these resources are completely free, some offer premium features for a cost. These provide an excellent starting point for exploring computational thinking and coding with your students.

	<h3>Scratch Jr.</h3>	An app version of the popular Scratch site (below) that's aimed at beginners. It's a drag-and-drop coding language, meaning that users snap together colorful blocks on the screen to make their own programs that can do complex tasks, like tell an interactive story about something they're learning. It's a wonderful way for kids to get interested in programming without needing to navigate programming terms like <code>bool</code> .
	<h3>Scratch</h3>	Once kids are comfortable with the interface in Scratch Jr, they can move online to a fuller version. The best part about Scratch is that kids share the games and animations they create on the site, so other kids can see their code and learn from it. MIT, which developed Scratch, provides resources for teachers, including tutorials and lesson plans. Consider having students build an animation in Scratch for their next book report—a modern, digital update for the shoebox diorama.
	<h3>Tynker</h3>	There are many ways to use Tynker in the classroom, some paid and some free. On the paid end, Tynker has a program for classroom use that teaches basic coding concepts without a lot of teacher input. Online lessons cover a wide range of subjects, like using coding to create a map of Pangea splitting apart for geography or an animation to quiz peers on types of government systems in social studies. And Tynker has pulled together some free games and activities for Hour of Code that can be used throughout the year.
	<h3>Hopscotch</h3>	Another drag-and-drop coding app that's great for the classroom. Hopscotch specifically helps bridge the gap between Scratch Jr and more complex drag-and-drop programs by providing a transition guide. Students can use this tool to add creativity to class projects—for example, by building an explorable map for world studies or making a quiz for a fellow math student to prep for a test.
	<h3>Swift Playgrounds</h3>	Swift is Apple's coding language, and this app is a great transition for middle schoolers who are moving from drag-and-drop to word-based programming. There are still blocks that can be tapped to create a program, but these blocks have the words of the command written on them—students can tap a block or type the command. These lessons—structured like coding puzzles—can be tucked into open time at the end of math class.