Everyone Can Code

Curriculum Guide

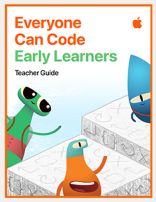
JB HI-FI Education

K–20 Coding Curriculum Pathway

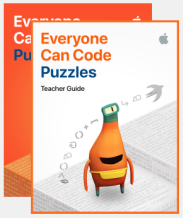
Whether students are beginning coders or are ready to build their first apps, Apple has programs to support teaching and learning with Swift, the same programming language used by professional developers to build some of the world's most powerful apps.

PRIMARY SCHOOL | **SECONDARY SCHOOL** | **HIGHER EDUCATION**

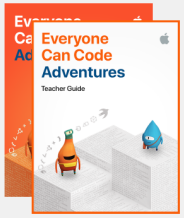
Everyone Can Code



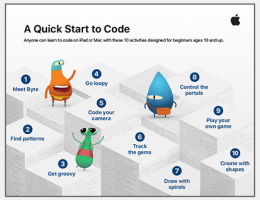
16 hours



45 hours

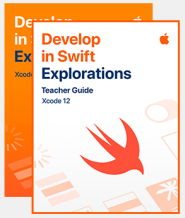


45 hours iPad only

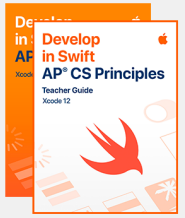


Swift Playgrounds on iPad and Mac

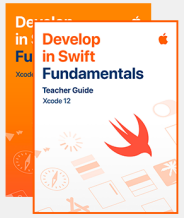
Develop in Swift



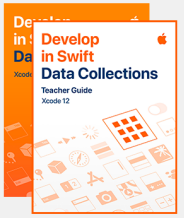
180 hours



180 hours



180 hours



180 hours

Xcode on Mac

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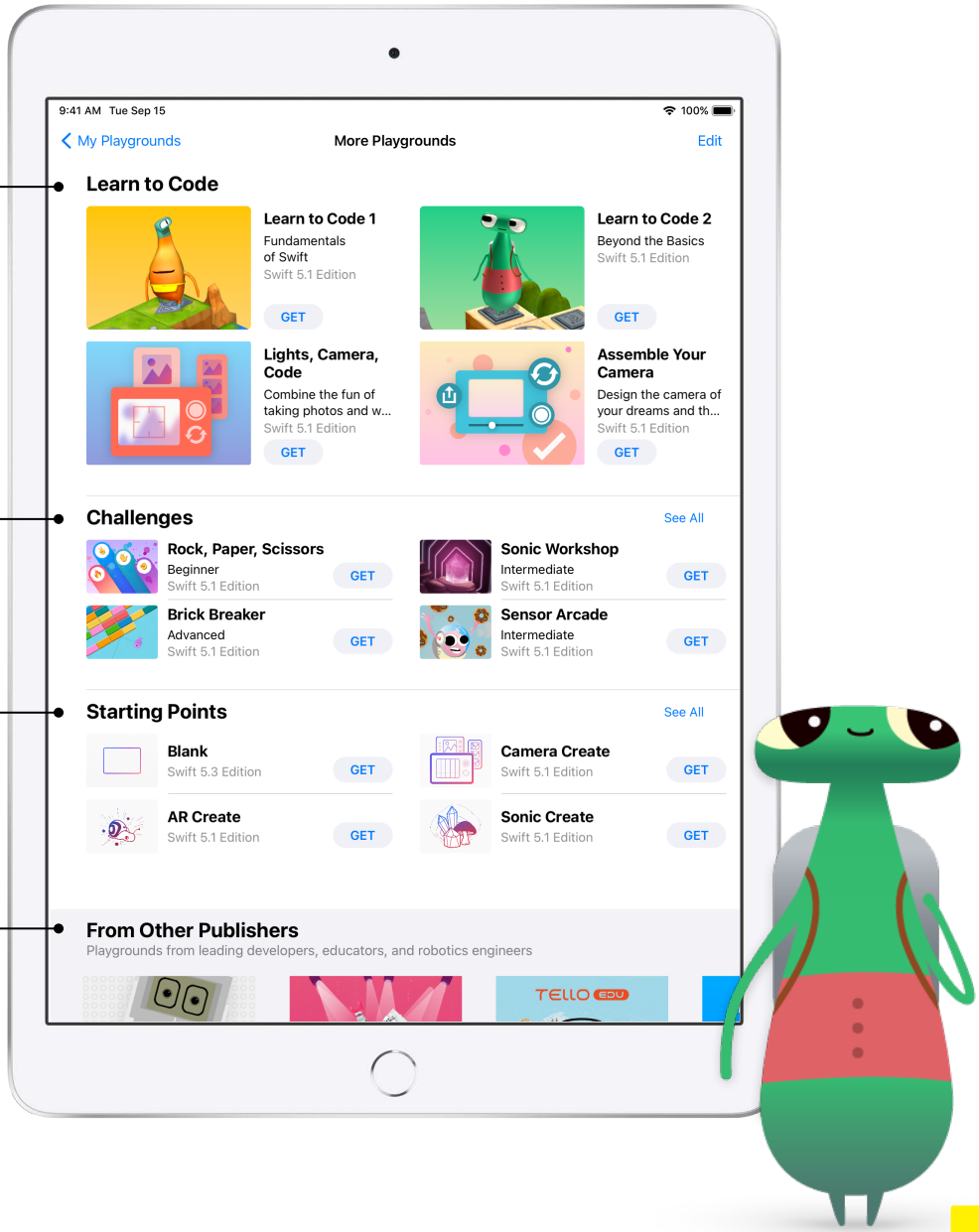
What’s in Swift Playgrounds

Learn to Code. Learn the fundamentals of Swift by guiding characters through a 3D world. Then apply your knowledge of Swift to build a camera, photo editor and camera app from the ground up.

Challenges. Explore your interests or try your hand at something new. Build fun creations in these project-based playgrounds while building your coding skills.

Starting Points. Use what you’ve learned to create something brand-new. Easily share with friends, family or the world.

From Other Publishers. Discover channels with fun new challenges created by leading developers and publishers. Subscribe to your favourites, and you’ll receive their latest creations right in the app.



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Explore Swift Playgrounds

Real Swift code. At the heart of Swift Playgrounds is the same Swift programming language that's used to build many of the leading apps in the App Store today.

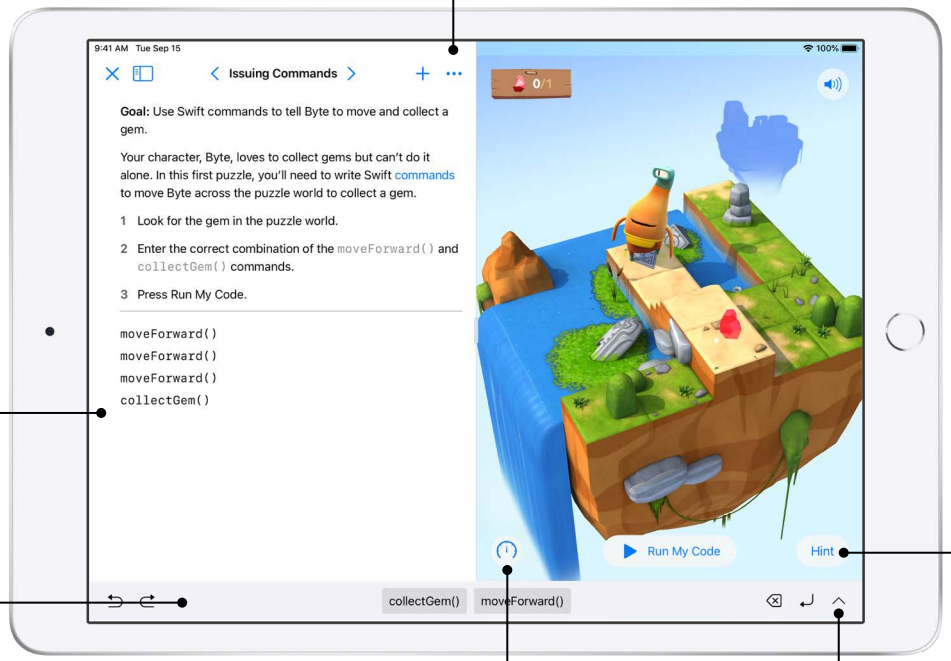
Interactive environment. Create code on the left side of the screen and instantly see the results on the right, with just a tap.

Touch to edit. Drag complex structures that wrap other code, such as loops and function definitions, around existing code. Just touch the keyword (such as "for") and the drag controls appear onscreen.

Shortcut Bar. QuickType suggestions for code appear at the bottom of the screen that let students enter the code they need by just tapping the Shortcut Bar.

Built-in glossary. Definitions help students understand specific terms.

Record and share. Students can record what they do onscreen to demonstrate their work.



Review code. Run code faster or slower, or step through it to highlight the lines of code as they execute, making it easier for students to identify where errors might occur.

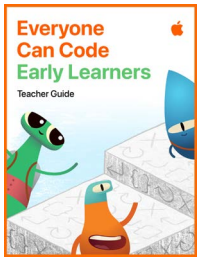
Immersive animations. Each section starts with an immersive animation that relates coding concepts to real life, aiding in student understanding.

Accessibility. Swift Playgrounds is designed with accessibility in mind. It takes advantage of the many powerful accessibility features of iPadOS, including Switch Control and VoiceOver, and even provides additional voice commentary on the actions of characters as students control them with code.

Helpful hints. Students can get help along the way if they get stuck. In many cases, hints change dynamically as they enter code.

Onscreen keyboard. A keyboard designed for Swift provides quick access to the numbers and symbols most commonly used in Swift code.

Everyone Can Code Scope and Sequence



Everyone Can Code Early Learners

Designed for facilitators who teach Year 1-4, this guide contains five modules: Commands, Functions, Loops, Variables and App Design. Each module includes lessons that help learners explore new coding concepts through science, art, music and more. Learners share personal experiences and ideas as they explore coding topics. They discover how code works through hands-on activities and challenges, and apply their new skills by writing code in the Swift Playgrounds app. In the App Design module, learners begin to develop design thinking skills in a culminating app design project. Download Everyone Can Code Early Learners >

Commands (3 hours). Learners will connect everyday examples of executive functioning, language arts and movement to code. This module focuses on describing step-by-step instructions, putting steps in the correct order, and testing and debugging commands in code.

Functions (3 hours). Through art, song, and social and emotional learning, learners will discover functions. This module targets deconstructing large problems into small steps, creating functions to solve a problem and naming functions.

Loops (3 hours). Art, physical education, music, repeat! Coding topics include identifying a loop and looping sequences of commands to complete puzzles and tasks.

Variables (3 hours). Science, language arts and community-building activities are used as the basis to learn variables. Learners will associate a variable name with a given value, change the value of a variable and use different variable types.

App Design (1+ hours). Inspire learners to solve problems they care about in school or in the community through a series of fun app design activities. They'll use design thinking, creativity and empathy to invent an app idea.

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Everyone Can Code Puzzles

Designed for students in Year 5 and up, *Everyone Can Code Puzzles* is a guide to Swift Playgrounds that reinforces problem-solving strategies and critical-thinking skills through over 45 hours of flexible activities. Each chapter helps students build on what they already know, experiment with new coding concepts, apply their understanding and creatively communicate how coding impacts their lives.
Download Everyone Can Code Puzzles >

Chapter 1: Commands (3 hours). Students learn about the importance of clear, precise commands. They organise code into sequences to achieve a goal, and investigate the use of commands in everyday digital technologies.

Chapter 2: Functions (3 hours). Students explore the power of functions by grouping commands into a definition they can use over and over. They code a function to choreograph a robot dance routine, and consider the types of functions that everyday digital technologies might use.

Chapter 3: For Loops (3.5 hours). Students recognise patterns in the world around them and in their code, and learn how to write more efficient code using loops.

Chapter 4: Variables (4 hours). Students learn about how computers store information and explore coding using variables to keep track of data and create flexible programs. They investigate how changing the value of variables changes the program output.

Chapter 5: Conditional Code (4 hours). Students explore how Boolean logic helps us make decisions in our everyday lives and in code. They practice writing conditional code to anticipate changing conditions.

Chapter 6: Types and Initialisation (5 hours). Students explore how programmers use types to code more efficiently. They learn to describe types according to their methods and properties.

Chapter 7: Functions with Parameters (4 hours). Students investigate procedures that require additional information to ensure the desired outcome. They learn how to make their functions more flexible and powerful using parameters to provide additional detail.

Chapter 8: Logical Operators (6 hours). Students explore scenarios that require them to consider multiple factors before they make a decision. They learn to use logical operators to respond to multiple conditions.

Chapter 9: While Loops (4.5 hours). Students explore the power of a while loop for repeating a section of code until a condition is met.

Chapter 10: Arrays and Refactoring (5 hours). Students learn about storing data in arrays and explore how coding using arrays and refactoring can help simplify their code.

Inspiration Journal: Students create a journal based on each chapter's coding concepts as they respond to prompts and complete activities that connect their personal lives and ideas to code.

Teacher Guide: Designed to support teachers at any level of coding experience, this guide provides inclusive learning experiences, assessment ideas and tips to support a range of learners. Included in the guide is the alignment to Computer Science Teachers Association (CSTA) K–12 Computer Science Standards for Level 1B (Grades 3–5), which covers Algorithms and Programming and Impacts of Computing concepts. Download the Puzzles Teacher Guide >

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Everyone Can Code Adventures

Everyone Can Code Adventures is designed for students in Year 5 and up after they've completed *Everyone Can Code Puzzles*. Approximately 45 hours of hands-on activities let students experiment with hardware features and event-driven programming to express their creative ideas through code. Each chapter covers more advanced content in the Swift Playgrounds app, including Sensor Arcade, Blu's Adventure, Sonic Workshop and Augmented Reality. Students also learn about app development concepts and the app design process throughout the course as they build up to a final project in Swift Playgrounds. Download Everyone Can Code Adventures >

Chapter 1: Objects in Views (6 hours). Students explore the use of coordinates to place objects into a view — short for viewable area. They practice coding with coordinate pairs, which are the intersection points between a vertical axis and a horizontal axis.

Chapter 2: Events and Handlers (5 hours). Students learn about the basics of event handling by examining touch events. They review functions with parameters as they add code to make their images and text interactive.

Chapter 3: Arrays (8 hours). To continue learning event functionality, students review and extend their understanding of arrays. Students learn new operators and methods they can use with arrays. They also review some array functionality, operators and nested for loops.

Chapter 4: More Events and Handlers (5 hours). Students combine their understanding of events and handlers with their understanding of arrays. They learn what kinds of arguments can be passed into an event handler function. They examine the many kinds of input available to them through iPad device hardware.

Chapter 5: Functions as Arguments (8 hours). Students explore how to use functions as arguments within another function using closures. This extension of events supports them as they dive into Augmented Reality.

Chapter 6: Return Types and Outputs (3 hours). Students examine how to use a function to return a specific type. Until this point students have used functions to package procedures and now they can create a type that can be used in other parts of a program.

Chapter 7: Classes and Components (7 hours). Students investigate the basics of components and how to piece them together to create something new. Students will use design thinking and review types. Students will learn about classes to group and organise data in a program. They use these components and connect them together to create an app-like experience.

Teacher Guide: Designed to support teachers regardless of coding experience, this guide provides inclusive learning experiences, assessment ideas and tips to support a range of learners. Download the Adventures Teacher Guide >

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Additional Resources

These resources offer aspiring coders additional opportunities to learn, prototype and share their ingenuity. They are a great way to introduce the world of coding in school, out of school or at home.

A Quick Start to Code

This PDF guide features 10 fun coding activities for kids ages 10 and up. Students can learn to code in school or at home using the free Swift Playgrounds app for both iPad and Mac. Download A Quick Start to Code >

Swift Coding Clubs

Swift Coding Clubs are a great way to introduce code in after-school, summer camps or other informal learning settings. The Swift Coding Club's modular design makes it perfect for both first-time coders and those with more experience. Download the Swift Coding Club kit >

App Design Journal

Students can use the App Design Journal to apply the app design process to solve problems in their school or community. The journal prompts students to brainstorm, plan, prototype and evaluate their own app ideas, culminating in a pitch presentation of the app prototype. Download the App Design Journal >

App Showcase Guide

Encourage students to share their coding achievements with the broader community through community events, such as project demonstrations or app showcases. The App Showcase Guide provides practical support to help you plan and host a showcase event. Download the App Showcase Guide >

Inclusive Curriculum

At Apple, we believe that everyone should have the opportunity to create something that can change the world. For educators who teach students with disabilities, we've made accessible resources to extend coding to all students.

Accessible guides

The Everyone Can Code student and teacher guides are optimised for VoiceOver and include closed-caption videos and audio descriptions. Each lesson has been designed to include accessible content, activities and practice sessions to help bring coding to life for all learners.

Swift Playgrounds and VoiceOver instructional videos

Teachers and students can watch instructional videos from the Hadley Institute for the Blind and Visually Impaired to help them get started using Swift Playgrounds with VoiceOver. Learn how to download Swift Playgrounds, orient to the puzzle worlds, use custom rotor actions, enter code and solve a simple puzzle.
View the collection of videos here >

Swift Playgrounds Tactile Puzzle Worlds

Tactile Puzzle Worlds provides Unified English Braille, large-print text and embossed graphics to help students who are blind or have low vision navigate the coding puzzles in Swift Playgrounds. Teachers can print the tactile graphics with their own braille embossers or order printed copies. Download Tactile Puzzle Worlds below for PDF versions of the tactile graphics and instructions on how to print or order copies for your students.
Download Tactile Puzzle Worlds >

Coding Concepts in American Sign Language

Accessible videos in American Sign Language support Deaf students in learning to code. With closed captions and text transcripts, they're designed for everyone to understand and enjoy. The Puzzles Teacher Guide includes a range of American Sign Language videos that explain coding concept.
View the collection of videos here >

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Supporting Educators

We offer a range of experiences to support educators and administrators as they deploy, manage and teach with Swift Playgrounds and Apple products.

Download Everyone Can Code resources

- Swift Playgrounds app for iPad
- Swift Playgrounds app for Mac

- Everyone Can Code Early Learners
- Everyone Can Code Puzzles
- Everyone Can Code Puzzles Teacher Guide
- Everyone Can Code Adventures
- Everyone Can Code Adventures Teacher Guide

- A Quick Start to Code
- Swift Coding Club kit
- App Design Journal
- App Showcase Guide

Learn more about Develop in Swift resources

Develop in Swift provides students with practical experience designing and developing apps with Swift in Xcode to prepare them for college, career and even industry-recognised certification in app development.

- Develop in Swift Curriculum Guide
- Develop in Swift Professional Learning Courses through Canvas
- Teaching Code Collection on Apple Books

Teaching Code

This page on apple.com includes information about teaching code, as well as programs from Apple that support educators who want to teach learners of all ages — from someone who's just starting to someone who's ready to get certified in Swift. Learn more >

Apple Teacher

Apple Teacher is a free, self-paced professional learning program that offers unlimited access to learning materials and content for using Apple technology in education. Learn more >

Apple Professional Learning

Apple Professional Learning Specialists lead hands-on, immersive experiences that help educators develop innovative instructional practices and engage students in deeper learning. To learn more, email AppleProfessionalLearning@apple.com.

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