



# Hour of Code with Swift Playgrounds

Facilitator Guide

# Welcome

## Lead your own Hour of Code event

Celebrate Computer Science Education Week—host your own Hour of Code event with Swift Playgrounds on iPad. The Hour of Code is a nationwide initiative by [Computer Science Education Week](#) and [Code.org](#) to introduce millions of students to one hour of computer science and computer programming.

## Get started with Swift Playgrounds

Swift Playgrounds is a free iPad app that makes learning to code fun and interactive. Move through a 3D interactive world, meet new characters, and solve puzzles—all with real Swift code.

## Plan your event from start to finish

Use this guide to set up and lead your Hour of Code with Swift Playgrounds. You'll find tips and activities to help you before, during, and after the event. Activities require participants to read and write code, and solve strategy puzzles independently.\*



\*For younger students, check out the Hour of Code materials on [www.code.org/learn](http://www.code.org/learn).

## What you'll need



An iPad running iOS 10 for each participant is recommended.† Participants can also share iPad devices and code together.



The Swift Playgrounds app. Download [here](#).



Optional: Display for guiding participants through the activities.

†Requires iOS 10.0 or later. Compatible with iPad Air or later, iPad mini 2 or later, and all iPad Pro devices.

# Before the event

## 1. Plan and invite

- Set a date and find a location for your event.
- Announce your event to teachers, parents, and your community on social media using the hashtags #HourOfCode or #SwiftPlaygrounds.
- Invite your group to attend.
- [Explore](#) more tools to promote your Hour of Code event.



## 2. Prepare

Here are some things you can do to prepare in the days leading up to your event.

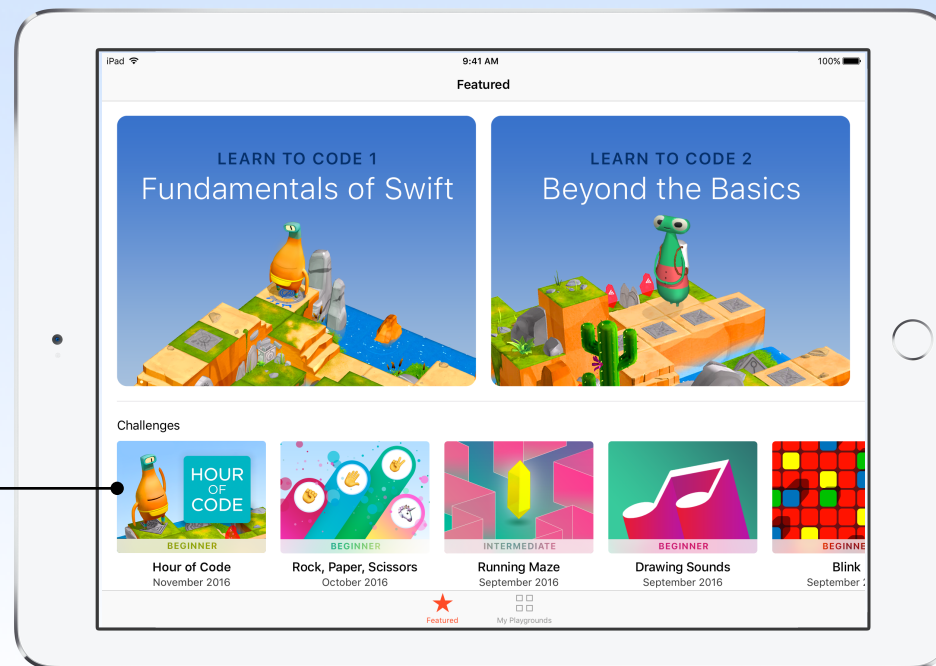
- [Watch](#) these helpful video lessons on iTunes U:
  - Introduction to Commands
  - Introduction to Functions and Loops
  - Commands
  - Did You Know? Hints
- Explore the first few puzzles in the Issuing Commands, Functions, and For Loops chapters of the Hour of Code challenge in Swift Playgrounds.

### 3. Set up the iPad devices

To get ready for the Hour of Code, follow the steps below to prepare the iPad devices. If you're using school-owned iPad devices, work with your IT admin to install Swift Playgrounds.

Participants using their own iPad devices will also need to follow these steps to prepare for the event:

1. [Download](#) the Swift Playgrounds app.
2. Open the Swift Playgrounds app.
3. On the Featured page, tap the Hour of Code challenge.
4. Tap Get, then tap Open.



Tap the Hour of Code challenge.

## Event Overview

- **Introduction** (5 mins)
- **Commands and Sequences** (5 mins)
- **Issuing Commands** (15 mins)
- **Functions** (20 mins)
- **For Loops** (10 mins)
- **Wrap-up** (5 mins)



## During the event

### Intro (5 minutes)

Welcome your group to the event and take a few minutes to introduce coding and Swift Playgrounds. Remind participants how code powers virtually everything around us. When you want a pizza, code places your order online. And when you use your favorite apps, code lets you send a message, share a photo, or swap faces with your cat in a photo.

If you have a video display or projector, show [this inspiring video](#) about how developers got their start (four minutes, includes sound).



Explain that Swift Playgrounds is an app for iPad that helps you learn and explore coding with Swift, the same powerful programming language used to create popular apps for the App Store.

## Warm-up Activity: Commands and Sequences (5 minutes)

Help participants understand the concept of commands and sequences. The [Introduction to Commands](#) lesson video on iTunes U demonstrates this activity.

Your participants get to tell you what to do! Have the group come up with ideas for an action that requires multiple steps. For example, they could have you draw a smiley face on the board or do five jumping jacks. The goal of this activity is for participants to understand the level of detail and precision needed when coding.

### Examples

#### Draw a smiley face on the board.

1. Walk to the board.
2. Pick up a marker with the tip facing down.
3. Take the cap off the marker.
4. Draw a circle on the board...and so on.

#### Do a jumping jack.

1. Stand with your feet together and arms at your side.
2. Jump and land with your feet two feet apart and lift your arms straight up in a V shape...and so on.

Let your participants decide on the action **without telling you what it is**. Once they've decided, they can shout out step-by-step directions to you. Follow their directions exactly, even if it means doing the action incorrectly.

Before moving into the app, lead a brief discussion about the activity. Every day we do things without thinking about all the steps needed to accomplish them, so it can be challenging to communicate each step to another person or to a computer when coding.

#### Ask the group:

- Were they successful with their commands?
- How could they improve the directions?
- Did they encounter any funny moments or problems with their instructions?
- What could they have done to avoid the issues?

Now we'll use these concepts in the Swift Playgrounds app.



## Issuing Commands (15 minutes)

In the Swift Playgrounds app, tap to open the Hour of Code challenge. As a group, go through the Introduction section for the Commands chapter. The introduction will explain the concepts and relate them to everyday life. Then guide the participants through completing the next four puzzles in the Commands chapter. Let them know that it's OK if they don't complete all the puzzles in the allotted time.

- Issuing Commands
- Adding a New Command
- Toggling a Switch
- Portal Practice

Tap the Table of Contents icon to return to the Introduction, or to jump to other pages in the challenge.



Regroup and review the experience together:

- How many commands did they write?
- How many ways could they solve each puzzle?
- Have students think about a digital game they play, then name a few commands in that game.
- How does thinking like a computer compare to thinking like a human?

## Functions (20 minutes)

Walk through the introduction for the Functions chapter in Swift Playgrounds. Explain that a function is a collection of commands grouped together and given a name. That set of commands can then be run using just the name of the function whenever the set is needed. Functions can help us write code more efficiently.

Now have your group work on the following three puzzles in the Functions chapter without your guidance; let them know that this is an opportunity to work independently or with a partner, applying what they've learned:

- Composing a New Behavior
- Creating a New Function
- Slotted Stairways

Regroup and review the experience together:

- When and why should you create functions?
- What are some other everyday functions?

## For Loops (10 minutes)

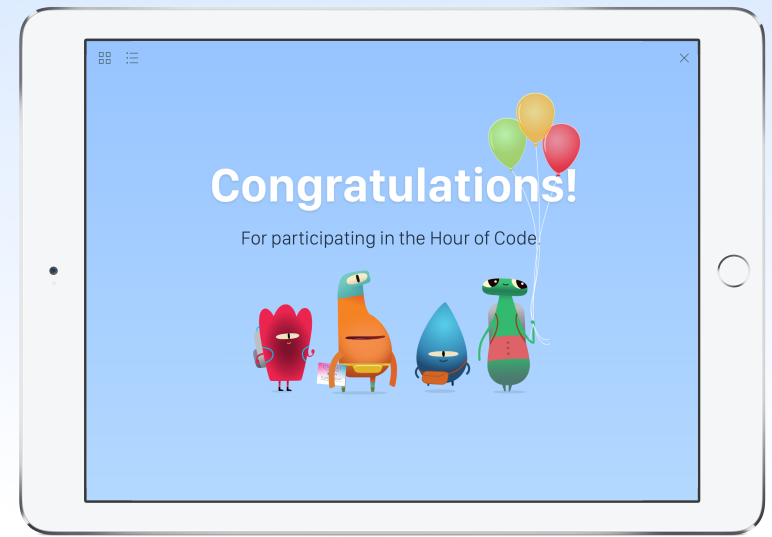
Show the For Loops introduction, then get the group started with "Using Loops." Participants can work independently or with a partner.

Regroup and review the experience together:

- When and why should you create loops?
- Can you think of other loops in everyday life?

## Wrap-up (5 minutes)

Congratulate your group for completing their Hour of Code with Swift Playgrounds. At the end of the session, show them how to use the Table of Contents to see their Swift Playgrounds Hour of Code participation certificate. Remind them that they can keep learning by downloading the Learn to Code 1 and 2 playgrounds. Encourage them to keep coding so that one day they can build apps that bring their ideas to life.





# Next steps

[Everyone Can Code](#) is a program designed to give everyone the power to learn, write, and teach code. We've created free teaching and learning materials that make it easy to continue coding with Swift. Tap the links below to explore these resources.

## For middle school and above on iPad

- [Swift Playgrounds](#) is a free app for iPad for first-time coders with a complete set of Apple-designed Learn to Code lessons that make getting started fun and interactive.
- [Swift Playgrounds: Learn to Code 1 & 2 Teacher Guide](#) provides lesson plans, evaluation rubrics, downloadable presentations, and more to help any teacher bring Swift Playgrounds into the classroom.
- [Video Lessons for Swift Playgrounds on iTunes U](#) is a great new course that features helpful videos for anyone learning or teaching with Swift Playgrounds. Videos include classroom lesson instruction, puzzle overviews, and hints for making the most of the Learn to Code curriculum.

## For high school and above on Mac

- [App Development with Swift](#) is a Multi-Touch book that presents students with the tools, techniques, and concepts needed to build iOS apps from scratch using Mac.
- [App Development with Swift: Teacher Guide](#) is designed for use with high school and college students who are new to programming. It provides lesson activities, presentation tips, and student reflection questions.

