Lesson Plan

Read Chapter 6

Re-read chapter 6 and stop for discussion:
Assessments:
Classroom Observations
Plickers questions

Code Your Hero Lesson Plan

In This Lesson Plan

Additional Resources

Code Your Hero Teacher Resources
Code Your Hero Lesson Plan ← you are here
Code Your Hero Activity

Optional Planning Activity
Optional Planning Activity: Worksheet
Optional Planning Activity: Drawing Guide

Code Your Hero Lesson Plan

What is CS First?

Google CS First is a computer science curriculum that makes coding easy to teach and fun to learn. CS First empowers every teacher to teach computer science with tools and resources free of charge - no CS experience required. Sign in here. (Not required for this lesson)

In CS First, students code with a tool called *Scratch for CS First*. Scratch is a block-based coding tool developed by the Scratch Foundation in collaboration with the Lifelong Kindergarten group at the MIT Media Lab. Learn more about Scratch at scratch.mit.edu.For additional resources, check out the Scratch Wiki, including Scratch Secrets and Hidden Features articles.

Overview

CS First teaches computer science (CS) concepts through instructional videos that show students how to make projects in *Scratch for CS First*, a block-based coding editor. In this Code Your Hero lesson, students choose an everyday hero and program a story - or even a game - to turn their real-life hero into a superhero. Access the unit at g.co/csfirst/codeyourhero-teacher.

Tip: To extend this lesson, consider the Optional Planning Activity, where students reflect on what makes someone a hero and the everyday heroes in their lives. Then, they draw their hero using simple shapes. The Optional Planning Activity and Code Your Hero can be taught alone or together.

Lesson Details

In this lesson, students code a story or game about someone in their life they consider an everyday hero. They start by opening a starter project in *Scratch for CS First*, then they watch instructional videos to program their own story or game. These example projects (student example1, student example2) show what a student can create if they complete multiple add-on videos in the lesson.

You can use this lesson as a way to introduce your students to coding.

This lesson was designed for students in grades 3 through 5, but it can be adapted for many different ages and audiences. It takes approximately one hour to run.

Tip: You can adapt CS First to fit the pacing needs of your classroom - split this lesson between morning and afternoon, divide it among different days, or complete it in one sitting. Younger students and those new to coding may need more time to complete the lesson.

Learning Objectives

By selecting add-on videos that present coding challenges, students will:

- Open a starter project and choose a “costume” for a sprite, or character, to represent their hero.
- Use **event** blocks (like “when flag clicked”) to trigger a series of code.
- Sequence “say” and “wait” blocks to make their hero speak and have a dialogue with another character.
- Program actions to happen using “when key pressed” events.
- Move an object across the screen using motion blocks.
- Repeat actions using loop blocks.
- Program their hero to score points when they perform a certain action.
- Draw their own hero using the “Paint Editor” in the *Scratch for CS First* coding editor. (This add-on video pairs well with the Optional Planning Activity.)

Computer Science Topics Covered

- Parallelism: The process of events occurring simultaneously, either independently or interdependently.
- Debugging: The process of identifying and fixing errors in a program that is not functioning as expected.
- Control structure: Sections of code that order the direction or flow of how a program functions. The control structure in this lesson is focused on loops.
- Variable: The process of storing a value, so it can be retrieved and used by the program at any time.

Standards Addressed

This lesson can be adapted for many different language arts classes. Refer to these standards when choosing how to adapt the lesson to your class. The Optional Planning Activity is required in order to meet these standards.

ELA Anchor Standard - CCSS.ELA-LITERACY.CCRA.W.1 Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.	
Grade 3 CCSS.ELA-LITERACY	Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons. Provide reasons that support the opinion. Use linking words and phrases (e.g., because, therefore, since, for example) to connect opinion and reasons. Provide a concluding statement or section.
Grade 4 CCSS.ELA-LITERACY	Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose. Provide reasons that are supported by facts and details. Link opinion and reasons using words and phrases (e.g., for instance, in order to, in

	addition). Provide a concluding statement or section related to the opinion presented.
Grade 5 CCSS.ELA-LITERACY	Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose. Provide logically ordered reasons that are supported by facts and details. Link opinion and reasons using words, phrases, and clauses (e.g., consequently, specifically). Provide a concluding statement or section related to the opinion presented.

Materials

1. Internet-connected computer and a projector
2. Computers with internet access (one per student)*
3. Headphones (one per student)*

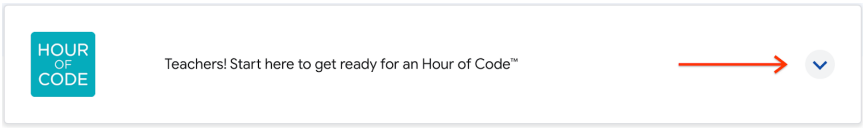
** Don't have enough computers or headphones? Review the CS First Starter Guide for additional workarounds.*

Note: The lesson can be completed online or offline, but both options require access to a computer. Refer to our Help Center for Tips for Tech-Limited Classrooms.

Setup

1. Set up your classroom to ensure videos (with sound) can be played for your entire class.
2. Share the unique lesson link or class code, which you can find under your classes from your CS First teacher account.

Tip: The projects of students in your class are automatically shared with your teacher account.



Procedure

Introduction: Review “Code Your Hero” concept (3 minutes)

To extend this project, consider the Optional Planning Activity, where students reflect on what makes someone a hero and the everyday heroes in their lives.

1. Introduce the lesson:
    a. [say] In this lesson, you will choose an everyday hero from your own life. Then, you’ll build a project using code that shows your hero as a superhero! An everyday hero is someone that is kind, caring, supportive or encouraging. They can be a friend, pet, parent/grandparent, coach, or teacher.
    b. [ask] Who will you build your project about?

Transition to CS First: Code Your Hero (50 minutes)

1. Present the first video of Code Your Hero to the entire class g.co/csfirst/codeyourhero.
2. Navigate students to the Code Your Hero lesson.
3. Reiterate the video instructions:
    a. **Open** the starter project in *Scratch for CS First*,
    b. **Choose a sprite** for your hero,
    c. **Add** a few “say for 2 seconds” blocks, then
    d. **Start your code** with a “when flag clicked” event.
    e. Build on your project with “Move Your Hero,”, or try any video you like.
4. Release students to work. While they’re working:
    a. Check that students are on-task. Students should have two tabs open (CS First and *Scratch for CS First*). Look for signs that students might not know what to do, like adding a lot of sprites or dragging out a lot of unrelated blocks.
    b. Talk with students one-on-one about their hero if they have difficulty choosing someone.
    c. Guide students to select another video to add to their project.

Wrap-up: Reflect on activity (7 minutes)

Pair students and ask them to review their partner’s project. Answer the following questions (either in writing or in whole-class discussion).

a. What action was the most difficult to code? How did you figure it out?

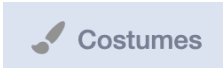
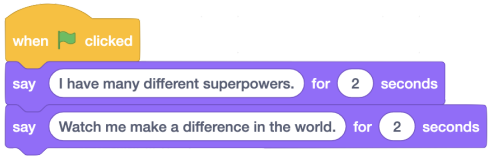
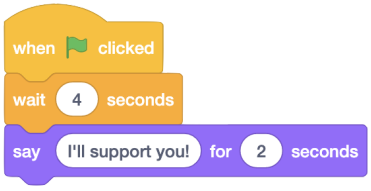
b. What other projects could you create using code?

Solution Guide

Refer to this guide when helping students with their projects. These solutions represent one way to solve a problem. Students may find their own unique solutions.

For additional resources, check out the Scratch Wiki, including the Scratch Secrets and Hidden Features articles.

Common Needs

I want to...	How to
Restore a deleted sprite	Click Edit → Restore Sprite
Restore deleted code	Right click → Undo
Flip the direction of sprite	Select sprite → Costumes tab → Select tool → Flip Horizontal    
Change size of sprite	Select sprite → Change size  
Sequencing code with “wait” blocks	Hero sprite1  Hero sprite2 

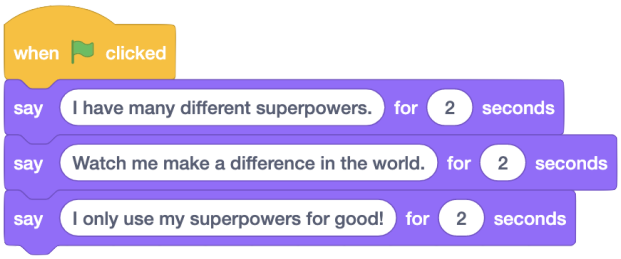
Solution Guide - continued

Refer to this guide to see example code for each video.

Introduction: From Hero to Superhero

Choose a sprite as your hero and make them talk.

Hero sprite:



Move Your Hero

Program your hero to move up, down, left and right with the arrow keys.

Hero sprite:

Fly Over Buildings

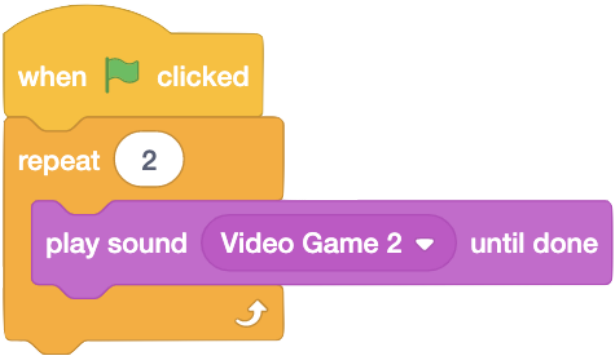
Program the building to move across the bottom of the screen.

Building sprite:

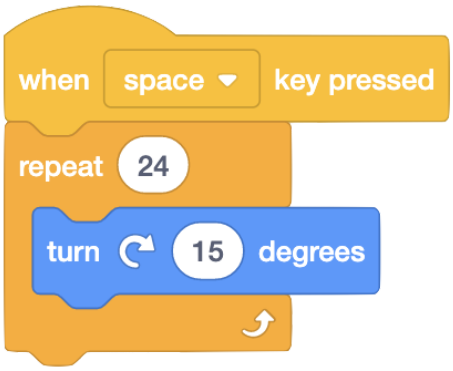
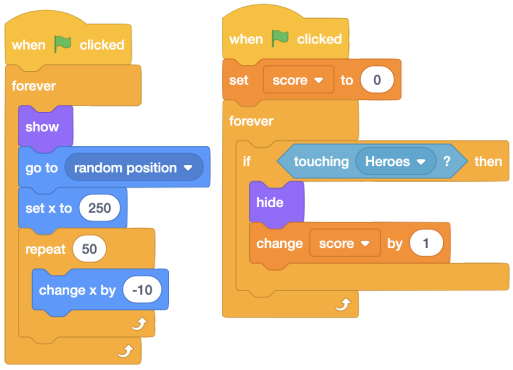
Add Background Music

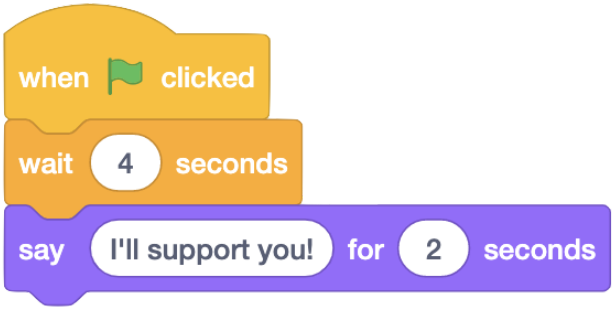
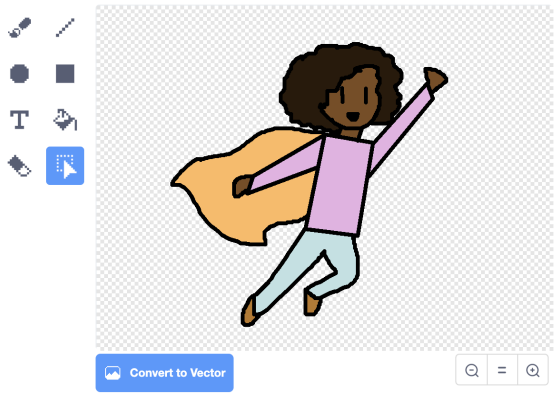
Customize your project with background music.

Stage:



Solution Guide - continued

Show Off with a Super Spin	Keep Score
Program the hero sprite to spin. **Hero sprite:** 	Add code to collect points and keep score. **Object sprite:** 

Support Your Hero	Draw Your Own Hero
Add a new sprite to interact with your hero. **New sprite:** 	Draw your own sprite using the Paint Editor. **New sprite via Paint Editor:** 

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