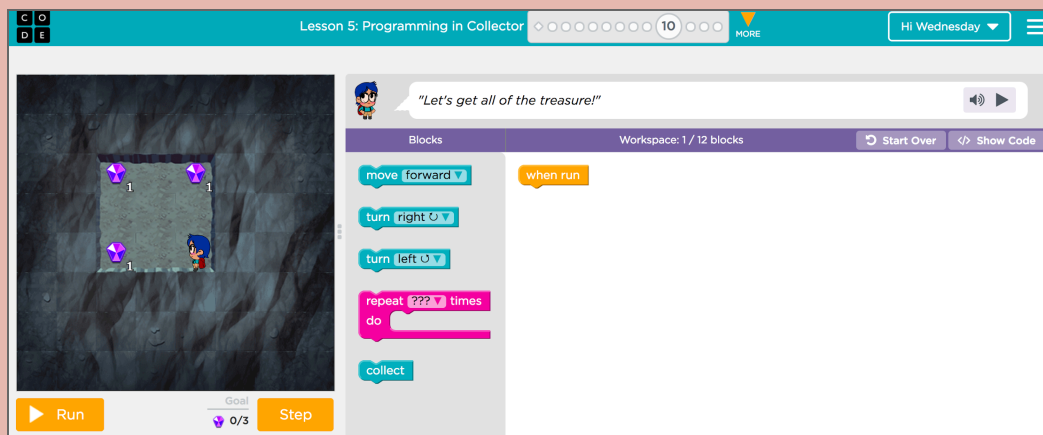


6th Grade Computers

Course Syllabus



Course Description

Code.org's Computer Science Fundamentals (CSF) curriculum was designed to provide students of all ages a fun and interactive way to explore the fundamental concepts of computer science. Computing is so fundamental to understanding and participating in society that it is valuable for every student to learn as part of a modern education. Computer science is a liberal art, a subject that provides students with a critical lens for interpreting the world around them. It also prepares all students to be active and informed contributors to our increasingly technological society whether they pursue careers in technology or not. Computer science can be life-changing, not just skill training.

Course Objectives

By the end of the course students will have a better understanding of fundamental computer science concepts such as sequencing, loops, conditionals, functions, variables, for loops, and sprites. The course ends with the student creating a project combining all the skills they learned.

Prerequisites

None required. I do, however, ask you to come into class each day with an open mind and the willingness to try. Learning something new can be difficult and requires patience, practice, and persistence.

Materials

All student materials can be accessed through Google Classroom. Additionally, students will use their iPads and Code.org to access all course materials. It is recommended that students have Google Classroom, Drive, Docs, Slides, and a web browser of their choice installed on their devices.

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Schedule

Students will be assigned a variety of assignments on a weekly basis.

- **Wednesday:** New assignments posted, old ones due, Live Google Meet session to go over everything
- **Thursday:** Work on assignments; request help through email
- **Friday:** Work on assignments; request help through email
- **Monday:** Meet with Blue cohort to work through assignments; cyber cohort request help through email
- **Tuesday:** Meet with Gold cohort to work through assignments; cyber cohort request help through email

It is their responsibility to log into Classroom and check what has been assigned each week. When we meet in class and online during our Google Meet sessions we will be discussing the lessons and working through any difficulties they are having. Assignments will need to be turned in on Google Classroom at the end of each week. I will also be available for questions and help Monday, Tuesday, Thursday, and Friday from 1:00-2:00PM. You can join me at my office hours by joining into [this Google Meet](#). This Meet link is different from the one in Google Classroom.

Grading Scale

| Level 1 Assignments 10% of total grade | Level 2 Assignments 30% of total grade | Level 3 Assignments 60% of total grade |
|---|---|--|
| these activities are done with the teacher or with teacher assistance | these tasks are done typically with minimal help from the teacher | these tasks are done independently with only guidance from the teacher |
| ex: Do Now's, Lesson Reflections, ... | ex: Code.org Lessons | ex: Final Project |

Course Outline

| Unit | Concept | Lesson | What We'll Cover |
|------|------------|---------------------------------|---|
| 1 | Warm-up | Dance Party | In this lesson, students will program their own interactive dance party. |
| 2 | Sequencing | Programming with Angry Birds | Learn about sequences and algorithms with Angry Birds. |
| | | Debugging with Scrat | Find problems in puzzles and practice your debugging skills. |
| | | Collecting Treasure with Laurel | Write algorithms to help Laurel the Adventurer collect lots of gems! |
| | | Creating Art with Code | Create beautiful images by programming the Artist. |
| 3 | Loops | Loops with Rey and BB8 | Help BB-8 through mazes using loops! |
| | | Sticker Art with Loops | In this lesson, loops make it easy to make even cooler images with Artist! |
| | | Nested Loops in Maze | Loops inside loops inside loops. What does this mean? This lesson will teach you what happens when you create a nested loop. |
| | | Snowflakes with Anna and Elsa | Anna and Elsa have excellent ice-skating skills, but need your help to create patterns in the ice. Use nested loops to create something super COOL. |

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|---|--------------|---|---|
| | | Looking Ahead with Minecraft | Avoid the lava! Here you will learn about conditionals in the world of Minecraft. |
| 4 | Conditionals | If/Else with Bee | Now that you understand conditionals, it's time to program Bee to use them when collecting honey and nectar. |
| | | While Loops with the Farmer | Loops are so useful in coding. This lesson will teach you about a new kind of loop: while loops! |
| | | Conditionals in Minecraft: Voyage Aquatic | Here you will learn about conditionals in the world of Minecraft. |
| | | Until Loops in Maze | You can do some amazing things when you use until loops! |
| | | Harvesting with Conditionals | It's not always clear when to use each conditional. This lesson will help you get practice deciding what to do. |
| 5 | Functions | Functions in Minecraft | Can you figure out how to use functions for the most efficient code? |
| | | Functions with Harvester | Functions will save you lots of work as you help the farmer with her harvest! |
| | | Functions with Artist | Make complex drawings more easily with functions! |
| 6 | Variables | Variables with Artist | Don't forget to bring creativity to class! In these puzzles you will be making fantastic drawings using variables. |
| | | Changing Variables with Bee | This bee loves variables! |
| | | Changing Variables with Artist | In this lesson, you'll make drawings using variables that change as the program runs. |
| 7 | For Loops | For Loops with Bee | Buzz buzz. In these puzzles you will be guiding a bee to nectar and honey using for loops! |
| | | For Loops with Artist | Get ready to make your next masterpiece. Here you will be using for loops to make some jaw-dropping pictures. |
| 8 | Sprites | Swimming Fish in Sprite Lab | Learn how to create and edit sprites. |
| | | Alien Dance Party | Practice making games to share with your friends and family. |
| | | Behaviors in Sprite Lab | Learn to program your own sprite behaviors! |
| | | Virtual Pet with Sprite Lab | In this lesson, students will create an interactive Virtual Pet that looks and behaves how they wish. Students will use Sprite Lab's "Costumes" tool to customize their pet's appearance. They will then use events, behaviors, and other concepts they have learned to give their pet a life of its own! |
| 9 | | End of Course Project | Projects this big take time and plenty of planning. Find your inspiration, develop a plan, and unleash your creativity! |