

Course C

Overview

Course C was developed for students in and around the second grade. Lessons in this course may assume a limited understanding of shapes and elementary math concepts.

Students will create programs with sequencing, loops, and events. They will translate their initials into binary, investigate problem-solving techniques, and develop strategies for building positive communities both online and off. By the end of the course, students will create interactive games that they can share. Each concept in Course C is taught from the beginning, graduating toward experiences that allow for growth and creativity to provide all students a rich and novel programming experience.

Core concepts:

- Digital Citizenship
- Sequencing
- Binary
- Loops
- Events
- Data

Attitudinal goals:

- I can read code and predict the outcome.
- Programming can make repetitive tasks easy.

Key teaching tips:

- Talk with students before you begin about how they may experience frustration.
- Use pair programming and encourage students to help each other.
- Provide lesson examples to set students off on the right foot.
- Connect unplugged lessons to the online lessons using “bridging activities”.
- Celebrate persistence as well as successes.
- Remind students that they can go back and fix mistakes.

Course C: Lesson Outlines

Online lessons are in regular text and unplugged lessons are **bolded**.

Concept Chunk	#	Lesson Name	Description
Digital Citizenship	1	Putting a STOP to Online Meanness	Created by Common Sense Education, students learn about meanness and what to do if they encounter it online.
	2	Password Power-Up	Created by Common Sense Education, students learn about how strong passwords can help protect their privacy.
Sequencing	3	My Robotic Friends Jr.	This lesson teaches students about the connection between algorithms and programming, as well as the valuable skill of debugging.
	4	Programming with Angry Birds	Students will develop sequential algorithms to move a bird from one side of the maze to reach a pig at the other side.
	5	Debugging in Maze	Students will step through existing code to identify errors, including incorrect loops, missing blocks, extra blocks, and blocks that are out of order.
	6	Collecting Treasure with Laurel	Students continue to develop their understanding of algorithms and debugging by creating sequential algorithms to pick up treasure with Laurel the Adventurer.
	7	Creating Art with Code	This Artist lesson will allow students to create images of increasing complexity using new blocks like `move forward by 100 pixels` and `turn right by 90 degrees`.
Binary	8	Binary Bracelets	This lesson helps demonstrate how it is possible to take something from real life and translate it into a series of ons and offs.
Loops	9	My Loopy Robotic Friends Jr.	Using the language from the first 'My Robotic Friends Jr.' activity, students find that they can build big structures faster using loops.
	10	Loops with Rey and BB-8	Students will use loops to traverse mazes more efficiently than before.
	11	Harvesting Crops with Loops	Students will loop new actions to help the harvester collect multiple veggies growing in large bunches.
	12	Looking Ahead with Minecraft	Students will get the chance to practice ideas that they have learned up to this point, as well as getting a sneak peek at conditionals.
	13	Sticker Art with Loops	This lesson builds on the understanding of loops from previous lessons and gives students a chance to be truly creative.
Events	14	The Big Event	Students will learn that events are a great way to make their program interactive.
	15	Build a Flappy Game	In this special stage, students get to build their own Flappy Bird game by using event handlers to detect mouse clicks and object collisions.
	16	Chase Game with Events	It's time to get creative and make a game in Play Lab.
Data	17	Picturing Data	Students create visualizations of data to help them reason and predict about what they observe.
Project	18	End of Course Project	Students plan and build a game using Play Lab, totally from scratch.