Carnegie Mellon University
Computer Science Academy

Getting Started with CMU CS Academy

1. Teacher must register for an account here
2. Teacher will create a classroom for students to join.
3. Students Join Classroom
4. Teachers follow the below time table and adjust as needed for their classrooms.

Students can work at their own pace or teachers can keep everyone on the same pace, as covered in the professional development resources provided here and here

Unit	CS1 Scope and Sequence	Pacing Recommendations
1	Creating Drawings	3 Weeks (16 Days) • 1.1 Basics Notes and Exercises (3 Days) • 1.2 Colors Notes and Exercises (3 Days) • 1.3 Shapes Notes and Exercises (3 Days) • 1.4 Unit 1 Exercises (2 Days) • Creative Tasks (3 Days) • Review/Quizzes (2 Days) Example Exercise Lighthouse
2	Functions, Mouse Events, and Properties	2 Weeks (11 Days) • 2.1 Functions Notes and Exercises (2 Days) • 2.2 Mouse Events Notes and Exercises (2 Days) • 2.3 Properties Notes and Exercises (1 Day) • 2.4 Unit 2 Exercises (1 Day) • Creative Tasks (3 Days) • Review/Quizzes (2 Days) Example Exercise Eat the Cookie
3	Mouse Motion Events, Conditionals, and Helper Functions	3 Weeks (13 Days) • 3.1 Mouse Motion Events Notes and Exercises (2 Days) • 3.2 Conditionals (if Statements) Notes and Exercises (2 Days) • 3.3 Helper Functions Notes and Exercises (3 Days) • 3.4 Unit 3 Exercises (1 Day) • Creative Tasks (3 Days) • Review/Quizzes (2 Days) Example Exercise Puffy Penguin

**A 'Day' equates to about 40 minutes of instruction.*
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4	More Conditionals, Key Events, and Methods	2 Weeks (12 Days) • 4.1 More Conditionals (if-elif-else Statements) Notes and Exercises (2 Days) • 4.2 Key Events Notes and Exercises (2 Days) • 4.3 Methods Notes and Exercises (2 Days) • 4.4 Unit 4 Exercises (1 Day) • Creative Tasks (3 Days) • Review/Quizzes (2 Days) Example Exercise Trippy Text
5	Complex Conditionals and More Key Events	2 weeks (10 Days) • 5.1 Complex Conditionals Notes and Exercises (2 Days) • 5.2 More Key Events Notes and Exercises (2 Days) • 5.3 Unit 5 Exercises (1 Day) • Creative Tasks (3 Days) • Review/Quizzes (2 Days) Example Exercise Biking
6	Groups, Step Events, and Motion	3 weeks (15 Days) • 6.1 Groups Notes and Exercises (2 Days) • 6.2 Group Methods Notes and Exercises (2 Days) • 6.3 Step Events and Motion Notes and Exercises (3 Days) • 6.4 Unit 6 Exercises (3 Days) • Mid-Year/ Semester Creative Tasks (3 Days) • Review/Quizzes (2 Days) Example Exercise Hungry Giraffe
7	**Start of CS1b (Semester Two):** New Shapes, Local Variables, and For Loops	2 Weeks (12 Days) • 7.1 New Shapes Notes and Exercises (2 Days) • 7.2 Local Variables Notes and Exercises (1 Day) • 7.3 For Loops Notes and Exercises (2 Days) • 7.4 Unit 7 Exercises (2 Days) • Creative Tasks (3 Days) • Review/Quizzes (2 Days) Example Exercise Space Invaders

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8	Math Functions, Random Values, and Nested Loops	3 Weeks (13 Days) • 8.1 Math Functions Notes and Exercises (2 Days) • 8.2 Random Values Notes and Exercises (3 Days) • 8.3 Nested For Loops Notes and Exercises (2 Days) • 8.4 Unit 8 Exercises (1 Day) • Creative Tasks (3 Days) • Review/Quizzes (2 Days) Example Exercise Compass
9	(Optional) Types, Strings, and While Loops	2 Weeks (12 Days) • 9.1 Types and Input Notes and Exercises (2 Days) • 9.2 Strings Notes and Exercises (2 Days) • 9.3 String Methods Notes and Exercises (1 Day) • 9.4 While Loops Notes and Exercises (1 Day) • 9.5 Unit 9 Exercises (1 Day) • Creative Tasks (3 Days) • Review/Quizzes (2 Days) Example Exercise Sheep wool
10	Lists and Return Values	2 Weeks (10 Days) • 10.1 Lists Notes and Exercises (1 Day) • 10.2 List methods Notes and Exercises (1 Day) • 10.3 Return values Notes and Exercises (2 Days) • 10.4 Unit 10 Exercises (1 Day) • Creative Tasks (3 Days) • Review/Quizzes (2 Days) Example Exercise Whack a Bug
11	2D Lists and Board Games	2 Weeks (9 Days) • 11.1 2D Lists Notes and Exercises (2 Days) • 11.2 Writing Board Games Notes and Exercises (4 Days) • Review/Quizzes (2 Days) Example Exercise Essay Editor
12	CS1 Creative Project with an Introduction to Images and Sounds	2-4 Weeks • 12.1 Final Project Notes (1 Day) • End-of-Course Creative Task (10-20 Days)

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In total CS1 is about 110 - 120 hours of classroom instructional time.

Unit	Introduced Concept
1	Creating drawings, shapes, colors, opacity
2	Functions, onMousePress and onMouseRelease, and shape properties
3	onMouseMove and onMouseDrag, conditionals, helper functions
4	elif statements, onKeyPress and onKeyRelease, shape methods
5	Compound and nested conditionals, onKeyHold
6	Groups, onStep, motion
7	New Shapes, Local Variables, and For Loops
8	Math Functions, Random Values, and Nested Loops
9	Types, Strings, and While Loops
10	Lists, group.hitTest(), writing functions that return values
11	2D Lists, Games
12	Final Project *No CTs for this unit* (Images, sounds)

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