

Tennessee Middle School - Accelerated Course

Middle School (31 Contact Hours)

Course Overview and Goals

Learning Environment

The course utilizes a blended classroom approach. The content is a mix of web-based and physical activities. Each module of the course is broken down into lessons. Lessons are composed of short video tutorials, interactive learning pages, quizzes, explorations, and free-response prompts.

Prerequisites

The Tennessee Middle School - Accelerated course is designed for complete beginners with no previous background in computer science. The course is highly visual, dynamic, and interactive, making it engaging for those new to computer science.

More Information

Browse the content of this course at <https://codehs.com/course/27327/overview>. This course covers the Tennessee Middle School standards in a condensed version compared to the original curriculum of our [Mix and Match Middle School course](#), making it an accelerated course.

Course Breakdown

Module 1: Exploring Code with Karel (7 hours)

Students are introduced to the basics of programming using JavaScript and Karel the Dog. They learn how to give commands, use loops and conditionals, and apply decomposition by defining and calling functions.

Browse the full content of this unit at <https://codehs.com/course/27327/explore/module/39128>

Notes:

This module condenses the original module of the same name from our [Mix and Match Middle School course](#). For additional practice, we recommend including additional lessons from *Exploring Code with Karel* from our Mix and Match course.

Topics Covered	• Syntax • Syntax Errors • Comments
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	• Debugging • Functions • For Loops • Conditional Statements • if/else Statements
Example Assignments	• Karel's Evening Walk ○ Take Karel on a walk around the north side of the pond. Remember the directions Karel can face and write a program to move Karel along the path from one edge of the world to the other. Karel should be facing south at the end of the path. But wait! Karel noticed a missing tennis ball laying on the path. Go ahead and let Karel pick it up along the walk. • Pick Up Tennis Balls ○ Karel needs help picking up the tennis balls lying around the dog park. Create a program that uses two for-loops and ends with Karel in the lower-right corner facing to the right or east. • Stay Out of the Lake ○ This program is supposed to train Karel to walk up to a lake at any park, but not to jump in. But right now there is a bug! Help fix the bug so that Karel stops moving when reaching the edge of a lake.

Module 2: Tracy the Turtle Adventures (6 hours)

Students will learn how to use basic commands, variables, and functions in their programs using the Python programming language.

Browse the full content of this unit at <https://codehs.com/course/27327/explore/module/39129>

Notes:

This module condenses the original module of the same name from our [Mix and Match Middle School course](#). For additional instruction, we recommend including additional lessons from *Tracy the Turtle Adventures* from our Mix and Match course.

Topics Covered	• Intro to Tracy's Grid World • Debugging with Error Messages • Functions • Color • Effects • Size • Variables • Input/Output
Example Assignments	• Shipwreck ○ Direct Tracy through the shipwreck yard without running into any of

	the ships. Once she reaches the yellow star, she has made it out! The difference here, though, is that the ships will be located in random positions every time the program is run, so we'll need to use user input to direct Tracy through the shipwreck yard as the program is running. • Sea Turtle ◦ Get user input to tell Tracy where the tallest sea grass is so she can go meet a turtle and ask about her cousin.
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Module 3: Exploring Computing (6 hours)

Students explore different technologies and the impact they have on our world.

Browse the full content of this unit at <https://codehs.com/course/27327/explore/module/42384>

Notes:

This module condenses the original module of the same name from our [Mix and Match Middle School course](#). For additional instruction, we recommend including additional lessons from *Exploring Computing* from our Mix and Match course.

Topics Covered	• History of Computing • Software • Hardware • Cloud Computing • Ethics and Legal Considerations • The Future of Computing
Example Assignments	• History of Computing ◦ <i>Jigsaw: Computer Interaction Over the Decades:</i> In this activity, students are going to work in small groups to research what it was like to interact with computers over the various decades. For each section, students will want to consider what was typical for most computers. For example, GUI interfaces were first used in the 1970s, but they were not typical until the 1980s. • Hardware ◦ <i>Brainstorm: New Computer Components:</i> In this activity, students are going to work with a partner to brainstorm 3 new components for a computer. It can be an entirely new idea or an improvement of an existing component. For each idea, answer the following questions: What is it? Does it replace something, or is it an additional item? If it replaces something, what is it replacing? How will this be helpful in the future?

Module 4: Exploring the Digital World (4 hours)

Students are introduced to network protocols and different strategies used to protect online information. Students learn about Internet etiquette and how to stay safe on the World Wide Web.

Browse the full content of this unit at <https://codehs.com/course/27327/explore/module/39130>

Notes:

This module condenses the original curriculum from the *Exploring Digital Citizenship* and *Exploring the Internet* units of our [Mix and Match Middle School course](#) into one streamlined version. For additional instruction, we recommend including additional lessons from *Exploring the Internet* and *Exploring Digital Citizenship* from our Mix and Match course.

Objectives / Topics Covered	• Cybersecurity • Digital Footprint • Copyright
Example Assignments	• Cybersecurity ◦ Students will learn what is meant by <i>cybersecurity</i> and explore a few noteworthy cyber attacks. They will also discuss the <i>Internet of Things</i> and the increase in connected devices. • Digital Footprint and Reputation ◦ <i>Building a Positive Digital Footprint</i>: Spend some time reflecting on yourself and your friends' social media activity. Give an example of a social media post that builds a positive digital footprint. How does the post build a positive digital footprint? Give an example of a social media post that builds a negative digital footprint. How does the post build a negative digital footprint? Thinking about your digital footprint, are you going to make any changes in what you post on social media? How about what you write to share in a group message? Why or why not?

Module 5: Exploring Art with Code (2 hours)

Students explore the intersection of art and technology by creating art programs using p5.js.

Browse the full content of this unit at <https://codehs.com/course/27327/explore/module/39131>

Notes:

This module condenses the original module of the same name from our [Mix and Match Middle School course](#). For additional instruction, we recommend including additional lessons from *Exploring Art with Code* from our Mix and Match course.

Objectives / Topics Covered	• p5.js • Drawing and Color in JavaScript • Design and Expression through Code
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	• Creative Problem Solving
Example Assignments	• Creative Coding ◦ Learn what creative coding is and how you can use it to create cool art!

Module 6: Exploring Data and Spreadsheets (6 hours)

Students collect, organize, and analyze data using spreadsheets. They'll visualize information and build simple computational models to understand real-world applications of data.

Browse the full content of this unit at <https://codehs.com/course/27327/explore/module/39132>

Notes:

This module condenses the original module of the same name from our [Mix and Match Middle School course](#). For additional instruction, we recommend including additional lessons from *Exploring Data and Spreadsheets* from our Mix and Match course.

Topics Covered	• Data as a Resource • Introduction to Spreadsheets • Sort and Filter • Statistical Measures • Models • Visualizing Data
Example Assignments	• Sort and Filter ◦ <i>Influential Women</i>: In this exercise, students will learn about remarkable women who have made significant contributions in fields like Science, Literature, and Environmentalism, while having the opportunity to sort and filter data to uncover interesting facts and connections about these inspiring figures. • Statistical Measures ◦ <i>Mammal Statistics</i>: In this exercise, students will explore data on common mammals while calculating the mean, median, and mode of various data points to derive meaningful insights. • Visualizing Data ◦ <i>Create a Dashboard</i>: In this exercise, students will explore running analytics data and create an engaging running dashboard, a powerful tool that consolidates essential information and data visualizations in one place.