



Florida Foundations of Computer Science: 5th Grade Course Syllabus

One Year for Elementary School, 36 Hours

Course Overview and Goals

The Florida Foundations of Computer Science: 5th Grade introduces students to foundational programming concepts through a block-based programming language. Students will develop computational thinking and problem-solving skills while learning to create interactive projects, animations, and games. This course emphasizes creativity and collaboration, providing students with a solid base in computer science concepts and digital literacy.

Learning Environment: This course is teacher-led and includes ready-to-use lessons following a consistent structure: Introduction, Guided Practice, Independent Practice, Extension, and Reflection. Instruction follows an “I do, we do, you do” model and incorporates spiral review to reinforce concepts and build confidence over time.

The course includes 36 lessons, each approximately 45 minutes long, providing a full year of instruction when taught once per week. While the course allows for instructional flexibility, some lessons are required to fully meet state computer science standards and are clearly identified within the syllabus. All Digital Literacy lessons are required to ensure full standards alignment, as they address essential non-programming computer science concepts. Required lessons are labeled with the specific standards they address to support planning and compliance.

Programming Environment: Students will write and run programs that are saved in students’ accounts. The environment supports interactive, hands-on programming, enabling students to create and debug projects in a user-friendly interface.

Prerequisites: There are no prerequisites for this course. It is designed to support all learners, regardless of prior computer science experience.

More Information: Browse the content of this course at https://codehs.com/course/FL_5/overview



A clickable PDF can be found at <https://codehs.com/FL-K-5Roadmaps>

Course Breakdown

Optional Review

These optional lessons help students log in to CodeHop and review computer science vocabulary, the coordinate plane, and drawing tools before starting fifth grade content.

Objectives / Topics Covered	• Log in and navigate CodeHop • Define computer science vocabulary • Animate using the coordinate plane • Create custom sprites and backdrops
Lessons	Welcome to CodeHop! • Log in and explore the CodeHop Playground. Introduction to Computer Science • Define key computer science vocabulary and create a simple program. The Coordinate Plane • Create an open-ended animation using the coordinate plane. Drawing Tools • Create customized sprites and backdrops using the drawing tools.

Unit 1: Getting Started (3 lessons)

Students explore responsible technology use and computing systems and apply computational thinking to a design challenge.

Objectives / Topics Covered	• Balance screen time and responsible technology use • Identify parts of a computing system • Troubleshoot hardware and software problems • Apply computational thinking to design
Lessons	Safe and Responsible Use of Technology (SC.5.CC.1.1, SC.5.HS.3.1, SC.5.HS.2.1) • Create a personal screen time plan and explain balanced technology use. Practicing with Computing Systems (SC.5.CO.1.1, SC.5.CO.2.1, SC.5.CO.2.2) • Identify computing system parts and simple hardware and software problems. Computational Thinking: Design a Neighborhood (SC.K12.CTR.2.1, SC.K12.CTR.4.1, SC.K12.CTR.5.1) • Use computational thinking to design a neighborhood.

Unit 2: Sequences and Events (8 lessons)

Students debug programs, compare algorithms, and use events and sequences to tell stories and connect coding to careers and research.

Objectives / Topics Covered	• Debug programs by decomposing them • Compare and refine algorithms • Plan and animate stories • Abstract facts from research
Lessons	Debugging: Make a Pizza (SC.5.PE.1.2, SC.5.PE.1.4, SC.5.PE.3.4) • Decompose a program to debug and make it run as intended. Compare and Refine Algorithms (SC.5.PE.1.2, SC.K12.CTR.4.1, SC.K12.CTR.5.1) • Compare and refine algorithms to determine the most efficient one. Careers in CS: Major League Baseball (SC.5.PE.1.4, SC.5.TI.1.2, SC.K12.CTR.2.1) • Abstract events from an article into a timeline program.

	Creative Storytelling (2 classes SC.5.PE.1.2, SC.5.PE.3.2, SC.K12.CTR.1.1) - Plan and animate a story using events and sequences. Digital Venn Diagram (SC.5.PE.3.2) - Program an interactive Venn diagram to compare two things. CS Innovators Research Project (2 classes SC.5.CC.2.2, SC.5.PE.1.4, SC.5.TI.1.2) - Research an innovator and build an informational program.
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Unit 3: Loops (2 lessons)

Students use loops to create turtle graphics and model science processes.

Objectives / Topics Covered	- Use the pen tool with loops - Create looping turtle graphics - Model processes with animation
Lessons	Creating Turtle Graphics (SC.5.PE.1.2, SC.5.PE.1.4, SC.K12.CTR.2.1) - Use the pen tool and loops to create turtle graphics. Constructive and Destructive Processes (SC.5.PE.1.2, SC.5.PE.3.1, SC.K12.CTR.5.1) - Animate how volcanoes change surface features through a constructive process.

Unit 4: Conditionals and Variables (3 lessons)

Students use conditionals and variables to plan and build interactive programs, applying them to math and dance.

Objectives / Topics Covered	- Use conditionals and pseudocode to plan - Decompose steps for a program - Use variables to control a program - Combine variables, operators, and loops
Lessons	Plan a Quest (2 classes SC.5.CC.1.3, SC.5.PE.1.2, SC.5.PE.1.4) - Plan and decompose the steps needed to create a quest program. Balanced Ecosystems (SC.K12.CTR.5.1, SC.5.PE.3.1) - Create a simulation of an ecosystem.

Unit 5: Clones and Functions (2 lessons)

Students use clones and functions with input to build efficient, interactive programs.

Objectives / Topics Covered	- Create programs using clones - Create and use functions with input - Build interactive games
Lessons	Clones: Throwing Acorns Game (SC.5.PE.1.3, SC.5.PE.1.2, SC.K12.CTR.5.1) - Create a throwing acorns game using clones. Functions: About Me (SC.5.PE.1.3, SC.5.PE.1.2, SC.K12.CTR.5.1) - Create and use a function with input in a program.

Unit 6: Culmination Projects (6 lessons)

Students combine loops, conditionals, and variables to design a game and use design thinking to build an app.

Objectives / Topics Covered	- Combine loops, conditionals, and variables - Design and create a game - Apply the design thinking process - Design an app to solve a user need
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Lessons	Game Design Project (3 classes SC.5.CC.1.3, SC.5.PE.1.3, SC.5.PE.1.2) - Design and create a game using loops, conditionals, and variables. Design an App (3 classes SC.5.CC.1.3, SC.5.PE.1.3, SC.5.PE.1.2) - Use the design thinking process to design an app that solves a user's need.
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Unit 7: Digital Literacy (12 lessons)

Students build keyboarding, collaboration, cyberbullying awareness, cybersecurity, networking, data, research, and artificial intelligence skills.

Objectives / Topics Covered	- Type with proper finger placement - Collaborate responsibly online - Explain networks, protocols, and data storage - Evaluate AI products and machine learning
Lessons	Developing Keyboarding Skills (SC.5.CO.1.3, SC.5.CO.1.4, SC.K12.CTR.3.1) - Use proper finger placement to type paragraphs. Online Collaboration (SC.5.CC.1.1, SC.5.CC.1.2, SC.5.TI.1.1) - Explain how online collaboration provides diverse perspectives. Standing Up to Cyberbullying (SC.5.CC.1.1, SC.5.HS.3.1, SC.5.HS.1.1) - Recognize hurtful online behavior and ways to respond or take responsibility. Screen Time: Academics and Evidence (SC.5.HS.2.1, SC.5.HS.2.2) - Create a healthy screen-time plan. Cybersecurity Policies and Laws (SC.5.HS.1.3, SC.K12.CTR.3.1) - Explain school policies and research a state cybersecurity law. Networks and Protocols (SC.5.CO.1.5, SC.5.CO.1.6) - Explain how protocols enable data transfer and compare network types. File Management and Data Exploration (SC.5.CO.2.1, SC.5.CO.3.1, SC.5.PE.2.2) - Explain how different digital data is sized and where it is stored. Use and Search the Right Way (SC.5.CC.2.1, SC.5.CC.2.2, SC.5.CO.1.2) - Search online and provide proper attribution to sources. Inquiry Project: Line Graph (2 classes SC.5.CC.2.2, SC.5.CO.1.2, SC.5.PE.2.3) - Follow the inquiry process and program a display of investigation results. AI Products: Ethical and Responsible Choices (SC.5.PE.1.1, SC.5.TI.2.1, SC.5.TI.1.1) - Analyze the benefits and challenges of AI products from multiple perspectives. Machine Learning: Teachable Machine (2 classes SC.5.PE.1.1, SC.K12.CTR.3.1) - Train a model and explain how training data affects accuracy.

Interdisciplinary Connections (Supplemental)

These optional lessons apply computer science to math, science, and social studies using variables, conditionals, events, and operators.

Objectives / Topics Covered	- Apply programming across subject areas - Model math with variables and conditionals - Model earth and life science - Use events, messages, and operators in context
Lessons	Area of a Rectangle with Tiles (SC.5.PE.1.4, MA.K12.MTR.1.1, MA.K12.MTR.3.1) - Use variables and loops to model the fractional area of a rectangle. Multiplication Quiz Game (SC.5.PE.1.3, SC.5.PE.1.2, SC.K12.CTR.5.1) - Build a multiplication quiz using variables, operators, conditionals, and loops. Classifying Quadrilaterals in a Hierarchy (SC.5.PE.1.2, SC.5.PE.1.4, SC.K12.CTR.5.1) - Use events to classify quadrilaterals in a hierarchy, documenting code with comments. Decimal Multiplication and Conditionals (SC.5.PE.1.3, SC.5.PE.1.2, SC.K12.CTR.2.1) - Use if/then conditionals to review multiplication with decimals. Decimal Division and Conditionals (SC.5.PE.1.3, SC.5.PE.1.2, SC.K12.CTR.5.1) - Use conditionals to build a leveled decimal division game.

	Animating Sprites with Division (SC.5.PE.1.2, SC.K12.CTR.5.1, MA.K12.MTR.1.1) • Use division with loops and wait blocks to animate sprites. Add and Subtract Fractions (SC.5.PE.1.2, SC.5.PE.1.4, SC.K12.CTR.5.1) • Use broadcast messages and comparison operators to build a fractions quiz game. Unit Converter (SC.5.PE.1.3, SC.5.PE.1.2, SC.K12.CTR.5.1) • Use variables and conditionals to build a unit conversion calculator. Exploring Ecosystems (SC.5.PE.1.2, SC.5.PE.1.4, SC.K12.CTR.5.1) • Program a model to illustrate the flow of energy in an ecosystem. Earth Systems (SC.5.PE.1.2, SC.5.PE.3.1, SC.K12.CTR.5.1) • Use events to model how wind and rain impact the geosphere. Cycle of Matter (SC.5.PE.1.2, SC.5.PE.1.4, SC.5.PE.3.1) • Use events and messages to animate a model of the cycle of matter. Effects of Pollution (SC.5.PE.1.3, SC.5.PE.1.2, SC.K12.CTR.5.1) • Use if/then/else blocks to explain how actions affect water pollution. Day and Night (SC.5.PE.1.3, SC.5.PE.1.2, SC.K12.CTR.5.1) • Use comparison operators and conditionals to show how Earth's rotation causes day and night. Physical Changes (SC.5.PE.1.3, SC.5.PE.1.2, SC.5.PE.3.1) • Use variables and conditionals to change a sprite between solid, liquid, and gas. The US Government (SC.5.PE.1.2, SC.5.PE.3.1, SC.K12.CTR.2.1) • Use if/else conditionals to model how a bill becomes a law. Digital Vocabulary Flashcard Quiz (SC.5.PE.1.3, SC.5.PE.1.2, SC.5.PE.1.4) • Use variables and conditionals to build a vocabulary quiz that changes each time.
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Florida Foundations of Computer Science: 5th Grade Supplemental Materials

Resources	Description
Parent Welcome Letter (Spanish)	Send this letter home to introduce families to their new computer science curriculum.
Warm-Up Activities	This warm-up activity slide deck provides 5-10 minute problems aligned with computer science skills to engage students at the start of class, allowing teachers to preview or review concepts with answer keys and discussion tips included in the Speaker Notes.
Program Self-Assessment (Spanish)	This is a student self-assessment tool designed to help K-6 learners reflect on their programming projects, evaluate their skills in algorithms, debugging, collaboration, and reflection, and set goals for improvement.
Peer Review Resources (Spanish)	This provides structured worksheets to facilitate student feedback during collaborative coding projects. It encourages reflection by guiding students to highlight successes, ask questions, and offer constructive feedback on their partner's work.
Lesson Reflection & Computational Thinking (Spanish)	This guides students in engaging with computational thinking concepts, preparing for discussions, reflecting on lessons, and applying their learning to real-world problem-solving.
Design-Your-Own-Lesson Templates	Empower your students to explore and express their knowledge creatively with our versatile graphic organizer templates. Designed with adaptability and ease of use in mind, these interactive tools transform any subject into an engaging, hands-on learning experience.
These resources and more are found on the CodeHop Resources Page .	