



1st Grade Massachusetts Digital Literacy and Computer Science Course Syllabus

One Year for Elementary School, 36 Hours

Course Overview and Goals

The 1st Grade Massachusetts Digital Literacy and Computer Science course 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.

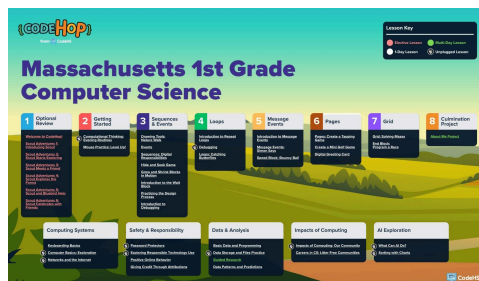
Standards Alignment Note: Lessons that list “*Standards Met*” (below) are required to fully meet state computer science standards. Lessons without a standards tag support spiral review, practice, or enrichment.

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.

Assessments: Some units conclude with a brief 3-question quiz designed to assess student understanding of the concepts and skills introduced in the unit. Quizzes can be assigned digitally, completed as a QuizBuzz activity, or printed for paper-based completion.

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/28646/overview>



A clickable PDF can be found at https://codehs.com/MA_Roadmaps

Course Breakdown

Optional Review

Reviews the Kindergarten Scout Adventures story and CodeHopJr basics for students who need extra practice before moving into 1st grade content.

Objectives / Topics Covered	• Review logging in and navigating CodeHopJr • Review programming interface basics • Review motion, characters, and events
Lessons	Welcome to CodeHop! • Log in and navigate the CodeHopJr Playground. Scout Adventures 1: Introducing Scout • Explore the programming interface and add characters to a story. Scout Adventures 2: Scout Starts Exploring • Add backgrounds and a new page to a program. Scout Adventures 3: Scout Meets a Friend • Delete and modify characters within a program. Scout Adventures 4: Scout Explores the Forest • Use motion blocks to move characters around the stage. Scout Adventures 5: Scout and Bluebird Help • Build a sequence of motion blocks to collect objects on stage. Scout Adventures 6: Scout Celebrates with Friends • Create a celebration scene with characters, pages, backgrounds, and event-triggered motion sequences.

Unit 1: Getting Started (1 lesson)

Introduces students to CodeHopJr's evening-routine computational thinking activity and extra mouse practice activities/ games for those who need it.

Objectives / Topics Covered	• Identify patterns and sequence steps in a routine • Practice mouse skills activity
Lessons	Computational Thinking: Evening Routines (K-2.CT.b.1, K-2.CT.b.2, K-2.CT.b.3) • Use computational thinking to identify patterns and sequence steps in an evening routine. Mouse Practice: Level Up! (K-2.DTC.a.1, K-2.CS.a.4) • Practice mouse skills with a library of additional activities.

Unit 2: Sequences & Events (8 lessons)

Builds on sequencing skills from Kindergarten by introducing events, debugging, and the design process through a variety of creative projects.

Objectives / Topics Covered	• Create programs using sequences and events • Use the design process to plan and revise a project • Find and correct bugs in a program
Lessons	Drawing Tools: Nature Walk (K-2.DTC.a.3) • Use drawing tools to create a nature-walk scene. Events • Explain what an event is and use multiple event blocks in a program. Sequences: Digital Responsibilities (K-2.DTC.b.1) • Use sequences to program characters and explain how to be responsible online.

	Hide and Seek Game (K-2.CT.d.3) • Use the hide block to program an interactive game of hide-and-seek. Grow and Shrink Blocks in Motion • Use motion, grow, and shrink blocks to change a character's size and position. Introduction to the Wait Block • Use wait blocks to make characters pause in a program. Practicing the Design Process • Use the design process to plan, create, and revise a program that models a solution to a problem. Introduction to Debugging • Find and correct bugs in sequences. 1st Grade Sequences & Events Quiz (3 questions)
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Unit 3: Loops (3 lessons)

Introduces loops as a tool for repeating code and continues building debugging skills.

Objectives / Topics Covered	• Create a program using repeat loops • Find and correct bugs in a program
Lessons	Introduction to Repeat Loops (K-2.CT.d.2) • Use repeat loops to run a section of code multiple times. Debugging • Describe what bugs are and find and correct bugs in sequences. Loops: Catching Butterflies • Use show and hide blocks and loops to create a butterfly-catching game. 1st Grade Loops Quiz (3 questions)

Unit 4: Message Events (3 lessons)

Introduces message events as a way for characters to communicate and interact within a program.

Objectives / Topics Covered	• Use message events to trigger character actions • Combine messages and speed blocks in a program
Lessons	Introduction to Message Events (K-2.CT.d.1) • Program a relay race that uses messages to make characters interact. Message Events: Simon Says • Use message events to make one character communicate with many characters in a program. Speed Block: Bouncy Ball • Use speed blocks and messages to program a character to move at different speeds. 1st Grade Message Events Quiz (3 questions)

Unit 5: Pages (3 lessons)

Expands on multi-page programs from Kindergarten with more complex games and projects.

Objectives / Topics Covered	• Create multi-page programs using go-to-page blocks • Combine loops, messages, and events in a project
Lessons	Pages: Create a Tapping Game • Create a game that moves between pages using go-to-page blocks. Create a Mini Golf Game • Use messages and loops to create a mini golf game.

	Digital Greeting Card (K-2.DTC.a.4, K-2.CT.d.3) Create a digital greeting card using events and loops. 1st Grade Pages Quiz (3 questions)
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Unit 6: Grid (2 lessons)

Introduces the grid and end block as tools for programming movement-based projects like mazes and races.

Objectives / Topics Covered	- Use the grid to program character movement - Use the end block to complete a program
Lessons	Grid: Solving Mazes - Design a maze and use the grid to program a character to move through it. End Block: Program a Race - Complete a project to program a race and use the end block in an animation. 1st Grade Grid Quiz (3 questions)

Unit 7: Culmination Project (2 lessons)

A culminating project where students apply the year's programming skills to create a personal "About Me" program.

Objectives / Topics Covered	- Apply sequencing, events, and loops in an original project - Communicate personal interests through a program
Lessons	About Me Project (2 classes K-2.DTC.b.3) Plan a program to describe personal characteristics and interests.

Unit 8: Computing Systems (2 lessons)

Explores how computers work and how they connect to networks and the Internet.

Objectives / Topics Covered	- Identify computer input, output, hardware, and software - Explain how devices communicate over networks and the Internet
Lessons	Keyboarding Basics (K-2.DTC.a.1, K-2.DTC.a.2, K-2.CS.a.4) - Use a keyboard to type simple words and sentences. Computer Basics: Exploration - Identify a computer's input, output, hardware, and software, and troubleshoot common issues. Networks and the Internet - Explain what a network is and model how messages are communicated over the Internet. 1st Grade Computing Systems Quiz (3 questions)

Unit 9: Safety & Responsibility (4 lessons)

Introduces safe password practices, responsible technology use, positive online behavior, and giving credit to others' work.

Objectives / Topics Covered	- Practice safe password habits - Use technology safely and responsibly - Recognize positive online behavior - Give credit for others' work
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Lessons	Password Protectors (K-2.CAS.a.4, K-2.CAS.a.6, K-2.CAS.a.7) - Explain the importance of usernames and passwords and practice strategies to keep login information safe. Exploring Responsible Technology Use (K-2.CAS.a.7, K-2.CAS.b.1, K-2.CAS.b.2) - Explain ways to use technology safely and responsibly. Positive Online Behavior (K-2.CAS.a.5, K-2.CAS.a.8) - Identify appropriate and inappropriate online behavior in a CodeHopJr program. Giving Credit Through Attributions (K-2.CAS.b.3, K-2.CAS.b.4) - Explain why giving credit for others' ideas matters, and give attribution when reusing parts of a story. 1st Grade Safety & Responsibility Quiz (3 questions)
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Unit 10: Data & Analysis (4 lessons)

Introduces students to collecting, storing, researching, and analyzing data to find patterns and make predictions.

Objectives / Topics Covered	- Collect and present data visually - Explain how computers store data as files - Research and communicate findings - Identify patterns and make predictions from data
Lessons	Basic Data and Programming (K-2.CT.c.1, K-2.CT.c.2, K-2.CT.c.4) - Collect data and create a program to present it visually. Data Storage and Files Practice (K-2.CT.c.5) - Recognize that computers store data as files and model how data is collected and stored. Guided Research (K-2.DTC.c.1, K-2.DTC.c.2, K-2.CT.c.2) - Find information using research sources and create a program to communicate research visually. Data Patterns and Predictions (K-2.CT.c.3) - Identify patterns and trends in data visualizations and create a program to communicate predictions from a data set. 1st Grade Data & Analysis Quiz (3 questions)

Unit 11: Impacts of Computing (2 lessons)

Explores how computing devices and careers in computer science help solve problems in our communities.

Objectives / Topics Covered	- Identify computing devices in daily life - Explain how computer science careers help solve community problems
Lessons	Impacts of Computing: Our Community (K-2.CAS.c.5) - Identify computing devices in daily life and explain how technology has changed how people live, work, and play. Careers in CS: Litter Free Communities (K-2.CAS.c.5) - Explain how computer science can help solve community problems, and create a program to collect and sort litter. 1st Grade Impacts of Computing Quiz (3 questions)

Unit 12: AI Exploration (2 lessons)

Introduces students to what AI can do and how decision trees and patterns help computers make decisions.

Objectives / Topics Covered	- Identify examples and uses of AI - Explain how decision trees and patterns support computer decision-making
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Lessons	What Can AI Do? (K-2.CS.b.2) - Identify tools that use AI, explain that AI uses data to learn and make decisions, and compare tasks suited to humans versus AI. Sorting with Charts - Recognize patterns, use a decision tree to classify objects, and create a chart showing how patterns help computers make decisions. 1st Grade AI Exploration Quiz (3 questions)
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1st Grade Massachusetts Digital Literacy and Computer Science 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.
These resources and more are found on the CodeHop Resources Page .	