California Kindergarten Computer Science Course Syllabus

One Year for Elementary School, 36 Hours

Course Overview and Goals

The **California Kindergarten Computer Science** course introduces students to foundational programming concepts through **CodeHopJr**, 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 designed to be teacher-led, with ready-to-use lesson plans that follow a structured format: **Introduction, Guided Practice, Independent Practice, Extension, and Reflection**. Lessons are built with spiral review to reinforce key concepts and culminate in engaging projects to showcase student understanding.

The lessons are delivered in an **"I do, we do, you do"** format, ensuring a gradual release of responsibility and fostering confidence in students as they learn. Teachers can adapt the content to fit their schedule and instructional needs. The concepts taught in this course spiral across grade levels, ensuring that students can revisit and build upon their understanding year after year, even if all lessons are not completed within a single year. The course includes a total of 36 **contact hours**, with each lesson approximately 30 minutes long. This provides a full school year of material if teaching one lesson per week.

Programming Environment: Students will write and run programs in **CodeHopJr** that are embedded and saved in the platform. 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 two-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.

More Information: Browse the content of this course at https://codehs.com/course/26151/overview



A clickable PDF can be found at https://codehs.com/CA-CSRoadmaps

Course Breakdown

Unit 1: Getting Started (3 Lessons)

In the Getting Started with Computers section, students will explore the fundamentals of how computers work, practice identifying key components like hardware and software, and build essential mouse and keyboard skills through interactive activities.

Objectives / Topics Covered	● Explore CodeHop! ● Hardware, software, and computer exploration ● Practice mouse skills and basic keyboarding skills.
Lessons	**Welcome to CodeHop!** ● 15-minute lesson - combine with the next lesson if time allows. ● Explore the CodeHop Playground and learn how to log in. **Mouse Practice** ● Use the letters, numbers, and basic functions of the keyboard effectively. **Keyboard Introduction** ● Demonstrate mouse skills by dragging and clicking with the mouse in multiple games. **Computer Basics: Introduction** ● Learn what a computer is, how we use it, and what to do when it doesn't work. They will also be able to identify input, output, hardware, and software. **Getting Started with Computers Quiz (2 questions)**

Unit 2: Unplugged Exploration (1 Lesson)

In this unplugged exploration, students will understand how events can trigger actions through interactive role-playing.

Objectives / Topics Covered	● An unplugged exploration of sequences.
Lessons	**Sequences (Unplugged)** ● Create a sequence of step-by-step instructions for a dance.

Unit 3: Block Exploration (6 Lessons)

In this sequential, story-driven CodeHopJr exploration, students will progressively build their coding skills by navigating the CodeHopJr interface, adding and modifying characters and backgrounds, using motion blocks to animate characters, responding to events, and culminating in the creation of a celebratory scene that showcases their understanding of sequencing and storytelling.

Objectives / Topics Covered	● The CodeHopJr interface ● Basic CodeHopJr commands
Lessons	**Scout Adventures: Introducing Scout** ● This lesson is part of a sequential story-driven unit. Explore the CodeHopJr interface and add characters. **Scout Adventures: Scout Starts Exploring** ● Add backgrounds and a page to CodeHopJr. **Scout Adventures: Scout Meets a Friend** ● Delete and modify characters in CodeHopJr. **Scout Adventures: Scout Explores the Forest** ● Explore and use motion blocks to move characters around the stage in CodeHopJr. **Scout Adventures: Scout and Bluebird Help** ● Build a sequence of motion blocks to move characters around the stage to

	collect objects. **Scout Adventures: Scout Celebrates with Friends** ● Create a celebration scene in CodeHopJr by adding characters, pages, backgrounds, and sequences of motion blocks with events. **Block Exploration Quiz (2 questions)**

Unit 4: Sequences & Events (6 Lessons)

In this six-week unit on Sequences & Events, students will develop computational thinking by sequencing everyday tasks, create digital artwork using painting tools, and build interactive programs in CodeHopJr using events, as well as show/hide and grow/shrink blocks to control character behavior and animation.

Objectives / Topics Covered	● Computational thinking ● Build familiarity with CodeHopJr drawing tools ● Build a program that responds to different types of events with sequences of instructions ● Additional CodeHopJr blocks
Lessons	**Computational Thinking: Morning Routines** ● In this unplugged lesson, identify patterns, break down tasks, sequence steps, and simplify processes in their morning routines. **Drawing Tools: Fairy Tale Painting** ● Use painting tools to create a fairy-tale scene. **Introduction to Events** ● Create a program using different types of events. **Introduction to Show and Hide Blocks** (2 Lessons) ● In this two-part project, use “show” and “hide” blocks in a sequence to make characters appear and disappear. **Introduction to Grow and Shrink Blocks** ● Create a program that uses “grow” and “shrink” blocks to change the size of characters. **Sequences & Events Quiz (2 questions)**

Unit 5: Pages (2 Lessons)

In this unit on Pages, students will learn how to create multi-page programs in CodeHopJr and use the “go to page” block to navigate between pages, enhancing the structure and interactivity of their projects.

Objectives / Topics Covered	● Use multiple pages in CodeHopJr ● Use the “go to page” block
Lessons	**Introduction to Pages** ● Create a program with multiple pages. **Using the Go to Page Block** ● Create a program including a “go to page” block to switch from page to page in an activity. **Pages Quiz (2 questions)**

Unit 6: Block Exploration (4 Lessons)

Students will deepen their CodeHopJr skills by using sound, speed, and say blocks to animate transportation scenes, creating personalized "All About Me" projects, and practicing debugging of event and motion sequences.

Objectives / Topics Covered	● Use “say,” “sound,” and speed blocks ● Find and fix bugs in sequences ● Apply coding skills to build more complex projects
Lessons	**Transportation Speeds and Sounds** ● Use “say” or “sound” blocks and speed blocks to program modes of transportation. **All About Me!** (2 Lessons) ● In this two-part project, create a program that tells information about their favorites. **Debugging: Events and Motion** ● Find and correct bugs in sequences.

Unit 7: Loops (2 Lessons)

In this lesson on Loops, students will learn how to use loops in CodeHopJr to repeat actions efficiently and explain how looping simplifies repetitive coding tasks.

Objectives / Topics Covered	● Loops in programming
Lessons	**Loops** ● Create a program using loops and explain how loops are used to repeat code. **Loops: Frog and Rabbit** ● Use loops to repeat code in a program. **Loops Quiz (2 questions)**

Unit 8: Culmination Projects (4 Lessons)

In these culminating projects, students will apply their coding skills to program an interactive Chicken Crossing game with adjustable difficulty and create a dynamic wildlife scene using events, sequences, and loops in CodeHopJr.

Objectives / Topics Covered	● Culminating creative projects
Lessons	**Chicken Crossing Game (2 Lessons)** ● In this two-part project, program an interactive player character and adjust the difficulty of play in a game. **Wildlife Scene Project (2 Lessons)** ● In this two-part project, create a wildlife scene in CodeHopJr using events, sequences, and loops.

Unit 9: Digital Literacy (8 Lessons)
In the Digital Literacy section, students will explore essential tech concepts by learning how to gather and present information through research, identify private vs. personal data to stay safe online, understand how data is stored and organized through file management, and create programs that illustrate the impacts of technology on our world.

Objectives / Topics Covered	● Online Safety ● Data ● Networks ● Impacts of Technology
Lessons	**Keeping Information Safe** ● Identify private and personal information. **Impacts of Computing: Daily Life** ● Identify examples of computing devices in their daily lives and explain how technology has changed the way people live, work, and play. **Introduction to Data Storage and Files** ● Recognize that computers store data as files and model how data is collected and stored. **What Can Data Tell Us?** ● Collect, organize, and analyze data about school transportation. **Using Networks to Connect** ● Describe how people and devices connect and share information using a network, with and without wires. **Introduction to Research Project (2 Lessons)** ● In this two-part project, find information using research sources and create a program to communicate their research visually. **Sorting with Decision Trees** ● Explain how AI uses data to learn. ● Make decisions and create a simple decision tree to sort items based on rules. **Digital Literacy Quiz (2 questions)**

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Course Supplemental Materials

Resources	Description
Parent Welcome Letter	Introduce parents to computer science.
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	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	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	This guides students in engaging with computational thinking concepts, preparing for discussions, reflecting on lessons, and applying their learning to real-world problem-solving.
All of these resources and more are found on the **Elementary Resources Page**.	