Arkansas Computer Science: 2nd Grade Course Syllabus

One Year for Elementary School, 36 Hours

Course Overview and Goals

The **Arkansas Computer Science: 2nd Grade Course** introduces students to foundational programming concepts through a block-based programming language. Students explore digital literacy and computer science skills while learning to create interactive projects, animations, and games. This course emphasizes creativity, collaboration, and real-world connections, providing students with a strong foundation in computer science concepts and digital literacy.

Learning Environment: This course is designed to be teacher-led, with ready-to-use lesson plans. Each programming lesson follows a structured format: **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. Many digital literacy lessons contain unplugged activities, requiring printed handouts and class activities to support hands-on learning.

The course includes a total of **36 lessons,** each approximately 45 minutes long. 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.

Standards Alignment Note: Lessons that list standards in bold parentheses (below) are required to fully meet state computer science standards.

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 4 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/AR_2/overview



A clickable PDF can be found at https://codehs.com/AR-K-4Roadmaps

Course Breakdown

Optional Review

In this optional unit, students review logging in to the Playground, using event blocks, and repeating code with loops.

Objectives / Topics Covered	● Log in and navigate the Playground ● Use event blocks in a program ● Use repeat loops
Lessons	**Welcome to CodeHop!** ● Learn how to log in and explore the Playground to prepare for future lessons. **Events** ● Explain what an event is and use multiple event blocks in a program. **Introduction to Repeat Loops** ● Use repeat loops to run a section of code multiple times.

Unit 1: Getting Started (2 weeks)

In this unit, students use computational thinking to break down school day routines and navigate the programming interface to build a scene.

Objectives / Topics Covered	● Identify patterns and break down everyday tasks ● Navigate the programming interface ● Create a scene with characters
Lessons	**Computational Thinking: School Day Routines (CSK4.2.2.1.2, CSK4.2.2.1.3, CSK4.2.2.1.4, CSK4.2.2.2.1)** ● Identify patterns, break down tasks, and sequence the steps of a school day routine. **Introduction to Programming (CSK4.2.2.3.1)** ● Navigate the programming interface to create a scene with characters. **Getting Started Quiz (4 questions)**

Unit 2: Sequences & Events (4 weeks)

In this unit, students debug event sequences, position characters with the grid, connect coding to careers, and explore conditionals.

Objectives / Topics Covered	● Find and fix errors in code ● Use the grid to position characters ● Use conditionals to guide a character
Lessons	**Debugging: Events and Sequences (CSK4.2.2.2.2)** ● Find and fix errors in event and sequence code. **Introduction to the Grid (CSK4.2.2.3.2)** ● Use the grid to move characters to specific locations on the stage. **Careers in CS: Fashion Retail (CSK4.2.2.3.2)** ● Design and animate a fashion character and explain how coding supports fashion design. **Coding Card Game: Conditionals (CSK4.2.2.2.1)** ● Work together to build instructions with conditionals that move Scout through a maze. **Sequences & Events Quiz (4 questions)**

Unit 3: Message Events (3 weeks)

In this unit, students use message events to control the flow of a program, model cycles, and move characters between pages.

Objectives / Topics Covered	● Use message events to control program flow ● Model a cycle with messages ● Use messages to move between pages
Lessons	**Message Events: Scout Plays in the Forest (CSK4.2.2.3.2)** ● Use message events to control the flow of a program. **Programming a Cycle (CSK4.2.2.3.2)** ● Use message events to model a cycle. **Pages: Scout's Travels (CSK4.2.2.3.2)** ● Use messages to help Scout travel between pages. **Message Events Quiz (4 questions)**

Unit 4: Loops (3 weeks)

In this unit, students identify patterns and use loops to build programs, create timers, and design solutions to real-world problems.

Objectives / Topics Covered	● Identify patterns and use loops ● Use loops and wait blocks to create timers ● Use the design process to improve a program
Lessons	**Loops: Follow the Path (CSK4.2.2.1.1)** ● Identify patterns and use loops to move a character along a path. **Making a Timer (CSK4.2.2.3.2)** ● Use loops, wait blocks, and turn blocks to create and compare two timers. **Exploring the Design Process (CSK4.2.2.1.3)** ● Plan, create, and improve a program with loops that models a solution to a real-world problem. **Loops Quiz (4 questions)**

Unit 5: Culmination Projects (5 weeks)

In this unit, students combine events, messages, loops, and sequences to build and revise interactive games.

Objectives / Topics Covered	● Create interactive games using events, loops, and messages ● Revise a program based on feedback
Lessons	**Racing Game (2 part lesson | CSK4.2.2.3.2)** ● Create an interactive racing game with events, loops, and messages. **Maze Game Project (3 part lesson | CSK4.2.2.3.2)** ● Program an interactive maze game and revise it based on feedback.

Unit 6: Productivity Software (2 weeks)

In this unit, students build word processing and presentation skills by creating documents and slides about topics they enjoy.

Objectives / Topics Covered	● Use word processing tools to create a document ● Use presentation software to create slides

Lessons	**Exploring Word Processing (CSK4.2.4.2.1, CSK4.2.4.2.2)** ● Use word processing tools to write about their favorite season. **Exploring Presentations** ● Use presentation software to create slides about their favorite things. **Productivity Software Quiz (4 questions)**

Unit 7: Computing Systems (2 weeks)

In this unit, students explain how computer hardware and software work together and how networks connect devices to share information.

Objectives / Topics Covered	● Explain how hardware and software work together ● Describe how networks connect devices ● Model sending and receiving information
Lessons	**Computer Basics: Connections (CSK4.2.4.1.1, CSK4.2.4.1.3, CSK4.2.4.1.4)** ● Identify input, output, hardware, and software and explain how they work together. **Exploring Computer Networks (CSK4.2.4.3.1, CSK4.2.4.3.2, CSK4.2.4.3.3)** ● Model how networks send and receive information using message blocks. **Computing Systems Quiz (4 questions)**

Unit 8: Safety & Responsibility (3 weeks)

In this unit, students learn to be responsible digital citizens, use technology safely, and protect their login information.

Objectives / Topics Covered	● Explain digital footprints and how to report cyberbullying ● Use technology safely and responsibly ● Create and protect strong passwords
Lessons	**Responsible Digital Citizens (CSK4.2.1.1.2, CSK4.2.1.1.3)** ● Explain digital footprints, discuss cyberbullying, and learn how to report concerns. **Practicing Responsible Technology Use (CSK4.2.1.1.1, CSK4.2.1.3.1, CSK4.2.4.1.2)** ● Demonstrate ways to use technology safely and responsibly. **Password Protectors (CSK4.2.1.2.1, CSK4.2.1.2.2, CSK4.2.1.2.3)** ● Practice strategies to create and protect usernames and passwords. **Safety & Responsibility Quiz (4 questions)**

Unit 9: Impacts of Computing (3 weeks)

In this unit, students explore how technology has changed the world and collaborate digitally to create a shared program.

Objectives / Topics Covered	● Explain how technology changes how people live, work, and play ● Collaborate with others digitally
Lessons	**Impacts of Computing: Changing World** ● Create a program that shows how technology has changed how people live, work, and play. **Collaborating Digitally (2 part lesson | CSK4.2.1.1.1, CSK4.2.1.1.4)** ● Collaborate digitally to create a program about their classroom. **Impacts of Computing Quiz (4 questions)**

Unit 10: Data & Analysis (7 weeks)

In this unit, students research topics of choice, collect and analyze data to find patterns and make predictions, and learn how data is stored.

Objectives / Topics Covered	● Collect and assess sources to answer a research question ● Collect data and identify patterns and trends ● Present data visually in a program ● Explain how computers store data as files
Lessons	**Choice Research (2 part lesson | CSK4.2.1.3.2, CSK4.2.1.3.3)** ● Collect and assess sources to answer a research question and share findings visually. **Data Patterns and Predictions (CSK4.2.3.2.1, CSK4.2.3.3.1)** ● Identify patterns and trends in data and create a program that shares predictions. **Data Explorers (2 part lesson | CSK4.2.3.1.1, CSK4.2.3.2.2, CSK4.2.3.3.1)** ● Collect survey data on an investigative question and create a program to display it. **Collecting Data (CSK4.2.3.1.2, CSK4.2.3.1.3, CSK4.2.3.2.3, CSK4.2.3.3.2)** ● Collect and organize data, then use it to answer questions and draw conclusions. **Managing Data Storage and Files (CSK4.2.4.2.3)** ● Model how data is collected and stored as files on a computer. **Data & Analysis Quiz (4 questions)**

Unit 11: Artificial Intelligence (2 weeks)

In this unit, students explore how AI assistants help people and how AI learns by being trained with examples.

Objectives / Topics Covered	● Describe how AI helps people solve problems ● Explain how AI learns through training
Lessons	**How AI Helps Us** ● Observe an AI assistant and describe how AI helps people solve problems. **Machine Learning: What is a Blorg?** ● Train an AI to identify an alien and explain how AI learns. **Artificial Intelligence Quiz (4 questions)**

2nd Grade Course 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**.	