4th Grade Digital Literacy & AI Course Syllabus

One Year for Elementary School, 33 Hours

Course Overview and Goals

The **Digital Literacy & AI Course** introduces students to essential digital skills and foundational computer science concepts needed to thrive in today's technology-driven world. Throughout the course, students build problem-solving skills and responsible technology practices while engaging in hands-on activities and real-world applications. They will develop an understanding of artificial intelligence, digital tools, online safety, and emerging technologies, building a strong foundation in digital literacy. This flexible course can be taught in any order to meet the needs of diverse classrooms.

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 **33 lessons**, each approximately 45 minutes long.

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 five-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/28007/explore



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

Course Breakdown

Unit 1: Getting Started (2 lessons)

In this module, students learn to log in and navigate the CodeHop Playground and are introduced to basic programming concepts to create interactive scenes with characters.

Objectives / Topics Covered	● Log in and navigate the CodeHop Playground independently. ● Explore the programming interface to create a simple programmed scene with characters.
Lessons	**Welcome to CodeHop!** (optional) ● Learn how to log in and use the CodeHop Playground. This short introductory lesson can be used on its own, or right before a full lesson. **Introduction to Computer Science** ● Define important computer science vocabulary and create a simple program. **Getting Started Quiz (5 questions)**

Unit 2: Computing Systems (6 lessons)

In this module, students explore how computing systems work and how data travels across networks and the Internet.

Objectives / Topics Covered	● Organize research using productivity tools. ● Use a spreadsheet to organize and visualize data. ● Create a presentation to share findings. ● Model how messages travel as packets on the Internet. ● Explain how information travels across a network.
Lessons	**Exploring Computing Systems** (E4-SYS-HW-12) ● Identify parts of the computing system and identify simple hardware and software problems. **Introduction to Spreadsheets** (E4-DAT-DC-09) ● Enter, organize, and visualize data in a spreadsheet. **Productivity Software Inquiry Project** (3 classes) ● Use documents, spreadsheets, and presentation software to organize research and present information to others. **Networks, Packets, and the Internet** (Unplugged | E4-SYS-NT-14) ● Identify and compare the components and types of wired and wireless network connections. **Computing Systems Quiz (5 questions)**

Unit 3: Safety & Responsibility (8 lessons)

In this module, students explore digital attribution, online risks, and digital footprint management.

Objectives / Topics Covered	● Recognize different types of cyberbullying and describe ways to respond. ● Practice secure habits and understand tools that protect information online. ● Explore cryptography and how encryption keeps data secure. ● Explore and demonstrate digital etiquette and communication. ● Explain how screen time affects behavior and relationships.
Lessons	**Standing Up to Cyberbullying** ● Recognize different types of online hurtful behavior, including cyberbullying, and describe ways to respond or take responsibility. **Online Risks & Protection** (E4-SYS-SE-13) ● Demonstrate how to stay safe online by practicing secure habits and understanding

	the tools and technologies that protect their information. **Exploring Cryptography** ● Learn how cryptography is used to keep information secure and explore basic encryption techniques. **Digital Responsibility: Everyday Use** ● Understand and explain digital responsibility. **Managing Digital Footprints** ● Explain how online actions create permanent digital footprints and describe how to manage their digital identity responsibly. **Exploring Digital Etiquette and Communication** (2 classes) ● Demonstrate proper digital etiquette when communicating in an online community. **Screen Time: Protecting Relationships** ● Explain how screen time affects their behavior and relationships. **Safety & Responsibility Quiz (5 questions)**

Unit 4: Impacts of Computing (7 lessons)

In this module, students explore computing's impact on society, learn about CS innovators, and complete a research project.

Objectives / Topics Covered	● Explain how technology impacts culture and daily life. ● Describe contributions of innovators like Grace Hopper. ● Research a CS innovator and present findings. ● Identify how coding is used in careers such as sports. ● Explain and demonstrate digital collaboration.
Lessons	**Impacts of Computing: Exploration (**E4-SYS-IM-15, E4-SOC-CE-19) ● Explain how technology and culture influence each other. **CS Innovators: Grace Hopper** (Unplugged I E4-SOC-HI-16) ● Explain how Grace Hopper's work was important to computer science and use binary code to decompose mystery words. **CS Innovators Research Project** (2 classes I E4-SOC-HI-16) ● Research a computer science innovator and create a project to present their findings. **Careers in CS: Major League Baseball** (E4-SOC-CE-19) ● Explain how coding can be used in sports, and abstract events from an article to retell important events in a timeline program. **Exploring Digital Collaboration** (2 classes) ● Explain and demonstrate digital collaboration through shared tools and projects. **Impacts of Computing Quiz (5 questions)**

Unit 5: Data & Analysis (5 lessons)

In this module, students collect, visualize, and analyze data across three projects, connecting data literacy with programming.

Objectives / Topics Covered	● Search for information online and provide proper attribution. ● Follow the inquiry process to investigate a question. ● Evaluate and analyze data to draw conclusions and make predictions. ● Modify a program to display results. ● Explain how different types of digital data are stored.
Lessons	**Give Credit When You Use It** (E4-PRO-RD-07) ● Search for information to answer questions online and provide proper attribution to sources. **Inquiry Project: Data Bar Graph** (2 classes I E4-DAT-DC-09, E4-DAT-DI-10) ● Follow the inquiry process and modify a program to display the results of their investigation.

	Data Investigators (E4-DAT-DI-10, E4-DAT-IM-11) ● Evaluate data for reliability and then analyze the data to draw conclusions and make predictions. **File Management and Data in Action** ● Explain that different types of digital data take up different amounts of space and can be stored in different ways. **Data & Analysis Quiz (5 questions)**

Unit 6: AI Exploration (7 lessons)

In this module, students explore how AI systems are created, how machine learning works, and experience the training process firsthand.

Objectives / Topics Covered	● Train a simple AI model. ● Explain different machine learning approaches. ● Modify a program to model AI predictions. ● Examine why people design and build computing technologies, including AI. ● Apply design thinking to explore AI chatbots.
Lessons	**Machine Learning: Training** (2 classes | E4-ALG-ML-02) ● Train an AI model to make a classification or prediction. **How Machines Learn** (Unplugged | E4-SOC-HU-18) ● Explain the different machine learning approaches and modify a program to model how AI can be trained to make predictions. **Creating Smart Machines** (E4-SOC-ET-17) ● Examine why people design and build computing technologies, including AI, and explore the ethical considerations involved. **Creating AI Prompts** ● Learn strategies for crafting effective prompts and practice writing clear, purposeful inputs for AI tools. **Design Thinking: AI Chatbots** (2 classes) ● Apply the design thinking process to explore how AI chatbots are built and evaluate their usefulness and limitations. **AI Exploration Quiz (5 questions)**

4th - 5th 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.
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**.	