



4th Grade Digital Literacy & AI Course Syllabus

One Year for Elementary School, 25 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 **25 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.

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	<ul style="list-style-type: none"> Log in and navigate the CodeHop Playground independently. Explore the programming interface to create a simple programmed scene with characters.
Lessons	<p>Welcome to CodeHop!</p> <ul style="list-style-type: none"> 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. <p>Introduction to Computer Science</p> <ul style="list-style-type: none"> Define important computer science vocabulary and create a simple program.

Unit 2: Computing & Society (8 lessons)

In this module, students examine how technology shapes culture and careers, explore historical and modern computing innovations, and develop digital responsibility skills including screen-time balance, digital etiquette, managing digital footprints, and understanding how data is stored.

Objectives / Topics Covered	<ul style="list-style-type: none"> Explain how technology impacts culture and daily life. Describe contributions of innovators like Grace Hopper. Identify how coding is used in careers such as sports. Create projects demonstrating technology concepts and timelines. Practice responsible technology use, including screen-time balance and digital etiquette. Explain digital footprints and basic data storage concepts.
Lessons	<p>Impacts of Computing: Exploration</p> <ul style="list-style-type: none"> Explain how technology and culture influence each other and create a project that shows a past and present version of a technology, identifies a trend, and explains one positive and one negative impact of technology and screen time. <p>CS Innovators: Grace Hopper</p> <ul style="list-style-type: none"> Explain how Grace Hopper's work was important to computer science and use binary code to decompose mystery words. <p>Careers in CS: Major League Baseball</p> <ul style="list-style-type: none"> Explain how coding can be used in sports, and abstract events from an article to retell important events in a timeline program. <p>Screen Time: Protecting Relationships</p> <ul style="list-style-type: none"> Explain how screen time affects their behavior and relationships, create a healthy screen-time plan, write an opinion about the most important screen-time rule and support it with reasons. <p>Exploring Digital Etiquette and Communication (2 classes)</p> <ul style="list-style-type: none"> Explore digital etiquette and demonstrate digital etiquette. <p>Managing Digital Footprints</p> <ul style="list-style-type: none"> Identify how to manage your digital footprint. <p>Standing Up to Cyberbullying</p> <ul style="list-style-type: none"> Recognize different types of online hurtful behavior, including cyberbullying, and describe ways to respond or take responsibility. <p>Digital Responsibility: Everyday Use</p> <ul style="list-style-type: none"> Understand and explain digital responsibility.

Unit 3: Research & Attribution (1 lesson)

In this module, students learn how to research information online and properly give credit to the sources they use.

Objectives / Topics Covered	<ul style="list-style-type: none">● Search for information online and identify reliable sources.● Provide proper attribution.
Lessons	Give Credit When You Use It <ul style="list-style-type: none">● Search for information to answer questions online and provide proper attribution to sources.

Unit 4: Systems & Security (3 lessons)

In this module, students learn how information travels across the Internet, explore the parts of computing systems, and practice strategies for staying safe and protecting information online.

Objectives / Topics Covered	<ul style="list-style-type: none">● Model how messages travel as packets on the Internet.● Identify parts of a computing system.● Recognize simple hardware and software issues.● Practice safe and secure online habits.
Lessons	Networks, Packets, and the Internet <ul style="list-style-type: none">● Explain how information travels through the Internet. They will model how messages are sent as packets and reassembled. They will create and use a secure classroom communication method. Exploring Computing Systems <ul style="list-style-type: none">● Identify parts of the computing system and identify simple hardware and software problems. Online Risks & Protection <ul style="list-style-type: none">● Demonstrate how to stay safe online by practicing secure habits and understanding the tools and technologies that protect their information.

Unit 5: Productivity Tools (1 lesson)

In this module, students complete an inquiry project using document, spreadsheet, and presentation software to organize research and effectively present information to others.

Objectives / Topics Covered	<ul style="list-style-type: none">● Organize research using productivity tools.● Use a document to record information.● Use a spreadsheet to organize data.● Create a presentation to share findings.
Lessons	Productivity Software Inquiry Project (3 classes) <ul style="list-style-type: none">● Use document, spreadsheet, and presentation software to organize research and present information to others.

Unit 6: Data & Analysis (3 lessons)

In this module, students apply the inquiry process to investigate data by evaluating reliability, analyzing results to draw conclusions and predictions, modifying a program to display findings, and explaining how different types of digital data are stored.

Objectives / Topics Covered	<ul style="list-style-type: none"> ● Evaluate and analyze data. ● Draw conclusions and make predictions. ● Modify a program to display results. ● Explain how different types of data are stored.
Lessons	<p>Inquiry Project: Data Bar Graph (2 classes)</p> <ul style="list-style-type: none"> ● Follow the inquiry process and modify a program to display the results of their investigation. <p>Data Investigators</p> <ul style="list-style-type: none"> ● Evaluate data for reliability and then analyze the data to draw conclusions and make predictions. <p>File Management and Data in Action</p> <ul style="list-style-type: none"> ● Explain that different types of digital data take up different amounts of space and can be stored in different ways.

Unit 7: Artificial Intelligence (3 lessons)

In this module, students explore how machine learning models are trained to make classifications and predictions, examine different machine learning approaches, and evaluate the ethical and responsible use of generative AI.

Objectives / Topics Covered	<ul style="list-style-type: none"> ● Train a simple AI model. ● Explain basic machine learning approaches. ● Modify a program to model AI predictions. ● Describe pros, cons, and responsible use of generative AI.
Lessons	<p>Machine Learning: Training</p> <ul style="list-style-type: none"> ● Train an AI model to make a classification or prediction. <p>Ethical and Responsible Use of Generative AI</p> <ul style="list-style-type: none"> ● Describe the pros and cons of generative AI and complete a class Code of Conduct to follow when using AI. <p>How Machines Learn</p> <ul style="list-style-type: none"> ● Explain the different machine learning approaches and modify a program to model how AI can be trained to make predictions.

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 .	