Unit 07: Coding

Content Area: **English Language Arts**
Course(s):
Time Period: **Trimester 2**
Length: **4-7 sessions**
Status: **Published**

Brief Summary of Unit

Kindergarten students will be introduced to coding using unplugged lessons and age appropriate coding apps/websites. Students will build coding and computational thinking through age appropriate websites/manipulatives. Computational thinking is problem solving in an efficient way. It can include knowing how and when to use computing tools, knowing what steps you need to take to solve a problem, and logically organizing and analyzing data.

This unit is designed to be part of a developmental progression across grade levels and make interdisciplinary connections across content areas including physical and social sciences, technology, career readiness, cultural awareness, and global citizenship. During this course, students are provided with opportunities to develop skills that pertain to a variety of careers.

Revision Date: July 2026

Standards

The identified standards reflect a developmental progression across grades/ levels and make interdisciplinary connections across content areas including social sciences, technology, career readiness, cultural awareness and global citizenship. The standards that follow are relevant to this course in addition to the associated content-based standards listed below.

Information Literacy: This unit challenges students to locate, evaluate, and use information effectively. Information literacy includes, but is not limited to, digital, visual, media, textual, and technological literacy. Lessons may include the research process and how information is created and produced; critical thinking and using information resources; research methods, including the difference between primary and secondary sources; the difference between facts, points of view, and opinions, accessing peer-reviewed print and digital library resources; the economic, legal, social, and ethical issues surrounding the use of information.

Information Literacy for Elementary Educators

L.RF.K.1	Demonstrate understanding of the organization and basic features of print.

RL.CR.K.1	With prompting and support, ask and answer questions about key details in a literary text (e.g., who, what, where, when, why, how).
RI.CR.K.1	With prompting and support, ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how).
RL.CI.K.2	With prompting and support, identify the central message and retell familiar literary texts, including key details (e.g., who, what, where, when, why, how).
RI.CI.K.2	With prompting and support, identify the main topic and key details of an informational text (e.g., who, what, where, when, why, how).
RL.IT.K.3	With prompting and support, identify characters, settings, and major events in a story.
RI.IT.K.3	With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.
RI.TS.K.4	Recognize common types of informational texts (e.g., biographies, recipes, how-to manuals) and identify features of print (e.g., front cover, back cover, and title page of a book).
RL.PP.K.5	With prompting and support, name the author and illustrator of a story and define the role of each in telling the story.
RI.PP.K.5	With prompting and support, name the author and illustrator of a text and define the role of each in presenting the ideas or information in a text.
RL.MF.K.6	With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).
RI.MF.K.6	With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts).
RI.AA.K.7	With prompting and support, identify the reasons an author gives to support points in a text.
RL.CT.K.8	With prompting and support, identify basic similarities in and differences between two literary texts on the same topic (e.g., characters, experiences, illustrations, descriptions, or procedures).
RI.CT.K.8	With prompting and support, identify basic similarities in and differences between two informational texts on the same topic (e.g., characters, experiences, illustrations, descriptions, or procedures).
W.AW.K.1	Use a combination of drawing, dictating, and writing to compose opinion pieces on topics or texts (e.g., My favorite book is…).
SL.PE.K.1	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
SL.PE.K.1.A	Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).
SL.PE.K.1.B	Continue a conversation through multiple exchanges.
SL.II.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
SL.ES.K.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
SL.PI.K.4	Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.
SL.UM.K.5	Add drawings or other visual displays to descriptions as desired to provide additional detail.
SL.AS.K.6	Speak audibly and express thoughts, feelings, and ideas clearly.

I	Inquire: Build new knowledge by inquiring, thinking critically, identifying problems, and developing strategies for solving problems.
I.A	Learners display curiosity and initiative by:
I.A.1	Formulating questions about a personal interest or a curricular topic.
I.A.2	Recalling prior and background knowledge as context for new meaning.
I.C.1	Interacting with content presented by others.
I.C.3	Acting on feedback to improve.
V.B.1	Problem solving through cycles of design, implementation, and reflection.
CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
III.D.1	Actively contributing to group discussions.
TECH.8.1.2	Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.2.A	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations
TECH.8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e., games, museums).
TECH.8.1.2.C.CS2	Communicate information and ideas to multiple audiences using a variety of media and formats.
TECH.8.1.2.C.CS4	Contribute to project teams to produce original works or solve problems.
TECH.8.1.2.E.1	Use digital tools and online resources to explore a problem or issue.
TECH.8.1.2.F	Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
TECH.8.2.2	Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.
TECH.8.2.2.A.CS1	The characteristics and scope of technology.
TECH.8.2.2.A.CS2	The core concepts of technology.
TECH.8.2.2.E	Computational Thinking: Programming: Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.
TECH.8.2.2.E.1	List and demonstrate the steps to an everyday task.
TECH.8.2.2.E.3	Create algorithms (a sets of instructions) using a pre-defined set of commands (e.g., to move a student or a character through a maze).
TECH.8.2.2.E.5	Use appropriate terms in conversation (e.g., basic vocabulary words: input, output, the operating system, debug, and algorithm).

Essential Questions

- How can I solve a coding problem on a website to perform a simple task?
- How can I use computational thinking to solve simple problems?
- How do computers and robots follow directions?
- How does computational thinking allows me to solve simple problems?
- What are directional arrows?
- What is an algorithm?
- What is coding?
- What vocabulary words are used in computer programming?
- Why must directions be clear and in the correct order?

Students Will Know/Students Will Be Skilled At

- A code is a set of instructions.
- An algorithm is a sequence of steps used to complete a task.
- Computers and robots follow instructions exactly.
- Programmers plan, test, revise, and try again.
- Programming various lessons using Code-a-pillar app.
- Simple problems may be solved with computational thinking.
- There may be more than one way to solve a problem.
- To apply existing knowledge to generate new ideas.
- Utilizing age appropriate coding activities to build an understanding of the basics of programming.
- Utilizing coding terms appropriately and regularly during class discussion and group work.

Evidence/Performance Tasks

Students demonstrate differentiated proficiency through both formative and summative assessments in the classroom. Based on individual student readiness and performance, assessments can be implemented as formative and/or summative.

Developmental progression across years in media is evidenced through benchmark assessments as part of the media specialist's Student Growth Objective (SGO). Follow up diagnostic assessments are used to target skill remediation. Student proficiency allows for additional or alternative assessment based on demonstration or absence of skill.

The performance tasks listed below are examples of the types of assessments teachers may use in the classroom and the data collected by the district to track student progress.

- Benchmark/Alternative- Students will arrange arrow cards in sequence.
- Benchmark/Alternative-Students can explain how the code works.
- Formative - Students independently utilize introductory games/tools that teach the elements of basic coding.
- Formative - Students independently solve coding problems presented in various unplugged lessons.
- Summative - Students independently code various levels utilizing Code-a-pillar app.
- Summative- Students will arrange arrow cards in sequence to solve problem.

Learning Plan

Media Specialists may personalize instruction during this unit and address the distinct learning needs, interests, aspirations, or cultural backgrounds of individual students.

Media Specialists at the elementary level design their own unique lesson plans in order to incorporate the essential questions provided in this unit. The order in which this information is presented is dependent upon the variables specific to each elementary school community. For example, students may be called to the carpet for a lesson followed by guided practice, then independent practice. After the lesson, students will check out books. Library Media time ends with an electronic story or students going to a makerspace station.

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Students are exposed to STEM-related activities during this unit allowing them to experience varied disciplines including science and mathematics.

- Demonstrate Code-a-pillar app prior to use.
- Demonstrate how to access age appropriate pre-selected online resources or apps.
- Mini lessons may include: Introducing students to directional arrows, Unplugged activities to demonstrate how to use directional arrows to solve a problem, Demonstration/modeling of how to safely use app such as Code-a-pillar, and Guided practice of online websites/apps.
- Preview the essential questions and connect to learning throughout the unit.
- Refer to visual aids displayed in library media center.
- Utilize age appropriate coding tutorials.
- Vocabulary to introduce: coding, program, algorithm.
- Within the library media center have materials available for inquiry/ creative activities.

Materials

The materials used in this course allow for integration of a variety of instructional, enrichment, and intervention materials that support student learners at all levels in the school and home environments. Associated web content and media sources are infused into the unit as applicable and available.

Code.org and specific robots earmarked for each grade are core materials used by all library media specialists across district.

Suggested Supplemental Resources:

Select this link to view the Kindergarten Google Folder under media in the Grades K-5 folder.

All Google Slides are located in the Kindergarten Media Google Shared Drive

Clever Tom and the Leprechaun (Shute)/Introduction to directional arrows- Google Slides

Pete the Cat and the Great Leprechaun Race (Dean)-Google Slides-Alternative to Clever Tom

Cat and Mouse Coding-Review of directional arrows, define algorithm, unplugged Cat and Mouse activity - Google Slides

Get the Cheese Handout to go with Cat and Mouse Coding -Google Drive

How to Give Your Cat a Bath in 5 Easy Steps (Winstanley)- Google Slides

Harry the Dirty Dog (Zion) and Introduction to Code-a-pillar- Google Slides

Harry the Dirty Dog Activity (Pdf)

Code-a-pillar Review- Google Slides

Code-a-pillar App at the app store

Kodable- How to Make Your Own Mazes at Hour of Code Website (website)

- Age appropriate online websites
- Age appropriate websites/applications/apps
- Computer technology (Ipads/Tablets/Chromebooks)
- Interactive board technology (SmartPanel)
- Presentation software
- Visual aids

Suggested Strategies for Accommodations and Modifications

Content specific accommodations and modifications as well as Career Ready Practices are listed here for all students, including: Special Education, English Language Learners, At Risk of School Failure, Gifted and Talented, Students with 504.