

# Computer Science Game Coding

Content Area: **Technology**  
Course(s): **Computer Literacy 8, Computer Literacy 3, Computer Literacy 6, Computer Literacy 7**  
Time Period: **Undefined**  
Length: **6-8 weeks**  
Status: **Published**

## Unit Overview

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Introduction to Computer Science using Game Coding

## Objectives

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Students will:

- Students will learn computer science, computational thinking, and programming in a collaborative and creative gamification format.
- Students will utilize digital technology to gather and manage information.
- Students will be challenged to problem solve, take risks, generate solutions and make decisions.
- motivate students and educators to continue learning computer science to improve real world relationships, connections, and life.

## Essential Questions

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What is computer programming?

What is code?

What is JavaScript

## Content

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Students will understand who codes, how to organize steps in a process of coding and applying those steps in a practice/tutorial game through code.org.

Students will complete a set of 14 challenges to apply coding concepts learned during the tutorial.

## **Skills**

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Writing computer code using drag-drop blocks and JavaScript.

## **Assessments**

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- Students will create a seven month calendar utilizing 3 different MS Office applications. Two calendars each in MSWord, MSExcel, and MSPowerPoint. Users choice for 2.
- Students will evaluate and record different features of each application and determine best/preferred application for project and post with recommendations to blog.
- Students will be evaluated with a rubric.

## **Lessons/Learning Scenarios**

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TW demonstrate code tutorial.

TW demonstrate challenges on white board/projecter.

## **Standards**

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### CONNECTIONS AND BACKGROUND INFORMATION

PARCC / Smarter Balanced Assessment Skills

- Click / tap
- Drag and drop
- Select object
- Use video player

ISTE Standards

- 1.a - Apply existing knowledge to generate new ideas, products, or processes.
- 1.c - Use models and simulation to explore complex systems and issues.
- 4.b - Plan and manage activities to develop a solution or complete a project.

- 6.a - Understand and use technology systems.
- 6.c - Troubleshoot systems and applications.
- 6.d - Transfer current knowledge to learning of new technologies.

#### CSTA K-12 Computer Science Standards

- CD.L1:3-01. Use standard input and output devices to successfully operate computer and related technologies.
- CT.L1:3-01. Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems.
- CL.L1:3-02. Work cooperatively and collaboratively with peers teachers, and others using technology.
- CPP.L1:6-05. Construct a program as a set of step-by-step instructions to be acted out.
- CPP.L1:6-06. Implement problem solutions using a block-based visual programming language.
- CT.L2-01. Use the basic steps in algorithmic problem solving to design solutions.
- CT.L2-06. Describe and analyze a sequence of instructions being followed.
- CT.L2-08. Use visual representations of problem states, structures, and data.
- CT.L2-12. Use abstraction to decompose a problem into sub problems.

#### Next-Gen Science Standards

- K-2-PS3-2. Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem.
- 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

#### Common Core Mathematical Practices

- 1. Make sense of problems and persevere in solving them.
- 2. Reason abstractly and quantitatively.
- 5. Use appropriate tools strategically.
- 6. Attend to precision.
- 7. Look for and make use of structure.
- 8. Look for and express regularity in repeated reasoning.

#### Common Core Math Standards

- 1.OA.A.1 - Use addition and subtraction within 20 to solve word problems involving situations of

adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

- 2.OA.A.1 - Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- 3.OA.3 - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.

### Common Core Language Arts Standards

- SL.1.1 - Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
- L.1.6 - Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships.
- SL.2.1 - Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
- L.2.6 - Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe.
- SL.3.1 - Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
- L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships.

TEC.5-8.8.1.8.A.5

Select and use appropriate tools and digital resources to accomplish a variety of tasks and to solve problems.

### Resources

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- Computers w/Internet access
- Code.org
- Smartboard

