Unit 03: Digital Game

Content Area: **Computer Science**
Course(s):
Time Period: **Marking Period 1**
Length: **15 - 20 days**
Status: **Published**

Summary

Students will learn some of the skills that go into designing a digital video game using current technological trends. From game mechanics to the development of the system dynamics, students will be guided through various projects that develop understanding of the challenges, skill and chance that go into designing games.

Revised Date: July 2025

Essential Questions/Enduring Understandings

Essential Questions:

- How are algorithms and code written for the digital game to run?
- How are algorithms and code used to control how games operate?

Enduring Understandings:

- Games are considered systems.
- Many elements within the objects make up a system.
- Mechanics can be designed for interaction with these systems.
- Challenge, chance, skill and economics contribute to the system’s development.

Objectives

Students Will Know:

- Vocabulary relating to systems and mechanics.
- How to create mechanics to allow the player to interact with the system.
- How to manipulate and adjust the systems of the game being designed to take into account the

multitude of contributing factors in developing a game.

Students Will be Skilled at:

- Basic commands within current construct 3 software.
- Analyzing the systems that make up a variety of new and old games.
- Recognizing the feedback and control structures that allow the player to interact with the system.

Learning Plan

- Review what an algorithm is – PB & J algorithm, building blocks algorithm, towers of Hanoi algorithm.
- Tutorial on current game design software program. Covering topics such as layout, object design, controls, and hit detection.
- Develop a rubric for game design project. Students will create a digital video game using the software construct 3.
- Individual or group projects developed, begun and completed.
- Students self assess on their projects, and if in groups on their group participation.

Assessment

- Assessments

    - Formative: Daily assessments using examples from class notes and CodeHS.com.
    - Summative: Teacher-created assessments/projects and CodeHS Computer Science Projects.
    - Benchmark: Check for understanding benchmark assessments on CodeHS.
    - Alternative Assessments: Student-centered activities such as a doorbell coding project, game design projects, and other activities involving real world applications shown below:
        - Rubric for their digital game project
        - Weekly meetings with individuals or groups

Materials

- Core instructional materials: Core Book List including Game Design Workshop by Fullerton

Supplemental materials: CodeHS

  - Computers
  - Construct 3

Integrated Accommodation and Modifications

See linked document.