Unit 1: Introduction to Game Design

Content Area: **Technology**
Course(s):
Time Period: **Marking Period 1**
Length: **4 Blocks**
Status: **Published**

Enduring Understandings

Games are created by teams of people who specialize in various areas related to game design.

Game designers should be constantly playing and analyzing games.

Game design requires high levels of critical thinking, brainstorming, analysis, and problem solving.

Unity can be used to create 2D and 3D games without code.

Essential Questions

How are games created?

What are the basic elements of games and game design?

How are games classified?

How do game designers come up with game concepts?

What are the basics of Unity?

Student Learning Objectives

Students will be able to…

- Create basic Unity games using Unity Playground and Unity Microgames.
- Identify basic game design principles, reciting common (visual, audial, interac- tive, narrative, etc.) choices, styles, and/ or aesthetics.
- Demonstrate the ability to review and summarize contemporary video games; examining intent, form, and functionality.
- Implement the fundamental concepts of project management within the context of the interactive application and video game development process.
- Utilize the game editor user interface to open and organize a simple project or scene.
- Differentiate primary components within the game editor; examining their purpose and function.
- Distinguish contemporary game genres and platforms.

- Devise systems to organize and illustrate the interactivity and player immersion that exist within contemporary video games.
- Reconstruct the rules of contemporary games, in order to improve the game play experience.
- Critique contemporary video games; providing adequate arguments and justification.
- Interpret the role of game narrative and game play; evaluating its impact on the interactive storytelling environment
- Define creative and critical thinking.
- Explain contemporary problem solving meth- ods, providing examples.
- Demonstrate the ability to determine essential questions, issues, and/or problems.
- Utilize contemporary problem solving techniques
- Differentiate between a game review and a critical analysis of a game.
- Breakdown a problem into its component parts, set priorities, and explore methods of resolution.
- Gather, generate, and evaluate relevant information through effective re- search.
- Develop informed conclusions/solutions.
- Use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.

Vocabulary and Learning Experiences

Vocabulary:

Unity Hub, FPS, karting, platformer, microgame, play testing, prefabs, scene, asset store, scripts, gameplay, attributes, conditions, actions, collision, rigidbody, genre, player, goals, narrative, level design, rules, interactive modes, balance, hierarchy, inspector/properties, parenting/nesting, views, animation, light mapping

Planned Learning Experiences:

Unity Playground:

Unity Playground is a framework to create 2D, physics-based games, and it’s perfect for teaching beginner game developers to make games in Unity without coding.

Unity Microgrames:

Unity Microgrames will take you from zero knowledge of Unity to being able to create, customize, and share your first game project.

Resources

Unity Learn

Unity Curricular Framework

Google Classroom

Standards

CLKS:

9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas

9.4.12.CI.2: Identify career pathways that highlight personal talents, skills, and abilities

9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition

9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice

9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving

9.4.12.CT.4: Participate in online strategy and planning sessions for course-based, school-based, or other project and determine the strategies that contribute to effective outcomes.

9.4.12.DC.7: Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society

9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task

CSDT:

8.2.12.ED.1: Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.
8.2.12.ED.3: Evaluate several models of the same type of product and make recommendations for a new design based on a cost benefit analysis.

8.2.12.ED.5: Evaluate the effectiveness of a product or system based on factors that are related to its requirements, specifications, and constraints (e.g., safety, reliability, economic considerations, quality control, environmental concerns, manufacturability, maintenance and repair, ergonomics).

8.2.12.NT.1: Explain how different groups can contribute to the overall design of a product.

8.2.12.NT.2: Redesign an existing product to improve form or function.

TECH.8.1.12.A.1	Create a personal digital portfolio which reflects personal and academic interests, achievements, and career aspirations by using a variety of digital tools and resources.
TECH.8.1.12.A.3	Collaborate in online courses, learning communities, social networks or virtual worlds to discuss a resolution to a problem or issue.
TECH.8.1.12.B	Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
TECH.8.1.12.B.2	Apply previous content knowledge by creating and piloting a digital learning game or tutorial.
TECH.8.1.12.D.1	Demonstrate appropriate application of copyright, fair use and/or Creative Commons to an original work.
TECH.8.1.12.D.5	Analyze the capabilities and limitations of current and emerging technology resources and assess their potential to address personal, social, lifelong learning, and career needs.
TECH.8.1.12.F.1	Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs.
TECH.8.2.12.A.1	Propose an innovation to meet future demands supported by an analysis of the potential full costs, benefits, trade-offs and risks, related to the use of the innovation.
TECH.8.2.12.B.3	Analyze ethical and unethical practices around intellectual property rights as influenced by human wants and/or needs.
TECH.8.2.12.B.4	Investigate a technology used in a given period of history, e.g., stone age, industrial revolution or information age, and identify their impact and how they may have changed to meet human needs and wants.
TECH.8.2.12.C.1	Explain how open source technologies follow the design process.
TECH.8.2.12.C.2	Analyze a product and how it has changed or might change over time to meet human needs and wants.
TECH.8.2.12.C.4	Explain and identify interdependent systems and their functions.
TECH.8.2.12.D.6	Synthesize data, analyze trends and draw conclusions regarding the effect of a technology on the individual, society, or the environment and publish conclusions.
TECH.8.2.12.E.1	Demonstrate an understanding of the problem-solving capacity of computers in our world.
TECH.8.2.12.E.3	Use a programming language to solve problems or accomplish a task (e.g., robotic functions, website designs, applications, and games).
TECH.8.2.12.E.4	Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).