Unit 4: Game Sounds and Effects

Content Area: **Technology**
Course(s):
Time Period: **Marking Period 1**
Length: **7 Blocks**
Status: **Published**

Enduring Understandings

Music and sound effects can completely transform the game experience.

Proper selection of sounds and effects creates a more polished game design.

Essential Questions

How do songs affect your mood and feelings?

How can game sounds impact the player's feelings towards the game?

How do sounds enhance gameplay?

Student Learning Objectives

Students will be able to…

- Use tags to label game objects and call them in the code
- Use script communication to access the methods and variables of other scripts
- Manage basic animation states in the Animator Controller
- Adjust the speed of animations to suit the character or the game.
- Attach particle effects as children to game objects
- Stop and play particle effects to correspond with character animation states
- Work with Audio Sources and Listeners to play background music Add sound effects to add polish to your project
- List the different types of audio files used in most game engines
- Describe how sound files and music are used to enhance game experience and provide realism
- Apply audio and audio effects to create realistic game environments
- Manage priority settings of multiple sound sources
- Explain the Doppler Effect and describe how to apply it within the game environment
- Create scripts to manage audio files within the game environment
- Apply 2D and 3D sounds appropriately within the game environment
- Position sounds within the game environment to improve gameplay
- Manipulate sound to create realistic effects like "roll-off" in a game
- Implement basic sound compression techniques in a game
- Manage external sound and music assets that contain intellectual property protection agreements

Vocabulary and Learning Experiences

Vocabulary:

Tags, animator controller, animation parameters, roll-off, sounds compression, copyright, shareware, licensing, royalties, stock audio, trade secrets, patents, trademarks

Planned Learning Experiences:

Run and Jump:

Learn to add sound, animation, & effects with this side-scrolling game where the player needs to time their jumps over oncoming obstacles.

Intellectual Property:

As you have learned so far in this course, it is not easy to come up with original ideas. You have placed significant effort into development of your game and you expect to own what you have created. The same is true for creators of software, music, sound files, 3D models, and other assets that may be used in the development of a game. The content and assets are considered intellectual property and as such they are owned by the developer. As a game developer, you must respect their ownership of such intellectual property. However there are ways to access and acquire rights to use such intellectual property and how to manage your own IP.

Conduct a web search on copyright and use of intellectual property in game development and define the following in your Game Design Document (GDD):

• Copyright

• Shareware

• Licensing

• Royalties

• Stock Audio

• Trade Secrets

• Patents

• Trademarks

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.DC.1: Explain the beneficial and harmful effects that intellectual property laws can have on the creation and sharing of content.

9.4.12.DC.2: Compare and contrast international differences in copyright laws and ethics.

9.4.12.DC.3: Evaluate the social and economic implications of privacy in the context of safety, law, or ethics
9.4.12.DC.4: Explain the privacy concerns related to the collection of data (e.g., cookies) and generation of data through automated processes that may not be evident to users

9.4.12.DC.5: Debate laws and regulations that impact the development and use of software

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

9.4.12.TL.3: Analyze the effectiveness of the process and quality of collaborative environments.

9.4.12.TL.4: Collaborate in online learning communities or social networks or virtual worlds to

analyze and propose a resolution to a real-world problem.

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.4: Design a product or system that addresses a global problem and document decisions made based on research, constraints, trade-offs, and aesthetic and ethical considerations and share this information with an appropriate audience.

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.ED.6: Analyze the effects of changing resources when designing a specific product or system (e.g., materials, energy, tools, capital, labor).

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.

8.2.12.EC.1: Analyze controversial technological issues and determine the degree to which individuals, businesses, and governments have an ethical role in decisions that are made.

8.2.12.EC.3: Synthesize data, analyze trends, and draw conclusions regarding the effect of a technology on the individual, culture, society, and environment and share this information with the appropriate audience.

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.B.CS4	The influence of technology on history.
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).