

Course: *Video Game Design*
Unit #2: *Video Game Development*

Year of Implementation: 2023-2024

Curriculum Team Members: *Megan Cashman* mcashman@lrhsd.org, *Dana Tritsch* dtritsch@lrhsd.org, *Megan Hahn* mhahn@lrhsd.org, *Kristina Foster* kfoster@lrhsd.org

Stage One - Desired Results

Link(s) to New Jersey Student Learning Standards for this course:

{provide all applicable links to standards here}

<https://www.state.nj.us/education/cccs/2020/>

- **Unit Standards:** *(keep each of the following headings in place)*
 - **Content Standards**
 - 1.2.8.Cr1a: Generate a variety of ideas, goals and solutions for media artworks using creative processes such as sketching, brainstorming, improvising, and prototyping with increased proficiency, divergent thinking, and opportunity for student choice.
 - 1.2.8.Cr1b: Organize and design artistic ideas for media arts productions.
 - 1.2.8.Pr4a: Experiment with and integrate multiple forms, approaches and content to coordinate, produce and implement media artworks that convey purpose and meaning (e.g., narratives, video games, interdisciplinary projects, multimedia theater).
 - 1.2.8.Pr5a: Develop and demonstrate a variety of artistic, design, technical, and soft skills (e.g., self initiative, problem solving, collaborative communication) through performing various roles in producing media artworks.
 - 1.2.8.Pr5b: Develop and demonstrate creativity and adaptability, through processes such as testing constraints and divergent solutions, within and through media arts productions.
 - **21st Century Life & Career Standards**
 - All curriculum writers/revisionists need to include standards that apply to “Career Readiness, Life Literacies, and Key Skills”. This should include a brief description of the standard and the standard number. Document only those standards and practices that apply to each unit. Use the following link to assist you [see pages of 31-36; 41-42; 53-56 for specific standard #'s and strands]
<https://www.state.nj.us/education/cccs/2020/2020%20NJSLS-CLKS.pdf>

- 9.2.12.CAP.2: Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs.
- 9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.
- 9.4.2.IML.2: Represent data in a visual format to tell a story about the data
- 9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process
- 9.4.2.CI.2: Demonstrate originality and inventiveness in work
- 9.4.2.CT.3: Use a variety of types of thinking to solve problems
- 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas

NJ Statutes: NJ State law mandates the inclusion of the following topics in lesson design and instruction as aligned to elementary and secondary curriculum.

Amistad Law: N.J.S.A. 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.

Holocaust Law: N.J.S.A. 18A:35-28 Every board of education shall include instruction on the Holocaust and genocides in an appropriate place in the curriculum of all elementary and secondary school pupils. The instruction shall further emphasize the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.

LGBT and Disabilities Law: N.J.S.A. 18A:35-4.35 A board of education shall include instruction on the political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people, in an appropriate place in the curriculum of middle school and high school students as part of the district's implementation of the New Jersey Student Learning Standards (N.J.S.A. 18A:35-4.36) A board of education shall have policies and procedures in place pertaining to the selection of instructional materials to implement the requirements of N.J.S.A. 18A:35-4.35.

Diversity and Inclusion (N.J.S.A. 18A:35-4.36a) A board of education shall incorporate instruction on diversity and inclusion in an appropriate place in the curriculum of students in grades kindergarten through 12 as part of the district's implementation of the New Jersey Student Learning Standards.

Asian American and Pacific Islanders (AAPI) P.L.2021, c.410 Ensures that the contributions, history, and heritage of Asian Americans and Pacific Islanders (AAPI) are included in the New Jersey Student Learning Standards (NJSLs) for Social Studies in kindergarten through Grade 12 (P.L.2021, c.416)

For additional information, see

NJ Amistad Curriculum: <http://www.njamistadcurriculum.net/>

Diversity and Inclusion: <https://www.nj.gov/education/standards/dei/index.shtml>

- (Sample Activities/ Lessons): <https://www.nj.gov/education/standards/dei/samples/index.shtml>

Asian American and Pacific Islanders:

- [Asian American and Pacific Islander Heritage and History in the U.S.](#)

A Teacher's Guide from EDSITEment offering a collection of lessons and resources for K-12 social studies, literature and arts classrooms that center around the experiences, achievements and perspectives of Asian Americans and Pacific Islanders across U.S. history.

Transfer Goal: Students will be able to independently use their learning to adapt and apply skills to new technologies while troubleshooting bugs.

As aligned with LRHSD Long Term Learning Goal(s): <https://www.lrhdsd.org/Page/6163>

1. utilize and integrate essential communication and technical skills significant to 21st century life, work, and community
2. evaluate careers using critical thinking and problem-solving skills to respond to changing societal and economic conditions
3. apply information technology to achieve an organization's business goals
4. create authentic learning experiences to successfully transfer knowledge into real-world experiences preparing them for life and career
5. use technology to extend creativity and/or improve problem-solving ability

Enduring Understandings

Students will understand that. . .

EU 1

- there are a variety of principles and methodologies that go into the rules and play of games affecting player and game experience.

EU 2

- critical thinking skills are an essential component to game development.

EU 3

- creating an original game utilizes game assets, objects, sprites, instances, and other components depending on the game platform used.

EU 4

- the design process is a set of steps designers use to come up with an idea, test it, and troubleshoot bugs to improve the game experience for users.

Essential Questions

EU 1

- How do a game's story and challenges contribute to player and game experience?
- How does your narrative impact the process of your game creation?

EU 2

- What is computational thinking and why is it important in game development?
- How are logic and reason used to create video games?

EU 3

- Why do you need a variety of elements to create an original game?

EU 4

- What are the various ways to develop a basic game in the various game platforms?
- How will my team use player feedback to problem solve gaming concerns and troubleshoot bugs?

Knowledge

Students will know . . .

EU 1

- the principles behind the rules and play of games. (9.4.2.IML.2; 9.4.2.Cl.2; 1.2.8.Cr1b)

Skills

Students will be able to. . .

EU 1

- develop and implement logical rules within a game to make the game challenging for users. (9.4.2.IML.2; 9.4.2.Cl.2; 1.2.8.Cr1b)

| | |
|---|---|
| <p><i>EU 2</i></p> <ul style="list-style-type: none"> the basics of computational thinking and skills game developers should possess. (1.2.8.Pr4a; 1.2.8.Pr5a) algorithms and sequences and explore programming and real life uses. (1.2.8.Pr4a; 1.2.8.Pr5a) <p><i>EU 3</i></p> <ul style="list-style-type: none"> how to utilize a game platform to create an original game. (1.2.8.Pr4a) <p><i>EU 4</i></p> <ul style="list-style-type: none"> the importance of testing a game to ensure a positive game play for users. (9.4.12.Cl.1; 9.4.5.CT.1;1.2.8.Pr5b) the rules of the original game they develop and how to fix any bugs that may arise. (1.2.8.Pr5a; 1.2.8.Pr5b) | <p><i>EU 2</i></p> <ul style="list-style-type: none"> apply a variety of algorithms and understand the relationship between the different parts of a game. (1.2.8.Pr4a; 1.2.8.Pr5a) <p><i>EU 3</i></p> <ul style="list-style-type: none"> follow technical and complex instructions to create an original game in various game platforms. (1.2.8.Pr4a) <p><i>EU 4</i></p> <ul style="list-style-type: none"> Troubleshoot game programs to fix bugs and ensure performance. (9.4.12.Cl.1; 9.4.5.CT.1;1.2.8.Pr5b) Performance of self-evaluations of projects against the requirements. (1.2.8.Pr5a; 1.2.8.Pr5b) |
| | |
| Stage Two - Assessment | |
| | |
| | |
| Stage Three - Instruction | |

Learning Plan: Suggested Learning Activities to Include Differentiated Instruction and Interdisciplinary Connections: Each learning activity listed must be accompanied by a learning goal of **A= Acquiring basic knowledge and skills, M= Making meaning and/or a T= Transfer.** {place A, M and/or T along with the applicable EU number in parentheses after each statement} All knowledge and skills must be addressed in this section with a corresponding lesson/activity which teaches each concept. The following color codes are used to notate activities that correspond with interdisciplinary connections and 21st Century Life & Career Connections (which involves Technology Literacy): **Red = Interdisciplinary Connection; Purple = 21st Century Life & Career Connection**

For example:

- **Defining vocabulary terms (A, EU1)**
- *Teacher observations on skills.(M, T, EU2)*
- *Tutorials (A, M, EU2)*
- *Teacher guided lessons (A, EU1 & EU2)*
- *Self-assess completed projects (T, EU4)*
- *Problem solving and troubleshooting (T, EU4)*

Pacing Guide

| Unit # | Title of Unit | Approximate # of teaching days |
|---------------|--------------------------------------|---------------------------------------|
| 1 | Introduction to Video Game Design | 20 Days |
| 2 | Video Game Development | 50 days |
| 3 | Careers and Marketing in Game Design | 20 days |

Instructional Materials

- Computer lab for students
 - Microsoft Surfaces or other laptop with the ability to utilize a drawing pen, keyboard and large screen hardwired into network
 - If not possible- Students will need a powerful desktop to accommodate the software
 - Solid state drives (SSD) are a possible solution for the first year the course runs.
 - New computers are recommended.
 - If desktop computers- drawing tablets needed
 - Software to be downloaded:
 - Still being determined
- Teacher Laptop
 - Provided by district
 - Teachers for this course will need a laptop to be able to create lesson and grade assignments for this course.
 - This cannot currently be done with district-provided, teacher chromebooks.
- Smart TV/Board
 - Lenape Business Education classes currently have one.

- Colored Printers
 - Students would be able to print out character and game designs to display in the classroom and potentially at the schoolwide Art Show.

Accommodations

Special Education: The curriculum will be modified as per the Individualized Education Plan (IEP). Students will be accommodated based on specific accommodations listed in the IEP.

Students with 504 Plans: Students will be accommodated based on specific accommodations listed in the 504 Plan.

English Language Learners: Students will be accommodated based on individual need and in consultation with the ELL teacher.

Students at Risk of School Failure: Students will be accommodated based on individual need and provided various structural supports through their school.

Gifted and Talented Students: Students will be challenged to enhance their knowledge and skills through acceleration and additional independent research on the subject matter.