



# Middletown Township School District

## Curriculum & Instruction Department

**Course: Advanced Video Game Design**

**Department: Technology**

**Term: Semester**

Board Approval	Committee Members	Supervisor/Director	Notes
May 2026	Danny Alston, Dorothy Alston	John Kerrigan, Ed.D.	

## Middletown Pacing Calendar

Marking Period 1		Marking Period 2	
Week # and Topic/Unit		Week # and Topic/Unit	
1	Level #1: Creating Advanced Original Prototypes in Teams	11	Level #3: Game Design Studio - Production & Portfolio Showcase
2	Level #1: Creating Advanced Original Prototypes in Teams	12	Level #3: Game Design Studio - Production & Portfolio Showcase
3	Level #1: Creating Advanced Original Prototypes in Teams	13	Level #3: Game Design Studio - Production & Portfolio Showcase
4	Level #1: Creating Advanced Original Prototypes in Teams	14	Level #3: Game Design Studio - Production & Portfolio Showcase
5	Level #1: Creating Advanced Original Prototypes in Teams	15	Level #3: Game Design Studio - Production & Portfolio Showcase
6	Level #1: Creating Advanced Original Prototypes in Teams	16	Level #3: Game Design Studio - Production & Portfolio Showcase
7	Level #1: Creating Advanced Original Prototypes in Teams	17	Level #3: Game Design Studio - Production & Portfolio Showcase
8	Level #1: Creating Advanced Original Prototypes in Teams	18	Level #3: Game Design Studio - Production & Portfolio Showcase
9	Level #2: Exploring Advanced Video Game Production - Tools & Technology	19	Level #3: Game Design Studio - Production & Portfolio Showcase
10	Level #2: Exploring Advanced Video Game Production - Tools & Technology	20	Level #4: Advanced Video Game Case Studies, Research, Exploration, and Critique: Daily Course Exercises (Ongoing Throughout the Course)

### Core Instructional Resources and Materials (Including Varied Levels of Text)

- Adobe Creative Suite
- Gaming PCs / Laptops
- Macs
- Apple TV
- Apple iPads & Apple pencils
- Unity, Roblox, and Unreal Engine game development software
- Maya and Blender creative software
- External hard drives/flash drives
- Google Workspace
- Figma
- Apple Arcade
- Xbox Series X
- Playstation 5
- Nintendo Switch 1 & 2
- Various games and gaming controllers

Level # 1	Duration (# of blocks)
Topic: Creating Advanced Original Prototypes in Teams	20
<b>Alignment to NJSLS</b>	
<p><b>NJSLS - 8.1 and 8.2 Computer Science and Design Thinking</b></p> <ul style="list-style-type: none"> <li>● <b>8.1.12.IC.2:</b> Identify how individuals and organizations influence the design of technological tools.</li> <li>● <b>8.2.12.ITH.1:</b> Analyze a product to determine the impact that economic, political, social, and/or cultural factors have had on its design, including its design constraints.</li> <li>● <b>8.2.12.ITH.3:</b> Analyze the impact that globalization, social media, and access to open source technologies has had on innovation and on a society’s economy, politics, and culture.</li> <li>● <b>8.2.12.ED.1:</b> Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.</li> <li>● <b>8.2.12.ED.5:</b> 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).</li> <li>● <b>8.2.12.NT.1:</b> Explain how different groups can contribute to the overall design of a product.</li> </ul> <p><b>NJSLS - Career Readiness, Life Literacies, and Key Skills</b></p> <ul style="list-style-type: none"> <li>● <b>9.4.12.CI.1:</b> Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a)</li> <li>● <b>9.4.12.CI.3:</b> Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).</li> <li>● <b>9.4.12.DC.7:</b> Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society (e.g., 6.1.12.CivicsPD.16.a).</li> <li>● <b>9.4.12.TL.1:</b> Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.)</li> </ul>	
<b>Learning Objectives and Activities</b>	
<ul style="list-style-type: none"> <li>● SWBAT answer the following questions: <ul style="list-style-type: none"> <li>○ How do advanced mechanics and systems deepen player mechanics?</li> <li>○ How can art, animation, sound, and code be unified into a cohesive prototype?</li> <li>○ How does rapid prototyping support innovation and creative risk-taking?</li> <li>○ How do constraints influence creative game design decisions?</li> <li>○ How can feedback be translated into meaningful design iteration?</li> </ul> </li> <li>● SWBAT demonstrate understanding of the following: <ul style="list-style-type: none"> <li>○ Strong prototypes communicate ideas clearly through gameplay.</li> <li>○ Advanced game mechanics emerge from the interaction of multiple systems.</li> <li>○ Iteration, playtesting and refinement are essential to successful creative design.</li> <li>○ Visual, audio, and interactive elements must align with a clear design vision.</li> </ul> </li> </ul>	

- Professional designers document and justify design choices.
- Learning Activities:
  - Analyze and discuss advanced indie and AAA game mechanics through creative play exercises.
  - In small design teams, develop original game concepts and themes via storyboarding to include game art & character design, mechanics, controls, and theme & story elements.
  - Create an expanded Game Design Document (GDD) using a tool of choice such as, but not limited to, Figma, Google Workspace, etc.
  - Complete a concept pitch and core loop diagram (e.g. Explore > Collect > Upgrade > Survive > Repeat in an action-adventure resource collection game).
  - Implement layered mechanics: abilities, upgrades, risk/reward.
  - Prototype systems such as stamina, inventory, or progression.
  - Integrate placeholder art and animation.
  - Document daily iteration and reflection.
  - Functional systems prototype discussion and analysis.
  - Refine visual identity and art style.
  - Add animation states and transitions.
  - Polish responsiveness, timing, and feedback.
  - Visual style guide and animation test.
  - Conduct structured prototype playtests.
  - Balance overall player difficulty and pacing for the prototype.
  - Prepare prototype demo and documentation.
  - Reflection on iteration changes via Daily Prototype Iteration and Reflection Design Logs.

### Interdisciplinary Connections

#### NJSLS - Visual and Performing Arts:

- **1.5.12acc.Cr1a:** Individually and collaboratively formulate new creative problems based on student's existing artwork.
- **1.5.12prof.Cr2c:** Collaboratively develop a proposal for an installation, artwork, or space design that transforms the perception and experience of a particular place.
- **1.5.12acc.Cr2a:** Through experimentation, practice and persistence, demonstrate acquisition of skills and knowledge in a chosen art form.
- **1.5.12acc.Cr1b:** Choose from a range of materials and methods of traditional and contemporary artistic practices to plan works of art and design.
- **1.5.12acc.Cr3a:** Engage in constructive critique with peers, then reflect on, re-engage, revise, and refine works of art and design in response to personal artistic vision.
- **1.5.12acc.Re7b:** Evaluate the effectiveness of visual artworks to influence ideas, feelings, and behaviors of specific audiences.

#### NJSLS for English Language Arts Standards

- **L.SS.9-10.1.** and **L.SS.11-12.1.** Demonstrate command of the system and structure of the English language when writing or speaking.
- **SL.PE.9-10.1.** and **SL.PE.11-12.1** Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with peers on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. Initiate and participate

effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with peers on grades 11–12 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.

- **SL.UM.9–10.5.** and **SL.UM.11-12.5** Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance findings, reasoning, and evidence and to add interest. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

#### **NJSLS for Mathematics**

- **N-Q.A:** Reason quantitatively and use units to solve problems. 1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. 2. Define appropriate quantities for the purpose of descriptive modeling. 3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

#### **ISTE Standards**

**1.4 Innovative Designer:** Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

- **1.4a:** Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
- **1.4b:** Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
- **1.4c:** Students develop, test and refine prototypes as part of a cyclical design process.
- **1.4d:** Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

**1.6 Creative Communicator:** Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

- **1.6.a.** Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
- **1.6.b.** Students create original works or responsibly repurpose or remix digital resources into new creations.

### **Computer Science & Design Thinking (NJSLS 8) and Career Readiness, Life Literacies & Key Skills (NJSLS 9)**

#### **NJSLS - 8.2 Computer Science and Design Thinking**

- **8.2.12.ITH.3:** Analyze the impact that globalization, social media, and access to open source technologies has had on innovation and on a society’s economy, politics, and culture.
- **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.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.

#### **NJSLS - Career Readiness, Life Literacies, and Key Skills**

- **9.3 Career and Technical Education** - This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.
- **9.4.12.TL.1:** Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.).

## Curriculum Requirements (N.J.A.C. 6A:8, 6A:30)

### NJSLS

- **8.1.12.DA.1:** Create interactive data visualizations using software tools to help others better understand real world phenomena, including climate change  
*Video Game Art and Design students will solve real world problems when performing their Video Game Design Challenges and/or research.*

### Benchmark, Formative, Summative and Alternative Assessments

- Benchmark:
  - Cumulative final exam project using gained video game design and development knowledge and technical skills
- Summative:
  - Game Design Prototype Using Unity, Roblox, and/or Alternative Teacher-Approved Game Engine: 2D/3D Platformer Games
  - Video Game Design Pitch and Core Loop Diagram
  - Expanded Game Design Document (GDD) Using Figma and/or Student Choice Visual Documentation Tool
  - Daily Prototype Iteration and Reflection Design Logs
  - Functional Systems Prototype Checkpoint
  - Visual Style Guide and Animation Test Addition to Figma and/or Student Choice Visual Documentation Tool
  - Self and Peer Critiques of Playable Prototypes
  - Portfolio Setup
  - Gaming News Debriefs
- Formative:
  - Classwork - Daily Video Game Design Challenges/Exercises, Research, Critique, and Portfolio Development
  - Video Clip Reaction Questions: Featured Game Designers and Case Studies of Studios
  - Teacher Observation
- Alternative:
  - Long-term personal portfolio

Level # 2	Duration (# of blocks)
Topic: Exploring Advanced Video Game Production: Tools & Technology	4
<b>Alignment to NJSLS</b>	
<p><b>NJSLS - 8.1 and 8.2 Computer Science and Design Thinking</b></p> <ul style="list-style-type: none"> <li>● <b>8.1.12.IC.1:</b> Evaluate the impact of computing technologies on society, including ethical, legal, and social implications.</li> <li>● <b>8.2.12.ITH.1:</b> Analyze a product to determine the impact that economic, political, social, and/or cultural factors have had on its design, including its design constraints.</li> <li>● <b>8.2.12.ITH.3:</b> Analyze the impact that globalization, social media, and access to open source technologies has had on innovation and on a society’s economy, politics, and culture.</li> <li>● <b>8.2.12.ED.1:</b> Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.</li> <li>● <b>8.2.12.ED.5:</b> 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).</li> <li>● <b>8.2.12.NT.1:</b> Explain how different groups can contribute to the overall design of a product.</li> </ul> <p><b>NJSLS - Career Readiness, Life Literacies, and Key Skills</b></p> <ul style="list-style-type: none"> <li>● <b>9.4.12.CI.1:</b> Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a)</li> <li>● <b>9.4.12.CI.3:</b> Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).</li> <li>● <b>9.4.12.DC.7:</b> Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society (e.g., 6.1.12.CivicsPD.16.a).</li> <li>● <b>9.4.12.TL.1:</b> Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.)</li> </ul>	
<b>Learning Objectives and Activities</b>	
<ul style="list-style-type: none"> <li>● SWBAT answer the following questions: <ul style="list-style-type: none"> <li>○ How do professional game design tools shape modern game production workflows?</li> <li>○ How does evolving technology influence artistic and design possibilities for creators?</li> <li>○ What technical skills are most valuable in the video game industry?</li> </ul> </li> <li>● SWBAT demonstrate understanding of the following: <ul style="list-style-type: none"> <li>○ Video game industry tools streamline collaboration and production.</li> <li>○ Technical literacy empowers creative independence for video game designers.</li> <li>○ Understanding pipelines prepares students for professional work environments.</li> </ul> </li> <li>● Learning Activities: <ul style="list-style-type: none"> <li>○ Identify and utilize Game Engine advanced workflows, prefabs, version control overview.</li> <li>○ Create a tool comparison chart.</li> </ul> </li> </ul>	

- Analyze and implement asset optimization, importing, and organization.
- Create an optimized asset submission.
- Explore Virtual Reality (VR), Augmented Reality (AR), Artificial Intelligence (AI) tools, procedural generation.
- Complete a short research brief on emerging tech.
- Research game industry roles, portfolios, and studios.
- Explore career interest reflection.
- Daily Prototype Iteration and Reflection Design Logs.

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#### ISTE Standards

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### [Computer Science & Design Thinking \(NJSL 8\)](#) and [Career Readiness, Life Literacies & Key Skills \(NJSL 9\)](#)

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### **Curriculum Requirements (N.J.A.C. 6A:8, 6A:30)**

### **Benchmark, Formative, Summative and Alternative Assessments**

- **Benchmark:**
  - Cumulative final exam project using gained video game design and development knowledge and technical skills
- **Summative:**
  - Game Design Prototype Using Unity, Roblox, and/or Alternative Teacher-Approved Game Engine: 2D/3D Platformer Games

- Expanded Game Design Document (GDD) Using Figma and/or Student Choice Visual Documentation Tool
- Daily Prototype Iteration and Reflection Design Logs
- Technical Workflow Analysis
- Asset Pipeline Checklist
- Presentation on Emerging Video Game Technology
- Career Pathway Plan
- Self and Peer Critiques of Playable Prototypes
- Portfolio Setup
- Gaming News Debriefs
- Formative:
  - Classwork - Daily Video Game Design Challenges/Exercises, Research, Critique, and Portfolio Development
  - Video Clip Reaction Questions: Featured Game Designers and Case Studies of Studios
  - Teacher Observation
- Alternative:
  - Long-term personal portfolio

Level # 3	Duration (# of blocks)
Topic: Game Design Studio - Production & Portfolio Showcase	16
<b>Alignment to NJSLs</b>	
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<b>Learning Objectives and Activities</b>	
<ul style="list-style-type: none"> <li>● SWBAT answer the following questions: <ul style="list-style-type: none"> <li>○ How do professional studios manage long term video game production?</li> <li>○ How can designers communicate their creative identity through a portfolio?</li> <li>○ What distinguishes a polished project from a prototype?</li> <li>○ How does collaboration impact creative outcomes in teams?</li> </ul> </li> <li>● SWBAT demonstrate understanding of the following: <ul style="list-style-type: none"> <li>○ Professional video game development is iterative and collaborative.</li> <li>○ Portfolios demonstrate both design process and product.</li> <li>○ Clear communication strengthens team-based design.</li> <li>○ Reflection is critical for creative growth.</li> </ul> </li> <li>● Learning Activities: <ul style="list-style-type: none"> <li>○ Refine final portfolio project presentation.</li> </ul> </li> </ul>	

- Define project scope, milestones, and team roles.
- Identify production schedule to date and remaining tasks left within the course timeframe to establish priorities.
- Pre-production Review and Analysis with discussion.
- Build a complete playable game.
- Integrate art, sound, user interface (UI), and mechanics.
- Participate in daily sprint reviews and critiques.
- Complete Daily Prototype Iteration and Reflection Design Logs.
- Conduct bug fixing, optimization, and polish.
- Create portfolio materials including screenshots and videos.
- Submit portfolio draft for peer and teacher feedback.
- Review final video game polish rubric.
- Participate in the course showcase and celebration with student and teacher critique sessions.
- Complete a final reflection and self-assessment.

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**[Computer Science & Design Thinking \(NJSL 8\)](#) and [Career Readiness, Life Literacies & Key Skills \(NJSL 9\)](#)**

**NJSLS - 8.2 Computer Science and Design Thinking**

- **8.2.12.ITH.3:** Analyze the impact that globalization, social media, and access to open source technologies has had on innovation and on a society’s economy, politics, and culture.
- **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.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.

**NJSLS - Career Readiness, Life Literacies, and Key Skills**

- **9.3 Career and Technical Education** - This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.
- **9.4.12.TL.1:** Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.).

**Curriculum Requirements (N.J.A.C. 6A:8, 6A:30)**

## Benchmark, Formative, Summative and Alternative Assessments

- Benchmark:
  - Cumulative final exam project using gained video game design and development knowledge and technical skills
- Summative:
  - Game Design Prototype Using Unity, Roblox, and/or Alternative Teacher-Approved Game Engine: 2D/3D Platformer Games
  - Expanded Game Design Document (GDD) Using Figma and/or Student Choice Visual Documentation Tool
  - Daily Prototype Iteration and Reflection Design Logs
  - Pre-production Review and Analysis
  - Self and Peer Critiques of Playable Prototypes
  - Portfolio Project Submission and Analysis with a final reflection and self-assessment
  - Gaming News Debriefs
- Formative:
  - Classwork - Daily Video Game Design Challenges/Exercises, Research, Critique, and Portfolio Development
  - Video Clip Reaction Questions: Featured Game Designers and Case Studies of Studios
  - Teacher Observation
- Alternative:
  - Long-term personal portfolio

Level Ongoing	Duration (# of blocks)
Topic: Advanced Video Game Case Studies, Research, Exploration, and Critique: Daily Course Exercises	Ongoing
<b>Alignment to NJSLS</b>	
<p><b>NJSLS - 8.2 Computer Science and Design Thinking</b></p> <ul style="list-style-type: none"> <li>● <b>8.2.12.ITH.1:</b> Analyze a product to determine the impact that economic, political, social, and/or cultural factors have had on its design, including its design constraints.</li> <li>● <b>8.2.12.ITH.3:</b> Analyze the impact that globalization, social media, and access to open source technologies has had on innovation and on a society’s economy, politics, and culture.</li> <li>● <b>8.2.12.ED.1:</b> Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.</li> <li>● <b>8.2.12.ED.5:</b> 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).</li> <li>● <b>8.2.12.NT.1:</b> Explain how different groups can contribute to the overall design of a product.</li> </ul> <p><b>NJSLS - Career Readiness, Life Literacies, and Key Skills</b></p> <ul style="list-style-type: none"> <li>● <b>9.4.12.CI.1:</b> Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a)</li> <li>● <b>9.4.12.CI.3:</b> Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).</li> <li>● <b>9.4.12.DC.7:</b> Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society (e.g., 6.1.12.CivicsPD.16.a).</li> <li>● <b>9.4.12.TL.1:</b> Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.)</li> </ul>	
<b>Learning Objectives and Activities</b>	
<ul style="list-style-type: none"> <li>● SWBAT answer the following case study, research &amp; exploration, and design thinking critique questions: <ul style="list-style-type: none"> <li>○ What is the core gameplay loop of this game?</li> <li>○ What player actions drive the experience?</li> <li>○ What rewards or feedback systems keep players engaged?</li> <li>○ How do visual art, animation, and sound design support the gameplay?</li> <li>○ What mechanics make the game challenging but fair?</li> <li>○ How does the game teach the player its mechanics?</li> <li>○ What elements create game feel (movement, responsiveness, animation timing)?</li> <li>○ How does the UI guide the player?</li> <li>○ How does the game introduce difficulty progression?</li> </ul> </li> </ul>	

- What design decisions make this game unique compared to similar titles?
- What engine or tools were likely used to build this game?
- What art style or design influences are visible?
- What technical systems might power the gameplay (physics, AI, inventory)?
- How does the game balance complexity vs accessibility?
- What problems might the developers have faced while building this system?
- What design choice worked particularly well in this game?
- What could be improved in the player experience?
- How would you redesign one mechanic to make the game more engaging?
- What feature would you add if you were part of the development team?
- How could this idea inspire your own prototype?
- Why is actively researching events, technology, video games, and upgrades in software programs crucial in this field?
- How does artistic, design, and narrative choices impact the video game player experience when playing video games?
- How can we analyze and provide meaningful feedback to improve our video game art and design?
- How can a portfolio effectively communicate an artist's or designer's skills, artistic style, and expertise?
- What can analyzing video games provide for aspiring video game designers, artists, and programmers?
- SWBAT demonstrate understanding of the following:
  - Performing ongoing research on topics, challenges, tools, etc. in the video game industry can help developers and designers learn new software and systems, learn popular trends, etc. while contributing towards the refinement of their overall designing craft. Understanding video game history, aesthetics, and mechanics of games enhances the ability to create meaningful and engaging game experiences.
  - Video games is a multibillion dollar industry and interdisciplinary art form which combines visual design, storytelling, mechanics, and user interaction.
  - Constructive peer and self critiques can enhance artistic and design skills by fostering iteration, problem-solving, and growth.
  - A well organized portfolio showcases artistic and technical skills, creativity, and professional growth, which is important for career opportunities in the video game industry.
  - Critically analyzing video games through case studies and play testing provides insight into industry trends, artistic direction, and game design principles.
- Learning Activities:
  - Game Analysis:
    - Continuously observe, play, describe, analyze, interpret, evaluate an array of video games on different video game systems and platforms.
    - Play or observe gameplay from selected games and analyze visual style, mechanics, narrative, and user experience.
    - Select a video game to analyze, breaking down its art style, mechanics, level design, UI, and storytelling.
    - Compare and contrast video game systems and platforms.
    - Discuss The Americans with Disabilities Act (ADA) and analyze growth of accessible technology and inclusive game design.
    - Individually or in small groups brainstorm a few concepts for this prompt: *“If you had to design a game world that minimizes wasted energy and resources to save money, what would it look like both visually and mechanically?”*
  - Daily Design/Tech Exercises
    - Perform daily research and documentation on topics from video game developers and artists articles, books, podcasts, and videos.

- Reverse engineer, play, and discuss games like Rubix Cube | Chess | Checkers.
- View and analyze videogame code such as Java, Javascript, Python, Swift (iOS), C++, etc.
- Research: events, technology, video games, and upgrades in software programs crucial in this field.
- Examine professional Video Game Design Document (GDD) to understand structure, key components, and industry expectations.
- Studio Case Studies: analyze different game studios, their cultures, and the types of games they produce to understand industry trends.
- Identify the differences between game design and game development.
- Recognize the connection between film and video classifications and ratings.
- Analyze and discuss selected articles from some of the following: Polygon, Kotaku, PC Gamer, Twitch, YouTube Gaming, Itch, Edge, etc.
- Create Core Gameplay Loop Diagrams.
- Illustrate a Mechanic Breakdowns (written or sketched).
- Document Annotated Screenshots of UI or Game Systems.
- Compose Game Feel Analysis Notes.
- Develop Mini Design Pitches Inspired by the Case Study.
- Draw Quick Prototype Sketches.
- Participate in Peer Critique Discussions.
- Complete Daily Prototype Iteration and Reflection Design Logs.
- Live Playtesting & Feedback:
  - play each other's prototypes or partially completed levels and provide real-time critique on visuals, mechanics, and user experience.
  - critique professional games.
- Portfolio
  - Create semester based video game portfolios.
  - Present portfolios for peer, self, and teacher critique, refining work based on feedback.
  - Perform Industry Research by analyzing professional portfolios from game artists and designers to identify best practices.
  - Prepare for the Game Festival.

### Interdisciplinary Connections

#### NJSLS - Visual and Performing Arts:

- **1.5.12acc.Cr1a:** Individually and collaboratively formulate new creative problems based on student's existing artwork.
- **1.5.12prof.Cr2c:** Collaboratively develop a proposal for an installation, artwork, or space design that transforms the perception and experience of a particular place.
- **1.5.12acc.Cr2a:** Through experimentation, practice and persistence, demonstrate acquisition of skills and knowledge in a chosen art form.
- **1.5.12acc.Cr1b:** Choose from a range of materials and methods of traditional and contemporary artistic practices to plan works of art and design.
- **1.5.12acc.Cr3a:** Engage in constructive critique with peers, then reflect on, re-engage, revise, and refine works of art and design in response to personal artistic vision.
- **1.5.12acc.Re7b:** Evaluate the effectiveness of visual artworks to influence ideas, feelings, and behaviors of specific audiences.

### **NJSLS for English Language Arts Standards**

- **L.SS.9-10.1.** and **L.SS.11-12.1.** Demonstrate command of the system and structure of the English language when writing or speaking.
- **SL.PE.9-10.1.** and **SL.PE.11-12.1** Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with peers on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with peers on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
- **SL.UM.9-10.5.** and **SL.UM.11-12.5** Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance findings, reasoning, and evidence and to add interest. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

### **NJSLS for Mathematics**

- **N-Q.A:** Reason quantitatively and use units to solve problems. 1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. 2. Define appropriate quantities for the purpose of descriptive modeling. 3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

### **ISTE Standards**

**1.4 Innovative Designer:** Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

- **1.4a:** Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
- **1.4b:** Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
- **1.4c:** Students develop, test and refine prototypes as part of a cyclical design process.
- **1.4d:** Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

**1.6 Creative Communicator:** Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

- **1.6.a.** Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
- **1.6.b.** Students create original works or responsibly repurpose or remix digital resources into new creations.

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### **Curriculum Requirements (N.J.A.C. 6A:8, 6A:30)**

#### **NJSLS**

- **8.1.12.DA.1:** Create interactive data visualizations using software tools to help others better understand real world phenomena, including climate change  
*Video Game Art and Design students will solve real world problems when performing their Video Game Design Challenges and/or research.*

### **Benchmark, Formative, Summative and Alternative Assessments**

- **Benchmark:**
  - Cumulative final exam project using gained video game design and development knowledge and technical skills.
- **Summative:**
  - Game Design Prototype
  - Career Presentation
  - Portfolio Setup
  - Gaming News Debriefs
- **Formative:**
  - Classwork - Daily Video Game Design Challenges/Exercises, Research, Critique, and Portfolio Development
  - Video Clip Reaction Questions: Featured Game Designers and Case Studies of Studios
  - Teacher Observation
- **Alternative:**
  - Long-term personal portfolio

## Modifications (ML, Special Education, Students not at Grade Level Proficiency, Gifted & Talented, & 504 Plans)

### **ML**

- Work toward longer passages as skills in English increase
- Use visuals
- Introduce key vocabulary before lesson
- Teacher models reading aloud daily
- Use of Bilingual Dictionary
- Guided notes and/or scaffold outline for written assignments

### **Supports for Students With IEPs:**

- Allow extra time to complete assignments or tests
- Guided notes and/or scaffold outline for written assignments
- Work in a small group
- Allow answers to be given orally or dictated
- Use large print books, Braille, or e-books
- Follow all IEP modifications

### **Students not at Grade Level Proficiency:**

- Guided notes and/or scaffold outline for written assignments
- Introduce key vocabulary before lesson
- Work in a small group
- Lesson taught again using a differentiated approach
- Allow answers to be given orally or dictated
- Use visuals / anchor charts
- Leveled texts according to ability

### **Gifted and Talented:**

- Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)
- Provide options, alternatives and choices to differentiate and broaden the curriculum
- Organize and offer flexible small group learning activities
- Provide whole group enrichment explorations
- Use center, stations, or contracts
- Organize integrated problem-solving simulations
- Propose interest-based extension activities
- Expose students to beyond level texts.

### **Supports for Students With 504 Plans:**

- Follow all the 504 plan modifications
- Text to speech/audio recorded selections
- Amplification system as needed
- Leveled texts according to ability
- Fine motor skill stations embedded in rotation as needed
- Provide anchor charts with high frequency words and phonemic patterns