

Game Development I

Course Description

This course provides an introduction to 2D video game history, design, theory, development, and programming. Emphasis is placed on understanding the history of video games and analyzing industry roles, 2D game genres, 2D gameplay, 2D art design, playability, storytelling, rule dynamics and what makes a quality game. In this course, students will be responsible for every aspect of creating a 2D game. This will entail preplanning, 2D art creation, 2D animation creation, programming, creating music and sound effects, creating rules and balance for the game, and testing the game for bugs and playability.

Game Development I

Pacing Guide

Unit	Topic	Suggested Timing
Unit 1	Video Game History & Theory, and Understanding and Creating 2D Graphics	approx. 7 weeks
Unit 2	2D Game Graphics	approx. 9 weeks
Unit 3	Concept and Preproduction Stages of Creating a 2D Game	approx. 10 weeks
Unit 4	Production, Postproduction, and Distribution Stages of Creating a 2D Game	approx. 10 weeks

Educational Technology Standards

8.1.12.A.2, 8.1.12.B.2, 8.1.12.D.1, 8.1.12.F.1

➤ Technology Operations and Concepts

- Collaborate in online courses, learning communities, social networks or virtual worlds to discuss a resolution to a problem or issue.
Examples in Unit: Students will use online forums to communicate with professional graphic designers and search for assistance on their design projects.

➤ Creativity and Innovation

- Apply previous content knowledge by creating and piloting a digital learning game or tutorial.
Examples in Unit: Students will use online to tutorials to assist with learning how to use graphic design software.

➤ Digital Citizenship

- Demonstrate appropriate application of copyright, fair use and/or Creative Commons to an original work.
Examples in Unit: In this unit students will create original graphics and not violate any copyright laws in doing so.

➤ Critical Thinking, Problem Solving, Decision Making

- Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs.
Examples in Unit: Understand what a texture and a pattern is and how they are used in graphic design. Create and use textures and patterns to add interest, depth, and a sense of realism to student designs.

Career Ready Practices

Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

CRP1. Act as a responsible and contributing citizen and employee

Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good. ‘

Example in Unit: Students will join online learning communities and follow the rules of the community.

CRP2. Apply appropriate academic and technical skills.

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

Example in Unit: Students will learn graphic design software in this unit.

CRP4. Communicate clearly and effectively and with reason.

Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others’ time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

Example in Unit: Students will present their graphics to their peers and explain how they will be used in their game

CRP6. Demonstrate creativity and innovation.

Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a

Career Ready Practices

useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

Example in Unit: In this unit students will be creating original graphics for a 2D game from scratch.

CRP7. Employ valid and reliable research strategies.

Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies. They use reliable research process to search for new information. They evaluate the validity of sources when considering the use and adoption of external information or practices in their workplace situation.

Example in Unit: In this unit students will use the web to find valid and useful tutorials to help them develop graphic design skills.

CRP11. Use technology to enhance productivity.

Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.

Example in Unit: Students will use software to create and animate elements for their 2D Game.

CRP12. Work productively in teams while using cultural global competence.

Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

Example in Unit: Class discussions will be held about the use of color in art and students groups will work together to create original art pieces.

Differentiated Instruction

Strategies to Accommodate Students Based on Individual Needs

<u>Time/General</u>	<u>Processing</u>	<u>Comprehension</u>	<u>Recall</u>
<ul style="list-style-type: none"> Extra time for assigned tasks Adjust length of assignment Timeline with due dates for reports and projects Communication system between home and school Provide lecture notes/assignments, and tutorials outline 	<ul style="list-style-type: none"> Extra Response time Have students verbalize steps Repeat, clarify or reword directions Mini-breaks between tasks Provide a warning for transitions Video lessons online 	<ul style="list-style-type: none"> Precise step-by-step directions Short manageable tasks Brief and concrete directions Provide immediate feedback Small group instruction Emphasize multi-sensory learning 	<ul style="list-style-type: none"> Teacher-made checklist Use visual graphic organizers Reference resources to promote independence Visual and verbal reminders Graphic organizers
<u>Assistive Technology</u>	<u>Tests/Quizzes/Grading</u>	<u>Behavior/Attention</u>	<u>Organization</u>
<ul style="list-style-type: none"> Computer/whiteboard Video lesson Spell-checker Text speech software 	<ul style="list-style-type: none"> Adjusted rubrics for projects Study guides Shortened tests Read directions aloud 	<ul style="list-style-type: none"> Consistent daily structured routine Simple and clear classroom rules Frequent feedback 	<ul style="list-style-type: none"> Individual daily planner Display a written agenda Note-taking assistance Color code materials

Differentiated Instruction

Strategies to Accommodate Students Based on Content-Specific Needs

- Extra time for assigned tasks
- Adjust length of assignment
- Timeline with due dates for reports and projects
- Communication system between home and school
- Small group instruction

Enrichment

Strategies Used to Accommodate Based on Students Individual Needs:

- Adaption of Material and Requirements
- Evaluate Vocabulary
- Elevated Text Complexity
- Elevated Projects Rubrics
- Independent Written and Video Online Tutorials
- Projects completed individual or with Partners
- Self Selection of Research
- Tiered/Multilevel Activities
- Online Learning Communities
- Individual Response Board
- Independent Book Studies
- Open-ended activities
- Community/Subject expert mentorships

Assessments

Suggested Formative/Summative Classroom Assessments

- Storyboards
- Teacher-created Unit Assessments, Topic Assessments, Quizzes
- Teacher-created DBQs, Essays, Short Answer
- Accountable Talk, Debate, Oral Report, Role Playing, Think Pair, and Share
- Projects, Portfolio, Presentations, Prezi, Gallery Walks
- Homework
- Concept Mapping
- Primary and Secondary Source analysis
- Photo, Video, Political Cartoon, Radio, Game Analysis
- Create an Original Song, Animation, Board Game
- Game salad Video Tutorials
- Khan Academy intro to coding

Interdisciplinary Connections

English Language Arts

- Write in-depth critiques of 2D video game graphics. (NJSLSA.W1)
- Close reading of graphic design related content (NJSLSA.R1)

Social Studies

- Research the history of art in 2D video games. (6.1.12)
- Use historical references to develop original 2D Graphics. (6.2.12)

World Language

- Translate graphic design content (7.1.ILA)
- Create a translated index of graphic design vocabulary (7.1.ILA)

Math

- Use geometry to create objects for use in a 2D game (G-CO)
- Create 2D objects and shapes on a virtual coordinate plane (G-CO)

Fine & Performing Arts

- Create original graphics (landscapes, menus, characters etc.) for use in a 2D game. (1.2.12)
- Design 2D images that appear 3D. 1.2.12)

Science

- Research latest developments in graphic design technology (HS-ETS1-4)
- Study seep and movement in 2D games. (8.1.12)

New Jersey Student Learning Standards

9.1 Personal Financial Literacy

- 9.1.12.E.4: Evaluate how media, bias, purpose, and validity affect the prioritization of consumer decisions and spending.

9.3– Career and Technical Education

CAREER CLUSTER: ARTS, A/V TECHNOLOGY & COMMUNICATIONS (AR)

- 9.3.12.AR.1: Analyze the interdependence of the technical and artistic elements of various careers within the Arts, A/V Technology & Communications Career Cluster.
- 9.3.12.AR.3: Analyze the lifestyle implications and physical demands required in the arts, audio/visual technology and communications workplace.
- 9.3.12.AR.4: Analyze the legal and ethical responsibilities required in the arts, audio/visual technology and communications workplace.
- 9.3.12.AR.5: Describe the career opportunities and means to achieve those opportunities in each of the Arts, A/V Technology & Communications Career Pathways.
- 9.3.12.AR.6: Evaluate technological advancements and tools that are essential to occupations within the Arts, A/V Technology & Communications Career Cluster.

PATHWAY: VISUAL ARTS (AR-VIS)

- 9.3.12.AR-VIS.3: Analyze and create two and three-dimensional visual art forms using various media.

INFORMATION TECHNOLOGY CAREER CLUSTER

- 9.3.IT.6: Describe trends in emerging and evolving computer technologies and their influence on IT practices.

PATHWAY: INFORMATION SUPPORT & SERVICES (IT-SUP)

- 9.3.IT-SUP.3: Apply appropriate troubleshooting techniques in resolving computer hardware, software and configuration problems.

CAREER CLUSTER : SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS (ST)

- 9.3.ST.5: Demonstrate an understanding of the breadth of career opportunities and means to those opportunities in each of the Science, Technology, Engineering & Mathematics Career Pathways.
- 9.3.ST.6: Demonstrate technical skills needed in a chosen STEM field.

PATHWAY: ENGINEERING & TECHNOLOGY CAREER PATHWAY (ST-ET)

- 9.3.ST-ET.3: Apply processes and concepts for the use of technological tools in STEM.
- 9.3.ST-ET.4: Apply the elements of the design process.

Common Career Technical Core (CCTC)

Arts, A/V Technology & Communications Career Cluster (AR)

AR 1– Analyze the interdependence of the technical and artistic elements of various careers within the Arts, A/V Technology & Communications Career Cluster.

- AR 01.1 – State how various Career Pathways within the cluster work together to generate productions, media and other activities.

AR 03 – Analyze the lifestyle implications and physical demands required in the arts, audio/visual technology and communications workplace.

- AR 03.3 – 3. Analyze ethical conduct that provides proper credit to those whose ideas and content have been used.

AR 05 – Describe the career opportunities and means to achieve those opportunities in each of the Arts, A/V Technology & Communications Career Pathways.

- AR 05.1 – Locate career opportunities that appeal to personal career goals.
- AR 05.2 – Match personal interests and aptitudes to selected careers.
- AR 05.4 – Identify pathways with common knowledge and skills that provide a worker with the potential for mobility.

AR 06 - Evaluate technological advancements and tools that are essential to occupations within the Arts, A/V Technology & Communications Career Cluster.

- AR 06.1 – Research the impact of potential new technological advancements related to this cluster in the future.
- AR 06.2 – Analyze the technological systems that are apparent within the various pathways in this cluster.

AR VIS 1 - Analyze how the application of visual arts elements and principles of design communicate and express ideas.

- AR VIS 01.5 – Analyze the development of tools and technologies employed in the visual arts.

AR VIS 3 - Analyze and create two- and three-dimensional art forms using various media.

- AR VIS 03.1 – Analyze art elements and principles of two-dimensional works of visual art in various media, including drawing, printmaking and computer software.
- AR VIS 03.3 – Analyze multimedia applications of software/hardware for the purposes of visual communications.

Information Technology Career Cluster (IT)

IT 07 - Perform standard computer backup and restore procedures to protect IT information.

- IT 07.1 – Explain the need for regular backup procedures.
- IT 07.2 – Configure, perform and maintain backup procedures.

IT WD 04 - Demonstrate the effective use of tools for digital communication production, development and project management.

- IT WD 04.1 - Select and use appropriate software tools.

IT WD 06 - Design, create, and publish a digital communication product based on customer needs.

- IT WD 06.4 - 4. Acquire and produce content for a digital communication product.

Common Core State Standards (CCSS)

CCSS - English-Language Arts

Comprehension and Collaboration:

- CCSS.ELA-LITERACY. SL.12.1a. Come to discussions prepared, having read material under study; explicitly draw on that preparation by referring to evidence from texts on the topic or issue to stimulate a thoughtful, well- reasoned exchange of ideas

Craft and Structure:

- CCSS.ELA-LITERACY. RI.12.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.

Research to Build and Present Knowledge:

- CCSS.ELA-LITERACY. W.12.9b. Draw evidence from informational texts to support analysis, reflection, and research; apply *grade 12 Reading standards* to literary nonfiction

Common Core State Standards (CCSS)

CCSS - Mathematics

Extending to Three Dimensions:

- CCSS.MATH.CONTENT.HSS.G.GMD.4 Identify the shape of a two-dimensional cross-section of a three-dimensional figure and identify three-dimensional objects created by the rotation of two-dimensional objects.
- CCSS.MATH.CONTENT.HSS.G.MG.1 Use geometric shapes, their measures, and their properties to describe objects
- CCSS.MATH.CONTENT.HSS.G.MG.14 Solve design problems using geometric methods.

Congruence, Proof, and Construction:

- CCSS.MATH.CONTENT.HSS.G.CO.2, G.CO.3, G.CO.4, G.CO.5 Develop and perform rigid transformations that include reflections, rotations, translations and dilations using geometric software, graph paper, tracing paper, and geometric tools and compare them to non-rigid transformations.

CCSS – Social Studies

- CCSS.MATH.CONTENT.WHST.9-10.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

<p>Course: Game Development I</p> <p>Unit: 2 – 2D Video Game Graphics and Graphic Design</p> <p>Grade Level: 9-12</p>	<p>Unit Overview: This unit will focus on understanding and creating 2D graphics. Students will gain an understanding of the elements and principles of design, the difference between patterns and textures and the proper uses for each, and developing graphic design skills. They will the combine knowledge of graphic design tools and principles to create 2D graphics for a video game.</p>
<p>New Jersey Student Learning Standards (NJSLS): 9.1.12.E.4, 9.3.12.AR.1, 9.3.12.AR.3, 9.3.12.AR.4, 9.3.12.AR.5, 9.3.12.AR.6, 9.3.12.AR-VIS.3, 9.3.IT.6, 9.3.IT-SUP.3, 9.3.IT-PRG.4, 9.3.IT-PRG.5, 9.3.IT-PRG.6, 9.3.IT-PRG.7, 9.3.IT-PRG.10, 9.3.ST.5, 9.3.ST.6, 9.3.ST-ET.3, 9.3.ST-ET.4</p>	
<p>Common Career Technical Core (CCTC): AR 01.1, AR 03.3 – 3, AR 05.1, AR 05.2, AR 05.4, AR 06.1, AR 06.2, AR VIS 01.5, AR VIS 03.1, AR VIS 03.3, IT 07.1, IT 07.2, IT WD 04.1, IT WD 06.4 - 4</p>	
<p>Common Core State Standards (CCSS): W.11-12.10, SL.12.1a, RI.12.4, RI.12.4, W.12.9b, HSS.G.GMD.4, HSS.G.MG.1, HSS.G.MG.14, HSS. G.CO.2, G.CO.3, G.CO.4, G.CO.5, CCSS.MATH.CONTENT.WHST.9-10.8</p>	

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
<p>Understand and dissect the principles of design and the ways that artists use the elements of art in a work of art.</p> <p>NJSLS: 9.3.12.AR-VIS.3, 9.3.IT-SUP.3, 9.3.ST.6,</p> <p>CCTC: AR VIS 01.5, AR VIS 03.1, IT 07.1, IT07.2,</p>	<p>Is it important for a video game to have a visual identity?</p> <p>What is the main objective of graphics?</p> <p>How has technology affected 2D? Video games?</p>	<ul style="list-style-type: none"> ▪ Analyze the use of balance in 2D art. ▪ Recognize and explain how Emphasis is used in art and why it is important in 2D games. ▪ Discern how movement can be achieved visually in a still image. 	<p>Logo creation Students use vector based graphic design software to create a personal logo that they will use as their signature on the work they create for the rest of the year.</p> <p>Digital Collage Students use personal and public images to</p>	<p>Principles of Design https://www.getty.edu/education/teachers/building_lessons/principles_design.pdf</p> <p>ELEMENTS OF ART http://www.oberlin.edu/amam/asia/sculpture/documents/vocabulary.pdf</p>

<p>IT WD 04.1, IT WD 06.4-4</p> <p>CCSS: CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.GMD.4, CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.MG.14, CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.CO.2, G.CO.3, G.CO.4, G.CO.5</p>		<ul style="list-style-type: none"> ▪ Compare and contrast Pattern and repetition as it pertains to art. ▪ Understand how proportion is used in a 2D world to create the illusion of 3D space. ▪ Compare and contrast how variety and unity are used in art. ▪ 	<p>create a multilayered collage on a theme of their choice.</p> <p>Choose a Tutorial Direct students to teacher approved website that house multiple graphic art tutorials on creating text effects. Student chose a tutorial and work independently on completing the steps.</p>	<p><u>A programmer's guide to creating art for your game</u> http://www.gamefromscratch.com/post/2013/06/11/Creating-art-for-your-game-when-you-are-a-programmer.aspx</p>
<p>Understand the significance of color in art and how basic shapes are different for villains and heros.</p> <p>NJSLS: 9.3.12.AR-VIS.3, 9.3.IT-SUP.3, 9.3.ST.6,</p> <p>CCTC: AR VIS 01.5, AR VIS 03.1, IT 07.1, IT07.2, IT WD 04.1, IT WD 06.4-4</p>	<p>Can color invoke emotion?</p> <p>How does the art in video games shape culture?</p> <p>How does culture shape game graphics?</p>	<ul style="list-style-type: none"> ▪ Critique color used in art. ▪ Understand the art of color theory. ▪ Analyze the science of color theory. ▪ Understand the difference between RGB and CMYK and the different uses for both. ▪ Understand the color wheel and color Harmonies. 	<p><u>Hero or Villain guessing game</u> Teacher will collect images from famous 2D characters. The teacher will then present only the color scheme for each character to the class and the students will guess on a sheet of paper it the color scheme belongs to a villain or hero.</p> <p>Use geometric shapes</p>	<p><u>The fundamentals of understanding color theory</u> https://99designs.com/blog/tips/the-7-step-guide-to-understanding-color-theory/</p> <p><u>The Elements- "Shape"</u> http://thevirtualinstructor.com/Shape.html</p> <p>Color Theory - The Elements of Art – Color</p>

<p>CCSS: CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.GMD.4, CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.MG.14, CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.CO.2, G.CO.3, G.CO.4, G.CO.5</p>		<ul style="list-style-type: none"> ▪ Master the difference between Hue, Shade, tint, and tone. ▪ Explore how shapes are used in art. 	<p>to create hero's or villain's lair. Students use only geometric shapes to create a home for a good or a bad character.</p> <p>Break the Rules. Students groups play a game against time to find examples of art that break the traditional rules. Students copy and paste the images to a Google doc with a brief description of how the rules where broken, and share with the teacher. At the end of each document will be presented by the teacher to the whole class.</p>	<p>http://thevirtualinstructor.com/Color.html</p>
<p>Understand the differences between Raster and Vector images and the appropriate uses for each. Exhibit a basic understanding of the interface and tools in graphic design software.</p>	<p>What intermediate Photoshop skills and techniques are essential for effective digital imaging and compositing?</p> <p>Why do people have different opinions about</p>	<ul style="list-style-type: none"> ▪ Understand and work with layers. ▪ Define terms related to digital imaging / graphics design. ▪ Draw and compose in a vector-based software. ▪ Review and identify 	<p>Digital Me Have students upload a photo of themselves to a graphic design program and trace the photo to create a digital version of themselves.</p> <p>Digital Interior Designer 2D</p>	<p>The Total Beginner's Guide to Better 2D Game Art http://www.gamedev.net/page/resources/_/creative/visual-arts/the-total-beginner%E2%80%99s-guide-to-better-2d-game-art-r2959</p>

<p>NJSLS: 9.3.12.AR-VIS.3, 9.3.IT-SUP.3, 9.3.ST.6,</p> <p>CCTC: AR VIS 01.5, AR VIS 03.1, IT 07.1, IT07.2, IT WD 04.1, IT WD 06.4-4</p> <p>CCSS: CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.GMD.4, CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.MG.14, CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.CO.2, G.CO.3, G.CO.4, G.CO.5</p>	<p>artwork?</p> <p>How can I use the blending modes to incorporate textures in raster Images?</p>	<p>the elements and principles of design.</p> <ul style="list-style-type: none"> ▪ Develop graphic design skills using a series of assignments that build progressively. ▪ Identify the different characteristics and uses of Raster and Vector graphics. ▪ and images warping. ▪ Use Raster-based software to transform and distort objects. ▪ Work with transparency, filters, gradients, and effects. 	<p>Students take images from the web of things found inside any one room of a home (hardwood floors, kitchen tiles, moldings, stove, couch, bed, table etc.). They then use graphic design software to manipulate the images to create a room and decorate it. Focus should be on creating the illusion of 3D.</p>	<p><u>Ctrl+Paint Principles of Design</u> http://www.ctrlpaint.com/videos/?tag=Principles of Design</p> <p><u>Photoshop Lady Text Effects</u> http://www.photoshoplady.com/photoshop-tutorial/category/text-effect/</p> <p><u>TastyTus Beginners Guide to Adobe illustrator</u> http://www.tastytuts.com/ai-beginners-guide.html</p> <p><u>TastyTus Beginners Guide to Adobe Photoshop</u> http://www.tastytuts.com/ps-beginners-guide.html</p> <p><u>Vector vs Raster</u> https://www.youtube.com/watch?v=LGYOgJWCINM</p>
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<p>Understand what a texture and a pattern is and how they are used in graphic design. Create and use textures and patterns to add interest, depth, and a sense of realism to student designs.</p> <p>NJSLS: 9.3.12.AR-VIS.3, 9.3.IT-SUP.3, 9.3.ST.6,</p> <p>CCTC: AR VIS 03.1, IT 07.1, IT07.2, IT WD 04.1, IT WD 06.4-4</p> <p>CCSS: CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.GMD.4, CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.MG.14, CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.CO.2, G.CO.3, G.CO.4, G.CO.5</p>	<p>How can I use raster Painting tools to create a texture or pattern similar to one I could create outside of the computer?</p> <p>How are modern tools used to recreate old fashion styles?</p> <p>Why is there resurgence in 2D gaming and graphics?</p> <p>How can a texture or a pattern be used to create the illusion of 3D in a 2D world?</p> <p>What is the importance of having a file naming system?</p> <p>How can background graphics add to a player's over all enjoyment of a game?</p>	<ul style="list-style-type: none"> ▪ Understand the difference between patterns and textures and the proper uses for each. ▪ Identify ways to combine textures and patterns to achieve the desired graphical result. ▪ Create a seamless texture for use in a 2D game. ▪ Create a seamless pattern for use in a 2D game. ▪ Combine knowledge of graphic design tools and principles to create a home screen/Main menu for a 2D game. ▪ Discuss how a texture crated the illusion of 3D in 2D art. 	<p><u>Pattern Creation</u> Students create an original seamless pattern in a vector based graphic design program.</p> <p><u>Texture Creation</u> Students use a raster based graphic design program to create a texture.</p> <p><u>Replicate a Classic Design</u> Student use royalty free textures found online to recreate a level from a classic game then make changes to make an original level.</p> <p><u>Seamless or Not</u> Use the smart board to show a singular pattern tile to the class and ask them to determine if they think it is seamless. Let them come to a conclusion then reveal the answer.</p>	<p><u>Vanseo Design – Structure as Patterns and Textures</u> http://vanseodesign.com/web-design/structures-patterns-textures/</p> <p><u>Better Effects Using Textures</u> http://www.hongkiat.com/blog/photoshop-texture-effects/</p> <p><u>Creating a Tile-able Texture in Photoshop</u> https://www.youtube.com/watch?v=IKGc7qpFzI8</p> <p><u>Royalty Free Textures</u> http://www.texturemate.com/category/keywords/2d</p> <p><u>How to Create a Seamless Pattern in Photoshop</u> https://www.youtube.com/watch?v=NARVupW2adS</p>
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<p>Dissect the graphics of 2D games and understand the rules, parameters for, and limitations of creating graphics designed specifically for 2D games and simple animation.</p> <p>NJSLS: 9.3.12.AR-VIS.3, 9.3.IT-SUP.3, 9.3.ST.6,</p> <p>CCTC: AR VIS 03.1, IT 07.1, IT07.2, IT WD 04.1, IT WD 06.4-4</p>	<p>What knowledge is needed to create aesthetically pleasing video game graphic?</p> <p>Who is the judge of an aesthetically pleasing piece of art?</p> <p>Why is it important to study the work from game artist of the past? Is their work relevant today, and why?</p> <p>Why is it important to</p>	<ul style="list-style-type: none"> ▪ Discuss the difference between RGB and CMYK graphics. ▪ Understand what a pixel is. ▪ Understand and compare file sizes (kbs, mbs, gbs, tbs) ▪ Understand how file size affects game play back. ▪ Identify and compare and contrast Alias vs Anti-Aliased images. ▪ Understand what a sprite sheet is and 	<p>Reduce File Size Students are supplied with a large format image and tasked to reduce the file size with out giving up too much quality through trial and error. Students can compare images and file size of their final result.</p> <p>Visual Dissection of a Classic 2D Game As a class watch videos of game play and discuss how they this it was composed visually.</p>	<p>How to tackle Character Design for 2D Games. http://howtonotsuckatgamedesign.com/2014/08/tackle-character-design-2d-games/</p> <p>RGB vs CMYK https://www.youtube.com/watch?v=o5Bx56MGMGo</p> <p>What are Pixels and How Do They Work</p>

<p>CCSS: CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.GMD.4, CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.MG.14, CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.CO.2, G.CO.3, G.CO.4, G.CO.5</p>	<p>understand who the target audience is.</p> <p>What does Design have to do with Math? Where might you use some principals of Math in your game art.</p> <p>Why is it so important to understand the Elements and Principals of Design when looking at and analyzing 2D video game graphics?</p> <p>What happen when you combine simple graphics with complex game play?</p>	<p>how to create one.</p> <ul style="list-style-type: none"> ▪ Translate art from a physical coordinate plane to graphic design software. ▪ Reduce a files size without giving up too much visual quality. 	<p>Where are the tiles? Are the elements raster or vector? Etc.</p> <p><u>Spot the Elements from a Sprite Sheet.</u> Students are given a spite sheet for a game. Play a video of the game play for the class and have the students yell “stop” when they spot an element from the sprite sheet. Pause the video and ask the student to identify what sprite they see using the code from the sheet.</p> <p><u>Sketch to digital</u> Students create a sketch on a coordinate grid and then translate it to a graphic design program using plotted points (x,y).</p>	<p>https://www.youtube.com/watch?v=m8c1CAT2zEI</p> <p>Image File Size Format Glossary https://quizlet.com/116591013/adobe-photoshop-cc-image-size-file-format-glossary-flash-cards/</p> <p>Working with Sprite Sheets http://kwiksher.com/tutorials_kwik/tutorial-sprits/</p>
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<p>Replace the sprites of an open source video game using graphics they create.</p> <p>NJSLS: 9.3.12.AR-VIS.3, 9.3.IT-SUP.3, 9.3.ST.6,</p> <p>CCTC: AR VIS 03.1, IT 07.1, IT07.2, IT WD 04.1, IT WD 06.4-4</p> <p>CCSS: CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.GMD.4, CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.MG.14, CCSS.ELA-LITERACY.W.12.9B, CSS.MATH.CONTENT.HSS.G.CO.2, G.CO.3, G.CO.4, G.CO.5</p>	<p>What are the best practices for file management?</p> <p>How do graphics affect emotion?</p> <p>How are graphics for villainous characters or environments different from those of the hero?</p> <p>How can a visual theme work to make a game more effective and enjoyable?</p> <p>Why is it important to use your hands and traditional tools to create simple designs before jumping on to the computer?</p> <p>How does culture shape game graphics?</p> <p>How does the art in video games shape culture?</p>	<ul style="list-style-type: none"> ▪ Create a visual identity for a video game. ▪ Discuss how graphics add to the feeling a game conveys to the player. ▪ Create an original piece of graphic art inspired by a previous work by a professional game artist. ▪ Understand how the illusion of 3D can be achieved in 2D art using graphic effects ▪ Use graphic design software to translate a comprehensive design into a digital format. ▪ Combine photos, original art work, textures, and patterns to create a visual style for a game. 	<p><u>Famous Character's Brother/Sister</u> Students create a character that could be related to a famous video game character.</p> <p><u>Digital Movie/TV Set</u> Students create an environment inspired by a setting from a movie or video game.</p> <p><u>Create a Sprite Sheet</u> Students will create a sprite sheet to use when replacing sprites in an open source game.</p> <p><u>Change the Tone of a Game without Altering game Play</u> Students create graphics with a visual style vastly different from the original game to change its tone and target audience.</p>	<p><u>Game Maker Studio</u> http://www.yoyogames.com/gamemaker</p> <p><u>Construct 2</u> https://www.scirra.com/construct2</p> <p><u>Game Salad</u> http://gamesalad.com/</p> <p><u>Create a Sprite Sheet for Your own 2D Game</u> https://www.youtube.com/watch?v=cRE2G96591E</p>
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Unit 2 Vocabulary

Alpha Channel
Alignment
Anchor Point
CMYK
Contrast
Crop
DPI
Filter
Focal Point
Font
Vector Image

Gradient
Grid
Harmony
JPEG
Mockup
Negative Space
Opacity
Pattern
PNG
Raster Image
Resolution
RGB
Seamless
Texture
Transparency

Suggested Unit Projects

Choose At Least One

In pairs, students create a digital version of their partner using photos digital graphics software.

Individually create new graphics for a game that already exists. The goal should be to change the mood and tone of the game without changing the game play.

Suggested Structured Learning Experiences

Museum of Play
 1 Manhattan Square
 Rochester, NY 14607
<http://www.museumofplay.org/about/icheg>

Nintendo NY
 10 Rockefeller Plaza
 New York, New York 10020
<http://nintendonyc.com/faq/>

Cooper Hewitt
 2 East 91st Street
 New York, New York 10128
<http://www.cooperhewitt.org/visit/getting-here/>