| ***Introduction to Computer Graphics******Unit 3: Vector Art and Design******Timeline: Weeks 11-15*** |
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| **Targeted Standards** (Write the overall NJSLS standards that are most applicable to this unit.).Throughout history the arts have provided essential means for individuals and communities to express their ideas, experiences, feelings, and deepest beliefs. Each discipline shares common goals but approaches them through distinct approaches and techniques. Understanding works of art provides insights into an individual’s own culture and society, as well as those of others, while also providing opportunities to access, express and integrate meaning across a variety of content areas.***New Jersey Student Learning Standards - Visual and Performing Arts: 1.5 Visual Arts Standards*****Standard 3:** Proficient 1.5.12prof.Cr3a: Apply relevant criteria from traditional and contemporary cultural contexts to examine, reflect on and plan revisions for works of art and design in progress.Accomplished-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.**Standard 4**: Proficient 1.5.12prof.Pr4a: Analyze, select and curate artifacts and/or artworks for presentation and preservation.Accomplished-1.5.12acc.Pr4a: Analyze, select and critique personal artwork for a collection or portfolio Presentation.**Standard 8:** Proficient 1.5.12prof.Re8a: Interpret an artwork or collection of works, supported by relevant and sufficient evidence found in the work and its various contexts. **Standard 9:** Proficient-1.5.12prof.Re9a: Establish relevant criteria in order to evaluate a work of art or collection of works.**Standard 10:** Proficient-1.5.12prof.Cn10a: Document the process of developing ideas from early stages to fully elaborated ideas.***New Jersey Student Learning Standards - Visual and Performing Arts: 1.2 Media Arts Standards*****Standard 1:** Proficient 1.2.12prof.Cr1a: Formulate multiple ideas using generative methods to develop artistic goals and solve problems in media arts creation processes.**Standard 2:** Proficient 1.2.12prof.Cr2a: Organize and design artistic ideas for media arts productions.**Standard 3:** Proficient 1.2.12prof.Cr3a: Understand the deliberate choices in organizing and integrating content, stylistic conventions, and media arts principles such as emphasis and tone.Proficient 1.2.12prof.Cr3b: Refine and modify media artworks, emphasizing aesthetic quality and intentionally accentuating stylistic elements to reflect an understanding of personal goals and preferences. **Standard 5:** Proficient 1.2.12prof.Pr5b: Develop and refine creativity and adaptability, such as design thinking and risk taking, in addressing identified challenges and constraints within and through media arts productions.**Standard 9:** Proficient 1.2.12prof.Re9a: Evaluate media art works and production processes at decisive stages, using identified criteria and considering context and artistic goals**Standard 10:** Proficient 1.2.12prof.Cn10a: Access, evaluate and integrate personal and external resources to inform the creation of original media artworks, such as experiences, interests and cultural experiences. |
| **Rationale and Transfer Goals** : Introduction to Computer Graphics is one of the first courses in the high school art sequence. It is primarily an exploration of the fundamental elements of art and principles of design and design (line, color, value, shape/form, texture, space, balance, pattern, contrast, movement/rhythm, proportion, emphasis, and unity) through experiences in bitmap design programs (such as Adobe Photoshop and online Pixlr), vector design programs (such as Adobe Illustrator and online Corel Vector), Page Layout programs (such as Adobe InDesign and online Lucidpress) critique, and art/design appreciation. Introduction to Computer Graphics provides opportunities to increase understanding and appreciation of the creative process in self and to increase appreciation of all creative efforts of others. Students are given the opportunity to exhibit their work during the school year. |
| **Enduring Understandings:** What are the most essential conclusions that students should be guided towards throughout this unit?* Illustrator is a graphic design application. Graphic designers use Illustrator to create vector graphics. Vector images and graphics are made of points, lines, shapes, and curves based on mathematical formulas rather than a set amount of pixels, and therefore can be scaled up or down while maintaining image quality.
* Vector graphics are digital art that is rendered by a computer using a mathematical formula. Raster images are made up of tiny pixels, making them resolution dependent and best used for creating photos.
* There are many reasons to use vectorized images.
	+ Vector images are smaller files which is advantageous in certain uses for graphic design.
	+ Vector images can be scaled without loss of crispness.
	+ Vectors can be animated using CSS, which can make for some unique effects.
* Illustrator’s digital drawing tools are used for creating vector-based illustrations, icons, typography, logos, and other artwork.
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| **Essential Questions**: What are the questions that will guide critical thinking about the content of this unit? Essential questions should, in part, be thought-starters toward the enduring understandings.* How is Adobe Illustrator utilized to create computer graphic designs?
* What is the difference between raster and vector based images?
* Why is it important for an image to be vectorized?
* How could graphic designers use this style or technique of drawing?
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|  **Content/Objectives** | **Instructional Actions** |
| **Content*****What students will know*** | **Skills*****What students will be able to do*** | **Activities/Strategies*****How we teach content and skills*** | **Evidence (Assessments)*****How we know students have learned*** |
| \* Difference between raster and vector based computer designs.\* How to use shapes and symbols to convey a message\* Apply knowledge of Adobe Illustrator tools to produce an original work of art/design.\* Students will learn and understand the processes and techniques in art and design.\* Students will self critique while planning and executing their projects.\* Students will manage time and materials to complete projects. | \* Transform ideas into computer generated vector images.\*Create small limited page layouts appropriate to Illustrator.\* Students will communicate specific vocabulary comprehension through creation in computer programs.\* Students will be able to understand aspects of elements of art and principles of design through various mediums used by graphic designers. | Activity 1: Students will be introduced to Adobe Illustrator by overviewing the workspace and comparing it to Adobe Photoshop. Discussion of when to use Photoshop and when to use Illustrator will be discussed.Activity 2: Students will create a basic vector drawing in Adobe Illustrator to learn how to use the drawing tools.Activity 3: Students will create a more complex vector drawing in Adobe Illustrator to learn how to use the pen tools and to edit them.Activity 4: Students will create a basic logo and overview the basics of logo design. The logo design may be applied to various items using a vinyl cutting machine, depending on availability.Activity 5: Basic poster or page layout using Illustrator.Activity 6: Students will be able to research various graphic designers and graphic design careers through research. (ongoing) | \*Observation of student progress.\*Projects and activities\*Quizzes and tests\*Benchmark checkpoints towards final student summative portfolio\*Formative: Visual Arts ProjectStudent Portfolio kept digitally as well as actual portfolio (if applicable).[Assessment](https://drive.google.com/drive/folders/1zd_78NSZAZE952MHzuG6iTEFCOfLC5MK?usp=share_link) |
| **Spiraling for Mastery** **Where does this unit spiral back to other units from this or previous years** **in order to ensure that students retain mastery of what they’ve learned?** |
| **Content or Skill for this Unit** | **Spiral Focus from Previous Unit** | **Instructional Activity** |
| \*Students will be able to know when and for what tasks to use vector editing software.\*Students will be able to create and modify artwork and images made up of vector graphics which are made up of paths and anchor points.\*Students will use the elements of art and principles of design to evaluate and modify work throughout the course. | \*Students will be using the design aspects of the visual arts through the elements of art and principles of design in all projects in this unit. \*Students will also use the same elements of art and principles of design to evaluate and critique their own projects, teacher example projects, and their peer’s work.\*Students will use a Bitmap Graphics program, if needed to edit and prep images to be used in the Vector image program for various artwork and graphic designs. | \*Students will gain introductory knowledge of a vector graphics program (Adobe Illustrator) to both create original artwork and graphic designs as well as to create simple page layouts. \*Students will observe exemplary examples of graphic design through studying various graphic designer’s work (ongoing). \*Students will explore graphic design career opportunities and possibilities (ongoing). |
| **21st Century Skills:** \*Students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully. \*Students will demonstrate an understanding and skill set through media, techniques, and processes making connections between visual arts and other disciplines, and understanding the visual arts in relation to history and cultures.Career Readiness, Life Literacies, and Key Skills 9.4 Life Literacies and Key SkillsCritical Thinking and Problem-solving:9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).Digital Citizenship:9.4.8.DC.2: Provide appropriate citation and attribution elements when creating media products (e.g., W.6.8).Global and Cultural Awareness:9.4.8.GCA.1: Model how to navigate cultural differences with sensitivity and respect (e.g., 1.5.8.C1a).Information and Media Literacy:9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b).9.4.8.IML.7: Use information from a variety of sources, contexts, disciplines, and cultures for a specific purpose (e.g., 1.2.8.C2a, 1.4.8.CR2a, 2.1.8.CHSS/IV.8.AI.1, W.5.8, 6.1.8.GeoSV.3.a, 6.1.8.CivicsDP.4.b, 7.1.NH. IPRET.8). 9.4.8.IML.9: Distinguish between ethical and unethical uses of information and media (e.g., 1.5.8.CR3b, 8.2.8.EC.2). 9.3 – Career & Technical Education (CTE) Content Area: 21st Century Life and CareersPathway: Printing Technology (AR‐PRT)9.3.12.AR‐PRT.2 Demonstrate the production of various print, multimedia or digital media products.Pathway: Visual Arts (AR‐VIS)9.3.12.AR‐VIS.1 Describe the history and evolution of the visual arts and its role in and impact on society.9.3.12.AR‐VIS.2 Analyze how the application of visual arts elements and principles of design communicate and express ideas.9.3.12.AR‐VIS.3 Analyze and create two and three‐dimensional visual art forms using various media. |
| **Key resources:** \*Professional organizations: AIGA-The American Institute of Graphic Arts, NAEA-National Art Education Association, AENJ-Art Educators of New Jersey, ISTE-International Society for Technology in Education, PSA-Photographic Society of America, etc.\*Online: Adobe Education Exchange, Creative Live, ICP-International Center of Photography, Aperture Foundation, Study.com, Kahoot.com, Edpuzzle.com, Quizizz.com, Quizlet.com, Virtual Instructor.com, The Art of Education, Scholasticarts.com, etc.\*Museum resources from national, regional and local museums \*Teacher-generated resources. |
| **Intersections of History:** **Black:**  Use of Black artists, designers and makers to foster experiences in American and world history through the visual arts and design.**Hispanic:** Use of Hispanic artists, designers and makers to foster experiences in American and world history through the visual arts and design.**Women:** Use of Women artists, designers and makers to foster experiences in American and world history through the visual arts and design.**LGBTQ:** Use of LGBTQ artists, designers and makers to foster experiences in American and world history through the visual arts and design.In addition, all the above may be used to influence personal choices for creating relevant Art & Graphic Design projects which deal with these topics. |
| **Important Vocabulary:** Elements of art (Line, Shape, form, Space, color, texture, and value) Principles of Art (contrast, Unity, Harmony, Pattern, balance, emphasis, movement) Fine art, Functional Art, Graphic Design, Gestalt Principles of Design (Proximity, Alignment, Contrast, Repetition, Similarity, Hierarchy), Pixel, Bitmap/Raster Graphics, Color Mode, Workspace, Tool Options Bar, Panels, Selections, Layers, Layer Mask, Drawing and Painting tools, Eraser tools, Text tool, Shape Tools, Hand tool, Zoom tool, file formats.\*New Vocabulary: Vector graphics, artboard, selection tool, direct selection tool, fill color, stroke color, path, anchor point, corner point, smooth point, bounding box, path editing tools |
| **Interdisciplinary Connections:** ELA:NJSLSA.W8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism. NJSLSA.W9. Draw evidence from literary or informational texts to support analysis, reflection, and research.NJSLSA.W10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.Computer Science and Design Thinking:8.2.8.ED.2: Identify the steps in the design process that could be used to solve a problem. 8.2.8.ITH.2: Compare how technologies have influenced society over time.Mathematics: Math A-CED.A.1: Create equations and inequalities in one variable and use them to solve problems.Math 6.RP.A.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities |