| ***Introduction to Computer Graphics***  ***Unit 2: Bitmapped Art and Design***  ***Timeline: Weeks 4-10*** | | | | | |
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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?   * Adobe Photoshop is software that is extensively used for raster image editing, graphic design and digital art. It makes use of layering to allow for depth and flexibility in the design and editing process. * Images can be reshaped, repaired, and enhanced using basic tools in Photoshop.   + Discover how to use Photoshop tools for basic tasks: resize, crop, straighten and rotate an image and changing file formats.   + Apply techniques to digitize, duplicate, and clone image content to repair damaged or inferior photos.   + Interpret a histogram to make color corrections for brightness, contrast, exposure, and vibrance. * Image editing software can be used creatively to express an idea or emotion by making a whole new image from many.   + Discover that layers within image construction are separate parts of a photograph that can be accessed and edited independently of the whole.   + Apply colorization, image swapping, and pop arts techniques using layers.   + Combine and blend multiple photographs to create a new composition with new meaning.   + Demonstrate ethical use of the intellectual property of others. * With the advent of photo-editing software and digital photography, photos can now be distorted in such a way that the casual viewer can't detect these changes. This has raised some very interesting questions about ethics in using photo retouching software such as Photoshop to manipulate images. | | | | | |
| **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 Photoshop utilized to create computer graphic designs? * How can image editing tools be used to enhance, repair, and restore images? * How can image editing tools be used to manipulate images to express an idea and influence communication in the digital world? * What knowledge and skills are essential for humans to make sound decisions about creating, using, and modifying technologies? | | | | | |
| **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*** |
| \* Students will learn and understand vocabulary for bitmap imaging techniques and software.  \* Students will learn and understand the processes and techniques used in creating and editing images in Photoshop.  \*Students will know when it’s appropriate to choose Photoshop for creating an art or design project as opposed to other software.  \* Students will self critique while planning and executing their projects.  \* Students will manage time and materials to complete projects. | \* Students will be able to create various projects to edit and make adjustments to images.  \*Students will be able to use advanced features in Photoshop to isolate parts of images.  \*Students will create illustrations and paintings both from photos and images as well as created from scratch.  \*Students will use layout techniques specific to Photoshop to create single page designs.  \* Students will communicate specific vocabulary comprehension through creation in computer programs. | | **Activity 1:** Students will be introduced to Adobe Photoshop by creating a basic project to practice making selections, working with layers, adding text, and choosing colors as well as adding simple effects.  **Activity 2:** Students will use Photoshop to practice image editing and adjustments to change and/or improve images and photographs depending upon what the images will be used for.  **Activity 3**: Students will be able to complete advanced selection techniques through the use of Masking.  **Activity 4:** Students will be able to create illustrations and paintings using Photoshop.  **Activity 5:** Students will be able to create one page designs using photos and text as well as apply techniques from Photoshop.  **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 Project  Student Portfolio kept digitally as well as actual portfolio (if applicable).  [Assessments](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 bitmap editing software.  \*Students will be able to create and modify artwork and images which are made up of pixels.  \*Students will use the elements of art and principles of design to evaluate and modify work throughout the rest of 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 gain introductory knowledge of a bitmap graphics program (Adobe Photoshop) to both create original artwork and graphic designs as well as to edit artwork and graphic designs.  \*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 Skills  Critical 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 Careers  Pathway: 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:**  Previous 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)  \*New vocabulary: Pixel, Bitmap/Raster Graphics, Color Mode, Photoshop, Workspace, Tool Options Bar, Panels, Selections, Layers, Layer Mask, Healing Tools, Drawing and Painting tools, Eraser tools, Photo-retouching tools, Text tool, Shape Tools, Hand tool, Zoom tool, Foreground color, Background color, Saturation, file formats. | | | | | |
| **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 | | | | | |