Unit 1: Digital Photography Copied from: Advanced Computer Graphics/Dig Phot, Copied on: 02/21/22

Content Area: **Art**
Course(s): **Advanced Computer Graphics/Digital Photography**
Time Period: **SeptOct**
Length: **35 days, Grades 11-12**
Status: **Published**

Title Section

Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

Advanced Computer Graphics & Digital Photography - Grades 11-12

Unit 1: Digital Photography

Belleville Board of Education

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Board Approved: September 23, 2019

Unit Overview

This unit focuses on the exploration of advanced photographic techniques, including:

- Manual settings on digital single-lens reflex cameras
- Techniques that have recently become possible using today's sophisticated smartphones.
- Lighting methods
- The use of a tripod for long exposures
- Camera RAW
- The ethics of photography will be explored.
- Students will investigate photography careers.

Students will work with the teacher to establish individual portfolio goals that demonstrate mastery.

Students will be responsible for pursuing those goals outside the classroom as well as in school.

Enduring Understanding

- Photographers use manual camera settings to gain control over the look of their photos.
- The brightness of a photograph is the result of the size of the aperture, the shutter speed and the ISO used to take the photo.
- Depth of field is controlled by the size of the aperture.
- Controlling the shutter speed enables a photographer to capture motion in creative ways.
- A camera RAW image is an unprocessed photograph captured with a digital camera.
- Photography ethics are the principles that guide how we take and share photographs.
- Ethics change from one context to another.
- Photojournalism has strict industry regulations about staging and digital editing.

Essential Questions

- What is fine art photography?
- What are some stylistic devices and techniques that have enabled photographers to distinguish themselves?
- When is it advantageous to use manual camera settings?
- Is it ethical to take a photo of a person who does not consent to being photographed?
- When does a photographer have the legal right to alter a photograph?
- Is there a moral component to photography?
- Does a photographer ever have the moral right to alter a photograph?
- What is Camera Raw?
- Why would a photographer use Camera Raw?
- How can aperture size be used to choose a focus in landscape photography?
- How can a photographer control the use of shadows in portrait photography?

Exit Skills

By the end of this unit, the student should be able to:

- Use the manual settings on a digital SLR camera to determine the exposure of a photograph.
- Use the manual settings on a digital SLR camera to vary the depth of field.
- Choose the manual settings and functions of the camera to achieve a desired result.
- Utilize studio lighting for portrait photography.
- Explain proper composition.
- Shoot in Camera Raw and use the Camera Raw filter in Photoshop.
- Discuss moral and ethical questions in photography.
- Take sharp, balanced photographs that communicate a point of view.

New Jersey Student Learning Standards (NJSLS-S)

VPA.1.1.12.D.1	Distinguish innovative applications of the elements of art and principles of design in visual artworks from diverse cultural perspectives and identify specific cross-cultural themes.
VPA.1.1.12.D.CS1	Common themes exist in artwork from a variety of cultures across time and are

	communicated through metaphor, symbolism, and allegory.
VPA.1.1.12.D.CS2	Stimuli for the creation of artworks can come from many places, including other arts disciplines.
VPA.1.2.12.A.1	Determine how dance, music, theatre, and visual art have influenced world cultures throughout history.
VPA.1.2.12.A.2	Justify the impact of innovations in the arts (e.g., the availability of music online) on societal norms and habits of mind in various historical eras.
VPA.1.2.12.A.CS2	Access to the arts has a positive influence on the quality of an individual's lifelong learning, personal expression, and contributions to community and global citizenship.
VPA.1.3.12.D.1	Synthesize the elements of art and principles of design in an original portfolio of two- and three-dimensional artworks that reflects personal style and a high degree of technical proficiency and expressivity.
VPA.1.3.12.D.2	Produce an original body of artwork in one or more art mediums that demonstrates mastery of visual literacy, methods, techniques, and cultural understanding.
VPA.1.3.12.D.3	Organize an exhibit of personal works of visual art that convey a high level of understanding of how the expression of ideas relates to the art media, art mediums, and techniques used.
VPA.1.3.12.D.4	Analyze the syntax and compositional and stylistic principles of two- and three-dimensional artworks in multiple art media (including computer-assisted artwork), and interpret themes and symbols suggested by the artworks.
VPA.1.3.12.D.5	Identify the styles and artistic processes used in the creation of culturally and historically diverse two- and three-dimensional artworks, and emulate those styles by creating an original body of work.
VPA.1.3.12.D.CS1	How individuals manipulate the elements of art and principles of design results in original portfolios that reflect choice and personal stylistic nuance.
VPA.1.3.12.D.CS3	The artist's understanding of the relationships among art media, methodology, and visual statement allows the artist to use expressionism, abstractionism (nonobjective art), realism/naturalism, impressionism, and other genre styles to convey ideas to an audience.
VPA.1.3.12.D.CS4	Artists interpret/render themes using traditional art media and methodologies as well as new art media and methodologies.
VPA.1.3.12.D.CS5	Two- and three-dimensional artworks can be rendered culturally specific by using the tools, techniques, styles, materials, and methodologies that are germane to a particular cultural style.
VPA.1.4.12.A.2	Speculate on the artist's intent, using discipline-specific arts terminology and citing embedded clues to substantiate the hypothesis.
VPA.1.4.12.A.CS2	Contextual clues within artworks often reveal artistic intent, enabling the viewer to hypothesize the artist's concept.
VPA.1.4.12.B.1	Formulate criteria for arts evaluation using the principles of positive critique and observation of the elements of art and principles of design, and use the criteria to evaluate works of dance, music, theatre, visual, and multimedia artwork from diverse cultural contexts and historical eras.
VPA.1.4.12.B.CS2	The cohesiveness of a work of art and its ability to communicate a theme or narrative can be directly affected by the artist's technical proficiency as well as by the manner and physical context in which it is performed or shown.

Interdisciplinary Connections

- Mathematic: ratios, graphs
- ELA: reading technical subjects
- Ethics

LA.RST.11-12.2	Determine the central ideas, themes, or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
LA.RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
LA.RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
LA.RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
LA.RST.11-12.10	By the end of grade 12, read and comprehend science/technical texts in the grades 11-CCR text complexity band independently and proficiently.
	In real world problems, the answers are usually not numbers but quantities: numbers with units, which involves measurement. In their work in measurement up through Grade 8, students primarily measure commonly used attributes such as length, area, and volume. In high school, students encounter a wider variety of units in modeling, e.g., acceleration, currency conversions, derived quantities such as person-hours and heating degree days, social science rates such as per-capita income, and rates in everyday life such as points scored per game or batting averages. They also encounter novel situations in which they themselves must conceive the attributes of interest. For example, to find a good measure of overall highway safety, they might propose measures such as fatalities per year, fatalities per year per driver, or fatalities per vehicle-mile traveled. Such a conceptual process is sometimes called quantification. Quantification is important for science, as when surface area suddenly “stands out” as an important variable in evaporation. Quantification is also important for companies, which must conceptualize relevant attributes and create or choose suitable measures for them.
	With each extension of number, the meanings of addition, subtraction, multiplication, and division are extended. In each new number system—integers, rational numbers, real numbers, and complex numbers—the four operations stay the same in two important ways: They have the commutative, associative, and distributive properties and their new meanings are consistent with their previous meanings.

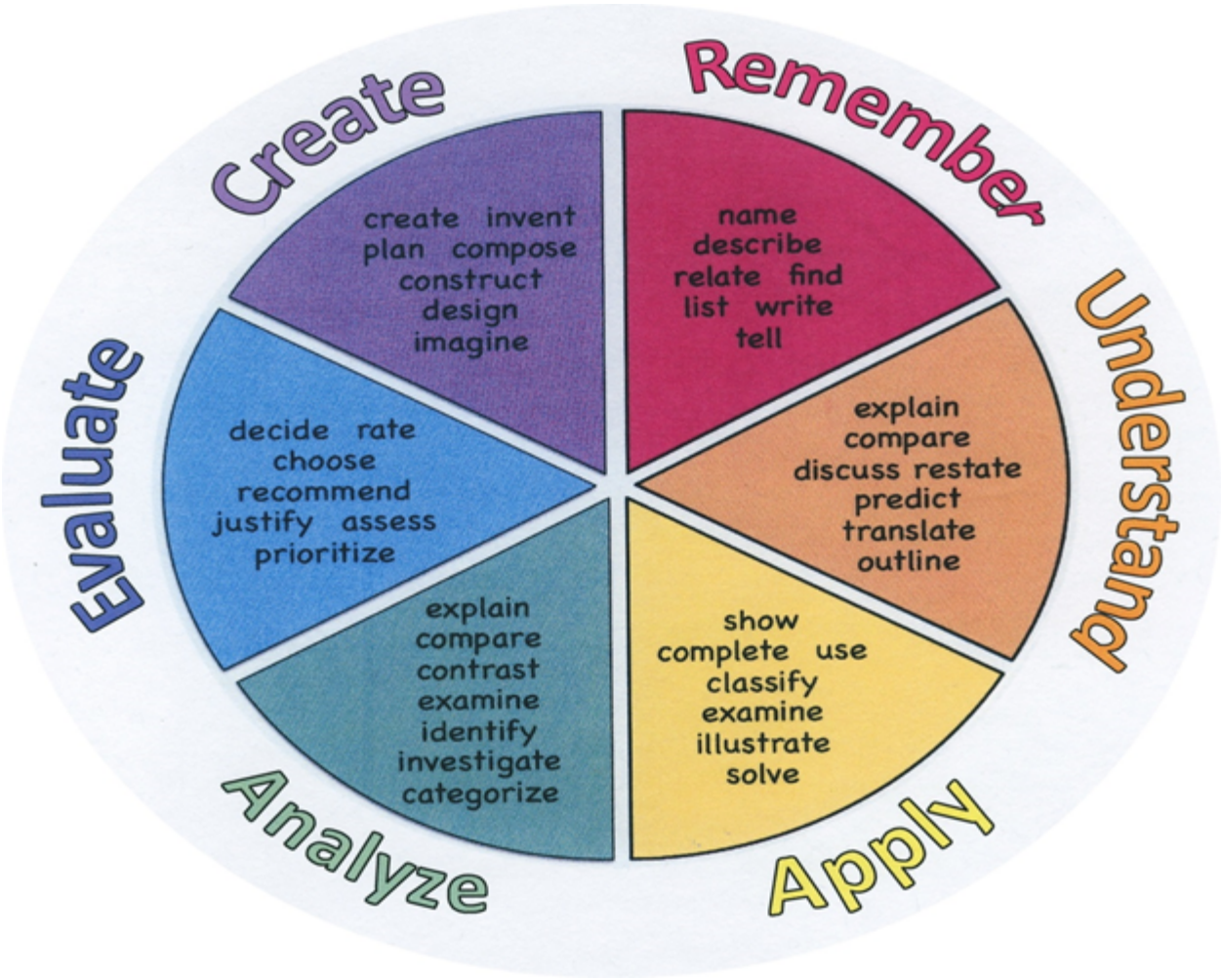
Learning Objectives

Students will demonstrate the ability to:

- Select the aperture, shutter speed, and ISO settings for proper exposure.
- Determine the meaning of a histogram.
- Compose sharp and balanced photographs.
- Devise lighting to achieve desired shadows in a portrait.
- Justify the use of a chosen aperture or shutter speed.
- Assess the legality of taking photographs in different situations.
- Develop personal portfolio goals

Action Verbs: Below are examples of action verbs associated with each level of the Revised Bloom's Taxonomy.

Remember	Understand	Apply	Analyze	Evaluate	Create
Choose	Classify	Choose	Categorize	Appraise	Combine
Describe	Defend	Dramatize	Classify	Judge	Compose
Define	Demonstrate	Explain	Compare	Criticize	Construct
Label	Distinguish	Generalize	Differentiate	Defend	Design
List	Explain	Judge	Distinguish	Compare	Develop
Locate	Express	Organize	Identify	Assess	Formulate
Match	Extend	Paint	Infer	Conclude	Hypothesize
Memorize	Give Examples	Prepare	Point out	Contrast	Invent
Name	Illustrate	Produce	Select	Critique	Make
Omit	Indicate	Select	Subdivide	Determine	Originate
Recite	Interrelate	Show	Survey	Grade	Organize
Select	Interpret	Sketch	Arrange	Justify	Plan
State	Infer	Solve	Breakdown	Measure	Produce
Count	Match	Use	Combine	Rank	Role Play
Draw	Paraphrase	Add	Detect	Rate	Drive
Outline	Represent	Calculate	Diagram	Support	Devise
Point	Restate	Change	Discriminate	Test	Generate
Quote	Rewrite	Classify	Illustrate		Integrate
Recall	Select	Complete	Outline		Prescribe
Recognize	Show	Compute	Point out		Propose
Repeat	Summarize	Discover	Separate		Reconstruct
Reproduce	Tell	Divide			Revise
	Translate	Examine			Rewrite
	Associate	Graph			Transform
	Compute	Interpolate			
	Convert	Manipulate			
	Discuss	Modify			
	Estimate	Operate			
	Extrapolate	Subtract			
	Generalize				
	Predict				



Suggested Activities & Best Practices

- Work with individual students to develop personal goals.

Suggested projects:

- Forced perspective photographs
- Street photography
- Double exposure portraits
- Sinister portraits
- Rembrandt lighting portraits
- "Focus stack"
- Long exposure landscape photographs
- "Cindy Sherman" photographs
- One-color photographs

- Advertising Photographs
- "A Day in the Life of" documentary photographs

Assessment Evidence - Checking for Understanding (CFU)

- Student-teacher conferences (formative assessment)
- Observations of student work (formative assessment)
- Self-evaluation rubric for photos (alternative assessment)
- Homework - assigned photographs (formative assessment)
- Written reports on photographic innovations and/or significant photographers (summative assessment)
- Journals summarizing tutorials used (alternative assessment)
- Benchmark performance exam (summative assessment)

- Admit Tickets
- Anticipation Guide
- Common Benchmarks
- Compare & Contrast
- Create a Multimedia Poster
- DBQ's
- Define
- Describe
- Evaluate

- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Learning Center Activities
- Multimedia Reports
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide
- Surveys
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit review/Test prep
- Unit tests
- Web-Based Assessments
- Written Reports

Primary Resources & Materials

- Digital single-lens reflex cameras
- battery chargers
- SD cards
- Apple TV
- Internet connection
- Apple computers

Ancillary Resources

- Smartphones
- Printed materials
- Photo lamps
- Photo screen
- Tripods
- Flash drives

Technology Infusion

This unit revoves around digital photography using digital SLR cameras and smartphones.

Photography websites and free online classes that will be utilized include:

- Digital Photo Pro
- Digital Photography Pro
- R-Photo Class
- Stanford University Photography Lectures
- Harvard University Introduction To Digital Photography
- Udemy Introduction To Photography Course
- Commercial Photography: Still and Moving Image
- The Art of Photography (PHOT) by Dr. Shane Hulbert

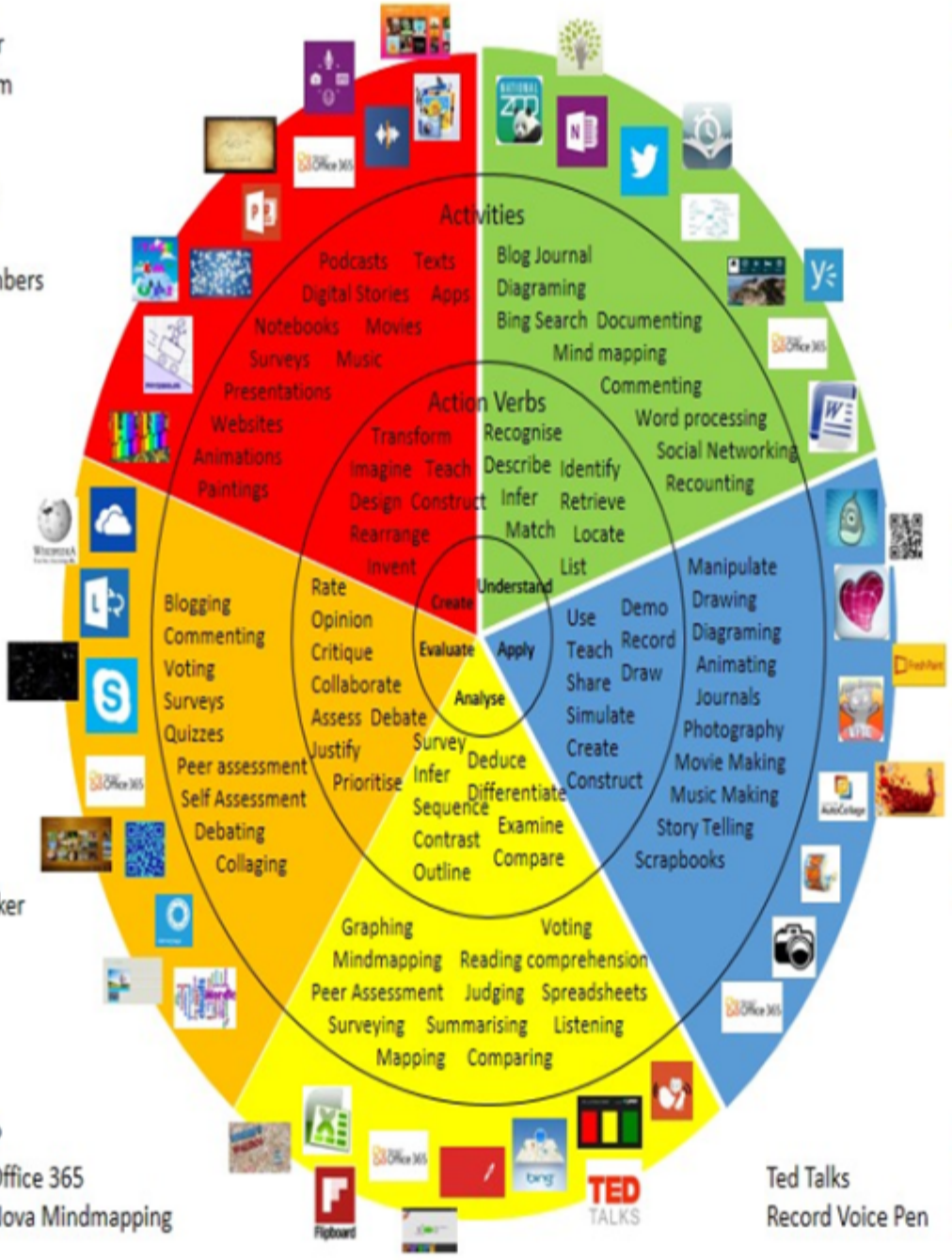
Students will curate and format work for a digital portfolio.

What **Technology Infusion** and/or strategies are integrated into this unit to enhance learning? Please list all hardware, software and strategies. Please find a technology pedagogy wheel for assistance while completing this section.

Win 8.1 Apps/Tools Pedagogy Wheel

Podcasts
Photostory 3
Kid Story Builder
Music Maker Jam
Paint A Story
Office 365
MS PowerPoint
Stack 'Em Up
NqSquared Numbers
Physamajig
Xylophone 8

Wikipedia
Skydrive
Lync
SkyMap
Skype
Office 365
Puzzle Touch
Easy QR
Memorylage
Life Moments
Word Cloud Maker



Where's Waldo?
MS Excel Office 365
Flipboard Nova Mindmapping

Ted Talks
Record Voice Pen

Originally taken from http://www.coetail.com/vzimmer/files/2013/02/iPadagogy-Wheel.001.jpg
And adapted for Windows 8.1 devices by Charlotte Beckhurst @CharBeckhurst

Alignment to 21st Century Skills & Technology

- Creativity and Invention
- Critial Thinking and Problem Solving
- Information Literacy
- Media Literacy
- Life & Career Skills
- Communication and Collaboration

CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP7	Employ valid and reliable research strategies.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP9	Model integrity, ethical leadership and effective management.
CRP.K-12.CRP10	Plan education and career paths aligned to personal goals.
CRP.K-12.CRP11	Use technology to enhance productivity.
CAEP.9.2.12.C	Career Preparation
CAEP.9.2.12.C.1	Review career goals and determine steps necessary for attainment.
CAEP.9.2.12.C.2	Modify Personalized Student Learning Plans to support declared career goals.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
CAEP.9.2.12.C.4	Analyze how economic conditions and societal changes influence employment trends and future education.
CAEP.9.2.12.C.6	Investigate entrepreneurship opportunities as options for career planning and identify the knowledge, skills, abilities, and resources required for owning and managing a business.
CAEP.9.2.12.C.7	Examine the professional, legal, and ethical responsibilities for both employers and employees in the global workplace.
TECH.8.1.12.A	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.
TECH.8.1.12.A.1	Create a personal digital portfolio which reflects personal and academic interests, achievements, and career aspirations by using a variety of digital tools and resources.
TECH.8.1.12.A.2	Produce and edit a multi-page digital document for a commercial or professional audience and present it to peers and/or professionals in that related area for review.
TECH.8.1.12.A.CS1	Understand and use technology systems.
TECH.8.1.12.A.CS2	Select and use applications effectively and productively.
TECH.8.1.12.B	Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.

TECH.8.1.12.B.CS1	Apply existing knowledge to generate new ideas, products, or processes.
TECH.8.1.12.B.CS2	Create original works as a means of personal or group expression.
TECH.8.1.12.C.CS2	Communicate information and ideas to multiple audiences using a variety of media and formats.

21st Century Skills/Interdisciplinary Themes

Upon completion of this section, please remove all remaining descriptions, notes, outlines, examples and/or illustrations that are not needed or used.

Please list only the **21st Century/Interdisciplinary Themes** that will be incorporated into this unit.

- Communication and Collaboration
- Creativity and Innovation
- Critical thinking and Problem Solving
- ICT (Information, Communications and Technology) Literacy
- Information Literacy
- Life and Career Skills
- Media Literacy

21st Century Skills

Upon completion of this section, please remove all remaining descriptions, notes, outlines, examples and/or illustrations that are not needed or used.

Please list only the **21st Century Skills** that will be incorporated into this unit.

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy
- Global Awareness
- Health Literacy

Differentiation

- Additional time to complete tutorials and photography assignments
- Independent projects will be tailored to each student
- Check work frequently to ensure understanding

Special Education Learning (IEP's & 504's)

Please identify the **Special Education Learning** adaptations that will be employed in the unit, using the ones identified below.

- Additional time for mastery of photographic skills and techniques
- Preview of content, concepts and vocabulary of tutorials to be used
- Modified assignment format: assignments will be tailored to each student's capabilities

- printed copy of board work/notes provided
- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test content
- modified test format
- modified test length
- multi-sensory presentation
- multiple test sessions
- preferential seating
- preview of content, concepts, and vocabulary
- Provide modifications as dictated in the student's IEP/504 plan
- reduced/shortened reading assignments
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner
- teacher initiated weekly assignment sheet

- Use open book, study guides, test prototypes

English Language Learning (ELL)

Please identify the **English Language Learning** adaptations that will be employed in the unit, using the ones identified below.

- Video tutorials will be chosen over written instructions
- Written handouts will be translated using Google translate when necessary
- Lengthy reading assignments will be omitted
- Tests will be performance based.

- teaching key aspects of a topic. Eliminate nonessential information
- using videos, illustrations, pictures, and drawings to explain or clarif
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;
- allowing students to correct errors (looking for understanding)
- allowing the use of note cards or open-book during testing
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching, or fill in the blank tests in lieu of essay tests

At Risk

- Reduced amount of work required
- Use of videos and pictures to explain techniques
- Students will be allowed to select projects from a number of options.

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- allowing students to select from given choices
- allowing the use of note cards or open-book during testing
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.

- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using authentic assessments with real-life problem-solving
- using true/false, matching, or fill in the blank tests in lieu of essay tests
- using videos, illustrations, pictures, and drawings to explain or clarify

Talented and Gifted Learning (T&G)

- Assignments for gifted and talented students will require advanced problem solving
- Higher order, critical & creative thinking skills will be integral to photographic projects

- Above grade level placement option for qualified students
- Advanced problem-solving
- Allow students to work at a faster pace
- Cluster grouping
- Complete activities aligned with above grade level text using Benchmark results
- Create a blog or social media page about their unit
- Create a plan to solve an issue presented in the class or in a text
- Debate issues with research to support arguments
- Flexible skill grouping within a class or across grade level for rigor
- Higher order, critical & creative thinking skills, and discovery
- Multi-disciplinary unit and/or project
- Teacher-selected instructional strategies that are focused to provide challenge, engagement, and growth opportunities
- Utilize exploratory connections to higher-grade concepts
- Utilize project-based learning for greater depth of knowledge

Sample Lesson

Using the template below, please develop a **Sample Lesson** for the first unit only.

Unit Name: Photography

NJSLS: attached

Interdisciplinary Connection: Social Studies

Statement of Objective: SWDAT create high quality photographic portraits by emulating the style of a famous portrait photographer.

Anticipatory Set/Do Now: Look up the following photographers: Steve McCurry, Diane Arbus, Richard Avedon, Philippe Halsman and Cindy Sherman.

Learning Activity: Students will read about the portrait photography techniques split lighting, catchlight and Rembrandt lighting. Students will analyze portraits by famous portrait photographers to determine what makes them memorable, using a handout of questions to guide them and select a photographer whose style they want to emulate.Then students will work in pairs or small groups to photograph each other in the classroom using photo lights or outdoors.

Student Assessment/CFU's: Quick write: Choose two portrait photographers whose work you liked. For each, describe the way they used color, light and shadow, composition, and pose to make their portraits stand out.

Materials: Internet connection, handouts, digital cameras, photo lamps, white or other color solid background.

21st Century Themes and Skills: Creativity and invention; problem solving; media literacy; communication & collaboration

Differentiation/Modifications: Modified expectations

Integration of Technology: Use of the internet for research; digital cameras

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