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

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Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

Introduction to Computer Graphics & Digital Photography, Grades 10-12

Digital Photography

Belleville Board of Education

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Unit Overview

- Photography can serve various functions: documentation, communication, journalism, expression of emotion.
- Photography is an art form. Students will apply their knowledge of the Elements of Art and the Principles of Design to creating well-composed and technically proficient photographs.
- Photographers make choices in order to achieve desired results. Students, as photographers, will engage with the world as they research photographic style and content and experiment with camera settings and shooting modes, creating a wide variety of digital photographs.
- New technologies have influenced the development of photography since its invention. Students will view and analyze historically important photographs and understand the impact of technological developments on photography.

- Photography has shaped history through its power to inform and provoke reaction. Students will use the internet to investigate ways in which photographs and photographers have impacted society.

Enduring Understanding

- Photography is an art form; the photographer makes deliberate choices that determine the success of the photograph.
- Composing a successful photograph requires consideration of the Elements of Art and Principles of Design.
- The aperture, shutter speed, and other settings are the tools that enable the photographer to create a properly exposed photograph with desired characteristics.
- Photography serves many functions including documentation, communication, and expression.
- The development of photography has influenced other forms of visual art.
- Photography has a direct impact on news reporting, pubic opinion, and history.

Essential Questions

- What are the goals of a photographer?
- How does a photograph differ from a painting or drawing?
- Is a photograph always an objective record?
- How can a photograph communicate a point of view?
- How has photography influenced history and public opinion?
- How have cellphone cameras changed photography?
- What makes a good photograph?
- What is "depth of field?"
- How does shutter speed affect a photograph?
- How does aperture size affect a photograph?
- What is resolution and why does it matter in photography?
- Why are the shutter speed, aperture, and ISO called the "exposure triangle?

Exit Skills

By the end of Introduction to Computer Graphics & Digital Photography Unit 1, the student should be able to:

- Compose well-balanced and properly exposed photographs using digital cameras and cellphone cameras.
- Select appropriate camera settings for various types of photography, including portraiture, action photos, close-ups and landscapes.
- Explain the effects of shutter speed, aperture size and ISO.
- Analyze and evaluate photographs in terms of composition, focus, exposure, and depth of field.
- Assess the historical and cultural impact of phototgraphic developments.

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.1.2.12.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.CS1	Cultural and historical events impact art-making as well as how audiences respond to works of art.
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.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.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.1	Use contextual clues to differentiate between unique and common properties and to discern the cultural implications of works of dance, music, theatre, and visual art.
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.3	Develop informed personal responses to an assortment of artworks across the four arts disciplines (dance, music, theatre, and visual art), using historical significance, craftsmanship, cultural context, and originality as criteria for assigning value to the works.
VPA.1.4.12.A.CS1	Recognition of fundamental elements within various arts disciplines (dance, music, theatre, and visual art) is dependent on the ability to decipher cultural implications embedded in artworks.
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.A.CS3	Artistic styles, trends, movements, and historical responses to various genres of art evolve over time.
VPA.1.4.12.A.CS4	Criteria for assessing the historical significance, craftsmanship, cultural context, and originality of art are often expressed in qualitative, discipline-specific arts terminology.
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.2	Evaluate how an artist's technical proficiency may affect the creation or presentation of a work of art, as well as how the context in which a work is performed or shown may impact perceptions of its significance/meaning.
VPA.1.4.12.B.3	Determine the role of art and art-making in a global society by analyzing the influence of technology on the visual, performing, and multimedia arts for consumers, creators, and performers around the world.
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.
VPA.1.4.12.B.CS3	Art and art-making reflect and affect the role of technology in a global society.

Interdisciplinary Connections

- Mathematics: Exposure Ratios, Depth of Field, The Rule of Thirds

- Language Arts: Reading and writing about famous photographers' achievements, innovations and impact.
- Social Studies: The impact of photography on history and culture.
- Career Readiness: Photojournalism, advertising photography
- Technology: Use of digital cameras

LA.WHST.9-10	Writing History, Science and Technical Subjects
LA.WHST.9-10.1.C	Use transitions (e.g., words, phrases, clauses) to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
LA.WHST.9-10.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
LA.WHST.9-10.2.E	Establish and maintain a style and tone appropriate to the audience and purpose (e.g., formal and objective for academic writing) while attending to the norms and conventions of the discipline in which they are writing.
SOC.9-12.1.1.2	Analyze how change occurs through time due to shifting values and beliefs as well as technological advancements and changes in the political and economic landscape.
	Inequalities can be solved by reasoning about the properties of inequality. Many, but not all, of the properties of equality continue to hold for inequalities and can be useful in solving them.
	An understanding of the attributes and relationships of geometric objects can be applied in diverse contexts—interpreting a schematic drawing, estimating the amount of wood needed to frame a sloping roof, rendering computer graphics, or designing a sewing pattern for the most efficient use of material.
	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.

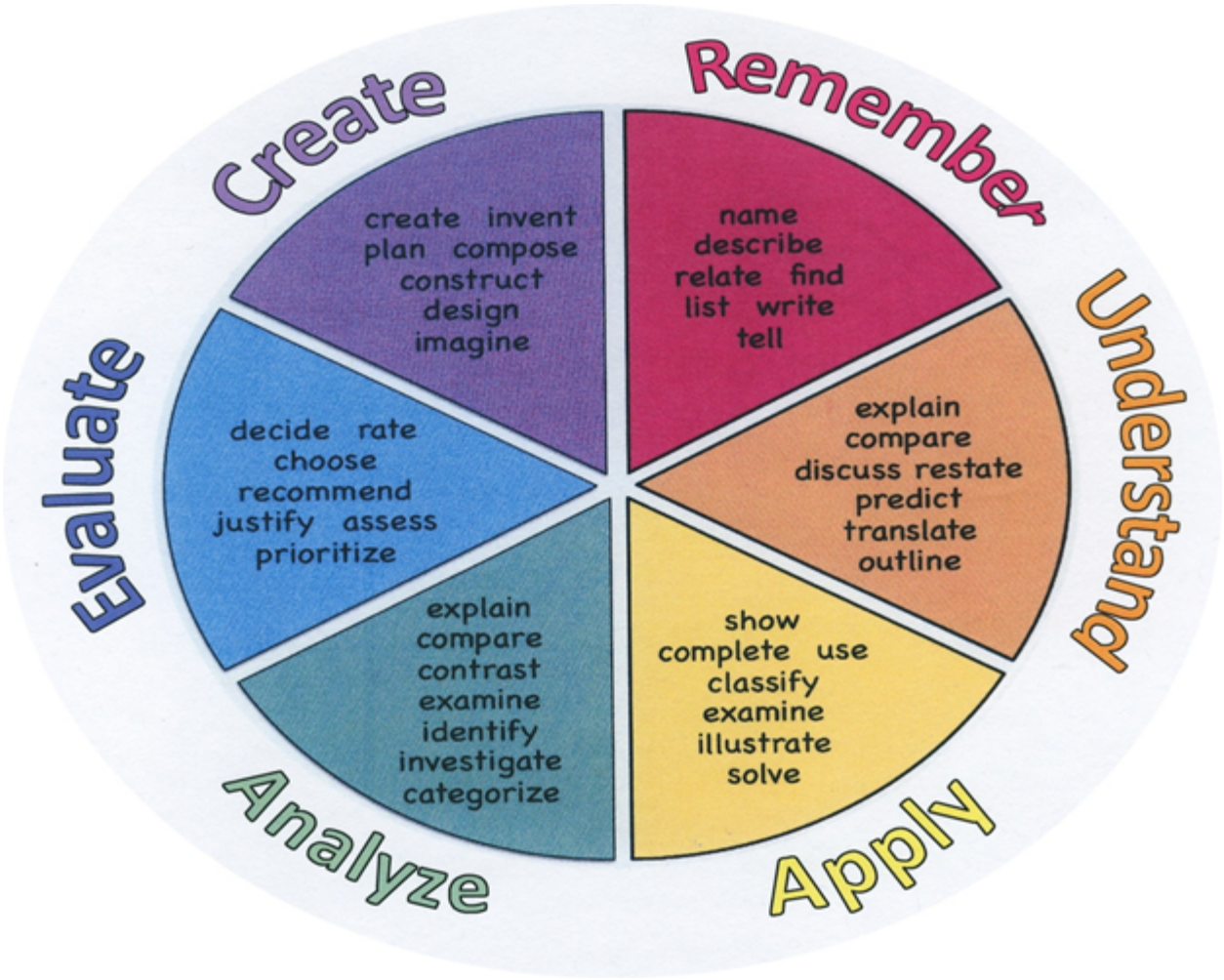
Learning Objectives

- After completing Unit 1, students will be able to:

  - **Compare** the different shooting modes on a digital camera.
  - **Determine** the best camera settings for taking photographs in various conditions.
  - **Differentiate** between photographs with deep and shallow depths of field and produce photographs with varying depths of field.
  - **Contrast** photographs with and without motion blur and assess the effect of shutter speed on the feeling of motion.

- **Create** photographs that are properly exposed using Aperture Priority and Shutter Priority modes.
- **Analyze** photographs in terms of the Elements of Art, including value, color, line, shape, and space.
- **Apply** the Principles of Design, including balance, movement, pattern, repetition, emphasis, unity, and variety to the composition of photographs.
- **Compose** balanced and well-focused photographs that solve various design problems.
- **Critique** their own and their classmates' photographs using domain-specific vocabulary.
- **Analyze** and explain the importance of historically imortant and famous photographs.

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

- **Demonstrations and slide presentations to introduce concepts and techniques, followed by in-class activities involving use of both digital cameras and cellphone cameras:**

1. Focus
2. Fast and slow shutter speeds
3. Different aperture settings for varied Depths-of Field
4. Spot lighting and shadows
5. Manual and automatic camera settings
6. Uploading and transferring photos
7. Cell-phone techniques
8. Color variations; monochromatic photography
9. Correcting exposure
10. Cropping

- **Present examples of excellent photography in different genres: nature, sports, social**

commentary, journalism, war photography, fashion, portraiture, and advertising.

- **Students to choose photographers whose work interests them to research and analyze what makes their work interesting and successful.**
- **Goal-based problem-solving photographic assignments to be done in school and outside of school allow students to develop personal styles while exposing them to a wide variety of methods and techniques. For example:**

1. Portraits with different moods
2. Make a small or insignificant item look large or important
3. Shoot from various points of view
4. Emphasize a subject that is not in the foreground
5. Create images of action or speed with and without motion blur
6. Experiment with natural light at different times of day, incandescent vs. fluorescent light, low light
7. Deep and shallow visual fields
8. Abstract photographs (Possible project: Find the shapes of the letters of the alphabet in nature or architecture)
9. Photographs featuring reflections
10. Photographs featuring textures

- **Group critiques:** Project student photographs and encourage group discussion. Ask questions that guide the comments in a chosen direction (composition, lighting, cropping, emotional responses, etc.) and allow students to interact and offer suggestions.
- **Students to take large number of photographs, self-evaluate, and submit the ones they judge most successful** via Google Classroom. Teacher can provide feedback in app.

Assessment Evidence - Checking for Understanding (CFU)

- **Quick Write - formative assessments (below)**

1. Elements of Art and Principles of Design
2. Rule of Thirds
3. Shutter speed and aperture

- **Quizzes - summative assessments (below)**

1. Camera parts and terminology
2. Exposure and digital camera modes

- **Evaluation Rubrics for photos - summative assessments (below)**

1. composition, exposure, focus, resolution, cropping

- **Self-assessments** for photos - **alternative assessment**
- **Written report** on a significant photographer - **summative assessment**
- **Student-teacher conferences - alternative assessment**
- **Observations of student work - formative assessment**

- Compare & Contrast
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Journals
- Multimedia Reports
- Quickwrite
- Quizzes
- Self- assessments
- Study Guide
- Teacher Observation Checklist
- Think, Write, Pair, Share
- Top 10 List
- Unit review/Test prep
- Written Reports

Primary Resources & Materials

- District-owned digital cameras, battery chargers, SD cards
- Apple TV
- Internet connection
- Apple computers

Ancillary Resources

- Web-based instructional PowerPoint presentations

- Teacher-created slide presentations
- Cell phones

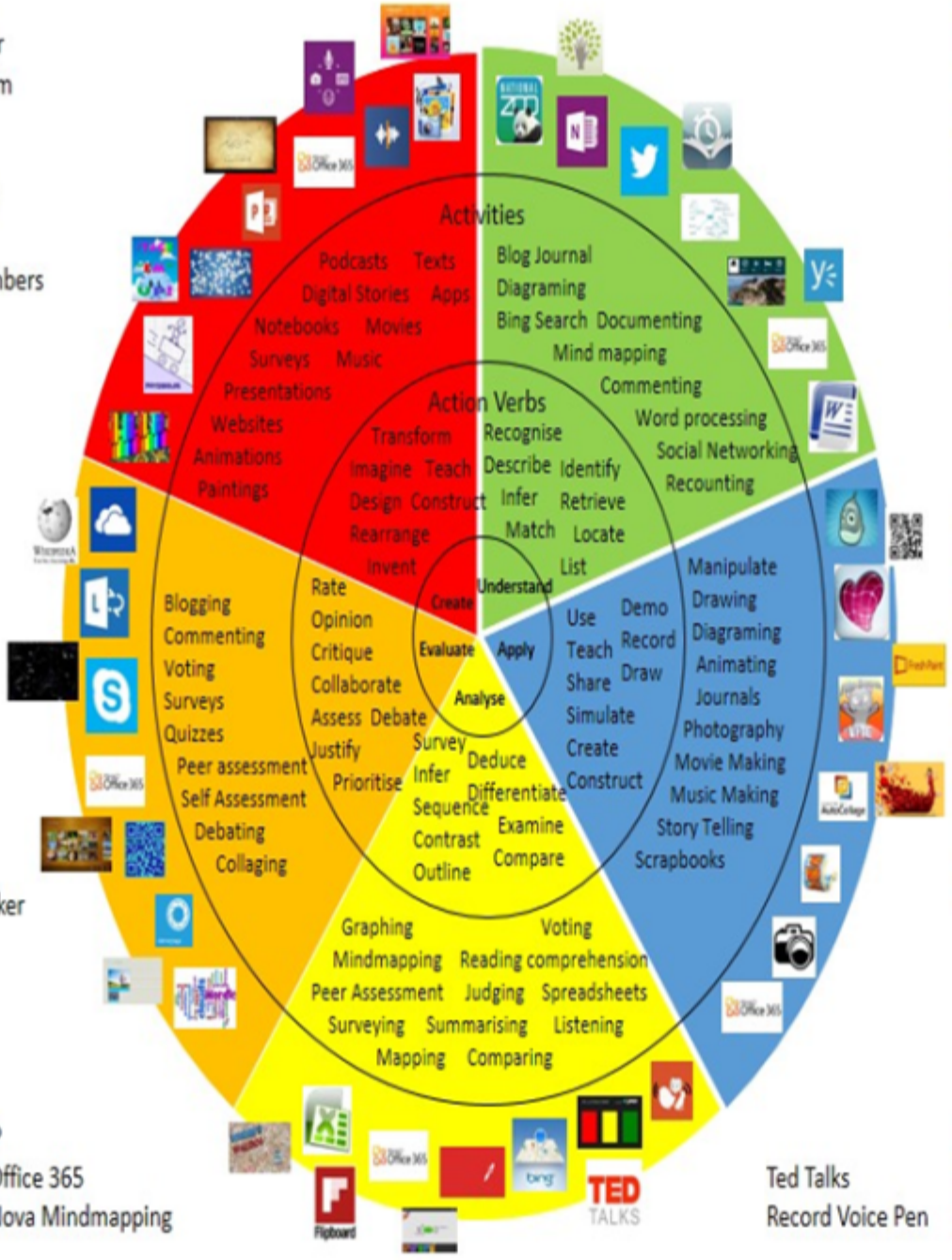
Technology Infusion

- Digital Cameras
- Apple computer and Apple TV - for projecting PowerPoint presentations, slides, and student work.
- Google classroom for student submission of work and teacher feedback.
- Websites for student research and sources/examples for teacher presentations
- MS Powerpoint for teacher presentations
- MS Word or Google docs for student written responses and research reports

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

TECH.8.1.12	Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.12.A.CS1	Understand and use technology systems.
TECH.8.1.12.D.1	Demonstrate appropriate application of copyright, fair use and/or Creative Commons to an original work.

Alignment to 21st Century Skills & Technology

- **Creativity and Invention** is at the heart of any artistic endeavor.
- **Critical Thinking and Problem Solving** is an essential component of photography assignments in which students are asked to compose photographs to achieve certain goals.
- **Media Literacy** is enhanced when students analyze how a photograph can be manipulated through lighting, focus, composition and other attributes.
- Photography is an avenue to multiple **21st century careers** and is used daily by most students when they document their lives with cellphones. Students will become aware of photographic careers as they research photographs and photographers, and will use the skills learned in this course throughout their lives.
- Photography is a major avenue for 21st century **communication** in the media, advertising, journalism, and on social platforms. Communication through photography is enhanced when students acquire the tools to use composition and photographic effects deliberately to achieve a desired result. **Collaboration** is necessary when shooting studio portraits and setting up specific shots, and is inherent in the exchange of ideas during group critiques.
- Students exercise **Information Literacy** by obtaining information pertaining to photographic styles and techniques as n.eeded required in this unit

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.CRP5	Consider the environmental, social and economic impacts of decisions.
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.
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.7	Examine the professional, legal, and ethical responsibilities for both employers and employees in the global workplace.

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

- Small group instruction: Instruction in the use of camera settings will take place in groups for clear visibility. Group size will depend on students' need for focused guidance.
- Extra time to complete assignments. Students who need it will be given extra time.
- Pairing oral instruction with visuals. All instruction in this course has a visual component due to the nature of the subject.
- Repeat directions
- Additional time
- Alternative formative and summative assessments. Summative and formative assessments are partly or wholly comprised of practical portions in which students demonstrate their ability to use photographic tools and techniques. Modified goals and grading are used when needed.
- Tiered activities/assignments. Activities and assignments are modified in accordance with students' abilities
- Independent research and projects: Projects are regularly individualized as students choose the specific subject and setting of their photographs and creative projects
- Group investigation

- Guided Reading
- Interest groups
- Learning contracts
- Leveled rubrics
- Multiple intelligence options
- Personal agendas
- Project-based learning
- Problem-based learning
- Stations/centers
- Varying organizers for instructions

- Choice of books or activities
- Exploration by interest
- Flexible grouping
- Goal setting with students
- Mini workshops to re-teach or extend skills
- Varied supplemental materials

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

- Provide modifications as dictated in the student's IEP/504 plan
- preferential seating - assign student to a compuer near the teacher
- supplementary material; for example, You Tube videos providing additional or alternative explanations and demonstrations.
- have student repeat directions to check for understanding
- extended time on tests/ quizzes
- preview of content, concepts, and vocabulary
- additional time for skill mastery
- check work frequently for understanding
- secure attention before giving instruction/directions
- Reduced/shortened written assignment
- student working with an assigned partner
- Use open book, study guides, test prototypes
- teacher initiated weekly assignment sheet
- multiple test sessions

- 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)

- Using videos, illustrations, pictures, and drawings to explain or clarify
- Using Google translate for handouts, study guides, instructions and quizzes; allowing the use of Google translate for written answers
- Teaching key aspects of a topic.
- Eliminate nonessential information
- tutoring by peers; seating English Language Learners next to peers who speak the same language.
- providing study guides
- allowing the use of note cards or open-book during testing
- having peers take notes or providing a copy of the teacher’s notes

- 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

- Decreasing the amount of work required, for example the number of photographs required to satisfy an assignment
- Using videos to explain or clarify different photography techniques and effects
- Eliminate nonessential information and skills; for example, allowing the use of automatic camera shooting modes instead of manual settings for particulary types of photography
- tutoring by peers
- allowing students to correct errors
- marking student's acceptable work, not the mistakes.
- Provide study guides

- 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)

- Allow students to work at a faster pace, using self-guided tutorials
- Advanced problem-solving - alternative photo assignments requiring the student to research advanced techniques
- Utilize exploratory connections to higher-grade concepts
- Utilize project-based learning for greater depth of knowledge

- 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

Unit Name: Digital Photography

NJSLS: linked

Interdisciplinary Connection: Mathematics/spatial reasoning

Statement of Objective: SWDAT discriminate beween large and small depths of field in a photograph and produce photographs with large and small depths of field by applying the appropriate camera settings.

Anticipatory Set/Do Now: Look at the photos projected on the screen. What is the difference between the two photos in

each pair? (Project pairs of photos of the same subject taken with large and small aperture settings.)

Learning Activity: Students examine pairs of photos and engage in guided discussion until they arrive at a definition of depth of field. Teacher will explain how aperture size affects depth of field
and demonstrate how to change the aperture size on a digital point-and-shoot camera and how to achieve different depths of field on a cellphone camera. Students will break into groups and take pairs of pictures of objects in the room to master the technique. Day 2: project class photos and discuss.

Student Assessment/CFU's: student photographs; quick write about the visual effects of depth of field and the adjustments necessary to control it; student responses to each other's photos when they are projected after the activity.

Materials: prepared slides; computer and Apple TV or Smart Board; digital cameras, students' cellphones; list of relevant links to videos and tutorials

21st Century Themes and Skills: Critical thinking, creativity and invention, collaboration

Differentiation/Modifications: Small group instruction, videos and on-line tutorials providing supplemental explanations; handouts and translated handouts

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.1.3.12.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.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.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.