Wayne
Township Public Schools

Technology Education
Grades 9 - 12
Photography I

Dr. Mark Toback, Superintendent

This curriculum may be modified through varying techniques, strategies, and materials as per an individual student's Individualized Educational Plan (IEP)

Wayne School District
Curriculum Format

Content Area/ Grade Level/ Course:	**Technology Education 9-12/Photography I**
Unit Plan Title:	Unit I: History
Time Frame	**3 Weeks**

Anchor Standards/Domain* ***i.e: ELA: reading, writing i.e.: Math: Number and Operations in Base 10**

Career Readiness, Life Literacies, and Key Skills Practices Career Readiness, Life Literacies, and Key Skills Practices describe the habits of the mind 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. These practices should be taught and reinforced in all content areas with increasingly higher levels of complexity and expectation as a student advances through a program of study.

8.1 Computer Science, previously a strand entitled 'Computational Thinking: Programming' in standard 8.2 of the 2014 NJSLSTechnology, outlines a comprehensive set of concepts and skills, such as data and analysis, algorithms and programming, and computing systems. •

8.2 Design Thinking This standard, previously standard 8.2 Technology Education of the 2014 NJSLS – Technology, outlines the technological design concepts and skills essential for technological and engineering literacy. The new framework design, detailed previously, includes Engineering Design, Ethics and Culture, and the Effects of Technology on the Natural world among the disciplinary concepts

Standard 9.1 Personal Financial Literacy: This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.

9.2 Career Awareness, Exploration, Preparation and Training. This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Standard 9.3: This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.

Standard 9.4 Life Literacies and Key Skills. This standard outline key literacies and technical skills such as critical thinking, global and cultural awareness, and technology literacy* that are critical for students to develop to live and work in an interconnected global economy.

Anchor Standard 6: Conveying meaning through art.
Anchor Standard 8: Interpreting intent and meaning.
Anchor Standard 9: Applying criteria to evaluate products.
Anchor Standard 11: Relating artistic ideas and works within societal, cultural and historical contexts to deepen understanding.

Anchor Companion Standards (Reading and Writing Grades 9-10)

Anchor Companion Standards (Reading and Writing Grades 11-12)

Unit Summary

1. Exploration of Photographic History
    a. Timeline
        i. 1500's – Current
        ii. Camera Obscura to Digital Photography and the inventors there within.
    b. Artifacts
        i. Handling of antiques
        ii. Problem solving
    c. Science
        i. Influential Inventors
            1. Eastman, Daguerre, Niepce, Land, Da Vinci, Archer, Sasson
    d. Development
        i. Building blocks for the next development of the industry, ultimately ending in present times
    e. Introduction of Technology
        i. Kodak: 1975
        ii. Decline of film, print, and analog
        iii. Increase in telecom technology

Standard Number(s)

8.2.12.ITH.1: Analyze a product to determine the impact that economic, political, social, and/or cultural factors have had on its design, including its design constraints
8.2.12.NT.1: Explain how different groups can contribute to the overall design of a product
9.3.12.AR-PRT.2 Demonstrate the production of various print, multimedia or digital media products.
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.
9.4.12.IML.9: Analyze the decisions creators make to reveal explicit and implicit messages within information and media (e.g., 1.5.12acc.C2a, 7.1.IL.IPRET.4)
9.4.12.TL.3: Analyze the effectiveness of the process and quality of collaborative environments.
Act as a responsible and contributing community member and employee.
Consider the environmental, social and economic impacts of decisions.
Demonstrate creativity and innovation
Model integrity, ethical leadership and effective management.
Plan education and career paths aligned to personal goals.
Use technology to enhance productivity, increase collaboration and communicate effectively.
l.5.12acc.Pr6a: Make, explain and justify connections between artists or artwork and social, cultural and political history.
1.5.12acc.Re8a: Identify types of contextual information useful in the process of constructing interpretations of an artwork or collection of works.
1.5 .12adv.Re9a: Construct evaluations of a work of art or collection of works based on differing sets of criteria.
l .5.12prof.Cnl 1a : Describe how knowledge of culture, traditions and history may influence personal responses to art.
• l .5.12prof.Cnl 1b : Describe how knowledge of global issues, including climate change, may influence personal responses to art.
Progress Indicators- Reading and Writing Standards Grades 9-10
Progress Indicators- Reading and Writing Grades 11-12

Essential Question(s)

- How does the history of Photography affect what we do today?
- How did the founders of photography use physics and chemistry to record images?
- How do the tools of the past influence our tools of today?
- As technology has evolved, how did photographers, adapt?
- What can we learn from early photographers?

Enduring Understandings

- Students will understand that without teamwork and small milestones, we would not have a society based upon imaging.
- Photographers used a multitude of chemicals to understand photo-sensitivity and image permanence.
- Digital imaging, combined with developments in telecommunication changed the way society communicates; affecting a multitude of industries and economies.
- Tools of the present were based upon tools of the past. Modern computer and camera tools retain the names and functions from tangible historical tools.
- Strong photographers adapt with technology and continue to incorporate the past into the present and stay ever abreast with upcoming technology.
- Optical images are created via a convex lens and a recording device, not different than today. Early photographers, spent time looking at the 3-dimential world and understood how it correlated into 2-dimention with a focus on light, form, shape and shadows.

In this unit plan, the following 21st Century themes and skills are addressed.

Check all that apply.
21st Century Themes

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

*Indicate whether these skills are **E**-Encouraged, **T**-Taught, or **A**-Assessed in this unit by marking **E, T, A** on the line before the appropriate skill.*
21st Century Skills

E, T, A	**Creativity and Innovation**
E, T, A	**Critical Thinking and Problem Solving**
E, T, A	**Communication**
E, T, A	**Collaboration**

Student Learning Targets/Objectives (Students will know/Students will understand)

- Students will understand that without teamwork and small milestones, we would not have a society based upon imaging.
- Photographers used a multitude of chemicals to understand photo-sensitivity and image permanence.
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- Optical images are created via a convex lens and a recording device, not different than today. Early photographers, spent time looking at the 3-dimensional world and understood how it correlated into 2-dimension with a focus on light, form, shape and shadows.

Assessments (Pre, Formative, Summative, Other) ***Denote required common assessments with an ****

Learning experiences will be design and inquiry based. Both extended task activities, as well as shorter, more focused resource tasks/practical tasks will be utilized to maximize learning. Each learning experience will reinforce the following elements for students:
A. The Ideation Design Process (real-world design & problem solving)
- open-ended problems with constraints & specifications
- visualize, design, and implement their creative vision

B. Team Building Skills (working on a design team)
- group dynamics
- social and leadership skills
- delegating and accepting responsibility

- 3 R's (respect, responsibility and results)

C. Technical Writing
- providing a context for written communication
- producing shoot lists, proposals, critiques, etc.
- documenting learning in a design portfolio

D. Public Speaking
- preparing an oral presentation
- developing poise and self confidence
- improving oral communications skills

E. Design Brief
- A real life situation forms the context of the activity
- Define the problem to be solved
- Determine design criteria: specifications and constraints

F. Develop Solutions
- Form design teams/cooperative learning groups
- Investigate possible solutions
- Generate alternative solutions
- Test solutions
- Optimize solutions
- Test and evaluate final design solution

G. Assessment
- Performance of final design solution relative to constraints and specifications
- Student design portfolios
- Multimedia and oral presentation of design solution
- Standardized authentic assessment instrument

Teaching and Learning Activities	
Activities	Define and explain technical terminology. Begin researching professional photographers. Prepare a visual analysis of their work, the design process used to produce them, and their effect on the photographic industry and global society.
Differentiation Strategies	• Individual and collaborative research, design and problem solving • Student interest and skill level assessment • Individual, small group, and large group instruction • Differentiated checklists and rubrics • Level of independence • Differentiation Strategies for Special Education Students • Differentiation Strategies for Gifted and Talented Students • Differentiation Strategies for ELL Students • Differentiation Strategies for At Risk Students

Resources

- **http://www.state.nj.us/education/cccs/**
- **http://www.corestandards.org/ELA-Literacy**
- **http://www.nextgenscience.org/hsets-ed-engineering-design**

Wayne School District
Curriculum Format

Content Area/ Grade Level/ Course:	**Technology Education** **9-12/Photography I**
Unit Plan Title	Unit II: Composition
Time Frame	**10 Weeks**
Anchor Standards/Domain*	***i.e: ELA: reading, writing i.e.: Math: Number and Operations in Base 10**

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Anchor Standard 1: Generating and conceptualizing ideas
Anchor Standard 2: Organizing and developing ideas.
Anchor Standard 3: Refining and completing products.
Anchor Standard 4: Selecting, analyzing, and interpreting work.
Anchor Standard 6: Conveying meaning through art..
Anchor Standard 8: Interpreting intent and meaning.
Anchor Standard 9: Applying criteria to evaluate products.

Anchor Companion Standards (Reading and Writing Grades 9-10)

Anchor Companion Standards (Reading and Writing Grades 11-12)

Unit Summary

A. The Design Process
- Identify the problem (What are the requirements of the shoot? Content topic?)
- Research the problem (What has been done in the past?)
- Define limitations and set goals (What do you want to accomplish? What is your end result?)

- Generate alternative solutions (Come up with ideas for the shoot using Past Experience, Insight, Trial and Error, and Brainstorming)
- Determine the best solution for the shoot and why?
- List Procedures/Processes necessary to achieve the goal (Make a list or create a storyboard)
- Design specifications (Determine what tools and equipment are necessary?)
- Implement the solution by completing the shoot
- Analysis and Critique (Did the end result in the form of the final photos match the desired result?)

B. Situational Awareness and Semiotics
- Situational Awareness – conscious inclusion or exclusion of an element within your scene.
- Semiotics – the use of strategic placing to further match your story.

C. Composition
- (7) Elements of Art
- (7) Principles of Design
- Fundamentals of Composition
    i. Rule of thirds
    ii. Leading lines
    iii. Framing
    iv. Perspective angles
- Foreground/mid-ground/ background

Standard Number(s)

8.2.12.ED.1: Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.
8.2.12.NT.1: Explain how different groups can contribute to the overall design of a product.
9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills.
9.3.12.AR-PRT.1 Manage the printing process, including customer service and sales, scheduling, production and quality control.
9.3.12.AR-PRT.2 Demonstrate the production of various print, multimedia or digital media products.
9.3.12.AR-PRT.3 Perform finishing and distribution operations related to the printing process.
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.
9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a)
9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
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).
9.4.12.CT.3: Enlist input from a variety of stakeholders (e.g., community members, experts in the field) to design a service learning activity that addresses a local or global issue (e.g., environmental justice).
9.4.12.IML.9: Analyze the decisions creators make to reveal explicit and implicit messages within information and media (e.g., 1.5.12acc.C2a, 7.1.IL.IPRET.4)
9.4.12.TL.3: Analyze the effectiveness of the process and quality of collaborative environments.
Act as a responsible and contributing community members and employee.
Consider the environmental, social and economic impacts of decisions.
Demonstrate creativity and innovation

Utilize critical thinking to make sense of problems and persevere in solving them.
Model integrity, ethical leadership and effective management.
Use technology to enhance productivity, increase collaboration and communicate effectively.
Work productively in teams while using cultural/global competence.

1.2.12acc.Crl b: Organize and design artistic ideas for media arts productions.
• l.2.12acc.Crlc: Critique plans, prototypes, constraint of resources, and production processes considering purposeful and expressive artistic intention and personal aesthetic.
l.2.12adv.Crlc: Knowledge of systems, prototypes and production processes with consideration of complex constraints of goals, time, resources, and personal limitations.
1.2.12acc.Cr3a: Apply ideas with deliberate choices in organization, integrating content and stylistic conventions.
l.2.12acc.Cr3b: Demonstrate an understanding of media art principles through a selection of tools and production processes.
Anchor Standard 5: Developing and refining techniques and models or steps needed to create products.
1.2.12acc.Pr5a: Demonstrate effective command of artistic, design, technical and soft skills in managing and producing media artworks.
1.2.12acc.Pr5b: Demonstrate effective creativity and adaptability, such as resisting closure and responsive use of failure, to address sophisticated challenges within and through media arts productions.
l.2.12acc.Pr6a: Curate and design the presentation and distribution of media artworks through a variety of contexts, such as mass audiences and physical and virtual channels.
l .2.12acc.Re8a: Analyze the intent, meanings and influence of a variety of media artworks, based on personal, societal, historical, and cultural contexts.
l .5.12acc.Crla: Individually and collaboratively formulate new creative problems based on student's existing artwork.
• l.5.12acc.Crlb: Choose from a range of materials and methods of traditional and contemporary artistic practices to plan works of art and design.
l .5.12adv.Cr2a: Experiment, plan and make multiple works of art and design that explore a personally meaningful theme, idea, or concept.
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.
1.5 .12acc.Pr4a: Analyze, select and critique personal artwork for a collection or portfolio Presentation.
l.5.12acc.Pr6a: Make, explain and justify connections between artists or artwork and social, cultural and political history.
1.5.12acc.Re8a: Identify types of contextual information useful in the process of constructing interpretations of an artwork or collection of works.
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Progress Indicators- Reading and Writing Standards Grades 9-10
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Essential Question(s)

- How does the design process contribute to a more successful outcome
- How does making conscious choices about placement, semiotics, and situational awareness make or break a photograph
- How does using the elements of art and principles of design contribute to an aesthetically stronger photograph

Enduring Understandings

- Understand the design and ideation process from pre-processing through post- processing.
- Explain and identify good photographs
- Recognize the requirements of the photo shoot, with emphasis on the topic.
- Research successful outcomes of professional photographers.
- Define limitations and set goals for each shoot.
- Generate ideas for the shoot using Past Experience, Insight, Trial and Error, and Brainstorming.
- List Procedures/Processes necessary to achieve the goal using written and visual communication (list and storyboard).
- Determine the tools and equipment necessary for each shoot.
- Implement the solution by the specified deadline.
- Analysis and Critique the resulting photos.
- Be actively aware of the surroundings in a photo, whether staged or candid.
- Explain and execute the principles of Composition

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Check all that apply.
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	Global Awareness
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	Health Literacy
	Civic Literacy
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21st Century Skills

E, T, A	**Creativity and Innovation**
E, T, A	**Critical Thinking and Problem Solving**
A	**Communication**
E	**Collaboration**

Student Learning Targets/Objectives (Students will know/Students will understand)

- The design and ideation process from pre-processing through post- processing allows for efficient and well planned images that will be most successful. Planning is not just essential to photography but all project and aspects of life.
- Explore different ways if ideation: Past Experience, Insight, Trial and Error, and Brainstorming, Procedures/Processes, Constraints or limitations.
- Execute the project to ensure successful completion: determine tools and equipment necessary, be actively aware of the surroundings in a photo, whether staged or candid, and implement by specified deadline.
- Analysis and Critique the resulting photos o be able to explain and identify good photographs as a result of the design process
- Ensure the use of the principles of Composition, Elements of Art, Principles of Design, Fundamentals of Composition

Assessments (Pre, Formative, Summative, Other) ***Denote required common assessments with an ****

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- Optimize solutions
- Test and evaluate final design solution

G. Assessment
- Performance of final design solution relative to constraints and specifications
- Student design portfolios
- Multimedia and oral presentation of design solution
- Standardized authentic assessment instrument

Teaching and Learning Activities	
Activities	Define and explain technical terminology. Continue researching professional photographers with an emphasis on commercial photography. Prepare a visual analysis of their work, the design process used to produce them, and their effect on the photographic industry and global society. Continue preparing a portfolio of work. Continue reviewing advanced techniques and tools in Adobe Photoshop, utilizing Adobe and Phlearn tutorials.
Differentiation Strategies	• Individual and collaborative research, design and problem solving • Student interest and skill level assessment • Individual, small group, and large group instruction • Differentiated checklists and rubrics • Level of independence • Differentiation Strategies for Special Education Students • Differentiation Strategies for Gifted and Talented Students • Differentiation Strategies for ELL Students • Differentiation Strategies for At Risk Students

Resources

- **http://www.state.nj.us/education/cccs/**
- **http://www.corestandards.org/ELA-Literacy**
- **http://www.nextgenscience.org/hsets-ed-engineering-design**
- **http://phlearn.com/**
- **http://www.adobe.com**

Wayne School District
Curriculum Format

Content Area/ Grade Level/ Course:	**Technology Education 11-12/Photography III**
Unit Plan Title:	Unit III: Camera Parts
Time Frame	**6 Weeks**

Anchor Standards/Domain* ***i.e: ELA: reading, writing i.e.: Math: Number and Operations in Base 10**

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[Anchor Companion Standards (Reading and Writing Grades 9-10)]

[Anchor Companion Standards (Reading and Writing Grades 11-12)]

Unit Summary

Camera Systems:

1. Camera Functions
   - How Aperture, Shutter speed and ISO are used for exposure
   - Exposure Triangle
   - White Balance
   - Aperture, Shutter Speed and ISO visual affects
   - Basic understanding of sensor size as it relates to image quality
2. Method of Exposure
   - Light Metering
3. Hardware Accessories
   - Lenses
     a. Focal Length
     b. Prime Lenses
     c. Min Aperture
   - Filters
     a. UV
     b. Polarizer
     c. Netural Density
     d. Graduated ND
     e. Creative Filters
   - Flash
     a. Outdoors as fill flash
     b. Inside when no other options are present
     c. Manipulation for a more natural visual outcome

Standard Number(s)

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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).
9.4.12.CT.3: Enlist input from a variety of stakeholders (e.g., community members, experts in the field) to design a service learning activity that addresses a local or global issue (e.g., environmental justice).

9.4.12.IML.9: Analyze the decisions creators make to reveal explicit and implicit messages within information and media (e.g., 1.5.12acc.C2a, 7.1.IL.IPRET.4)
9.4.12.TL.3: Analyze the effectiveness of the process and quality of collaborative environments.
Act as a responsible and contributing community members and employee.
Consider the environmental, social and economic impacts of decisions.
Demonstrate creativity and innovation
Utilize critical thinking to make sense of problems and persevere in solving them.
Model integrity, ethical leadership and effective management.
Use technology to enhance productivity, increase collaboration and communicate effectively.
Work productively in teams while using cultural/global competence.

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l.5.12acc.Pr6a: Make, explain and justify connections between artists or artwork and social, cultural and political history.
1.5.12acc.Re8a: Identify types of contextual information useful in the process of constructing interpretations of an artwork or collection of works.
1.5 .12adv.Re9a: Construct evaluations of a work of art or collection of works based on differing sets of criteria.

Progress Indicators- Reading and Writing Standards Grades 9-10
Progress Indicators- Reading and Writing Grades 11-12

Essential Question(s)

- What are the three major parts to controlling photographic exposure?
- How does Aperture, Shutter Speed, and ISO visually affect your image beyond lightness and darkness?
- What is a camera sensor? How does a phones sensor differ from a DSLRs?
- What are the available lenses, and how do they affect my images?
- When I buy a lens, what am I looking for?
- Why are filters useful, what types of filters are available and when would I use each one?
- When is it appropriate to use artificial light?

Enduring Understandings

- The three major components that control the photographic exposure is aperture, shutter speed and ISO
- Aperture controls depth-of-field, shutter speed controls blur, while ISO controls grain/noise.
- A camera sensor is the recording medium which allows our camera to capture what it sees. The smaller the sensor (phone) the poorer the quality the image. There are many different sensor styles.
- Lenses control the focal length, and aperture allowing for more or less light and a larger or narrower depth-of-field.
- Artificial light (flash) allows for a dark scene to be illuminated. However, the goal is to make it look like no flash was used.

In this unit plan, the following 21st Century themes and skills are addressed.

Check all that apply. **21st Century Themes**		*Indicate whether these skills are **E**-Encouraged, **T**-Taught, or **A**-Assessed in this unit by marking **E, T, A** on the line before the appropriate skill.* **21st Century Skills**	
X	**Global Awareness**	E,T,A	**Creativity and Innovation**
	Environmental Literacy	E,T,A	**Critical Thinking and Problem Solving**
	Health Literacy	E,T,A	**Communication**
	Civic Literacy	E,T,A	**Collaboration**
X	**Financial, Economic, Business, and Entrepreneurial Literacy**		

Student Learning Targets/Objectives (Students will know/Students will understand)

- Light can be controlled through three mechanisms within the camera (exposure tri-angle) ultimately forming a properly exposed photograph with an appropriate balance of light and dark tones.
- While the mediums used for photography change, the principle of light stays the same
- Aperture, Shutter Speed and ISO each have their own visual properties in addition to their ability to control light entering the camera. Students are to learn how and when to use each quality to work to a desired outcome.
- The sensor (recording medium) is the ultimate gauge of quality.
- Other factors can control or modify your image and exposure including lenses, filters and flash.

Assessments (Pre, Formative, Summative, Other) ***Denote required common assessments with an ****

Learning experiences will be design and inquiry based. Both extended task activities, as well as shorter, more focused resource tasks/practical tasks will be utilized to maximize learning. Each learning experience will reinforce the following elements for students:

A. The Ideation Design Process (real-world design & problem solving)

- open-ended problems with constraints & specifications
- visualize, design, and implement their creative vision

B. Team Building Skills (working on a design team)

- group dynamics
- social and leadership skills
- delegating and accepting responsibility
- 3 R's (respect, responsibility and results)

C. Technical Writing

- providing a context for written communication
- producing shoot lists, proposals, critiques, etc.
- documenting learning in a design portfolio

D. Public Speaking
- preparing an oral presentation
- developing poise and self confidence
- improving oral communications skills

E. Design Brief
- A real life situation forms the context of the activity
- Define the problem to be solved
- Determine design criteria: specifications and constraints

F. Develop Solutions
- Form design teams/cooperative learning groups
- Investigate possible solutions
- Generate alternative solutions
- Test solutions
- Optimize solutions
- Test and evaluate final design solution

G. Assessment
- Performance of final design solution relative to constraints and specifications
- Student design portfolios
- Multimedia and oral presentation of design solution
- Standardized authentic assessment instrument

Teaching and Learning Activities	
Activities	Compare and contrast the different printing methods and assess alternate outcomes. Create a visual timeline of the changes in archival and digital image storage. Relate these advancements to current events of the time. Continue preparing a portfolio of work. Continue creating a glossary of Photoshop terminology.
Differentiation Strategies	• Individual and collaborative research, design and problem solving • Student interest and skill level assessment • Individual, small group, and large group instruction • Differentiated checklists and rubrics • Level of independence • Differentiation Strategies for Special Education Students • Differentiation Strategies for Gifted and Talented Students • Differentiation Strategies for ELL Students • Differentiation Strategies for At Risk Students

Resources

- **http://www.state.nj.us/education/cccs/**
- **http://www.corestandards.org/ELA-Literacy**
- **http://www.nextgenscience.org/hsets-ed-engineering-design**
- **http://phlearn.com/**
- **http://www.adobe.com**

Wayne School District

Curriculum Format

Content Area/ Grade Level/ Course:	**Technology Education** **9-12/Photography I**
Unit Plan Title:	Unit IV: Software and Workflow
Time Frame	**8 Weeks**

Anchor Standards/Domain* ***i.e: ELA: reading, writing i.e.: Math: Number and Operations in Base 10**

Career Readiness, Life Literacies, and Key Skills Practices Career Readiness, Life Literacies, and Key Skills Practices describe the habits of the mind 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. These practices should be taught and reinforced in all content areas with increasingly higher levels of complexity and expectation as a student advances through a program of study.

8.1 Computer Science, previously a strand entitled 'Computational Thinking: Programming' in standard 8.2 of the 2014 NJSLSTechnology, outlines a comprehensive set of concepts and skills, such as data and analysis, algorithms and programming, and computing systems. •

8.2 Design Thinking This standard, previously standard 8.2 Technology Education of the 2014 NJSLS – Technology, outlines the technological design concepts and skills essential for technological and engineering literacy. The new framework design, detailed previously, includes Engineering Design, Ethics and Culture, and the Effects of Technology on the Natural world among the disciplinary concepts

Standard 9.1 Personal Financial Literacy: This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.

9.2 Career Awareness, Exploration, Preparation and Training. This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Standard 9.3: This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.

Standard 9.4 Life Literacies and Key Skills. This standard outline key literacies and technical skills such as critical thinking, global and cultural awareness, and technology literacy* that are critical for students to develop to live and work in an interconnected global economy.

Anchor Standard 1: Generating and conceptualizing ideas
Anchor Standard 2: Organizing and developing ideas.
Anchor Standard 3: Refining and completing products.
Anchor Standard 4: Selecting, analyzing, and interpreting work.
Anchor Standard 5: Developing and refining techniques and models or steps needed to create products.
Anchor Standard 6: Conveying meaning through art.

Anchor Companion Standards (Reading and Writing Grades 9-10)

Anchor Companion Standards (Reading and Writing Grades 11-12)

Unit Summary

1. Post Production
    a. Software
        i. Adobe Photoshop
            - Interface
            - Windows
            - Basic Tools
            - Layers
            - Adjustment Layers
            - Selections
        ii. Printing
            - Laser v. Inkjet
            - Color Management
        ii. File Management and Workflow
            - Contact Sheets
            - Google Drive
            - Digital Hierarchy

Standard Number(s)

8.2.12.ED.1: Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.
8.2.12.NT.1: Explain how different groups can contribute to the overall design of a product
9.2.12.CAP.1: Analyze unemployment rates for workers with different levels of education and how the economic, social, and political conditions of a time period are affected by a recession.
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.4 Analyze the legal and ethical responsibilities required in the arts, audio/visual technology and communications workplace.
9.3.12.AR.6 Evaluate technological advancements and tools that are essential to occupations within the Arts, A/V Technology & Communications Career Cluster.
9.3.12.AR-PRT.1 Manage the printing process, including customer service and sales, scheduling, production and quality control.
9.3.12.AR-PRT.2 Demonstrate the production of various print, multimedia or digital media products.
9.3.12.AR-PRT.3 Perform finishing and distribution operations related to the printing process.
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.
9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a)
9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
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).
9.4.12.CT.3: Enlist input from a variety of stakeholders (e.g., community members, experts in the field) to design a service learning activity that addresses a local or global issue (e.g., environmental justice).
9.4.12.TL.3: Analyze the effectiveness of the process and quality of collaborative environments.
Act as a responsible and contributing community members and employee.

Consider the environmental, social and economic impacts of decisions.
Demonstrate creativity and innovation
Utilize critical thinking to make sense of problems and persevere in solving them.
Model integrity, ethical leadership and effective management.
Use technology to enhance productivity, increase collaboration and communicate effectively.
Work productively in teams while using cultural/global competence.
1.2.12acc.Crl b: Organize and design artistic ideas for media arts productions.
l.2.12acc.Crlc: Critique plans, prototypes, constraint of resources, and production processes considering purposeful and expressive artistic intention and personal aesthetic.
l.2.12adv.Crlc: Knowledge of systems, prototypes and production processes with consideration of complex constraints of goals, time, resources, and personal limitations
1.2.12acc.Cr2a: Organize and design artistic ideas for media arts productions.
1.2.12acc.Cr2b: Critique plans, prototypes, constraint of resources, and production processes considering purposeful and expressive artistic intention and personal aesthetic.
1.2.12acc.Cr3a: Apply ideas with deliberate choices in organization, integrating content and stylistic conventions.
l.2.12acc.Cr3b: Demonstrate an understanding of media art principles through a selection of tools and production processes.
1.2.12acc.Pr5a: Demonstrate effective command of artistic, design, technical and soft skills in managing and producing media artworks.
1.2.12acc.Pr5b: Demonstrate effective creativity and adaptability, such as resisting closure and responsive use of failure, to address sophisticated challenges within and through media arts productions.
l.2.12acc.Pr6a: Curate and design the presentation and distribution of media artworks through a variety of contexts, such as mass audiences and physical and virtual channels.
• l.2.12acc.Pr6b: Evaluate the benefits and impacts at the personal, local and social level from presenting media artworks, such as benefits to people or to a situation.
l .5.12acc.Crla: Individually and collaboratively formulate new creative problems based on student's existing artwork.
l.5.12acc.Crlb: Choose from a range of materials and methods of traditional and contemporary artistic practices to plan works of art and design.
l .5.12adv.Cr2a: Experiment, plan and make multiple works of art and design that explore a personally meaningful theme, idea, or concept.
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.
1.5 .12acc.Pr4a: Analyze, select and critique personal artwork for a collection or portfolio Presentation.

Progress Indicators- Reading and Writing Standards Grades 9-10
Progress Indicators- Reading and Writing Grades 11-12

Essential Question(s)

- What tools and techniques are the most effective for accomplishing a specific retouching outcome?
- How does industry use post production at a tool for cost and time efficiency?
- How does looking at the final use of your images determine your post production needs? How do you manage your digital image files so they are ever available with today's changing technology?
- What does it mean to have an archival image?
- What are the properties that destroy images over time?
- How can you protect printed images to ensure they are safe for generations to come?

- What are the different forms of printing and what are the advantages of each one?

Enduring Understandings

- Student will hone their ability to work with industry standard software to learn the best techniques for an array of retouching, and file management.
- Photoshop is a robust industry standard application used for color correction, and image manipulation. Students will learn the fundamentals of this program to execute post production to industry standards.
- Images are used everywhere: websites, print ads, billboards, books etc. Each application has different requirements and requires the photographer to look at the needs of outcome to ensure appropriate post production.
- Track the evolution of digital storage mediums and their advancements to society.
- Analyze and identify the optical and physical differences between ink jet and toner images.
- Assess the effectiveness of acid free products.
- Understand and describe how to prevent data corruption.
- Explore different options for data security.
- Implement an efficient file organization structure for effective file management.
- As mediums change, the information contained on the media needs to stay current. Students will learn the differences in digital recording mediums and their unique strengths.
- Archival Images are images that are chemically prepared to stand the test of time.
- Acid, glues, sunlight, and humidity affect the longevity of an image.
- Keeping your images protected from known irritants helps to ensure durability and longevity.

In this unit plan, the following 21st Century themes and skills are addressed.

Check all that apply. **21st Century Themes**		*Indicate whether these skills are **E**-Encouraged, **T**-Taught, or **A**-Assessed in this unit by marking **E, T, A** on the line before the appropriate skill.* **21st Century Skills**	
	Global Awareness	**E, T, A**	**Creativity and Innovation**
	Environmental Literacy	**E, T, A**	**Critical Thinking and Problem Solving**
	Health Literacy	**A**	**Communication**
	Civic Literacy	**E**	**Collaboration**
X	**Financial, Economic, Business, and Entrepreneurial Literacy**		

Student Learning Targets/Objectives (Students will know/Students will understand)

- Use Adobe Photoshop, and Bridge appropriately for file management, image creation and manipulation.
- Manipulate images with emphasis on industry standard procedures.
- Modify images with advanced proficiency.
- Understand how images used in different commercial application require different parameters in post-production.

Assessments (Pre, Formative, Summative, Other) ***Denote required common assessments with an ****

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- Test solutions
- Optimize solutions
- Test and evaluate final design solution

G. Assessment
- Performance of final design solution relative to constraints and specifications
- Student design portfolios
- Multimedia and oral presentation of design solution
- Standardized authentic assessment instrument

Teaching and Learning Activities	
Activities	Compare and contrast the different software options for the most effective use. Research professional Photoshop experts for the latest on software techniques and shortcuts. Prepare a tutorial to use with first year students. Continue preparing a portfolio of work. Continue creating a glossary of Photoshop terminology.
Differentiation Strategies	• Individual and collaborative research, design and problem solving • Student interest and skill level assessment • Individual, small group, and large group instruction • Differentiated checklists and rubrics • Level of independence • Differentiation Strategies for Special Education Students • Differentiation Strategies for Gifted and Talented Students • Differentiation Strategies for ELL Students • Differentiation Strategies for At Risk Students

Resources

- **http://www.state.nj.us/education/cccs/**
- **http://www.corestandards.org/ELA-Literacy**
- **http://www.nextgenscience.org/hsets-ed-engineering-design**
- **http://phlearn.com/**
- **http://www.adobe.com**

Wayne School District
Curriculum Format

Content Area/ Grade Level/ Course:	**Technology Education** **11-12/Photography III**
Unit Plan Title:	Unit V: Career Readiness
Time Frame	**6 Weeks**

Anchor Standards/Domain* ***i.e: ELA: reading, writing i.e.: Math: Number and Operations in Base 10**

Career Readiness, Life Literacies, and Key Skills Practices Career Readiness, Life Literacies, and Key Skills Practices describe the habits of the mind 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. These practices should be taught and reinforced in all content areas with increasingly higher levels of complexity and expectation as a student advances through a program of study.

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Standard 9.1 Personal Financial Literacy: This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.

9.2 Career Awareness, Exploration, Preparation and Training. This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Standard 9.3: This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.

Standard 9.4 Life Literacies and Key Skills. This standard outline key literacies and technical skills such as critical thinking, global and cultural awareness, and technology literacy* that are critical for students to develop to live and work in an interconnected global economy.

Anchor Standard 1: Generating and conceptualizing ideas
Anchor Standard 2: Organizing and developing ideas.
Anchor Standard 3: Refining and completing products.
Anchor Standard 4: Selecting, analyzing, and interpreting work.
Anchor Standard 5: Developing and refining techniques and models or steps needed to create products.
Anchor Standard 6: Conveying meaning through art.
Anchor Standard 7: Perceiving and analyzing products.
Anchor Standard 8: Interpreting intent and meaning.

Anchor Standard 9: Applying criteria to evaluate products.
Anchor Standard 11: Relating artistic ideas and works within societal, cultural and historical contexts to deepen understanding.

Anchor Companion Standards (Reading and Writing Grades 9-10)

Anchor Companion Standards (Reading and Writing Grades 11-12)

Unit Summary

1. Career Readiness
    a. Portfolio Development
        i. Digital portfolio
        ii. Traditional Portfolio
        iii. Uses for portfolios
    b. Career + Avocation
        i. Ethics in photography
        ii. How to get started in a visual arts / communications career
        iii. What type of career best suits my personality

Standard Number(s)

8.2.12.ED.1: Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.
9.2.12.CAP.1: Analyze unemployment rates for workers with different levels of education and how the economic, social, and political conditions of a time period are affected by a recession.
9.2.12.CAP.2: Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs.
9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.
9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.
9.2.12.CAP.5: Assess and modify a personal plan to support current interests and postsecondary plans.
9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills.
9.2.12.CAP.7: Use online resources to examine licensing, certification, and credentialing requirements at the local, state, and national levels to maintain compliance with industry requirements in areas of career interest.
9.2.12.CAP.8: Determine job entrance criteria (e.g., education credentials, math/writing/reading comprehension tests, drug tests) used by employers in various industry sectors.
9.2.12.CAP.10: Identify strategies for reducing overall costs of postsecondary education (e.g., tuition assistance, loans, grants, scholarships, and student loans).
9.2.12.CAP.21: Explain low-cost and low-risk ways to start a business.
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.2 Analyze the importance of health, safety and environmental management systems, policies and procedures common in arts, audio/video technology and communications activities and facilities.
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.
9.3.12.AR-PRT.1 Manage the printing process, including customer service and sales, scheduling, production and quality control.
9.3.12.AR-PRT.2 Demonstrate the production of various print, multimedia or digital media products.
9.3.12.AR-PRT.3 Perform finishing and distribution operations related to the printing process.
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.
9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a)
9.4.12.CI.2: Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).
9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
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).
9.4.12.CT.3: Enlist input from a variety of stakeholders (e.g., community members, experts in the field) to design a service learning activity that addresses a local or global issue (e.g., environmental justice).
9.4.12.CT.4: Participate in online strategy and planning sessions for course-based, school-based, or other project and determine the strategies that contribute to effective outcomes.
9.4.12.DC.1: Explain the beneficial and harmful effects that intellectual property laws can have on the creation and sharing of content (e.g., 6.1.12.CivicsPR.16.a)
9.4.12.DC.3: Evaluate the social and economic implications of privacy in the context of safety, law, or ethics (e.g., 6.3.12.HistoryCA.1)
9.4.12.DC.6: Select information to post online that positively impacts personal image and future college and career opportunities.
9.4.12.DC.7: Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society (e.g., 6.1.12.CivicsPD.16.a).
9.4.12.IML.9: Analyze the decisions creators make to reveal explicit and implicit messages within information and media (e.g., 1.5.12acc.C2a, 7.1.IL.IPRET.4)
9.4.12.TL.3: Analyze the effectiveness of the process and quality of collaborative environments.
Act as a responsible and contributing community members and employee.
Consider the environmental, social and economic impacts of decisions.
Demonstrate creativity and innovation
Utilize critical thinking to make sense of problems and persevere in solving them.
Model integrity, ethical leadership and effective management.
Plan education and career paths aligned to personal goals.
Use technology to enhance productivity, increase collaboration and communicate effectively.
Work productively in teams while using cultural/global competence.

1.2.12acc.Crl b: Organize and design artistic ideas for media arts productions.
• I.2.12acc.Crlc: Critique plans, prototypes, constraint of resources, and production processes considering purposeful and expressive artistic intention and personal aesthetic.
l1.2.12acc.Cr2a: Organize and design artistic ideas for media arts productions.
1.2.12acc.Cr2b: Critique plans, prototypes, constraint of resources, and production processes

considering purposeful and expressive artistic intention and personal aesthetic.
1.2.12acc.Cr3a: Apply ideas with deliberate choices in organization, integrating content and stylistic conventions.
l.2.12acc.Pr6a: Curate and design the presentation and distribution of media artworks through a variety of contexts, such as mass audiences and physical and virtual channels.
• l.2.12acc.Pr6b: Evaluate the benefits and impacts at the personal, local and social level from presenting media artworks, such as benefits to people or to a situation.
l.2.12adv.Re7a: Analyze and synthesize the qualities and relationships of the components and audience impact in a variety of media artworks..
l .2.12acc.Re8a: Analyze the intent, meanings and influence of a variety of media artworks, based on personal, societal, historical, and cultural contexts.
l.2.12acc.Cnl la: Examine and demonstrate in depth the relationships of media arts ideas and works to various contexts, purposes and values, such as markets, systems, propaganda, _truth.
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.
1.5 .12acc.Pr4a: Analyze, select and critique personal artwork for a collection or portfolio Presentation.
l.5.12acc.Pr6a: Make, explain and justify connections between artists or artwork and social, cultural and political history.
1.5.12acc.Re8a: Identify types of contextual information useful in the process of constructing interpretations of an artwork or collection of works.
1.5 .12adv.Re9a: Construct evaluations of a work of art or collection of works based on differing sets of criteria.
1.5.12adv.Cnl0a: Synthesize knowledge of social, cultural, historical, and personal life with artmaking approaches to create meaningful works of art or design.
l .5.12prof.Cnl 1a : Describe how knowledge of culture, traditions and history may influence personal responses to art.
• l .5.12prof.Cnl 1b : Describe how knowledge of global issues, including climate change, may influence personal responses to art.

Progress Indicators- Reading and Writing Standards Grades 9-10
Progress Indicators- Reading and Writing Grades 11-12

Essential Question(s)

- What is a portfolio used for?
- How do you develop a portfolio?
- What are the different types of portfolios?
- How can a career in the visual arts or communications be lucrative?
- What are the different types of occupations within visual arts and communications?
- Where are the best places to pursue a post-secondary education in visual arts and communications?

Enduring Understandings

- A portfolio is used to showcase an array of completed work that showcases a photographer's ability.
- Developing a portfolio takes time to create the work needed to be showcased, and display the work in impeccable condition.
- Portfolios can be digital, print, or a combination of both the traditional and digital form. Student will work to generate a college and career ready portfolio to showcase their body of work.
- Many colleges offer visual arts programs that will prepare students for a career in industry.
- Being a photographer, is just one of many job opportunities in the digital imaging field. Students may find that they rather be in an industry tandem to photography incorporating advertising, marketing, and journalism.

- Students will spend time researching requirements for post-secondary education in the field and being to prepare to ensure a successful transition.

In this unit plan, the following 21st Century themes and skills are addressed.

Check all that apply. **21st Century Themes**		*Indicate whether these skills are **E**-Encouraged, **T**-Taught, or **A**-Assessed in this unit by marking **E, T, A** on the line before the appropriate skill.* **21st Century Skills**	
X	**Global Awareness**	E,T,A	**Creativity and Innovation**
	Environmental Literacy	E,T,A	**Critical Thinking and Problem Solving**
	Health Literacy	E,T,A	**Communication**
	Civic Literacy	E,T,A	**Collaboration**
X	**Financial, Economic, Business, and Entrepreneurial Literacy**		

Student Learning Targets/Objectives (Students will know/Students will understand)

- Generate a digital portfolio
- Generate a printed portfolio
- Understand the importance of a professional portfolio
- Understand the ethics of a professional photographer
- Research different careers in the imaging industry
- Develop a career plan to succeed in the communications or visual arts industry

Assessments (Pre, Formative, Summative, Other) ***Denote required common assessments with an ****

Learning experiences will be design and inquiry based. Both extended task activities, as well as shorter, more focused resource tasks/practical tasks will be utilized to maximize learning. Each learning experience will reinforce the following elements for students:

A. The Ideation Design Process (real-world design & problem solving)
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B. Team Building Skills (working on a design team)
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- 3 R's (respect, responsibility and results)

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- providing a context for written communication
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D. Public Speaking
- preparing an oral presentation
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E. Design Brief
- A real life situation forms the context of the activity
- Define the problem to be solved
- Determine design criteria: specifications and constraints

F. Develop Solutions
- Form design teams/cooperative learning groups
- Investigate possible solutions
- Generate alternative solutions
- Test solutions
- Optimize solutions
- Test and evaluate final design solution

G. Assessment
- Performance of final design solution relative to constraints and specifications
- Student design portfolios
- Multimedia and oral presentation of design solution

• Standardized authentic assessment instrument	
Teaching and Learning Activities	
Activities	Explore an ethical issue in Photography. Use class gained knowledge to state your viewpoint. Support this viewpoint with addition research gathered from current events. Continue preparing a portfolio of work. List and defend the pros and cons of digital vs. traditional portfolios. Continue creating a glossary of Photoshop terminology.
Differentiation Strategies	• Individual and collaborative research, design and problem solving • Student interest and skill level assessment • Individual, small group, and large group instruction • Differentiated checklists and rubrics • Level of independence • Differentiation Strategies for Special Education Students • Differentiation Strategies for Gifted and Talented Students • Differentiation Strategies for ELL Students • Differentiation Strategies for At Risk Students
Resources	
• **http://www.state.nj.us/education/cccs/** • **http://www.corestandards.org/ELA-Literacy** • **http://www.nextgenscience.org/hsets-ed-engineering-design** • **http://phlearn.com/** • **http://www.adobe.com**	

Wayne School District
Curriculum Format

Content Area/ Grade Level/ Course:	**Technology Education 9-12/Photography I**
Unit Plan Title	Unit VI: Critique
Time Frame	**10 Weeks**

Anchor Standards/Domain* ***i.e: ELA: reading, writing i.e.: Math: Number and Operations in Base 10**

Career Readiness, Life Literacies, and Key Skills Practices Career Readiness, Life Literacies, and Key Skills Practices describe the habits of the mind 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. These practices should be taught and reinforced in all content areas with increasingly higher levels of complexity and expectation as a student advances through a program of study.

8.1 Computer Science, previously a strand entitled 'Computational Thinking: Programming' in standard 8.2 of the 2014 NJSLSTechnology, outlines a comprehensive set of concepts and skills, such as data and analysis, algorithms and programming, and computing systems. •

8.2 Design Thinking This standard, previously standard 8.2 Technology Education of the 2014 NJSLS – Technology, outlines the technological design concepts and skills essential for technological and engineering literacy. The new framework design, detailed previously, includes Engineering Design, Ethics and Culture, and the Effects of Technology on the Natural world among the disciplinary concepts

Standard 9.1 Personal Financial Literacy: This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.

9.2 Career Awareness, Exploration, Preparation and Training. This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Standard 9.3: This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.

Standard 9.4 Life Literacies and Key Skills. This standard outline key literacies and technical skills such as critical thinking, global and cultural awareness, and technology literacy* that are critical for students to develop to live and work in an interconnected global economy.

Anchor Standard 1: Generating and conceptualizing ideas
Anchor Standard 2: Organizing and developing ideas.
Anchor Standard 3: Refining and completing products.
Anchor Standard 4: Selecting, analyzing, and interpreting work.
Anchor Standard 5: Developing and refining techniques and models or steps needed to create products.
Anchor Standard 6: Conveying meaning through art.
Anchor Standard 7: Perceiving and analyzing products.
Anchor Standard 8: Interpreting intent and meaning.
Anchor Standard 9: Applying criteria to evaluate products.

Anchor Standard 11: Relating artistic ideas and works within societal, cultural and historical contexts to deepen understanding.

Anchor Companion Standards (Reading and Writing Grades 9-10)

Anchor Companion Standards (Reading and Writing Grades 11-12)

Unit Summary

Critique

- A detailed analysis and assessment of a photographic work
- Etiquette of a critique
- Benefits of constructive criticism
- Language and delivery

Standard Number(s)

8.2.12.ED.1: Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.
9.2.12.CAP.1: Analyze unemployment rates for workers with different levels of education and how the economic, social, and political conditions of a time period are affected by a recession.
9.2.12.CAP.2: Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs.
9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.
9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.
9.2.12.CAP.5: Assess and modify a personal plan to support current interests and postsecondary plans.
9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills.
9.2.12.CAP.7: Use online resources to examine licensing, certification, and credentialing requirements at the local, state, and national levels to maintain compliance with industry requirements in areas of career interest.
9.2.12.CAP.8: Determine job entrance criteria (e.g., education credentials, math/writing/reading comprehension tests, drug tests) used by employers in various industry sectors.
9.2.12.CAP.10: Identify strategies for reducing overall costs of postsecondary education (e.g., tuition assistance, loans, grants, scholarships, and student loans).
9.2.12.CAP.21: Explain low-cost and low-risk ways to start a business.
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.2 Analyze the importance of health, safety and environmental management systems, policies and procedures common in arts, audio/video technology and communications activities and facilities.
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.
9.3.12.AR-PRT.1 Manage the printing process, including customer service and sales, scheduling, production and quality control.
9.3.12.AR-PRT.2 Demonstrate the production of various print, multimedia or digital media products.

9.3.12.AR-PRT.3 Perform finishing and distribution operations related to the printing process.
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.
9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a)
9.4.12.CI.2: Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).
9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
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).
9.4.12.CT.3: Enlist input from a variety of stakeholders (e.g., community members, experts in the field) to design a service learning activity that addresses a local or global issue (e.g., environmental justice).
9.4.12.CT.4: Participate in online strategy and planning sessions for course-based, school-based, or other project and determine the strategies that contribute to effective outcomes.
9.4.12.DC.1: Explain the beneficial and harmful effects that intellectual property laws can have on the creation and sharing of content (e.g., 6.1.12.CivicsPR.16.a)
9.4.12.DC.3: Evaluate the social and economic implications of privacy in the context of safety, law, or ethics (e.g., 6.3.12.HistoryCA.1)
9.4.12.DC.6: Select information to post online that positively impacts personal image and future college and career opportunities.
9.4.12.DC.7: Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society (e.g., 6.1.12.CivicsPD.16.a).
9.4.12.IML.9: Analyze the decisions creators make to reveal explicit and implicit messages within information and media (e.g., 1.5.12acc.C2a, 7.1.IL.IPRET.4)
9.4.12.TL.3: Analyze the effectiveness of the process and quality of collaborative environments.
Act as a responsible and contributing community members and employee.
Consider the environmental, social and economic impacts of decisions.
Demonstrate creativity and innovation
Utilize critical thinking to make sense of problems and persevere in solving them.
Model integrity, ethical leadership and effective management.
Plan education and career paths aligned to personal goals.
Use technology to enhance productivity, increase collaboration and communicate effectively.
Work productively in teams while using cultural/global competence.

1.2.12acc.Crl b: Organize and design artistic ideas for media arts productions.
• l.2.12acc.Crlc: Critique plans, prototypes, constraint of resources, and production processes considering purposeful and expressive artistic intention and personal aesthetic.
l1.2.12acc.Cr2a: Organize and design artistic ideas for media arts productions.
1.2.12acc.Cr2b: Critique plans, prototypes, constraint of resources, and production processes considering purposeful and expressive artistic intention and personal aesthetic.
1.2.12acc.Cr3a: Apply ideas with deliberate choices in organization, integrating content and stylistic conventions.
l.2.12acc.Pr6a: Curate and design the presentation and distribution of media artworks through a

variety of contexts, such as mass audiences and physical and virtual channels.
• I.2.12acc.Pr6b: Evaluate the benefits and impacts at the personal, local and social level from presenting media artworks, such as benefits to people or to a situation.
I.2.12adv.Re7a: Analyze and synthesize the qualities and relationships of the components and audience impact in a variety of media artworks..
I .2.12acc.Re8a: Analyze the intent, meanings and influence of a variety of media artworks, based on personal, societal, historical, and cultural contexts.
I.2.12acc.Cnl la: Examine and demonstrate in depth the relationships of media arts ideas and works to various contexts, purposes and values, such as markets, systems, propaganda, _truth.
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.
1.5 .12acc.Pr4a: Analyze, select and critique personal artwork for a collection or portfolio Presentation.
I.5.12acc.Pr6a: Make, explain and justify connections between artists or artwork and social, cultural and political history.
1.5.12acc.Re8a: Identify types of contextual information useful in the process of constructing interpretations of an artwork or collection of works.
1.5 .12adv.Re9a: Construct evaluations of a work of art or collection of works based on differing sets of criteria.
1.5.12adv.Cnl0a: Synthesize knowledge of social, cultural, historical, and personal life with artmaking approaches to create meaningful works of art or design.
I .5.12prof.Cnl 1a : Describe how knowledge of culture, traditions and history may influence personal responses to art.
• I .5.12prof.Cnl 1b : Describe how knowledge of global issues, including climate change, may influence personal responses to art.

Progress Indicators- Reading and Writing Standards Grades 9-10
Progress Indicators- Reading and Writing Grades 11-12

Essential Question(s)

- How does the design process contribute to a more successful outcome
- How does making conscious choices about placement, semiotics, and situational awareness make or break a photograph
- How does using the elements of art and principles of design contribute to an aesthetically stronger photograph

Enduring Understandings

- Understand the design and ideation process from pre-processing through post- processing.
- Explain and identify good photographs
- Recognize the requirements of the photo shoot, with emphasis on the topic.
- Research successful outcomes of professional photographers.
- Define limitations and set goals for each shoot.
- Generate ideas for the shoot using Past Experience, Insight, Trial and Error, and Brainstorming.
- List Procedures/Processes necessary to achieve the goal using written and visual communication (list and storyboard).
- Determine the tools and equipment necessary for each shoot.
- Implement the solution by the specified deadline.
- Analysis and Critique the resulting photos.
- Be actively aware of the surroundings in a photo, whether staged or candid.
- Explain and execute the principles of Composition

In this unit plan, the following 21st Century themes and skills are addressed.	
Check all that apply.	*Indicate whether these skills are **E**-Encouraged, **T**-Taught, or **A**-Assessed in this unit by marking **E, T, A** on the line before the appropriate skill.*

21st Century Themes		21st Century Skills	
	Global Awareness	E, T, A	Creativity and Innovation
	Environmental Literacy	E, T, A	Critical Thinking and Problem Solving
	Health Literacy	A	Communication
	Civic Literacy	E	Collaboration
X	Financial, Economic, Business, and Entrepreneurial Literacy		

Student Learning Targets/Objectives (Students will know/Students will understand)

- Assess the use of the design and problem solving process
- Assess the execution of the Elements of Art, Principles of Design, and Fundamentals of Composition
- Learn to objectively look at a work and appropriately discuss the outcome

Assessments (Pre, Formative, Summative, Other) ***Denote required common assessments with an ****

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G. Assessment
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- Multimedia and oral presentation of design solution
- Standardized authentic assessment instrument

Teaching and Learning Activities

Activities	Define and explain technical terminology. Continue researching professional photographers with an emphasis on commercial photography. Prepare a visual analysis of their work, the design process used to produce them, and their effect on the photographic industry and global society. Continue preparing a portfolio of work. Continue reviewing advanced techniques and tools in Adobe Photoshop, utilizing Adobe and Phlearn tutorials.

Differentiation Strategies	• Individual and collaborative research, design and problem solving • Student interest and skill level assessment • Individual, small group, and large group instruction • Differentiated checklists and rubrics • Level of independence • Differentiation Strategies for Special Education Students • Differentiation Strategies for Gifted and Talented Students • Differentiation Strategies for ELL Students • Differentiation Strategies for At Risk Students

Resources

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- **http://www.nextgenscience.org/hsets-ed-engineering-design**
- **http://phlearn.com/**
- **http://www.adobe.com**
- **https://fstoppers.com/critiques/how-properly-critique-photograph-82407**