Unit 3: Photo Editing, Design and Preparing for Adobe Photoshop Exam

Content Area: **CTE**
Course(s): **Graphic Comm 1**
Time Period: **DecJan**
Length: **48 Days & Grade 11 & 12**
Status: **Published**

Title Section

Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

Graphic Communications, GRADE 11-12

Photo Editing, Design and Preparing for Adobe Photoshop Exam

Belleville Board of Education

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Board Approved:

Unit Overview

In this unit, students will be introduced to the Adobe Creative Suite through the use of Photoshop.

Review and Practice and advanced uses of Adobe Photoshop.

Examine Photoshop's Tools Panel.

Students will learn computer graphics concepts and terminology

Students will understand the safe, responsible and legal use of the internet and of copyrighted material.

Students will use the internet to access information and tutorials and to expand their knowledge of Photoshop.

Create advertisements and other published art as well as edit photos.

Enduring Understanding

Photoshop is a digital image editing program. The Photoshop workspace consists of toolbars, palettes, and

menus.

Photoshop can be used to edit and improve photographs, as well as to create original artwork.

Photoshop is primarily raster-based, which means that images created in Photoshop are usually made of pixels.

Photoshop tools include selection tools, navigation tools, drawing and painting tools, type tools, and many other types of tools.

Resolution is a function of the number of pixels per inch. Images that are low-resolution will "pixelate" when enlarged or printed.

Copyright laws dictate whether you can use an image that you did not create. You must pay royalties to use a copyrighted image.

Layers are an important feature of Photoshop. Layers can have transparency, and can interact with each other.

Using layers and the History Panel allow you to make changes and selectively undo them.

Essential Questions

Can old photos really be restored?

What are the Photoshop Retouch tools: Red Eye, Healing Brush, Spot Healing Brush and Clone Stamp?

What are the Photoshop Photo Filters, Correct Exposure, Shadows, and Highlights?

What are the Photoshop tools: Dodge, Burn, Sponge, Blur, Sharpen, and Smudge?

What is the importance of mastering layers?

Exit Skills

By the end of Unit, the student should be able to:

Demonstrate Photoshop proficiency using the various tools.

Demonstrate Design & Creative skills.

Certified Photoshop users and pass the certification test

New Jersey Student Learning Standards (NJSLS-S)

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.
CS.9-12.8.1.12.CS.3	Compare the functions of application software, system software, and hardware.
TECH.9.4.12.CI	Creativity and Innovation
TECH.9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
TECH.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).
TECH.9.4.12.CI.3	Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
TECH.9.4.12.CT	Critical Thinking and Problem-solving
TECH.9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).
TECH.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).
TECH.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.
TECH.9.4.12.DC	Digital Citizenship
TECH.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).
TECH.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).
TECH.9.4.12.DC.4	Explain the privacy concerns related to the collection of data (e.g., cookies) and generation of data through automated processes that may not be evident to users (e.g., 8.1.12.NI.3).
TECH.9.4.12.DC.6	Select information to post online that positively impacts personal image and future college and career opportunities.
TECH.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).
TECH.9.4.12.TL	Technology Literacy
TECH.9.4.12.TL.1	Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.).
TECH.9.4.12.TL.2	Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data.
TECH.9.4.12.TL.3	Analyze the effectiveness of the process and quality of collaborative environments.
TECH.9.4.12.TL.4	Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).
TECH.9.4.12.GCA	Global and Cultural Awareness
TECH.9.4.12.GCA.1	Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political. economic, cultural) may work better than others (e.g., SL.11-12.1., HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGI.1, 7.1.IH.IPERS.6, 7.1.IL.IPERS.7, 8.2.12.ETW.3).
	Solutions to the problems faced by a global society require the contribution of individuals with different points of view and experiences.

With a growth mindset, failure is an important part of success.

Successful troubleshooting of complex problems involves multiple approaches including research, analysis, reflection, interaction with peers, and drawing on past experiences.

Laws govern the use of intellectual property and there are legal consequences to utilizing or sharing another's original works without permission or appropriate credit.

Digital communities influence many aspects of society, especially the workforce. The increased connectivity between people in different cultures and different career fields have changed the nature, content, and responsibilities of many careers.

Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is helpful in selecting the best tool for a given task.

Collaborative digital tools can be used to access, record and share different viewpoints and to collect and tabulate the views of groups of people.

Interdisciplinary Connections

LA.RH.11-12.4	Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
LA.RH.11-12.5	Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.
LA.RST.11-12	Reading Science and Technical Subjects
	Key Ideas and Details
LA.RST.11-12.1	Accurately cite strong and thorough evidence from the text to support analysis of science and technical texts, attending to precise details for explanations or descriptions.
LA.RST.11-12.2	Determine the central ideas, themes, or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
LA.RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Learning Objectives

Students will demonstrate the ability to:

Choose the Color Mode, File Extenstion, and resolution that is appropriate for a given Photoshop Project.

Determine which tools to use within Photoshop to edit and improve photographs they have taken.

Design digital artwork with a focus on particular Elements of Art, including value, color, and texture.

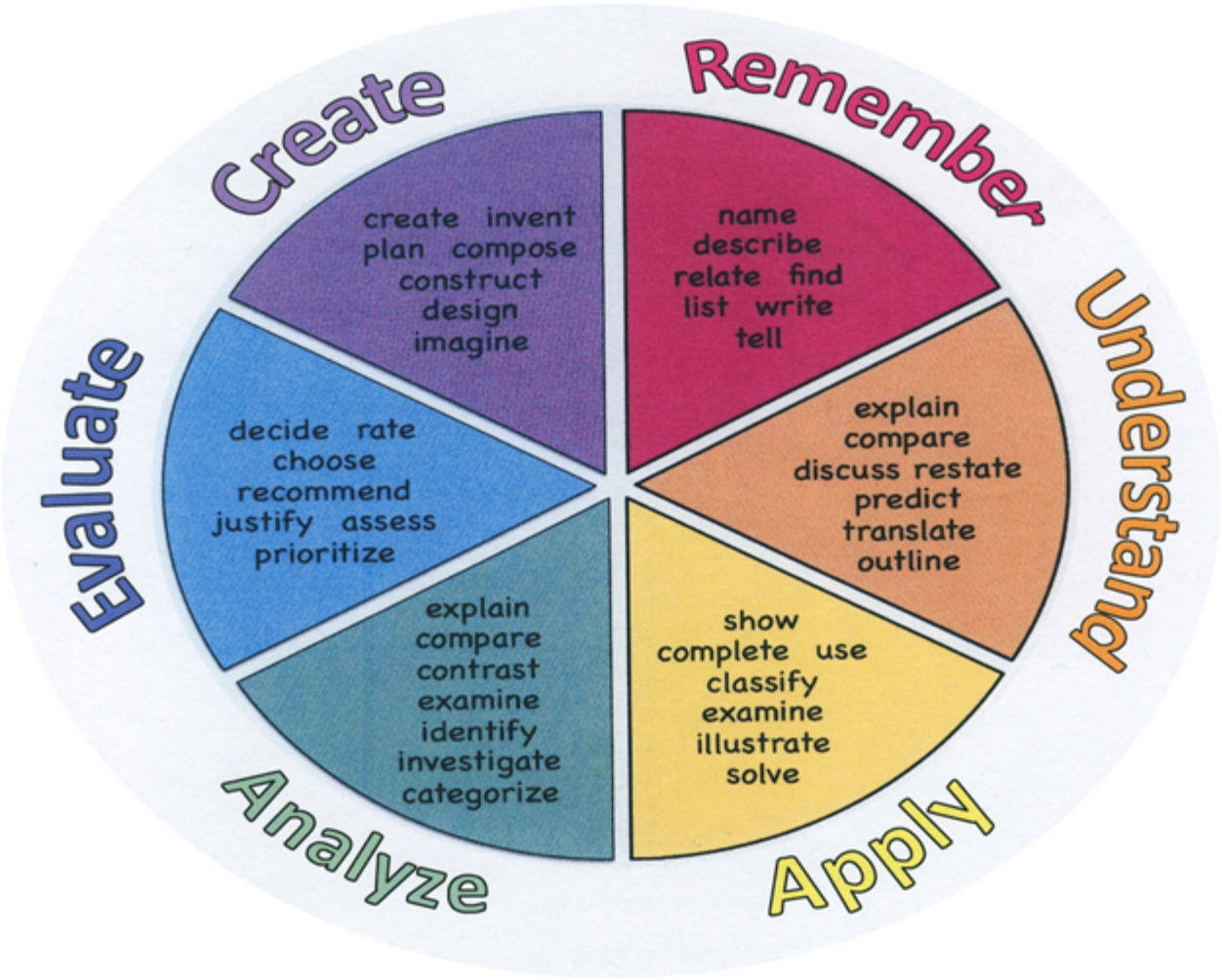
Create original artwork using layers and blending modes in Photoshop.

Transform images using Photoshop image editing tools.

Apply the Principles of Design to the creation of digital artwork.

Utilize the ACA Test Prep software to prepare for Certification in Adobe Photoshop

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

Utilize the ACA Test Prep software to prepare for Certification in Adobe Photoshop by watching online tutorials and completing projects and tests.

Students will practice test using GMetrix software for Adobe Photoshop.

Identify Famous African Americans in the field of graphic design and the contributions made to society by these figures.
Understand and develop better eco friendly knowledge in regards to copiers, printers and scanners.

Assessment Evidence - Checking for Understanding (CFU)

Exit tickets for the purpose of checking for understanding Photoshop knowledge.-formative ssessment

Practical and written quizzes on Photoshop skills and materials taught by the teacher.

For example, teacher will give topics to students and students will create their own study guides prior to tests.alternate assessment

Unit test-summative assessment

Create Multimedia poster-benchmark assessment

- Admit Tickets
- Anticipation Guide
- Common Benchmarks
- Compare & Contrast
- Create a Multimedia Poster
- DBQ's
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Learning Center Activities
- Multimedia Reports
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide

- Surveys
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit review/Test prep
- Unit tests
- Web-Based Assessments
- Written Reports

Primary Resources & Materials

- Apple computers
- Adobe Creative Cloud software
- Apple TV
- Internet connection

Ancillary Resources

- Adobe Video tutorials
- Other online tutorials
- Teacher-created handouts
- Related websites

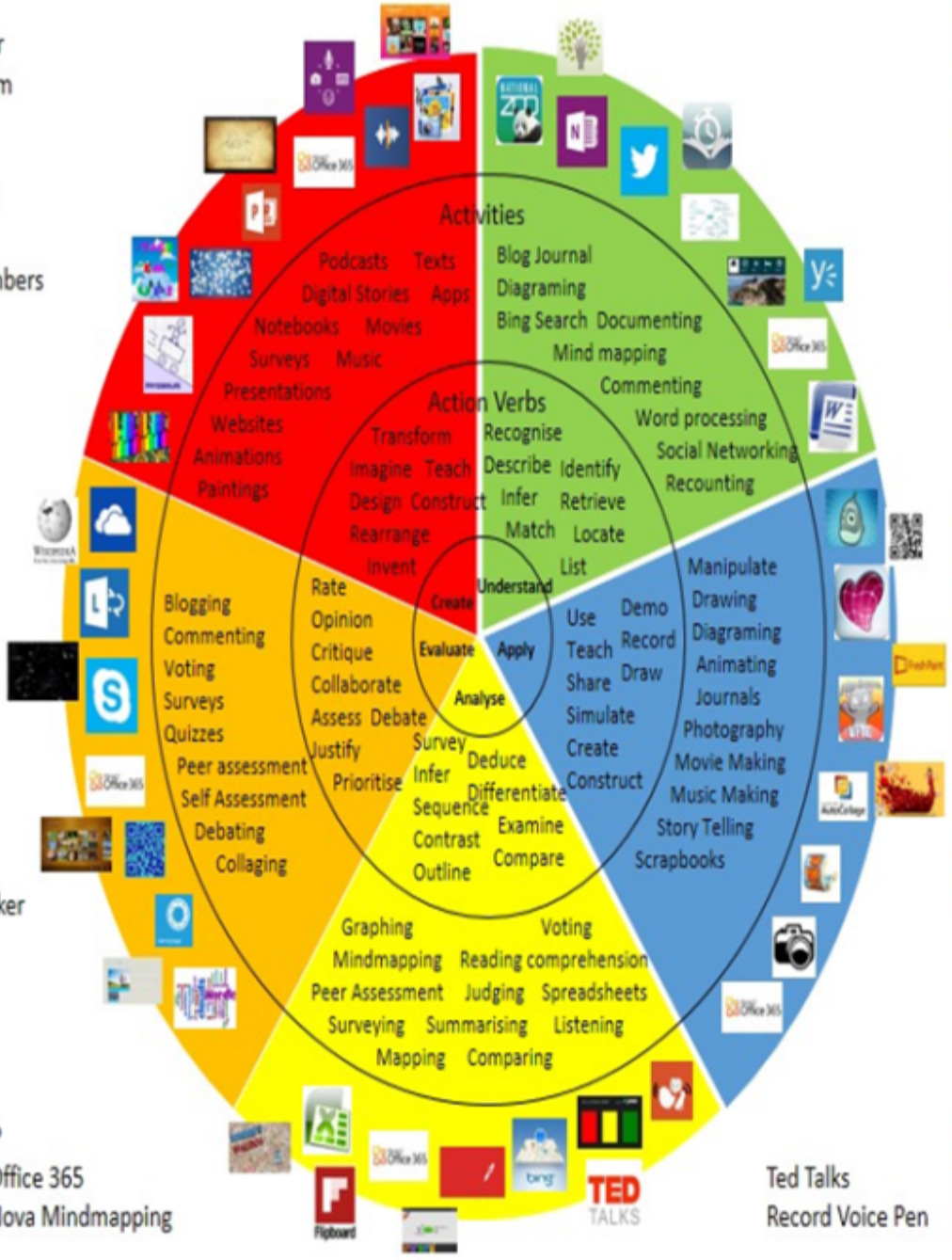
Technology Infusion

Chromebooks, IMACS, Google Classroom, Internet, YouTube, Smart Tv's, online research of professional websites, business websites to research topics, such as product knowledge and show demos on topics covered in unit, for example proper manipulations.

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
Flipboard
Office 365
Nova Mindmapping

Ted Talks
Record Voice Pen

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

Alignment to 21st Century Skills & Technology

WRK.9.2.12.CAP	Career Awareness and Planning
WRK.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.
WRK.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.
WRK.9.2.12.CAP.3	Investigate how continuing education contributes to one's career and personal growth.
WRK.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.
WRK.9.2.12.CAP.5	Assess and modify a personal plan to support current interests and post-secondary plans.
WRK.9.2.12.CAP.6	Identify transferable skills in career choices and design alternative career plans based on those skills.
WRK.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.
WRK.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.
WRK.9.2.12.CAP.9	Locate information on working papers, what is required to obtain them, and who must sign them.
WRK.9.2.12.CAP.10	Identify strategies for reducing overall costs of postsecondary education (e.g., tuition assistance, loans, grants, scholarships, and student loans).
TECH.9.4.12.CI	Creativity and Innovation
TECH.9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
TECH.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).
TECH.9.4.12.CI.3	Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
TECH.9.4.12.CT	Critical Thinking and Problem-solving
TECH.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).
TECH.9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).
TECH.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).

TECH.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.
TECH.9.4.12.DC	Digital Citizenship
TECH.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).
TECH.9.4.12.DC.2	Compare and contrast international differences in copyright laws and ethics.
TECH.9.4.12.DC.6	Select information to post online that positively impacts personal image and future college and career opportunities.
TECH.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).
TECH.9.4.12.DC.8	Explain how increased network connectivity and computing capabilities of everyday objects allow for innovative technological approaches to climate protection.
TECH.9.4.12.GCA	Global and Cultural Awareness
	Digital communities influence many aspects of society, especially the workforce. The increased connectivity between people in different cultures and different career fields have changed the nature, content, and responsibilities of many careers.
	There are strategies to improve one's professional value and marketability.
	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
	Cultivating online reputations for employers and academia requires separating private and professional digital identities.
	Career planning requires purposeful planning based on research, self-knowledge, and informed choices.
	Network connectivity and computing capability extended to objects, sensors and everyday items not normally considered computers allows these devices to generate, exchange, and consume data with minimal human intervention. Technologies such as Artificial Intelligence (AI) and blockchain can help minimize the effect of climate change.
	Laws govern the use of intellectual property and there are legal consequences to utilizing or sharing another's original works without permission or appropriate credit.
	Innovative ideas or innovation can lead to career opportunities.
	With a growth mindset, failure is an important part of success.

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

Teacher will demonstrate step by step aditing skills in small groups.

Teacher will give study guide notes based on specific topics.

Differentiations:

- Small group instruction
- Small group assignments
- Extra time to complete assignments
- Pairing oral instruction with visuals
- Repeat directions
- Use manipulatives
- Center-based instruction
- Token economy
- Study guides
- Teacher reads assessments allowed
- Scheduled breaks
- Rephrase written directions
- Multisensory approaches
- Additional time
- Preview vocabulary
- Preview content & concepts

- Story guides
- Behavior management plan
- Highlight text
- Student(s) work with assigned partner
- Visual presentation
- Assistive technology
- Auditory presentations
- Large print edition
- Dictation to scribe
- Small group setting

Hi-Prep Differentiations:

- Alternative formative and summative assessments
- Choice boards
- Games and tournaments
- Group investigations
- Guided Reading
- Independent research and projects
- Interest groups
- Learning contracts
- Leveled rubrics
- Literature circles
- Multiple intelligence options
- Multiple texts
- Personal agendas
- Project-based learning
- Problem-based learning
- Stations/centers
- Think-Tac-Toes
- Tiered activities/assignments
- Tiered products
- Varying organizers for instructions

Lo-Prep Differentiations

- Choice of books or activities
- Cubing activities
- Exploration by interest
- Flexible grouping
- Goal setting with students
- Jigsaw
- Mini workshops to re-teach or extend skills
- Open-ended activities
- Think-Pair-Share
- Reading buddies
- Varied journal prompts
- Varied supplemental materials

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

A few examples for Special Education Learning are...

To teach practical photoshop editing lessons in small groups and model the assignment more than once

Student will repeat the procedure with peer help.

- 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)

A few examples for English Language Learners are ...

Students will use Google translate to help understand the video lesson on Photo editing.

To show pictures of the assignment and the expectations, completed by the teacher of the assignment. Peers will also help tutor ELL students with understanding lesson by watching together and answering questions.

- 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

A few examples for Intervention Strategies ...

Peers will help tutor students by pairing up to watch videos and complete design projects together.

Peers will provide peers with key notes and outlines for the test.

- 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)

A few examples for Talented and Gifted students are ...

To have students begin creating a portfolio of their work.

Give students challenging assignments

- 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: Preparing for Photoshop Certification

NJSLS:

Interdisciplinary Connection: Business Preparation

Statement of Objective: SWDAT utilize the GMetrix testing software to prepare for Certification in Adobe Photoshop. With 100% accuraccy on projects and quizzes student will be prepared for testing.

Anticipatory Set/Do Now: Log into Computer, log on to GMetrix.com

Learning Activity: Students will apply the knowledge of Adobe Photoshop by completing Test 1 in Training mode.

Identify Famous African Americans in the field of graphic design and the contributions made to society by these figures.
Understand and develop better eco friendly knowledge in regards to copiers, printers and scanners.

Student Assessment/CFU's:

CFU #(s):

10. Self Assessment
12. Portfolio check

Materials:

Smartboard, Computers, ACA Test Prep and GMetrix Software, Creative Cloud

21st Century Themes and Skills:

Differentiation:

Guided Instruction

Integration of Technology: Online learning

9.3.12.AR-PRT	Printing Technology
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.
WRK.9.2.12.CAP	Career Awareness and Planning
WRK.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.
WRK.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.

WRK.9.2.12.CAP.3	Investigate how continuing education contributes to one's career and personal growth.
WRK.9.2.12.CAP.17	Analyze the impact of the collective bargaining process on benefits, income, and fair labor practice.
TECH.9.4.12.CI	Creativity and Innovation
TECH.9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
TECH.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).
TECH.9.4.12.CI.3	Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
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TECH.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).
TECH.9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).
TECH.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).
TECH.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.
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TECH.9.4.12.DC.6	Select information to post online that positively impacts personal image and future college and career opportunities.
TECH.9.4.12.IML	Information and Media Literacy
TECH.9.4.12.IML.1	Compare search browsers and recognize features that allow for filtering of information.
	Innovative ideas or innovation can lead to career opportunities.
	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
	With a growth mindset, failure is an important part of success.
	Network connectivity and computing capability extended to objects, sensors and everyday items not normally considered computers allows these devices to generate, exchange, and consume data with minimal human intervention. Technologies such as Artificial Intelligence (AI) and blockchain can help minimize the effect of climate change.
	Advanced search techniques can be used with digital and media resources to locate information and to check the credibility and the expertise of sources to answer questions, solve problems, and inform the decision-making.
	Cultivating online reputations for employers and academia requires separating private and professional digital identities.
	Laws govern the use of intellectual property and there are legal consequences to utilizing or sharing another’s original works without permission or appropriate credit.
	Digital communities influence many aspects of society, especially the workforce. The increased connectivity between people in different cultures and different career fields have changed the nature, content, and responsibilities of many careers.
	There are strategies to improve one’s professional value and marketability.

Digital tools such as artificial intelligence, image enhancement and analysis, and sophisticated computer modeling and simulation create new types of information that may have profound effects on society. These new types of information must be evaluated carefully.