Project 1
Collages and photography

Timing: 3 to 5 hours

Project overview

To produce quality images for print, web, and video, students need to understand essential graphic design principles and how digital images are created. Adobe Photoshop CS6 is an image-manipulation tool that can help students analyze, enhance, and edit images. In this project, students learn the basics of photography, image composition, and elements of visual design as they create a collage.

Students take photos and gather images from various sources, identifying elements of visual design that reflect good composition. They use Photoshop to retouch and manipulate these photos and images to build a collage. Through this process, they learn about copyright issues and document their learning by using Adobe Acrobat X Pro.

Student product: Collage

Note: Portions of the Collages and photography project align to the Adobe Certified Associate, Visual Communication objectives. Within the instruction steps and technical guides, the specific learning objectives for the exam are referenced with the following format: [1.1]

Project objectives

At the completion of the project, students will have developed the following skills:

Project management skills

- Planning and creating a collage
- Organizing and managing images
- Managing files and using file-naming conventions

Design skills

- Understanding image composition
- Understanding color correction and effects
- Understanding file formats, resolution, and file size
- Understanding image source
- Understanding techniques used to create visual hierarchy

Research and communication skills

- Communicating information clearly, using correct terminology
- Understanding copyright issues and fair-use guidelines
- Analyzing and critiquing photographs

Technical skills

General

- Using a digital camera
- Scanning images

Photoshop

- Understanding the Adobe Photoshop interface
- Importing and working with various file formats
- Working with layers
- Retouching photos by using selection tools
- Adjusting brightness and contrast

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- Adjusting levels and colors
- Cropping, resizing, and straightening images
- Combining multiple images
- Transforming images

Acrobat Pro

- Understanding the Acrobat interface
- Creating PDFs

Project materials

- Adobe Photoshop CS6 installed on all machines
- Adobe Acrobat X Pro installed on all machines
- Digital cameras
- Scanners
- Guide: Introduction to digital photography
- Photoshop guide: Overview of Adobe Photoshop CS6 workspace
- Guide: How to scan images
- Photoshop guide: How to correct color
- Photoshop guide: How to retouch photos
- Photoshop guide: How to generate different file formats
- Photoshop guide: How to resize, rotate, and crop images
- Photoshop guide: How to use selection tools
- Photoshop guide: How to use layers in Photoshop
- Photoshop guide: How to combine images in Photoshop
- Guide: Principles and rules of copyright
- Acrobat guide: How to use the Acrobat interface and basic navigation
- Acrobat guide: How to create a PDF

Background preparation resources

- Technical and content information
- Key terms
- ISTE NETS*S Standard for Students
- Adobe Certified Associate, Visual Communication objectives

Project steps

Introducing photography, color, and design

(Suggested time: 50–100 minutes)

1. Introduce students to the goals of the project.
   - Use digital cameras to learn the basics of photography.
   - Explore image composition and elements of visual design through photography.
   - Use photo manipulation to investigate the potential of color enhancement and retouching.
   - Incorporate a variety of image file types into a collage of images.

2. Let students know they will be taking two types of photos: portraits and landscapes. Explain how to use a digital camera. Review tips on good image composition and elements of visual design and explain their impact by showing examples. Some tips include:
   - *Framing:* When framing the picture, try to fill the frame with relevant and interesting elements.

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- *Emphasis:* Include a focal point of the photograph, a subject that is emphasized.
- *Angle of view:* Take pictures from the subject's eye level to capture it realistically, or change the angle to alter the point of view.
- *Balance:* Create a sense of weight for the elements within the frame; some objects will have a large sense of weight and some will have a small sense of weight.
- *Rule of thirds:* Offset your picture to help focus the viewer's eyes on the subject.
- *Close-ups:* Take close-up pictures to capture details and highlight specific objects.
- *Tone and sharpness:* Use light and shadow to focus attention on or draw attention away from your subject. Have your subject in focus and blur the extraneous elements to draw viewers to the subject.
- *Arrangement:* Remove objects not essential to the composition, or eliminate them by changing the camera's perspective.
- *High dynamic range (HDR) imaging:* Use exposure bracketing and take several pictures at different exposure settings. These images can be combined later to achieve the artistic HDR effect.

Guide: Introduction to digital photography [2.2, 2.5]

Note: The *Background preparation resources* section includes additional information on using a digital camera.

3. Ask students to take pictures of each other, objects in the classroom, and landscapes outside the school. Ask students to download their images and compare them to your examples. Use this comparison to continue the discussion of image composition.

4. Explain that students will create and construct their collages in Photoshop. Have them select a theme for their collages.

   Note: To help students focus, you might select a theme for them. For example, you might have them build a collage in the model of artwork (surrealism, impressionism, etc.) or one that represents a day at school.

5. Instruct students to retake their photographs, trying to improve on their initial efforts by applying their knowledge of image composition and elements of visual design.

6. Explain that in addition to photographs, their collages can include images from magazines, newspapers, and videos.

   Note: You might want to make sure specific magazines or videos are available so students don't spend too much time looking for appropriate images.

Constructing the collage

(Suggested time: 100–150 minutes)

7. Because students will be using a variety of images, discuss digital cameras, scanners, Camera Raw, and video stills as sources. Point out the differences between scanned images, digital camera images, and Camera Raw. Briefly explain how scanners work.[2.5]

   Note: Working with Camera Raw and video stills are somewhat advanced skills in Photoshop. It is recommended that you mention these features to your students, though you may decide to postpone teaching them in greater depth.

8. Discuss the key terminology for digital images, including concepts like pixels, raster, bitmap, and vector images, and resolution.[2.6]

9. Introduce students to the interface, terminology, and basic panels in Photoshop. Discuss and demonstrate the purpose of layers in Photoshop. Demonstrate how to organize and customize the workspace.

   Photoshop guide: Overview of Adobe Photoshop CS6 workspace [3.1]

10. Demonstrate how to open and save an image from a digital camera and an image from a scanner in Photoshop, using the photographs students shot and scanned. Discuss the advantages of manipulating a saved copy of an image and explain the various file formats used to save images.

    Guide: How to scan images [2.5]

11. Explain that most images need to be edited. Using the "I do, we do, you do" method, discuss and demonstrate the following techniques to help students make their pictures the best they can be for their collages:
    - *Navigating images:* Demonstrate the tools for navigating images, rotating the canvas, and panning and zooming.[3.1]
    - *Assessing color:* Use the histogram to determine whether to use the levels, curves, and brightness sliders to adjust color in a photograph.[2.4]
    - *Adjusting color:* Use the tools in the adjustment panel to automatically correct color.[4.4]
    - *Retouching:* Use the Clone Stamp to remove unwanted elements, use the Spot Healing Brush to touch up small areas, or use the Red Eye tool to remove red eye.[4.5]
    - *Selecting:* Use selection tools such as the Lasso and Magic Wand tools to correct a blemish. Refine your selection with the Auto-radius and Touch-up brushes to select a certain element of an image to copy and paste into a collage.[4.1]
    - *Layers:* Use the Layers panel to create, select, hide, move, group, nest, rename, and delete layers. Drag and drop a file into Photoshop to create a new layer. Use filters to search layers.[3.2]
    - *Cropping and straightening:* Use the Crop tool to remove unwanted elements of a photograph.[4.3]
    - *Resizing:* Use the image and canvas size tools to adjust the size of the image.[4.3]
    - *Resolution:* Use Resolution Check to prepare the collage for printing on the designated size of paper (minimum for printing for 8 x 10 is 1600 x 1200 pixels).[2.1, 5.1]
    - *Experimenting:* Experiment and keep track of your changes by using the History panel and remove unwanted steps with the Undo panel.[3.1]
    - *Combining images:* Compositing images, using Photomerge to create panoramic images, and use Exposure Merge 32 bit HDR to combine images with multiple exposures.[4.1]
    - *Transforming photos:* Using transform tools to scale, rotate, or skew a selection.[4.3]

    Photoshop guide: How to correct color [2.4, 4.4]

    Photoshop guide: How to retouch photos [4.1, 4.4, 4.5]

    Photoshop guide: How to generate different file formats [2.1, 3.3, 5.1]

    Photoshop guide: How to resize, rotate, and crop images [2.1, 3.1, 4.3]

    Photoshop guide: How to use selection tools [3.2, 4.1]

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Photoshop guide: How to use layers in Photoshop [3.1, 3.2]

Photoshop guide: How to combine images in Photoshop [4.1]

Note: As you demonstrate the editing tools, discuss the idea of non-destructive editing and emphasize to students the importance of using adjustment layers, filters, and other methods for making edits to the photo without changing the original image.[3.1]

12. Explain that students will begin with a blank document that is a certain size and resolution (usually 8.5 x 11 inches and 300 dpi). They need to prep their images to make sure the lighting and color is corrected using techniques learned above. Have them use batch processing techniques to adjust multiple images.[4.1]

13. Discuss the concept of visual hierarchy in document design to use as they move their images into the document and resize and manipulate them individually. Give students time to manipulate their images and construct their collages.[2.2]

14. Emphasize the importance of copyright and protecting one's work by discussing copyright rules, fair-use guidelines, and intellectual property. Instruct the students to investigate whether they need permission to use any of their scanned or video imagery. Have them provide the appropriate type of copyright citation and have them copyright their own work.

Note: Depending on your students' knowledge of copyright issues, you might want to discuss some or all of the following: knowing when permission must be obtained; the difference between copyrighted material, fair use, intellectual property, and derivative works; and how to indicate that content is copyrighted.

Guide: Principles and rules of copyright [1.2]

Creating and presenting their work

(Suggested time: 25–50 minutes)

15. Introduce the Acrobat workspace and explain that students will turn their collages into PDF documents. Explain that the documents should include 1–2 paragraphs identifying what they learned and what elements of visual design and image composition they employed in taking and selecting images and constructing their collages.

Acrobat guide: How to use the Acrobat interface and basic navigation

Acrobat guide: How to create a PDF

16. Have a few students present their documents to the class and explain the design choices they made for selecting images and creating their collages. Ask students to demonstrate one new technique they learned during this project.[1.4]

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Extension activities

You can extend the project in the following ways:

- *Composition:* Engage students in deeply exploring composition elements by using Camera Raw files or video stills to manipulate the image and its metadata (such as zoom, hand, white balance, cropping, color samplers, Camera Raw workflow options, FilmStrip format, and non-square pixels).
- *Design principles:* Ask students to research design principles as they apply to photography, graphic design, and fine art. Have them distinguish the ways these principles are applied and represented in the different areas and then present their findings.
- *Photographers:* Ask students to research famous photographers and their work to understand the field of photography. Have them present their findings to the class.
- *Community links:* Ask professional photographers, graphic designers, and artists to discuss their work and career paths, giving students a real-world view of the areas they are studying.

Assessment

- Project rubric

Background preparation resources

- Review the student step-by-step guides referenced in this project.
- To view video tutorials aligned with the skills required to complete this project, visit the Visual Design CS6 show on Adobe TV: http://tv.adobe.com/show/visual-design-cs6/
- For more teaching and learning resources on digital photography, Photoshop, and other topics in this project, search for resources from the community on the Adobe Education Exchange: http://edexchange.adobe.com
- If you do not have enough digital cameras or scanners, have half the class use the digital cameras while the other half is using the scanners. Switch groups during the next class period so all students have a chance to learn both types of equipment.
- For an overview of the interface and for more information on the technical aspects of Photoshop, see Photoshop Help.
- For an overview of the interface and for more information on the technical aspects of Acrobat, see Acrobat Help.
- If needed, review this site with more information on copyright: http://fairuse.stanford.edu.

Photography

- Information on image composition for beginners: www.connectedphotographer.com/issues/issue200411/00001426001.html.
- Tips on digital photography composition: http://digital-photography-school.com/blog/digital-photography-composition-tips.
- A variety of information about digital cameras: www.malektips.com/digital_cameras_help_and_tips.html.
- Links to tips for taking great pictures: www.kodak.com/ek/US/en/Consumer_Products/Tips_Projects_Center/Tips_from_the_Pros.htm.
- Tips for image composition and definitions on the elements of visual design: http://photoinf.com/General/Robert_Berdan/Composition_and_the_Elements_of_Visual_Design.htm.

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Scanning

- A comprehensive look at scanning and graphics: www.scantips.com
- Modify the *How to scan images* guide instructions to be specific to your scanner.

Collages

- Tips for working with layers in Photoshop when creating collages: www.creativepro.com/story/feature/17023.html?origin=story.

Key terms

- angle of view
- arrangement
- balance
- close-ups
- emphasis
- framing
- High dynamic range (HDR) imaging
- rule of thirds
- tone and sharpness
- visual hierarchy

ISTE NETS*S Standard for Students

This project is aligned to the ISTE NETS*S Technology Standards. Depending on the subject and content area the student selects you may research your own state content standards to see how this project aligns to your state requirements.

ISTE NETS*S: Curriculum and Content Area Standards – NETS for Students

1. Creativity and Innovation

   Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:

   a. apply existing knowledge to generate new ideas, products, or processes.

   b. create original works as a means of personal or group expression.

2. Communication and Collaboration

   Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:

   a. interact, collaborate, and publish with peers, experts or others employing a variety of digital environments and media.

3. Research and Information Retrieval

   Students apply digital tools to gather, evaluate, and use information. Students:

   b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.

4. Critical Thinking and Problem Solving

   Students use critical thinking skills to plan and conduct research, manage projects, solve problems and make informed decisions using appropriate digital tools and resources. Students::

   b. plan and manage activities to develop a solution or complete a project.

5. Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students:

a. advocate and practice safe, legal, and responsible use of information and technology.

6. Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:

a. understand and use technology systems.
b. select and use applications effectively and productively.

Adobe Certified Associate, Visual Communication objectives

1.2 Demonstrate knowledge of standard copyright rules for images and image use.

1.3 Demonstrate knowledge of project management tasks and responsibilities.

1.4 Communicate with others (such as peers and clients) about design plans.

2.1 Demonstrate knowledge of image resolution, image size, and image file format for web, video, and print.

2.2 Demonstrate knowledge of design principles, elements, and image composition.

2.4 Demonstrate knowledge of color correction using Photoshop CS6.

2.5 Demonstrate knowledge of image-generating devices, their resulting image types, and how to access resulting images in Photoshop.

2.6 Understand key terminology of digital images.

3.1 Identify elements of the Photoshop CS6 user interface and demonstrate knowledge of their functions.

3.2 Demonstrate knowledge of layers and masks.

3.3 Demonstrate knowledge of importing, exporting, organizing, and saving.

4.1 Demonstrate knowledge of working with selections.

4.3 Transform images.

4.4 Adjust or correct the tonal range, color, or distortions of an image.

4.5 Demonstrate knowledge of retouching and blending images.

5.1 Demonstrate knowledge of preparing images for web, print, and video.

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Assessment

	0 - Does not meet expectations	3 - Meets expectations	5 - Exceeds expectations
Images	Absent or incomplete.	Creates original images that employ good image composition and elements of visual design.	Creates original images with a point of view, clearly employing good image composition and elements of visual design.
Image manipulation	Absent, incomplete, or unfocused.	Correctly uses color correction, selection tools, and retouching tools to manipulate images and focus the composition on the subject. Alterations to the image support the original meaning of the image.	Correctly and appropriately uses color correction, selection tools, and retouching tools to manipulate images and focus the composition on the subject. Alterations to the image support the original meaning of the image.
Collage	Absent, incomplete, or unfocused.	Collage is creative and communicates a visual story. Collage includes at least three effective image-manipulation techniques (adjusting color, retouching, selecting, cropping, resizing, and so on) using Photoshop. Images used in the collage have adequate permissions and are cited correctly. Collage is copyrighted as original material.	Collage is creative, clear, compelling, and communicates a visual story. Collage includes three or more impressive image-manipulation techniques (adjusting color, retouching, selecting, cropping, resizing, and so on) using Photoshop. Images used in the collage have adequate permissions and are cited correctly. Collage is copyrighted as original material.
PDF document	Absent, incomplete, or unfocused.	Provides 1–2 written paragraphs reflecting on what the student learned and how they used image composition and elements of visual design in the collage.	Provides 1–2 clear and precisely written paragraphs reflecting on what the student learned and how they used image composition and elements of visual design in the collage.

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