State Test Study Guide for Photo 1

Standard 1: Students will have knowledge of the history of photography.

Objective 1. History of photography.
The first camera was the camera obscura. Joseph Niepce took the world's first permanent camera image. Louis Daguerre invented the first process for developing a print. Both men were from France. George Eastman invented film and the prototype of the film cameras we use today. He made the first mass produced camera that was affordable to the public. He made photography accessible to everyone.
Objective 2. History of Digital Photography.
Willard Boyle and George E. Smith invented the CCD in 1969, the same year man walked on the moon. The first real digital camera was invented by Steve Sasson in 1975. The first digital camera to be marketed to the public was the Sony Mavica.
Objective 3. Brief history of Adobe Photoshop.
Thomas Knoll invented Photoshop in 1988. It was first released to the public in 1990.
Objective 4. Introduction to Digital Photography.

a. Difference between film and digital photography: Film camera record images on film. Digital cameras record images on a digital sensor.
b. How light works in photography: The primary colors of light are red, green, and blue. When mixed together in equal amounts these colors make white. They are additive colors. The primary subtractive colors of light are cyan, magenta, and yellow. When mixed together in equal amounts these colors make black. They are subtractive colors.
c. Demonstrate an understanding of how pixels are used in digital photography: Digital photographs are made up of little squares of color called pixels. Pixel comes from two words, picture and element. A megapixel is one million (1,000,000) pixels.

Standard 2: Students will be able to understand and apply the multi-step process of "workflow."

Objective 1. Identify the multi-step process of workflow in Image capture.

Basic steps: 1. Check settings, compose picture, take picture, check your results.

A. Check Settings, (Mode, Memory card, battery, etc.)
a. Modes—Green square: Fully automatic.
Person: Portrait (Puts person in focus, background out of focus)

Running Man: Action
Flower: Macro (close-up)
Mountain: Landscape (Everything in focus)
Star and Moon: Night
AV: Aperture Priority
SV: Shutter Priority
M: Manual
P: Program (Camera sets aperture and shutter, you set white balance and ISO.

b. Memory cards—CF: Compact Flash—Big memory card, used mainly in digital SLR cameras.
SD: Secure Digital—Most common memory card, used in digital point and shoot cameras and newer digital SLR cameras.
XD: Extreme Digital—Half the size of SD cards. Used in Olympus cameras and Fujifilm Cameras.
Micro SD: Used in mobile devices and some cameras.
B. Holding the camera (Steady, shoot, and format) You need to use a tripod if your shutter speed is slower than 60. Tripods have three legs. Monopods have one leg and can also help keep your camera steady.
C. Composition.
D. Focus (auto or manual)- AF on lens in Auto focus. MF in lens is manual focus.
E. Exposure (auto or manual-aperture and shutter priority)- Auto-camera choses the exposure. Manual-you choose by setting aperture, shutter, and ISO. Aperture priority-You set aperture, camera sets shutter. Shutter priority-You set shutter, camera sets aperture.
F. Light metering: To meter using your camera, press your shutter release button down half-way.
G. Flash (On or off) If your shutter speed is too fast, you will have problems with flash synchronization. Half your picture will be black, the other half will be fine. If you turn your shutter off, you may have problems with blurry pictures. Flashes make your subjects look flat. They take away shadows and dimension. They make the background look darker.
g. Capturing the image.
h. Verify correct exposure or adjust and reshoot (histogram, overexpose, underexpose) You can access the histogram by pressing the info button on your camera. Overexposed digital images are very bright and white. Too much light got into your camera. Underexposed digital images are dark. Too little light got into your camera.

Objective 2. Identify the multi-step process of workflow as it relates to Image editing.

A. Image Transfer (downloading files to a computer)—You can use a card reader or a cord that hooks directly from the camera to the computer. You can also use a scanner. In Photoshop you go to File-Import-Twain

Acquire. Scan in at least 300 ppi. Scanning takes a hard copy photo and turns it digital.

B. Image Management (organizing files, photo selection, and managing folders)

C. Create a contact sheet (using any of the following programs: Photoshop, Lightroom, Bridge). Under file, automate, contact sheet 2.

D. Basic Image Editing (Straighten, rotate, limited crop, adjust tonal range, contrast, color correction) The cropping tool can be used to not only crop a photo but also straighten a photo. To rotate a picture you go to Image, Image Rotation. Adjust tonal range can be done under image, adjustments.

Objective 3. Identify the multi-step process of workflow as it relates to Image Output. **Output is putting a picture somewhere where people can see it, either printing it or putting it on the internet.**

A. Size/Resolution for intended purpose (web, presentation, or print) You can set size and resolution under image, image size. You can also use the cropping tool to set size and resolution. Resolution is measured in pixels per inch or ppi. A good resolution for a picture that is going to be used on the internet is 72 ppi. A picture that is going to be printed needs to have a resolution of at least 300 ppi. Dpi stands for dots per inch and it is basically the same thing at ppi. Dpi applies specifically to printing.

B. Cloud storage (Dropbox, Google Drive, Web Services). Storing photos places where you or others can access them.

Standard 3: Students will be able to identify different types of digital cameras, the location of their basic components, and the benefits and drawbacks of each type.

Objective 1. Mobile Devices/Action Cameras. (Camera Phones, Tablets, GoPro). Benefits—You usually have mobile devices with you. Small and easy to use. Drawbacks—Quality is usually not great. Not a lot of megapixels. Not a lot of options on settings.

Objective 2. Digital Point and Shoot Cameras. Benefits—Not as expensive as DSLRs. Pretty easy to use. Drawbacks--You usually can not change apertures and shutters the way you can with a DSLR. Usually not as many megapixels as a DSLR.

Objective 3. Digital Single-Lens Reflex (DSLR) Cameras. Benefits—You can change lenses. You can set aperture sizes and shutter speeds. There are usually more megapixels than a digital point and shoot camera. Drawbacks—No real drawbacks.

Objective 4. Mirrorless Inter-changeable Lens Cameras (MILC) They are smaller and more portable. They have no mirror in the body that flips up and flips back down.

Standard 4: Students will demonstrate the appropriate use of the camera controls on a digital camera.

Objective 1. Exposure Modes (Auto, Shutter Priority, Aperture Priority, Program, Manual)

a. Auto—Camera sets everything.

b. Shutter Priority—You set the shutter, your camera sets the aperture.

c. Aperture Priority—You set the aperture, your camera sets the shutter.

d. Program—Camera sets aperture and shutter, you set white balance and ISO.

e. Manual—You set the aperture and the shutter. You can also set ISO and white balance. The most flexible setting.

Objective 2. Pre-programmed modes (landscape, action, portrait, macro, night)

a. Landscape—The mountain. Puts everything in focus.
b. Action—The running man. Uses a faster shutter speed and the continuous setting where you press the shutter release button and your camera takes one picture right after the other.
c. Portrait—Person. Blurs out the background and focuses more on the person.
d. Macro—The flower. The close-up setting. Blurs out the background more.
e. Night—Person with the star and moon. Good for low light photos.

Standard 5: Students will be able to use and identify memory devices and file types associated with digital cameras and scanners.

Objective 1. Demonstrate an understanding of file formats as they pertain to image capture. (i.e. RAW, TIFF, JPEG)

a. RAW—Highest quality you can take a picture at. Raw data. It allows the greatest flexibility in Photoshop.

b. TIFF—Tagged Image File Format. Big file format. Not compressed at all. Lossless file format.

c. JPEG—Joint Photographers Expert Group. Most common file format. It is lossy. It losses data the more you open at close the image. It compresses images when you save them.

d. PSD—Photo Shop Document. Works only in Photoshop. Offers greatest flexibility for working in Photoshop. Saves the layers.

Objective 2. Demonstrate an understanding of compression in digital file sizes as they pertain to image capture. (i.e. Extra Fine, Fine, Basic, and Normal)
Compression—How images are taken and saved. Colors and info are chunked. Extra Fine shows the most details. It saves all data.

Objective 3. Demonstrate an understanding of the difference between high and low resolution and how they are linked to pixelization. (Intended use of

photograph i.e. print, email, photo sharing). A picture that has low resolution has fewer pixels. When a picture has less pixels you can see the pixels when you print or enlarge the picture. Pictures with lower resolution are good to email and share on social media but not good for printing.
Objective 4. Identify common memory cards and camera compatibilities. (i.e. Compact Flash, SD, Micro SD, XD, and internal storage) See above under second section. Internal Storage—hard drive.
Objective 5. Identify necessary equipment used for downloading images (i.e. cables, card readers).
Objective 6. Properly download files from the camera to a computer.
Objective 7. Demonstrate an understanding of how to scan an image for use with a computer (flat bed scanner, film scanner, negative scanner).

Standard 6: Students will be able to understand and operate a point and shoot camera or DSLR.

Objective 1. Identify basic digital camera parts and their functions (i.e. viewfinder or LCD monitor, lens, mode dial, shutter release, etc.) LCD—Liquid Crystal Display. Screen that you view pictures on. Mode dial or Mode Selector—Allows you to change settings on your camera. Hot Shoe—Where you can attach accessories like a big flash. Shutter Release—The picture-taking button.
Objective 2. Understand focal length and optical zoom verses digital zoom.

A. Focal length: The distance between the lens and the image sensor when the subject is in focus.

e. Optical Zoom—Optics of the lens makes the subject appear closer. It keeps the same quality and the same number of pixels.

f. Digital Zoom—Picture is cropped. Digital zoom lowers the quality of your picture. It cuts out pixels. It is found on mobile devices and point and shoot cameras.

Objective 3. Use of a tripod or other steady shoot method when it is appropriate. Use a tripod for low light pictures. Use a tripod when your shutter speed is slower than 60.
Objective 4. Identify the need and appropriate use of an on camera flash. Low light situations. You usually need to use a flash inside. Flashes make the background darker and make your subject look flat.
Objective 5. Identify the difference between Shutter Priority and Aperture Priority. See above.
Objective 6. Identify some of the basic differences between digital Point and Shoot and Digital SLR (Single Lens Reflex) cameras (i.e. size, width, and lens options). Digital SLR cameras are bigger than point and shoot cameras. You can change lenses on a digital SLR camera. You can not change them on a digital point and shoot camera. The buffer on a DSLR camera is bigger which allows you to take several photos before the buffer downloads onto your memory card.

Objective 7. Identify differences in types of photographic lenses for a DSLR. (Wide 10-35mm, Standard or Normal 50-70mm, Telephoto or Long 80mm and above)
Wide Angle: Spreads out space, makes the background smaller. Distorts people.
Standard or Normal: Recreates what your eye sees.
Telephoto or Long: Compresses space (makes things look like they are closer together). Makes the background bigger.
Prime Lens have one focal length. They do not zoom. Zoom lenses allow you to change the focal length.

Standard 7: Students will be able to demonstrate basic proficiency in the use of Adobe Photoshop.

Objective 1. Demonstrate how to use Photoshop to set size and resolution for images based on the intended use of the image (web, print). Use Image, Image size or the Crop tool. 72ppi for the web. 300ppi for printing.
Objective 2. Demonstrate tonal adjustments (i.e. histogram, Brightness and Contrast, Shadow/Highlight correction, Levels, Dodge and Burn Tool).
Histogram—Graph of the values in a picture. Dodge—Lightens a part of the print. Burn—Darkens a part of the print.
Objective 3. Demonstrate color correction (i.e. color balance, hue/saturation, and levels). Hue—Formal name for color. Saturation—The intensity of the color.
Objective 4. Demonstrate cropping (i.e. cropping, straightening, and perspective)
Objective 5. Demonstrate techniques for photo retouching (i.e. Healing Brushes, Red Eye, Clone Stamp). Healing brush blends in with the pixels around it. Clone Stamp stamps the same color, the same pixels. Healing Brush or Clone Stamp can be used to fix skin issues. The Red Eye tool is under the healing brush.
Objective 6. Demonstrate and use the Layers pallet (i.e. active layer, layer order, creating and deleting layers, and Opacity). The active layer is blue. You can change layer order by clicking on a layer and dragging it to the top or bottom of your layer's pallet. If you create a new layer, it appears above the active layer. If something is 100% opacity, you can not see through it. If you lower the opacity, a layer becomes transparent.
Objective 7. Demonstrate the black and white conversion process in Photoshop. You can use Image, Mode, Grayscale or Image, Adjustments, Black and White, or Image, Adjustments, Desaturate.
Objective 8. Demonstrate effective use of the Undo and Redo (i.e. history pallet, step forward or backward). Control Z is the key command for undoing one step in Photoshop. The History Pallet lets you step back multiple times in Photoshop.
Objective 9. Demonstrate the use of the Transform tool (i.e. scale, rotate, skew, flip, and distort).
Objective 10. Demonstrate the use of selection tools (i.e. Marquee, Lasso, Magic Wand, Quick Select Tool). The shift key adds to a selection. The alt key removes from a selection. The marquee tool makes a square or circular selection. The lasso tool lets you draw around something. The polygonal lasso

tool lets you make a multi-sided straight edge selection. The magic wand tool selects pixels of a similar color.
Objective 11. Demonstrate different imaging file types and know their intended use (.psd .jpeg .png) PSD-Photoshop document, opens only in Photoshop. JPEG-Most common file format, small and lossy. PNG-Portable network graphic. Found a lot on the internet. Used for some photos and a lot of graphics.

Standard 8: Students will be able to understand and demonstrate the elements of composition.

Objective 1. Demonstrate Simplicity/Emphasis as an element of composition.
Objective 2. Demonstrate Rule of Thirds as an element of composition. Tic tac toe grid. Point of interest goes where the lines cross.
Objective 3. Demonstrate Perspective as an element of composition. (Worm's Eye, Bird's Eye) Worm's Eye- From a lower angle looking up. Bird's Eye-From a higher angle looking down.
Objective 4. Demonstrate Leading Lines as an element of composition. Leading lines lead the eye to the point of interest.

Standard 9: Students will be able to understand and practice copyright laws, ethics and legal issues dealing with photography as identified in United States Code Title 17 Chapter 1 Section 101.

Objective 1. Define copyright. Show another person's work the way it was originally intended to be shown.
Objective 2. Other definitions.

a. Audiovisual works.
b. Computer programs.
c. Copies.
d. Copyright owner.
e. Digital transmission.
f. Financial gain.
g. Pictorial, graphic, and sculptural works.
h. Work of visual art.

Objective 3. Students will practice ethics and rules governing photojournalism (i.e. Editorial content must not be changed).
Objective 4. Students will practice correct usage of copyright laws (i.e. the right to reproduce, manipulate, distribute, plagiarize or exhibit another photographer's work outside of fair use provisions).

a. Time limitations.
b. Portion limitations.
c. Text material.

d. Illustrations and photographs
e. Copying and distribution limitations.

Objective 5. Students will demonstrate understanding of ethics related to social and legal issues in subject choice (i.e. model releases, image appropriateness, and cultural sensitivity).

Standard 10: Students will gain an understanding of the careers available in the field of photography.

Objective 1: Students will cover the possible career options in the field of photography.

Note: The bracket keys on the keyboard change brush size in Photoshop.

The Eyedropper tool picks up a color and puts that color on the tool bar so you can paint with it.

SkillUSA is the CTSO or club for this class.