GO DESIGN NOW!

Welcome to the Go Design Now! book series, dedicated to educating the Graphic Designer today. This volume, "Digital Photography." explores the potential of photography to expand the vocabulary of creative possibilities. Digital Photography covers the technical as well as the aesthetic aspects of the medium.

My name is Rick McCawley, Professor of Graphic Design and Photography at Broward College in Ft. Lauderdale, Florida. Along with my students, we have created the book you hold. Our hope is to make you a stronger, more creative Designer.

So Let's Go... **GO DESIGN!**

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The Camera – 10 Questions To Ask Before You Buy

1. **How many mega pixels?** 6-8 MP seems the norm these days. In terms of price and performance anything over five is sufficient for 11x14 inch prints and most semi-pros. For professionals, 8MP exceeds the qualities of 35mm film in resolution, color range, and exposure latitude. Larger files quickly become a storage problem. Remember, not all mega-pixels are created equal. The size of the sensor and the manufacturing quality can vary significantly.

2. **Do all cameras have the same picture quality?** No. Three things affect the quality of the final photo: 1. The optical quality of the lens. 2. Size and quality of the sensor. Small cameras use smaller chips, resulting in less detail and more noise. You can't compare one 6MP camera to another without knowing the size of the photosites. 3. The sophistication of the manufacturer's processor technology of rendering the image to disk.

3. **What about batteries and memory cards?** Cameras suck up energy (especially when using flash), so avoid cameras using AA batteries (if you do get one, get a dozen NiMHi batteries and a good charger). Buy at least one extra, brand-name battery and at least two extra 2GB cards (about $60).

4. **What do I like to photograph?** For sports or nature, you need fast, long focal length lenses. For photos of people, the typical wide angle to telephoto, zoom lens, is sufficient (a 3x or 6x **optical** zoom is great). For macro, or close-up, check the minimum focus distance. Most point- and-shoot cameras have extraordinary close-focusing ability. With SLR's you often have to buy a macro lens.

5. **Does the camera support the RAW file format?** For professional and semi-pro photographers, having control over the RAW information from the camera sensor unlocks the extra colors and dynamic range that a processed and compressed .jpeg file can't give you. It's like having a digital negative, and all the extra control for interpreting the image the way you see it.

6. **What extra features should I look for?** Many point-and-shoot cameras have features the SLRs don't. Examples: ***Panorama Assist***: the camera aids you in taking photos in sequence and combining them later. ***Movie mode:*** the ability to shoot video -- great if you are on vacation and don't want to lug a video camera along. ***Scene assist:*** Not sure how to set up exposure for fireworks? Let the camera help. ***Tilt and swivel screens***: Great in a crowd or for doing self portraits. ***Live preview*** of the image as you shoot is starting to show up in digital SLRs.

View finder focusing, especially in bright light, is easier with an SLR camera than with an LCD. But recent increases in LCD brightness, resolution and enlarged focus areas have SLR manufacturers adding these features on the high end cameras.

Photo by: Nikon USA

7. **How much money should I spend?** How much you got? A great point&shoot will set you back $300-500, with the extra memory cards and batteries. SLR cameras start at $600 with lens and extra memory cards and batteries. However, if you want extra lenses and lighting equipment, expect to spend about $1,000 for each.

8. **What do I look for in a lens?** On point & shoots, the optical zoom range (3x is average, 6-8x is great). Since these lenses are rarely removable (some have wide-angle and telephoto extenders -- although they cost more and reduce quality) the greater range will allow you to capture sports, nature and other subjects from a distance. A maximum aperture of *f*-2.8 is often the fastest with *f*-4-5.6 most common. The faster the lens, the lower the light levels you can work in without camera shake. Finally, the widest angle of view 24mm, (equivalent) is best, 28-35mm is common. The wider the angle, the better you can capture interior spaces and magnify the foreground subjects.

   For SLR cameras, options are much greater. Faster lenses cost more (often more than the camera), variable focal length (zoom lenses) are slower and less sharp but offer changes in point of view from one standing position.

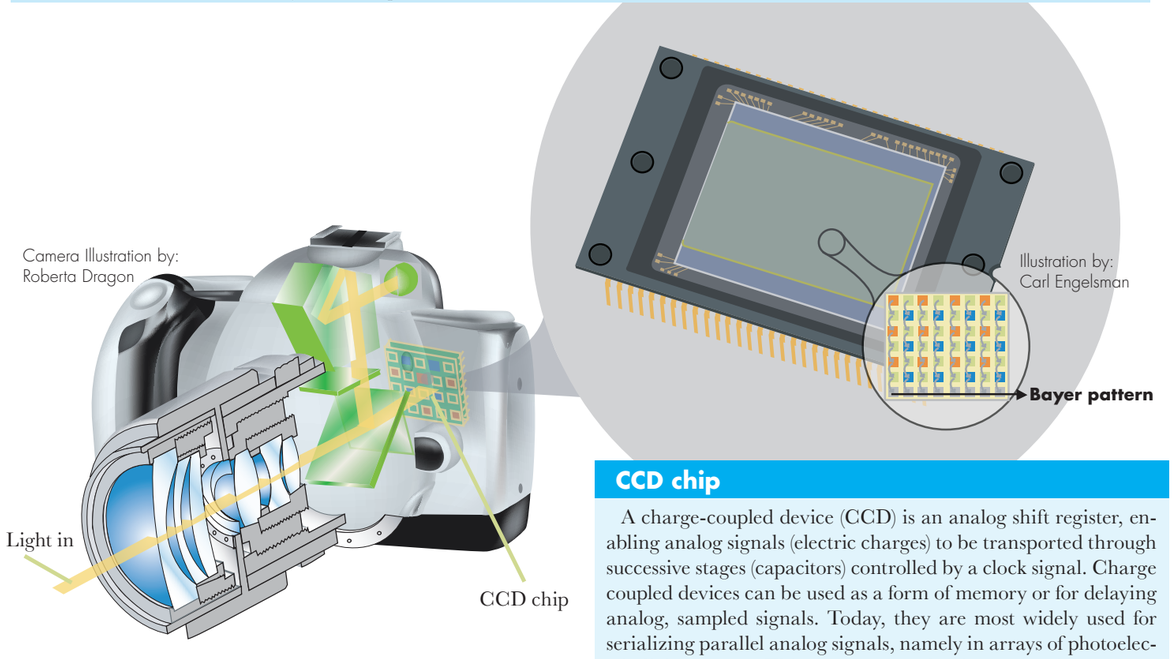
9. **What about warranties?** Be aware that some of those tempting deals on the Internet are gray market sales, which come without U.S. warranty and possibly without English manuals. Buy from highly rated vendors only.

10. **Where should I shop?** Start at a site like dpreview.com. They do detailed unbiased reviews and are the best resource for the latest news and education about the digital photo world. Active message boards cover every camera and issue. Support them by following their links to buy equipment, you will find the lowest prices with respected vendors.

Digital Camera Resolution

Capture Resolution (Pixels)	Mega pixel	File Size	Video Display	Print Size				
				4x5"/4x6"	5x7"	8x10"	11x14"	16x20"
640x480	0.3	900K	NTSC TV (VGA)	Good	Poor	Poor	Poor	Poor
800x600		1.37MB	DV TV	Good	Good	Poor	Poor	Poor
1024x768		2.25MB	XGA	Photo	Good	Good	Poor	Poor
1280x960	1	3.52MB	HD (SXGA)	Photo	Good	Good	Poor	Poor
		5.17MB		Photo	Photo	Good	Good	Poor
	2	5.49MB		Photo	Photo	Good	Good	Good
	3	9MB	High definition (UXGA)	Photo	Photo	Photo	Good	Good
	4	10.8MB		Photo	Photo	Photo	Good	Good
	5	14.1MB		Photo	Photo	Photo	Good	Good
	6	17.4MB		Photo	Photo	Photo	Photo	Photo
	7	21.4MB		Photo	Photo	Photo	Photo	Photo
	8	25.1MB		Photo	Photo	Photo	Photo	Photo
POOR			Noticeably grainy - pixelated					
GOOD			Obviously not a real photograph - most details are discernible					
PHOTO			On photo-quality printer, cannot tell the difference at normal viewing distance					

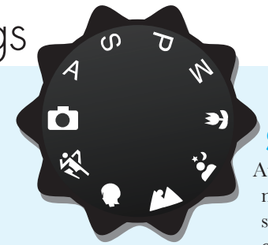
The above chart can be used as a guide to help you decide what resolution camera you should purchase



CCD chip

A charge-coupled device (CCD) is an analog shift register, enabling analog signals (electric charges) to be transported through successive stages (capacitors) controlled by a clock signal. Charge coupled devices can be used as a form of memory or for delaying analog, sampled signals. Today, they are most widely used for serializing parallel analog signals, namely in arrays of photoelectric light sensors. This use is so predominant that in common parlance, "CCD" is (erroneously) used as a synonym for a type of image sensor even though, strictly speaking, "CCD" refers solely to the way that the image signal is read out from the chip.

Camera Dials & Settings



M

Manual Exposure

In this mode you select the aperture and the shutter speed.

P

Program Auto

In this mode, the camera automatically selects aperture and shutter speed based on the current metered exposure value, exposure compensation and ISO.

S

Shutter Priority (Tv or S)

In this mode you select the shutter speed, and the aperture is calculated by the camera.

A

Aperture Priority (Av or A)

In this mode you select the aperture, and the shutter is calculated by the camera.

Automatic Exposure

This mode configures the camera to make most of the decisions for you, the majority of manual features are disabled. You can set flash mode, macro and image size.

Scene modes

Auto mode gives complete control to the camera's metering system. Each mode optimizes the camera settings for a particular type of photograph. This includes aperture, flash, white balance, color and exposure. Available scene modes:

Action or sport mode increases ISO and widens the aperture for a shorter shutter speed.

Landscape mode shrinks the aperture for greater depth of field.

Portrait mode widens the aperture for softer features and narrower depth of field.

Night portrait mode takes a flash shot of the nearby subject with an extended shutter exposure to capture lights in the background.

Macro mode allows the camera to focus closer than normal. It can take close-up photos of small objects such as flowers, coins and insects.

Other scene modes found on many cameras include *Fireworks, Snow, Natural light and Night snapshot.*

Play

Allows you to browse through images you have taken. You can also use the zoom controller to magnify the image and check for good focus.

Set Up

Enters the camera's setup menu where you can make changes to overall camera settings and customizable features.

Self-timer shooting

Camera takes a single frame after a predefined delay. This delay can be set to 2, 5, 10 or 20 seconds via a custom function.

Continuous shooting

Press and hold the shutter release and the camera will shoot frames at approximately 3 frames per second (depending on shutter speed).

ISO Sensitivity

Adjusting your digital camera's ISO settings will determine how sensitive the camera will be to light. This is very much like using different film speeds in a film camera. The higher the ISO setting, the more sensitive the camera will be to light, also the more noisy (grainy) the photo will be

Movie Clip

Allows you to record a movie clip or time-lapse movie. Movie clips have two size options of TV movie (640 x 480, max 70 sec) or Small movie (320 x 240, max 180 sec).

Flash

Flash On, No Flash, Auto with Red-eye reduction, Fill Flash.

WB White Balance

Adjusts the presumed white point for digital cameras.

Exposure Compensation

Hold this button and rotate the command dial to select exposure compensation in the range of -2.0 EV to +2.0 EV in 0.3 EV steps.

Image Quality / Size

Display a single menu which allows you to select the current image quality and size.

Exposure, Aperture and Shutter Speed

Shutter Speeds	Apertures												
	F1	F1.4	F2	F2.8	F4	F5.6	F8	F11	F16	F22	F32	F45	F64
1s	0	1	2	3	4	5	6	7	8	9	10	11	12
1/2 s	1	2	3	4	5	6	7	8	9	10	11	12	13
1/4 s	2	3	4	5	6	7	8	9	10	11	12	13	14
1/8 s	3	4	5	6	7	8	9	10	11	12	13	14	15
1/15 s	4	5	6	7	8	9	10	11	12	13	14	15	16
1/30 s	5	6	7	8	9	10	11	12	13	14	15	16	17
1/60 s	6	7	8	9	10	11	12	13	14	15	16	17	18
1/125 s	7	8	9	10	11	12	13	14	15	16	17	18	19
1/250 s	8	9	10	11	12	13	14	15	16	17	18	19	20
1/500 s	9	10	11	12	13	14	15	16	17	18	19	20	21
1/1000 s	10	11	12	13	14	15	16	17	18	19	20	21	22
1/2000 s	11	12	13	14	15	16	17	18	19	20	21	22	23
1/4000 s	12	13	14	15	16	17	18	19	20	21	22	23	24

The table represents the relationship between shutter speed, aperture and EV at ISO 100.

Typical Daylight EV

Add one EV value for each doubling of the ISO. Example:

200 ISO +1 EV
400 ISO +2 EV
800 ISO +3 EV

Illustrations by Dianne Nilsson and Michele Lopes

Understanding Exposure

Exposure is a combination of the length of time and the amount of light received by the film or sensor. The exposure time is controlled in a camera by shutter speed (how long you keep the film or sensor exposed) and the illumination level by the lens aperture (how wide you open the lens diaphragm).

The exposure generated by an aperture, shutter speed, and sensitivity (ISO) combination can be represented by its exposure value "EV". The effect depends on sensitivity of the film or sensor.

Zero EV is defined by the combination of an aperture of f/1 and a shutter speed of 1s at ISO 100. Each time you halve the amount of light collected by the sensor (e.g. by doubling shutter speed or by halving the aperture), the EV will increase by 1. For instance, 6 EV represents half the amount of light as 5 EV. High EVs will be used in bright conditions which require a low amount of light to be collected by the film or sensor to avoid overexposure.

Illustration by Dianne Nilsson

Smaller aperture
Longer shutter speed

Correct Exposure

Overexposed
Too high aperture -
too long shutter speed

Aperture and shutter speed work in combination in a similar way as filling a glass with water; when the glass is full, a correct exposure is reached. If a faucet is opened only partly (small aperture), it will take longer time to fill the glass entirely (longer shutter speed); if a faucet is turned on full until it's wide open, we acquire a correct exposure value with a short shutter speed.

Auto Bracketing [AE] Auto Exposure

Photography by Rick McCawley

EV -1.5 | EV -1.0 | EV 0 | EV +1.0 | EV +1.5

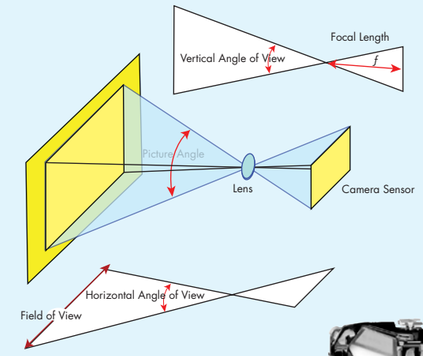
Bracketing is used to take a series of images of the same scene at a variety of different exposures that "bracket" the metered exposure (or manual exposure). "Auto" simply means the camera will automatically take these exposures as a burst of 2, 3 or 5 frames with exposure settings of anything between .03 and 2.0 EV difference.

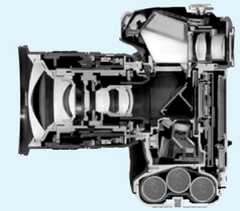
This can be useful if you're not sure exactly how the shot will turn out or worry the scene has a dynamic range, which is wider than the camera can capture.

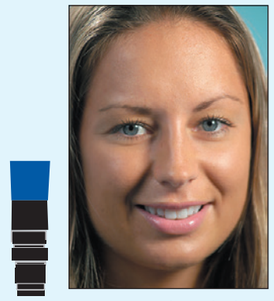
On a digital camera, this can also be used to combine under and overexposed images together, to produce an image with more dynamic range than the camera can capture in one exposure. This techinque called HDR (High Dynamic Range) imaging, is available in Photoshop .When setting up for bracketing you can usually select the number of frames to be taken (typically 3 or 5), the exposure range, and the order in which they are made.

Angle of View

The camera lens projects part of the scene onto the sensor. How much is projected depends on its focal length, the distance from the center of the lens (focal point) to the center of the sensor. Lenses with a focal length of 50mm are called "normal" because they work without reduction or magnification and create images the way we see the scene with our naked eyes. Wide angle lenses (short focal length) capture more because they have a wider horizontal and vertical angle of view, while telephoto lens (long focal length) have a narrower angle of view.





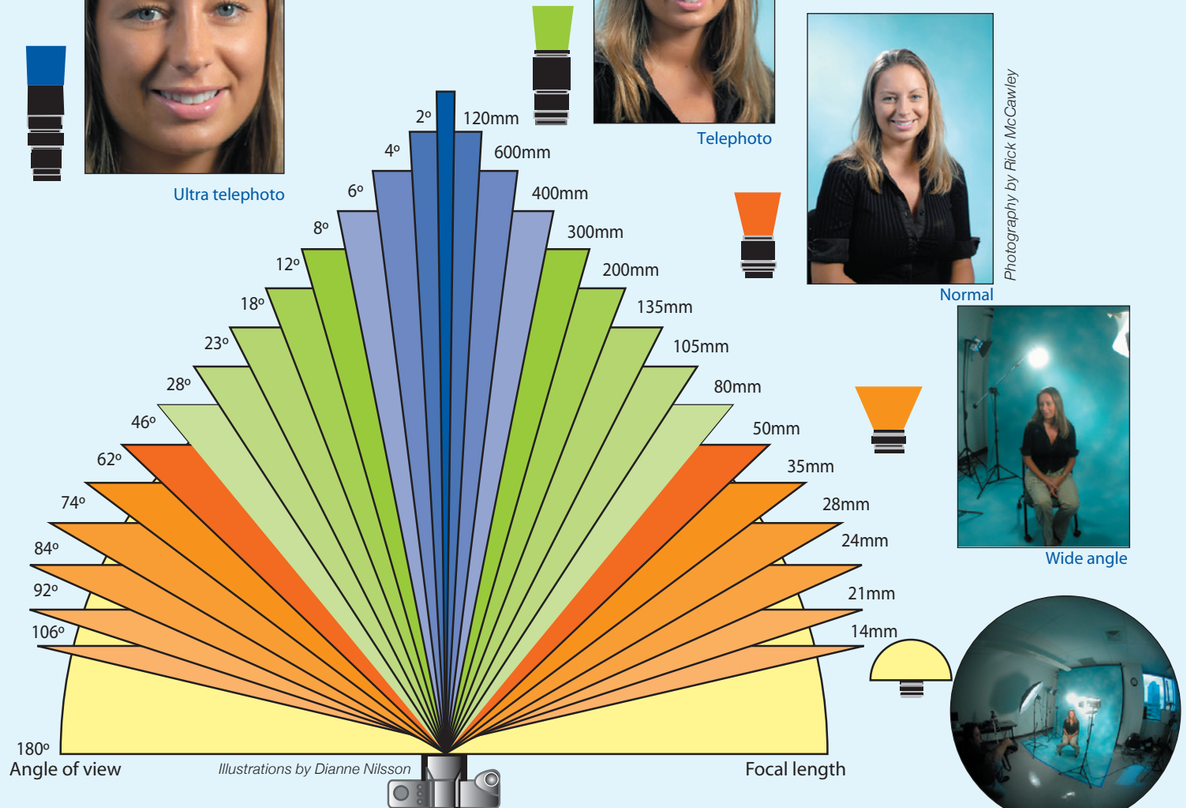


Ultra telephoto

Telephoto

Normal

Photography by Rick McCawley



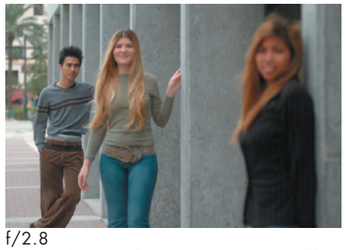
Wide angle

8mm Fish-eye

Depth of Field

f/2.8
Closest figure in focus, shallow depth of field

f/2.8
Middle figure in focus, deeper depth of field.



f/2.8
Farthest figure in focus, deepest depth of field

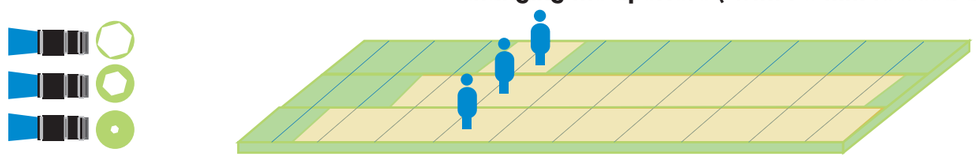
Depth of field (D.O.F) refers to the areas of the photograph both in front and behind the main focus point which remain "sharp" (in focus). Depth of field is affected by the aperture, subject distance, focal length, and film or sensor format.

f/16
All three figures are in focus

Rules to Know.

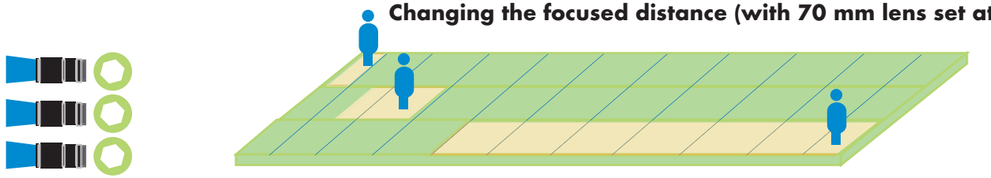
1. A ***larger aperture*** (smaller f-number, i.e f/2) has a ***shallow depth of field***. A ***smaller aperture*** (larger f-number, i.e. f/11) has a ***greater depth of field***.
2. ***The closer your focus,*** is the ***less your depth of field.***
3. ***The longer the lens,*** (i.e. 50mm vs. 300mm) the ***less the depth of field***.
4. ***The smaller the sensor,*** (i.e. point and shoot vs. full frame sensor on an SLR) the ***greater the depth of field***.
5. Depth of Field lies ***one third in front of the subject and two thirds behind.***

Changing the aperture (with 70 mm focused at 30 ft.)



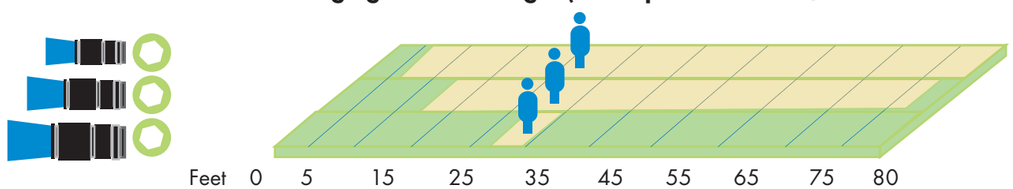
Larger aperture (smaller f-number, i.e f/2.8) has a ***shallow depth of field***.
Smaller aperture (larger f-number, i.e. f/16) has a ***greater depth of field***.

Changing the focused distance (with 70 mm lens set at f/8)



The closer your focus is the ***less your depth of field.***

Changing the focal length (with aperture set at f/8 and focused at 30 ft.)



The longer the lens (i.e. 300mm vs. 50mm)
The less the depth of field.

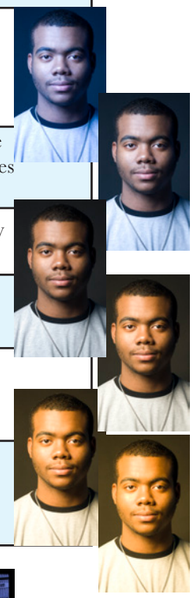
In-focus areas

Color Temperature

Color Temperature is the color (measured in degrees kelvin) that a light source emits. For photographers seeking accurate color, neutralizing color, can be tricky. A white shirt photographed under incandescent light will appear reddish. If you are shooting professionally, you should be using the RAW file format of your cameras. You can set the camera to daylight, but the data RAW captures is not affected by this choice. Shooting RAW, allows you to make color rendition adjustments after the busy shoot is over.

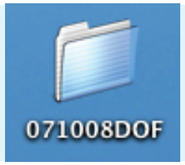
For casual photography stick with daylight unless you know the nature of the light your subject is lit by (see chart below). I don't recommend Auto, as it will suck the color out of sunset and campfires as it attempts to neutralize any color cast. With sunsets, camp fires, and fireworks, where you want to capture the colorful lighting conditions as part of the ambiance, leave the camera white balance set at daylight.

A Auto	4,200ºK-8,000ºK	Camera measures color temperature and adjusts white balance automatically.
Shade	11,000ºK Skylight 8,000ºK Shade in Daylight	Use in daylight with subjects in the shade.
Cloudy	6,000ºK Cloudy	With cloudy skies the color temperature Becomes more blue as the sunlight passes through water laden clouds
Flash	5,400ºK Electronic Flash	Use this when illumination is mostly from flash or studio strobes.
Daylight	5,200ºK Daylight	When the sun is high in the sky.
Fluorescent	4,200ºK Fluorescent	Most indoor business and institutional light is fluorescent. Be aware: the color from tube to tube can vary greatly.
Incandescent	3,000ºK Tungsten 1,900ºK Candlelight	The most common light used in homes, the common light bulb.

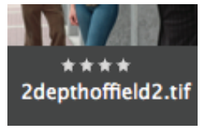


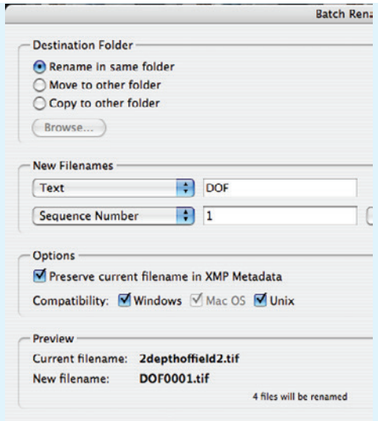
DAM-Digital Asset Managment

1. Rename Folder on the Camera card in the format: **070130BenBirthdayParty**
   Year Month Day *Description*
2. Copy the Folder to your hard drive
3. Open the Bridge application and locate your folder



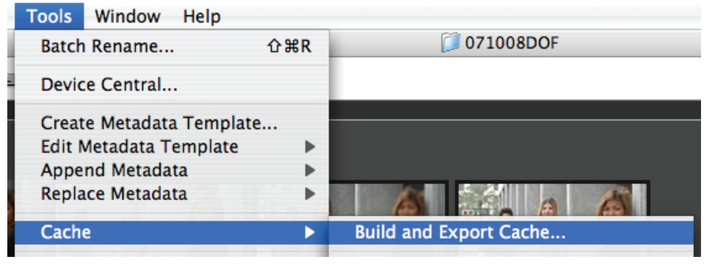
4. Rate your photos by clicking the stars
5. Select the photos you wish to rename
6. Choose Tools/Batch/Rename



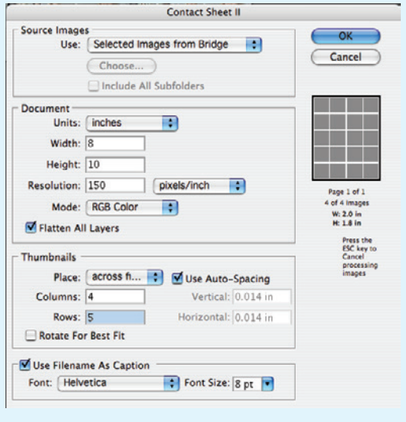


7. Make sure "Rename in the same folder" is selected
8. Choose text and type the description of the series of photos
9. Choose sequence and set the number you wish to start at, we started at one.
10. Next, under Options, check preserve file name
11. Check Windows and Unix
12. Click Rename

13. Select the Tools menu
14. Select Cache and Build and Export Cache
15. Click OK. This creates a file that retains your ratings, previews and rotations.
16. Make sure to do this often as it saves any changes you make in the bridge



17. To create a contact sheet, select the photos you wish to place on the sheet
18. Then select the Tools Menu, Photoshop, and then Contact Sheet
19. Change the resolution to 300
20. Change columns and rows according to the amount of pictures you have
21. Check use filename as caption
22. Change font size to 7 or 8
23. Click OK to make the contact sheet, it may take a few moments
24. Be sure to save the sheet when done to the folder the images came from. Then print a copy for your contact sheet book.



Metadata

By definition, metadata is data about data. The information stored in your photos includes, *f*-stop, shutter speed, serial # of the camera, resolution, color space, what lens was used, and much more. Other information can be added, including copyright, keywords and URLs if you like. If you use Photoshop, the Bridge application allows you to add and edit information stored within the file. Simply select multiple files and from the window menu select metadata panel, and add the information. If you use Lightroom, or Aperture, there are also extensive controls to add meta data to your files. All three applications can create templates of information that can be stored and quickly added in a batch process. All three can add this information on import from your digital camera, or card.

Two reasons to take the time to add this information as you import. One: new copyright laws will respect this digital meta data in court to establish copyright and 2. You can search through millions of photos using any of this data to find the photo you are looking for years from now.

Raw vs. Jpg

Reasons to Shoot Raw	Reasons to Shoot JPG
Quality. A raw file is the unprocessed information the camera collected, when you took the photo. The files have not been subject to .jpeg compression which throws out color and detail in the process of making smaller files.	**Files are smaller** and therefore more of them fit on a card. Storage isn't an issue since the average file is 1/8th of a RAW file. Hard drive space, including back-ups can quickly become a problem with larger RAW files.
White balance (correcting color) can be selected at the computer not in the field under pressure. All of this without image degradation, and in the comfort of your home.	**No Processing**. For many applications image quality is more than sufficient (family snapshots, photojournalism, ect.). You don't have to post process every file as with RAW. So e-mailing, viewing and printing are much faster, with .jpg.
Modify Settings. Contrast and saturation information has not been applied by the camera, so you can modify these setting	**Immediate use.** Many photographers don't have the time or inclination to post-process their files.
Larger tonal, and color range. Possibly the biggest advantage of shooting raw is that one has a 16 bit image (post raw conversion) to work with. This means that the file has 65,536 levels to work with. This is opposed to a .jpg file's 8 bit space with just 256 brightness levels available. This is important when editing an image, particularly if one is trying to open up shadows or alter brightness in any significant way.	**Faster shooting.** Many cameras (especially Point & Shoots) can not shoot quickly when working in raw mode. Most lower-end models RAW is not an option. If fast shooting, quick results and lower processing time are most valuable. Or if you are a hobbyist Fine Quality .jpg's are the way to go. If you are a PRO with people paying you for quality and perfection is more important then only RAW will do.

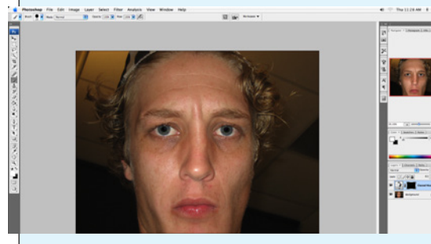
Conversion Black & White

The Black & White command lets you convert a color image to grayscale while maintaining full control over how individual colors are converted. You can also tint the grayscale by applying a color tone to the image, for example to create a sepia effect. Black & White functions like the Channel Mixer, which also converts color images to monochrome while allowing you to adjust color channel input.

Remove Red Eye

Red-Eye is caused by a flash on camera reflecting off the retina in the back of the eye and the red blood vessels. Producing a red glow in the eye. There are two ways to reduce this effect. One: get the flash off camera, (which is more flattering light anyway) or, use the Red-eye reduction feature on your camera. This works by sending out pre-flashes to constrict the iris and reducing the red-eye effect.

Photoshop, Lightroom, and Aperture all have brushes to paint out red-eye.



Panorama

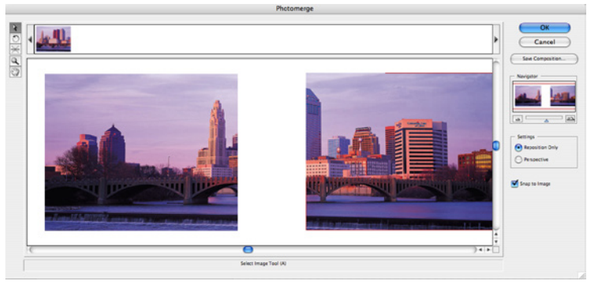
The ability to stitch together multiple photographs to create wide vistas or even complete 360 degree views is now built into most point & shoot cameras and Photoshop.

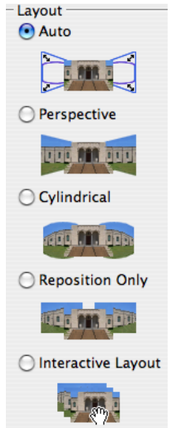
Three steps to shooting these well are:

1. Avoid very wide angle lenses. They exhibit distortion to the edges of the frame making it difficult to connect straight lines. Shooting vertical orientation can help. A 35-50mm lens is best.

2. Use a tripod and a level to ensure a smooth transition from frame to frame. Also try to keep the camera at eye level and not tilted up too far. You will get a pyramid view on tall buildings. Better to move far away or find a building across the street and get up to a parallel height to make things level.

3. Set the exposure based on the brighter part of the scene and use the same exposure throughout.





Adobe Lighting Room –OR– Apple Aperture

Adobe Photoshop has ruled and defined the digital imaging marketplace since its creation. Photoshop serves many imaging masters, from the film industry, to scientific analysis to web design. Starting in 2000, digital photography became the killer application of all that Photoshop is.

When Apple introduced Aperture, an application geared to the professional photographer, Adobe followed with LightRoom, and the battle for the pro photographer's hearts and minds grew.

So why would you use them over Photoshop.

1. Business of photography–Aperature and LightRoom are production tools based on database engines (like Excel) so dealing with thousands of images at a time, tracking, keywording and backing-up and managing the valuable assets of the business are their strong points.

2. RAW file management– These programs are built to work with 16 bit, color critical images, faster than Photoshop and are built to be non-destructive. The first all-in-one post-production tool for photographers. Built from the ground up for professionals, Aperture offers an advanced RAW workflow, professional project management capabilities, powerful compare and select tools, nondestructive image processing, and versatile printing and publishing.

Artificial Light

Quartz-halogen bulbs (hot lights) contain a gas that prolongs the life of the bulb. They (and their lamp housing fixtures) are often more expensive than photo floods, but they last much longer and maintain a more constant color balanced for indoor color pictures.

Photo floods (hot lights) have a tungsten filament, like a household bulb, but produce more light than a conventional bulb of the same wattage. The bulbs put out light of 3200K-color temperature for use with indoor color pictures. The bulbs have a relatively short life, and put out an increasingly reddish light as they age.

Compact Florescent (cool lights) a better choice for the modern digital photographer. They are energy efficient, last 10 times as long as most bulbs, produce just as much light on a 1/4 of the power. Best of all they won't melt your subjects. Use the florescent color temperature setting and you are cool running.

Flash equipment ranges from large studio units that power multiple heads to units small enough to clip onto or be built into a camera. Depending on its housing, any of the above can be a flood light, which spreads its beam over a wide angle, or a spotlight, which has a lens in its housing that focuses the light into a concentrated beam. A spotlight often is adjustable so the light can be varied from narrow to relatively wide.

Reflectors and light-control devices

REFLECTORS

Bowl-shaped reflectors are used with photo lamps to concentrate the light and point it toward the subject. Some bulbs have a metallic coating on the back of the bulb that eliminates the need for a separate reflector.

A Snoot is a tube attached to the front of a lamp housing to narrow its beam. It is used to highlight specific areas.

A Grid also attaches to the front of a lamp housing and uses an array of tiny tubes to narrow its beam. Grids are available in a variety of spread angles.

An Umbrella reflector is used with a light to produce a wide, relatively diffused light. The light source is pointed away from the subject into umbrella, which then bounces a broad beam of light onto the scene.

Reflector flat is a piece of cardboard or other material used to bounce light into shadow areas.

Flag or GOBO is a small panel usually mounted on a stand and positioned so it shades some part of the subject or shields the camera lens from light that could cause flare, the same effect you get outdoors if the sun shines directly into the lens.

Barn doors are a pair of black panels that mount on the front of a light source. They can be folded at various angles in front of the light.

DIFFUSERS AND FILTERS

Diffusion screen, often a translucent plastic, placed in front of a light will soften it and make shadows less distinct.

Tent is a translucent material that wraps around the subject instead of around the light source.

Filter holder accepts filters or gels that change the color of light, diffusion screens that soften it, or polarizing screens to remove glare or reflections.

Soft box completely encloses one or more lamps and produces a soft, even light.

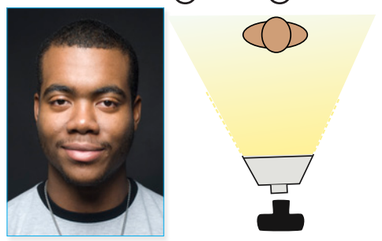
SUPPORTS FOR LIGHTS

Light stands hold a lamp, reflector, or other equipment in place.

Umbrella mount attaches to a light stand and has a bracket for an umbrella reflector, plus another for the light that shines into the umbrella.

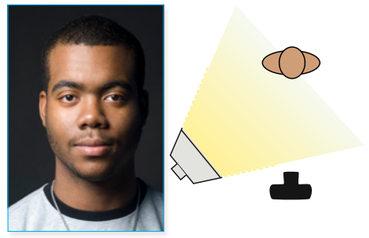
Background paper or seamless is not lighting equipment but is common accessory in a studio setup. It is a heavy paper that comes in long rolls, 4 feet or wider, in various colors to provide a solid-toned, non reflective backdrop that can be extended down a wall and cross the floor or a table so you can make photographs without a visible break or horizon line.

Studio Lighting



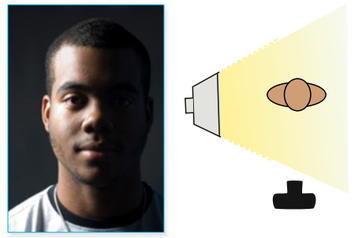
● Butterfly or "Glamour Lighting":

The term "Butterfly lighting" comes from a characteristic butterfly-shaped shadow beneath the subject's nose. If you want to use butterfly lighting you should line your main light up along your subject's nose axis and then raise the light until you see the characteristic shadow. This style of lighting is also known as glamour lighting because it was used extensively by the great Hollywood portrait photographers of the '20s, '30s and '40s. Although light placement is identical for butterfly and glamour lighting, photographers such as George Hurrell gave it a special look by using a spotlight as the main light rather than a softer light source. If you move your Main Light a little to the left or right, you will change your lighting style into a modified butterfly pattern.



● Rembrandt Lighting:

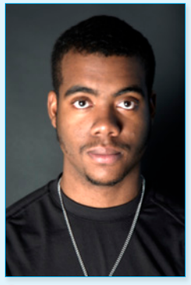
Direct your main light toward your subject's face at an angle of approximately 45 degrees. You can use 45 degree light from the broad side, or the short side and to light either a full face or profile portrait. The main light should be placed higher than the subject's head and is directed down and at an angle of about 45°. One characteristic of 45° lighting is the triangle of light from the main light that is on the shadow side of the subject's face. 45 degree lighting is also known as Rembrandt lighting because it is the style of lighting seen in many of his paintings.

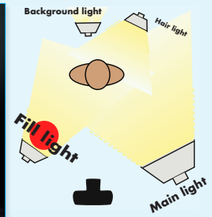


● Split Lighting:

Split lighting divides the face along its center. Split Lighting is probably the least used style of portrait lighting, but it can be very effective. The easiest way to create split lighting is to place your main light just as you would for 45° lighting. While watching the patch of light on the shadow side of your subject's face, lower the main light and move it to the side until the shadow-side highlight disappears. If you want to add an accent of light to the shadow, move it back just a little until a very small touch of light reappears on the shadow side of the face.

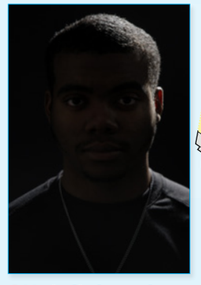
● Qualities of Studio Lighting

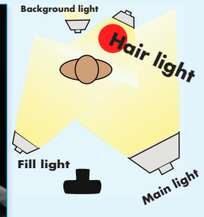




●Fill light

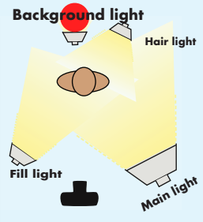
Fill light is the first light to set up, and the only light to illuminate the shadow areas. It should cast no distinct shadows and should not be evident in the final photograph. Position the fill light behind the camera and set it to 1-2 stops less than the main light setting. The main light shapes the subject, so you need to diffuse the light source to give a soft, natural look. Fit the main light with a large soft box, keeping the main light as close to the subject as possible. The fill light controls the contrast, and fills the shadows on the subject. This gives shape to the face.





●Hair light only

The hair light's job is to create a natural-looking separation between the subject and the background and to enhance the sheen of the hair. Position it on the same side as the key light and approximately 45°'s behind the subject; this will usually be close to the edge of the backdrop, just out of the shot. Hair light will highlight the shoulders, but should not be visible on the face.

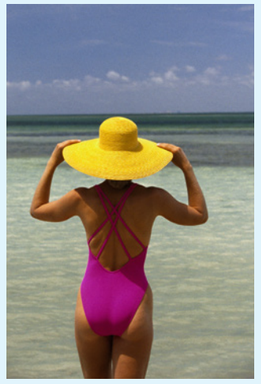


●Background light

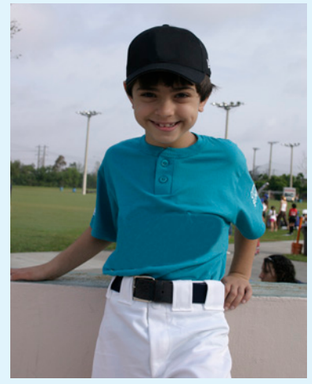
The background light is used to give the impression of space between the sitter and the background. Place it on a floor stand behind the subject, with a reflector dish attached to illuminate the brightest point behind the subject's shoulder blades. The light will gradually fall off to give a natural vignette to the portrait, as well as drawing attention to the subject's face.

Outdoor Lighting

How can I use *Available light* and still make a pleasing photo? It may be any of the lighting situations shown on the previous page. Stop for a moment before you begin to photograph to see how the light affects the subject and to decide whether or not you want to change your position, your subject's position, or the light itself.



How do I deal with a clear *sunny day* where the subject is squinting and the contrast is high? You might want to move the subject into the shade where the light is not so contrasty. Or position the light source behind the subject to reduce squinting. To reduce the shadow, you might want to add a fill light, using a large piece of foam core to bounce the available light into the shade. A piece of stretched fabric can be used to shade your subject.



What are the *magic hours* I hear photographers talking about? Right after sunrise and right before sunset is a beautiful light for portraits, gently modeling, warm tones of light. The long shadows rake across the surface of objects, increasing the sense of texture, and reveling the shape of the face. You can set up ***Split and Rembrandt lighting***, during these hours when the sun is near the horizon.

● Indoor Lighting

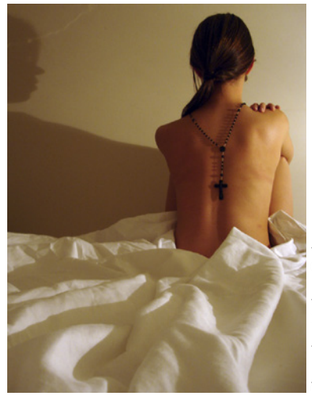


Photo by Melisa Ojdea

How do I take good photos in my house? Near a lamp or window, the light is directional, with bright areas fading off quickly into shadow. The contrast between light and dark is often so great that you can keep details in highlights or shadow, but not in both. If, however, there are many light fixtures, the light can be softly diffused, illuminating all parts of the scene. Use as many lights as you can and use white walls and bed sheets to reflect light into the shadows.

How do I expose in indoor lighting situations? The eye adapts easily to variations in light; you can glance at a light area, and then quickly see detail in nearby dark area. There will be a greater range of contrast indoors than the camera can record, so rather than making an overall meter reading, you need to select the part of the scene that you want to see clearly and meter for that.

Indoor light is often relatively dim. If you want to use the existing light and not add flash or other light to a scene, you may have to use a slow shutter speed and your widest aperture. Use a tripod at slow shutter speeds. Increase your ISO, and look for, or create pools of light.

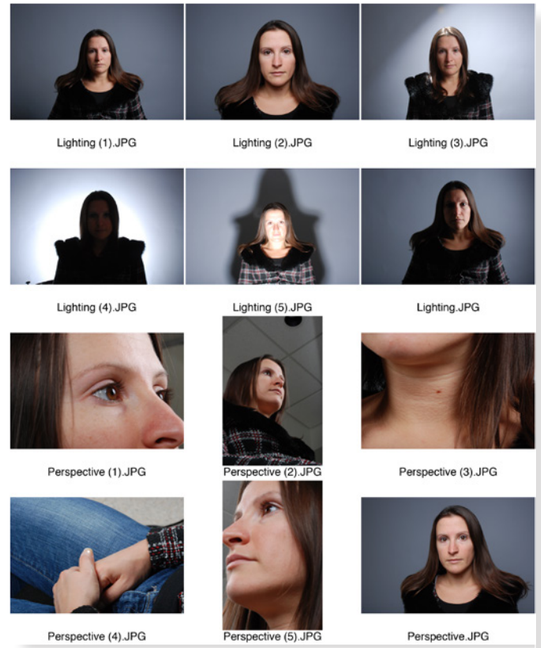
Assignment – Portrait
Perspective and lighting

The most common subject of photography is people, so mastering this subject matter is vital. The assignment is to photograph a person in studio lighting under a variety of lighting conditions, (you could use simple lights at home and set up a studio). This is meant to be like a science experiment with constants and variables. The two variables you are exploring are ***light*** and ***perspective***.

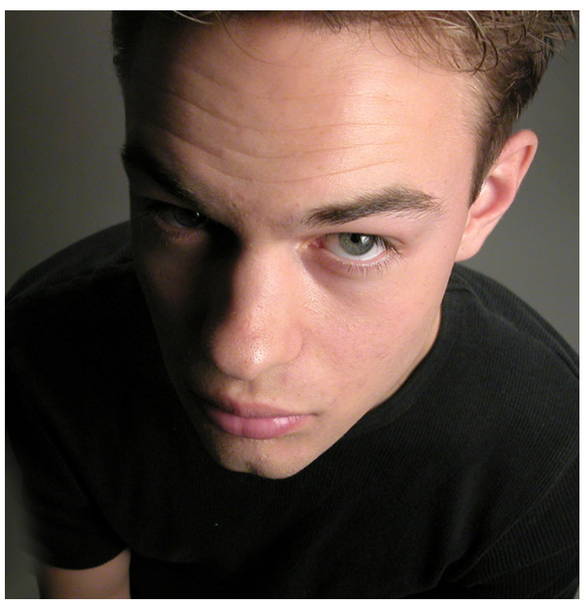
Have the subject sit still. The camera should be on a tripod or at least stationary throughout the shoot. The first set of six photos will use the ***variable of light positioning***. Run through the three classic lighting arrangements you learned in the previous section Split, Rembrandt, and Butterfly. Follow these with Hair light, Silhouette, or (Halloween Lighting: under the chin), and any other variation you can think up.

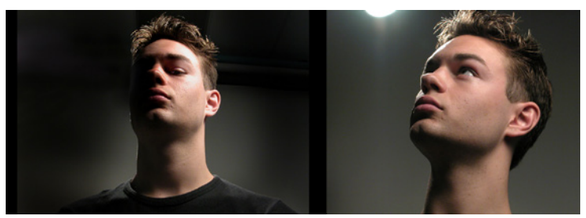
Take a set of photos with the subject and lighting stationary, but move the camera around to get ***dramatically varied perspectives***. You should vary focal length (zoom in and out), shoot up and down at the subject, and move super close and very far away. The goal is to produce unusually varied images of the same subject, and learn about light and its effect.

"How you look at things changes what they look like."
– Rick McCawley, 2001



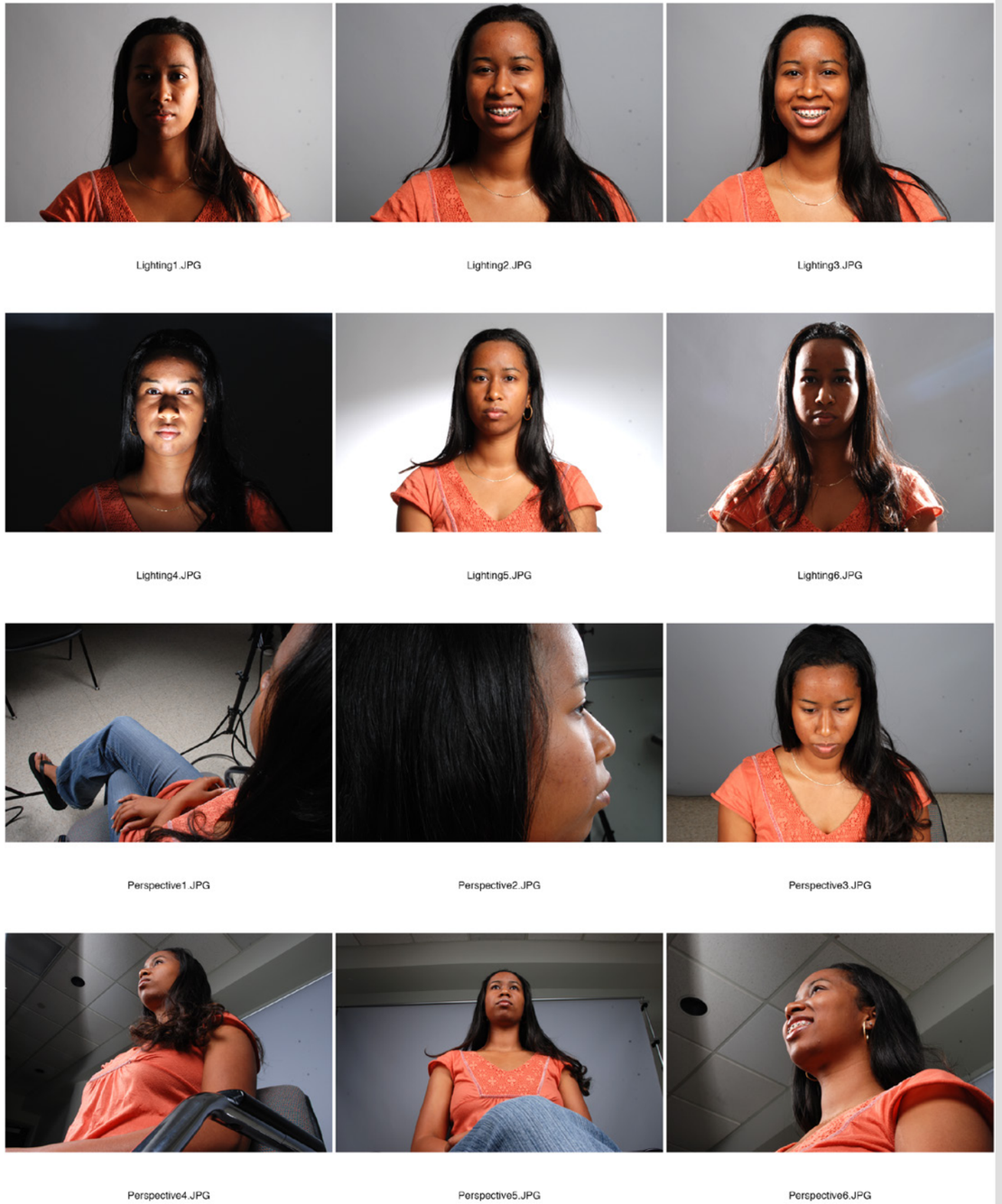
Photos by Claudia Pereira of Ktrina Zlygine





Photos by Rick McCawley

Assignment – Portrait
Perspective and lighting



Photos by Marilyn Almonte of Diana Faruqui









Photos by Rick McCawley of Sarah Gomez

Posing

Posing is a key element of portrait, fashion, and commercial photography. It is a piece of the puzzle for creating good composition. Some photographers adopt rules such as "The Law of the Golden Mean," but good posing is a much simpler idea. The most important thing is that your subject is presented in a pleasing way.

The Face

The three basic views of the face in photography are:

- Profile
- Full face
- 2/3 view

When describing a pose, the term 2/3 refers to any view of the face between full face and profile. Posing of the face is directly linked to lighting. A pose that might work with soft lighting will look absurd with a harder light source.

The eyes are often the focal point of a portrait. They are, as the saying goes, the windows to the soul. Light coming from underneath your subject will add an additional catchlight in the eyes and bring out more of the eye color.

If your subject has a feature you want to accentuate or de-emphasize, use perspective to change the way it looks.

Expressions

Another very important element is expression. The pose and lighting can be perfect, but the expression can make or break the picture. Some photographers have troubles getting a pleasant expression from their subject. A concept called "mirroring" is the solution to that problem. If you smile at a person, they will probably smile back, and when you frown at them, they will do the same. Your subject will mirror the expression you as a photographer have on your face.

Body Shape and Position

There are six basic views of the body:

- Full-length
- Two thirds length
- Half length
- Head and shoulder
- Tight closeups
- Body parts (popular with baby photographs)

POSING DO'S

Slouching/uneven weight
Asymmetry
Bend the joints
Tilted Head
Turn the hips

POSING DON'TS

Foreshortening
Looking down
Bending over
Hyper extended joints

The subject of your portrait will seem very stiff if the spine is running entirely vertical in the frame, or the shoulders are running perfectly horizontal throughout the frame. If you pose the person reclining backwards a bit or leaning slightly forward, you can achieve a more relaxed, professional look.

If you want a body part to look thinner, and thus more flattering, turn it to the side. If a body part is straight on to the camera, it will look larger. Hips, bellies, butts, and hands are parts you usually want to appear thinner. To create a graceful pose, have the subject tip her lower shoulder toward her higher hip and her head toward her higher shoulder. Show the edge of the hand instead of the back or knuckles. This is a classic pose is called the S-curve.

Seven ways to add variety to your poses:

1. Change or combine views of faces.
2. Change body view - full-length, head and shoulders etc.
3. Change expression from a soft smile to laughing to a frown.
4. Change the direction of the eyes - up, down, into camera.
5. Change the action - a hug, a look.
6. Change the props - a flower, a piece of fabric, hands.
7. Change the key of the image - high key vs. low-key.

Hands

One of the more difficult parts of posing is figuring out what to do with the hands. Sometimes it's obvious, but when the subject is not doing anything specific, like just looking at something, it can be challenging to make them look natural. With females, it's best not to show the palms of the hands. Some natural things that people do with their hands when standing around include: hands in pockets, hands on hips, hands resting on purse, hands holding something, hands pointing, hands clasped, and hands clenched in a fist. Most importantly, position the hands in context with the rest of the shot, to help the subject look natural.

Feminine vs. Masculine

It's important to distinguish the difference between feminine and masculine posing. In posing a woman, we seek to make them look feminine with softer lines. A man is usually posed to appear strong with sharper lines.

To pose your subject's head with a feminine tilt, position the head so that it's tilted towards the shoulder closest to the camera. In a masculine pose, the head is tilted so that it's sitting on the subject's shoulders at a perpendicular angle to the shoulders.

Communication

Place a mirror behind the camera so your subject can observe themselves while posing. This will help them pose because they will see themselves the way you see them. Instead of just telling your model what to do, show them! During a shoot, verbally reinforce your subject. While the subject is posing, say things like, "Great pose!" or "That's perfect." As a photographer, it might be helpful to become a model for a day, in a sense. Try out different poses in the mirror and see what poses you look good in.








Assignment – Apple

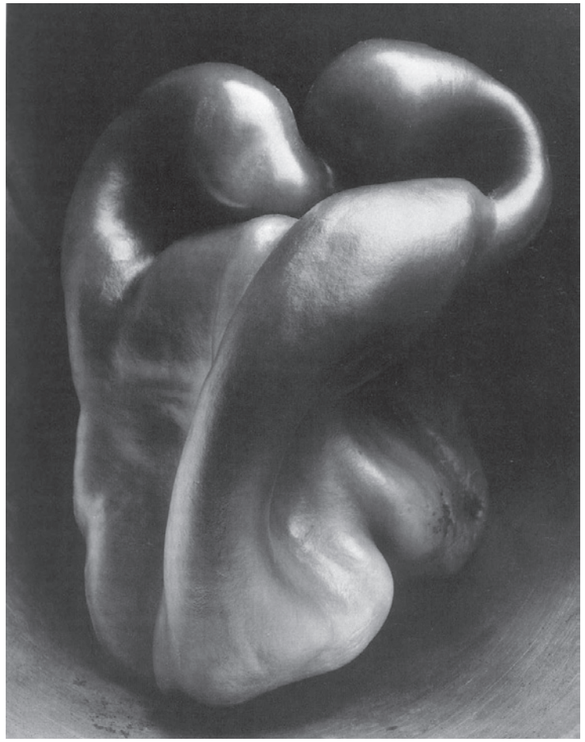
The apple assignment is inspired by Edward Weston's "pepper series" of photographs. The remarkable "Pepper #30" is a transcendent image that is not about the pepper as much it is about what else the pepper is. With sensuous undulating form, the pepper is an essential example of the power and perception possible with photography.

The assignment is to take a Red Delicious apple, live with it for a few weeks and photograph it as many ways as you can. The goal is to awaken your creativity and feel free to explore the possibilities this subject provides. Photograph the apple for what it is and for what else it is.

Experiment with:

1. Personification- think of the apple as a person with a life.
   Ex. The apple is your best friend, or someone you love.
2. Metaphor- what else does the apple reminds you of.
   Ex. The apple reminds you of a baby's rosy cheeks.
3. Juxtaposition- put the apple next to different things.
   Ex. Put the apple next to an orange.
4. Narrative- Think of a story the apple could be a part of.
   Ex. The apple is a spy on a dangerous mission.

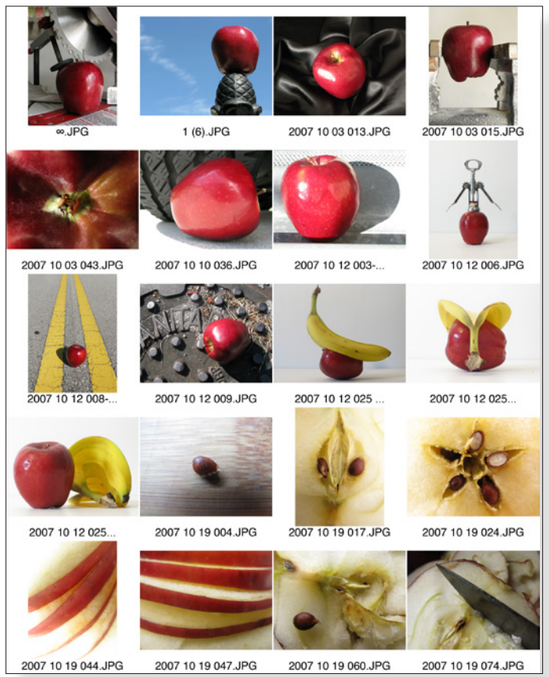
"The camera should be used for a recording of life, for rendering the very substance and quintessence of the thing itself, whether it be polished steel or palpitating flesh."
–Edward Weston



"Pepper #30" by Edward Weston

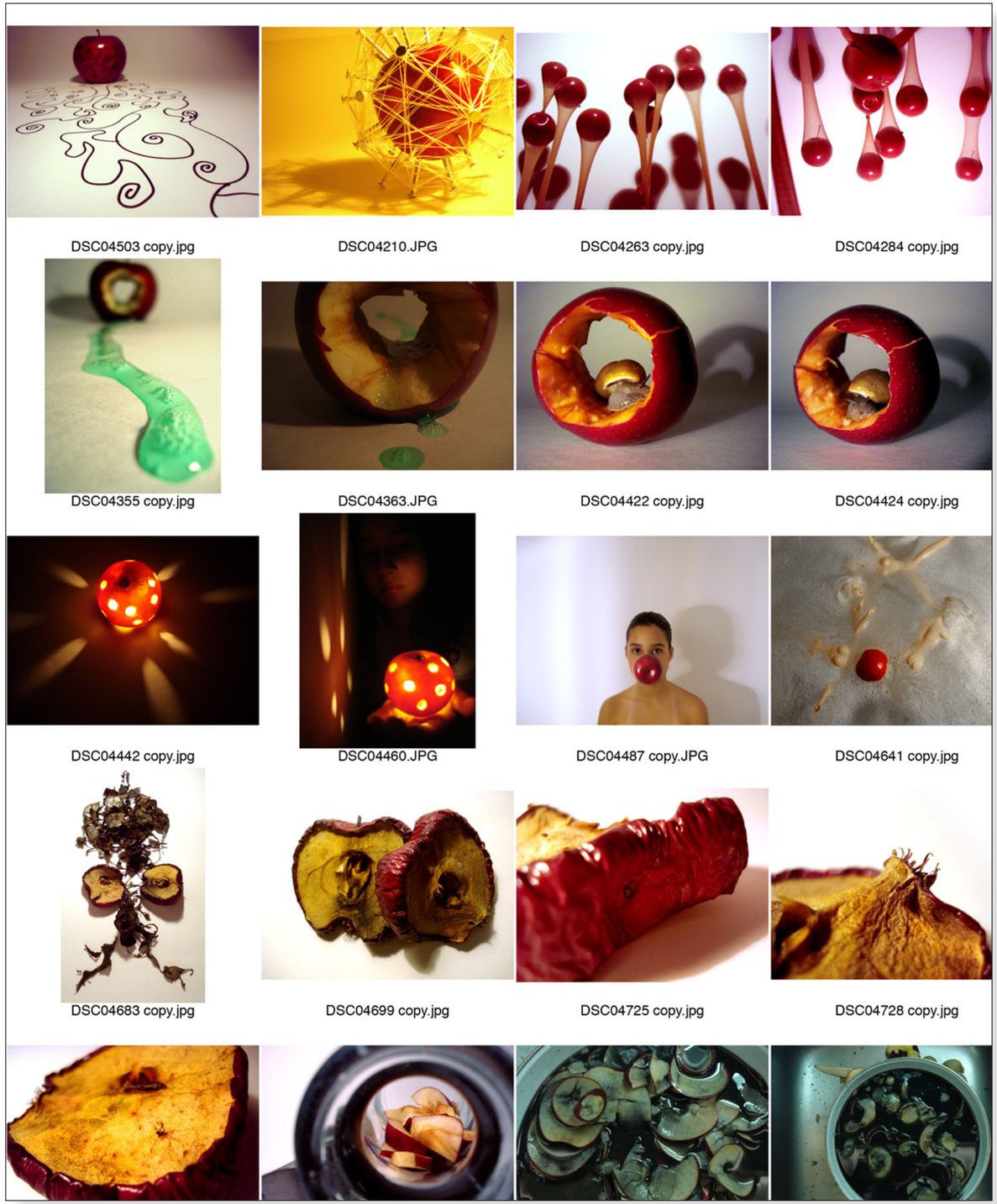
The Apple in History

- Garden of Eden- Eve gave Adam the apple.
- William Tell, shot an apple off his son's head.
- The Big Apple- New York City
- Apple Computer Inc.- Best computers on the planet.
- Apple of my eye- a term of endearment.
- Apple Bottom- term for a shapely behind.
- Appletini- Adult beverage.
- Johnny Appleseed- American Folk hero, planted apples
- Snow White and the Poison Apple- Disney film.



Photos by Jami Nix Rahn

Assignment – Apple



Photos by Venessa Diaz

Composition

If you had to define how Shakespeare, using the same 26 letter alphabet as my 12-year-old son, could create such a significantly more profound result. Or how the Beatles could surpass any other musician. You would point to experience, breeeding and culture, and perhaps intellect, and then Composition.

Composition is the act of arranging elements in an aesthetically pleasing way. For writers, it's how you put the letters together that make them profound, for musicians the same. For visual artists, compositional arrangements even share some of the same vocabulary as music and writing. Words like rhythm, balance, line, shape, tone, texture, color, direction, movement, contrast, juxtaposition, metaphor, simile, simplicity, all transcend the media. They are guiding principles, which when understood, prepare the mind to create and arrange in an eloquent and meaningful way. Even the terms The Rule of Thirds and The Golden Mean have significance in music and writing.

The Golden Mean

One of the most commonly used rules in photography is the Rule of Thirds. This concept is best explained by dividing your photograph into thirds, vertically and horizontally, so that you basically wind up with a tic-tac-toe board. Use the Rule of Thirds as a guideline when you have vertical or horizontal lines in your image. You will proably hear more about this rule than any other, so I'll explain it fairly in depth here and try to give you an understanding of why it is so effective. The Rule of Thirds is derived from another rule called the "Golden Mean" that says the main subjects of an image should be placed at the intersecting points created (roughly) by the lines mentioned above. So, if you are composing a photograph of a sunset, try placing that horizon line one-third of the way from the top or bottom of your image, to include either more foreground or more sky. You'll notice a stronger landscape this way.

The Golden Mean is a number sort of like Pi from your high school math class. Whereas Pi equals 3.14159 and is handy for all sorts of geometrical things, the Golden Mean equals 1.618034. Mathematicians use the Greek letter Phi when they're talking about the Golden Mean. This is derived from something else you may or may not remember from your math days called the Fibonacci Series.

Fibonacci was an Italian mathematician born around 1170 A.D. who decided to start with numbers zero and one and add them together. Okay, that just gave him the number one again. Then what? Then he added the last number he used (one) to his new resulting number (one) and got two. He then added one and two and got three.

If you look at the straight lines in the image below, they make up squares. When all these squares are put together in the way they make up this picture, they come together to form a rectangle. The ratio of the squares in this rectangle is composed of our magic number, 1.618!

And you can keep going like that forever. What does that prove? Perhaps nothing, but, if you take the ratios created by these numbers, an interesting pattern appears -- the spiral of the nautilus shell and many other natural patterns.

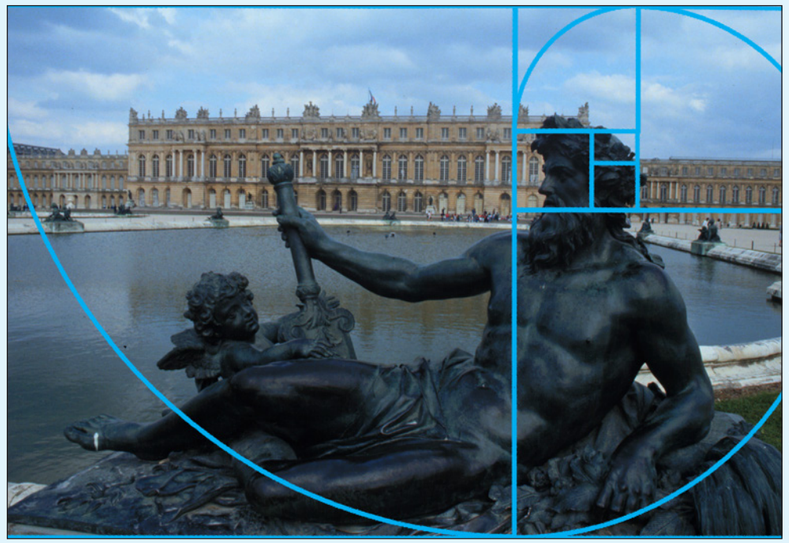


Photo by: Rick McCawley

THE RULE of THIRDS

The Rule of Thirds is a compositional rule of thumb in photography and other visual arts such as painting. The rule states that an image can be divided into nine equal parts by two equally-spaced horizontal lines and two equally-spaced vertical lines. The four points formed by the intersections of these lines can be used to align features in the photograph. Proponents of this technique claim that aligning a photograph with these points creates more tension, energy and interest in the photo than simply centering the feature would.

This ratio is found all over in the natural world. A nautilus shell sawed open displays this perfectly, as its growth rate follows the curve in this image, 1.618- exactly. The same holds true with the little spirals that compose the interior pattern of a sunflower.. Leonardo DaVinci based all sorts of his artwork, experiments and theories on the Golden Mean. The vast majority of flowers have petals that number 3, 5, 8, 13, 21, 34, 55 or even 89. The symphonies of Mozart and Beethoven can be broken down into this ratio. A recent study on fashion models showed their faces have a number of characteristics with exactly the ratio 1.618. These numbers are found everywhere in nature, and on some basic, instinctive level, the human eye tends to find beauty in things that correspond with this ratio.

The application of the Rule of Thirds to photographs is considered to make them more aesthetically pleasing and professional-looking. Apply the Rule of Thirds by lining up subjects with the guiding lines, placing the horizon on the top or bottom line instead of the center, or allowing linear features in the photograph to flow from section to section. In addition, many photographers recommend treating any "rule" of composition as more of a guideline, since pleasing photographs can often be made while ignoring one or more such rules.

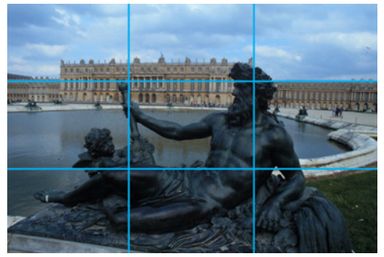


Photo by: Rick McCawley

This photograph is a good example of the rule of thirds. The intersections illustrate the main points of interest in a well-designed composition. The photographer should place focus objects at those points.

SIMPLICITY

Simplicity is the key to most good pictures. Try isolating the subject without distracing backgrounds, like telephone poles growing out of peoples heads, or chain link fences distracting the focus of the photograph. Some solutions that will help avoid the problems are:

1 Change Viewpoint – Select different viewpoints or camera angles. Move around the scene or object being photographed. View the scene through the camera viewfinder. Look at the foreground and background. Try high and low angles as well as normal eye-level viewpoints. Evaluate each view and angle. Only after considering all possibilities should you take the picture. See beyond and in front of your subject. Be sure there is nothing in the background to distract the viewer's attention from the main point of the picture. Likewise, check to see there is nothing objectionable in the foreground to block the entrance of the human eye into the picture.

2. Selective Focus – By using a longer lens and a larger aperture (*f* 2.8- 200mm lens), you can limit the depth of field and throw distracting elements out of focus. This technique is called selective focus, and can work wonders, even in busy urban environments.

3. Fill the Frame – Get closer to the subject and fill the frame with your subject. Famous war photographer Robert Capa is famous for saying "If your pictures aren't good enough...you're not close enough."

4. Simlify the color – Black-and-white photography has an advantage, in that all the colors aren't distracting from the light, form and texture of a photograph. A monotone color palette likewise can simplify an image and add an air of sophistication to a scene. The carnival clown color palette can be irritating to look at, and distract us from the content of the image.

Photos by: Carl Engelsman

FRAMES

Framing is the technique of drawing attention to the subject of your image by blocking other parts of the image with something in the scene.

The benefits of framing pictures include:

1. Giving the photo context (for example, framing a scene with an archway can tell you something about the place you are by the architecture, or including some foliage in the foreground of a shot can convey a sense of being out in nature).

2. Giving images a sense of depth and layers (in essence framing a shot generally puts something in the foreground which adds an extra dimension to the shot).

3. Leading the eye towards your main focal point (some 'frames' can draw your photo's viewer into the picture just by their shape). Some also believe a frame can not only draw the eye into a picture but that it keeps it there longer - giving a barrier between your subject and the outside of the shot.

4. Intriguing your viewer. Sometimes it's what you can't see in an image that draws you into it as much as (if not more than) what you can see in the picture. Clever framing that leaves those viewing your image wondering a little or imagining what is behind your frame can be quite effective (get it wrong and it can also be quite annoying!)

Frames for photographs come in all shapes and sizes and can include shooting through overhanging branches, shooting through windows, using tunnels, arches or doorways - you can even use people (for example shooting over shoulders or between heads) etc.

Your frame doesn't need to go completely around the edges of your image - they might just be on one or two edges of your shot.

A good rule of thumb when considering framing is to ask - 'will this add to or take away from the image?' Sometimes framing adds clutter, making it feel cramped - but other times it can make the difference between an ordinary shot and a stunning one.

Lastly - if you use framing techniques you also need to consider whether you want your frame to be in focus or not. In some instances a nicely blurred frame will really add a sense of mood and depth to your shots (in this case use a large aperture) but in other cases having your frame in focus can help with adding context to the scene.

Photo by: Rick McCawley

LINES

Lines are a powerful elements in composition

- ***Lines create depth in a composition***
- ***Add dynamism to a photo***
- ***Attract attention to areas of interest***
- ***Imply motion and create a sense of direction.***

Lines can be: leading, vertical, horizontal, diagonal, curved and converging. Each one has a different impact upon a photograph and create a certain mood.

1. Leading lines point towards an interesting subject. They lead the eye from one part of the picture to another: from the foreground to the background, the secondary subject to the main subject. Diagonals and arcs or other unclosed curves are good examples of leading lines.

2. Diagonal Lines are often considered the most powerful leading lines, as they add depth to the image. They give the sense of Action and Force especially when leading in different directions and intersecting with one another. Converging diagonals convey depth, scale and distance.

3. Vertical Lines can be successfully used when shooting architecture and urban settings, trees, fences, people standing up and mountains. Thus they may convey Power, Grandeur and Height.

4. ***Horizontal Lines*** imply stability and tranquility. Horizons, oceans, deserts, sleeping people are good subjects for photos with horizontal lines.

5. Curved Lines or S Curves. They have Perfect Grace and Perfect Balance, they are elastic, add charm and they denote quiet, calm and sensual feelings. Often used in the expression of the female form.

6. Triangles imply strength and power and stability. The masculine counterpart to the feminine curved line form.

Note how the lines in this image draw the eye to the subjects of the photograph
Photo by: Rick McCawley

BALANCE/SYMMETRY

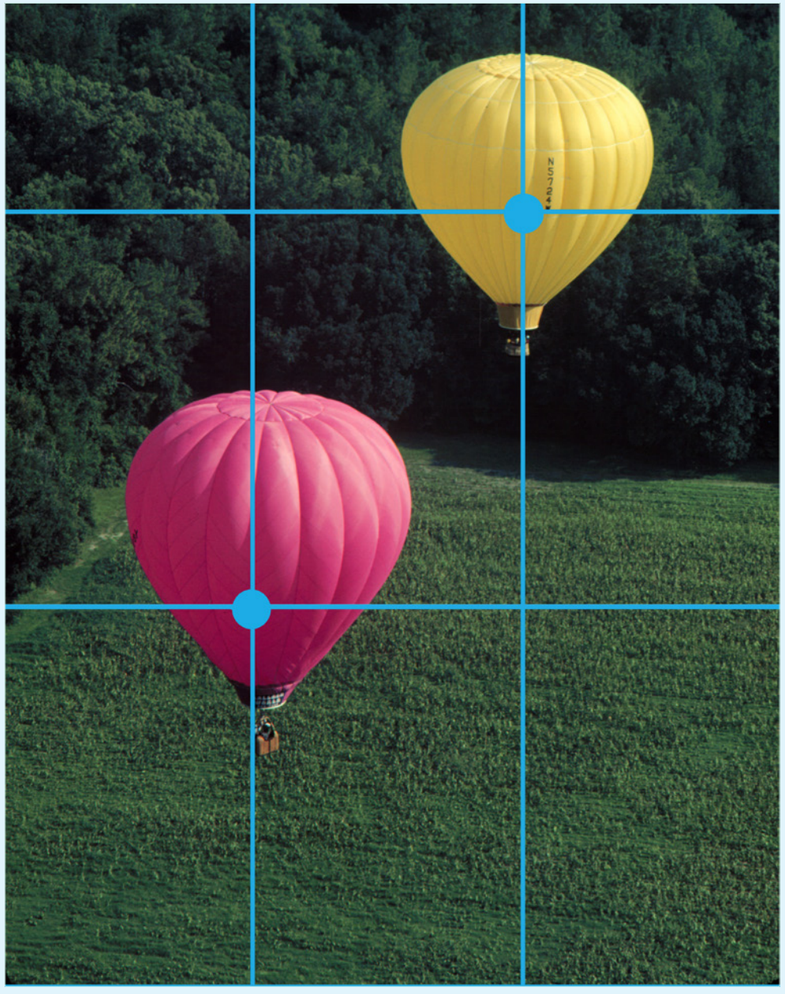
Balance is simply the arrangement of shapes, colors, or areas of light and dark that complements one another. Balance can also be described as the relative visual weight of one group of visual elements compared to another and their individual relationships to the whole. The two factors that determine balance are visual weight and the direction of movement of the visual pattern. Visual weight is conditioned by its position in the frame. A visual element at the center or close to the center vertical axis has less weight than one at the edge of the composition. An object higher in the frame is heavier than the same size object in the lower part of the frame. An object in the right of the frame will have less compositional weight than if it was positioned in the left of the frame.

Similar to the seesaw principle, visual weight increases proportionally the further it is from its point of balance. A small significant object in the background will balance out a larger object in the foreground.

The resolution of balance in a composition therefore requires small to weighted against large with reference to the center and outside edges of the frame in order to achieve unity of the total image. A small "weight" in the composition can be placed a long way from the center if a balancing "large weight" is placed close to the center.

"Weight" need not only be differences in the physical size of balancing visual elements. Balance can be resolved with line, mass, light/dark, color, etc.

Good balance conveys a sense of "rightness" in a photograph. A balanced photograph does not appear to be too heavy at any point, or too off-center. When composing your pictures, consider the following: the visual weight of colors and tones (dark is heavier than light); objects (large objects appear heavier than light objects); and placement (objects placed toward an edge appear heavier than objects placed at the center of the frame.



This image is an excellent of the use of balance in composition. Notice how the two balloons weigh off of each other perfectly, adding a dynamic sense of tension and perfect placement to the picture. Try balancing objects in your photographs to achieve awesome results!

There are two types of balance: symmetrical and asymmetrical. The example to the left is asymmetrical. Had the objects been more even within the image, the photograph could be considered to have a symmetrical balance.

Photo by: Rick McCawley

COMPOSITION

In the above photograph, the bright golden yellow leads your eye to the main subject. The red of the man's vest also serves as a counterweight, creating a dynamic and eye-catching composition.

Photo by: Rick McCawley

COLOR

The skillful use of color is another excellent way to create strong compositions in photography. Many colors have a hot or cold feeling to them. Red is considered hot and blue is thought of as cold. People disagree about how hot or how cold a particular color may be, but the general consensus is that hot colors advance and cold colors recede. This has a compositional significance of color as a depth indicator and affects the control of the main subject. It will take other strong design elements within a shot to force a foreground blue object to exist in space in front of a red object. The eye naturally sees red as closer than blue unless the brightness, shape, chroma value and background of the blue is so arranged that in context it becomes more dominant than the desaturated, low brightness of the red. Color effects are relative and no one set of guidelines will hold true for all color relationships. For example, the intensity of a hot color can be emphasized by surrounding it with cool colors. The intensity of the contrast will affect balance and to what part of the frame the eye is attracted.

Painters have long been aware that balance can be achieved by opposing a color with its complement. They have used green as the complementary of red; blue as the complementary of orange; and yellow as the complementary of violet. These complementary pairings consist of a hot and a cold color. Complementary colors placed alongside each other will appear to have more vividness and vitality than colors that are adjacent in the color wheel.

Visual equilibrium, however, is not simply achieved by equal areas of complementary pairs. Blue needs a greater area to balance its complementary orange. Red needs approximately the same area of green whereas yellow needs a relatively small of area of violet to achieve visual balance.

Red and green primary colors have different brightness values. When judging balance in a composition it is therefore easy to mistakenly provide a larger area of the lighter tone green to balance out the weight of the darker tone red. This will produce an unbalanced color image.

RHYTHM

Another way to create dynamic impact in your photographs is with the use of "visual rhythm". This is a way to use repetition of form and shape in an image to create interest. In this image, the average height of the saluting soldiers draw attention to the shorter woman in uniform. Rhythm is combined with leading lines here to really bring attention to that little figure in the foreground.

Photo by: Rick McCawley

JUXTAPOSITION

Juxtaposition is the act of placing two or more objects next to each other. By using objects that do not normally appear together, the photographer can effectively lead the eye to the main subject of interest. Using this technique can create images that are of high impact and great visual interest.

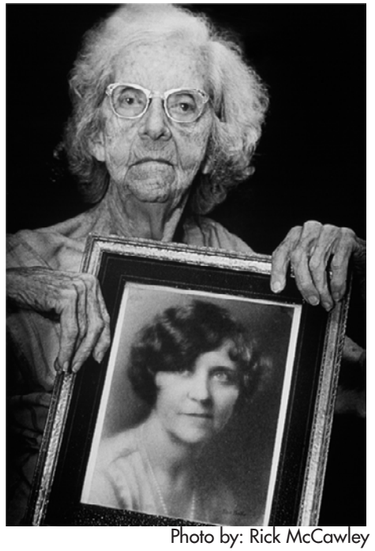


Photo by: Rick McCawley

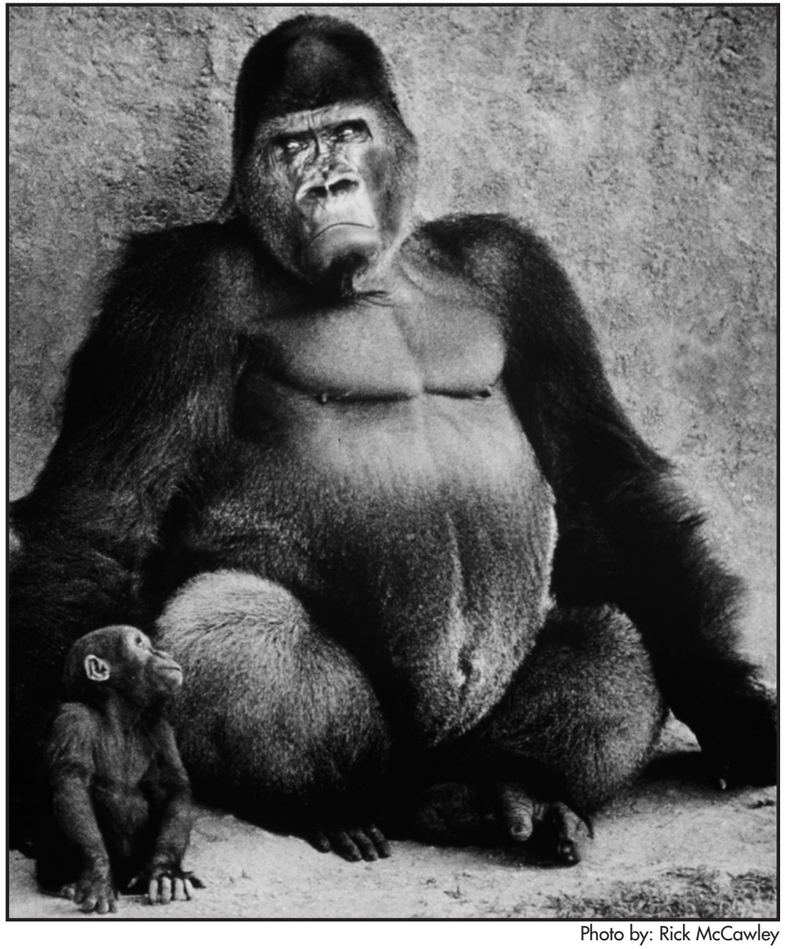


Photo by: Rick McCawley

Assignment – Color, Texture, Shadow, and Reflection

For this assignment, you're being sent out on a scavenger hunt. The goal is to return with five great photographic examples of each the following themes. Color, Texture, Shadow, and Reflection. The concept is to become hyper aware of these qualities in the world around you. Very often we walk and look without really seeing. One of the great side benefits of having a camera in your hands is that you have an excuse to look and notice things you take for granted. Great photographs start with looking at the world in a different way, with intention of recognition and discovery.

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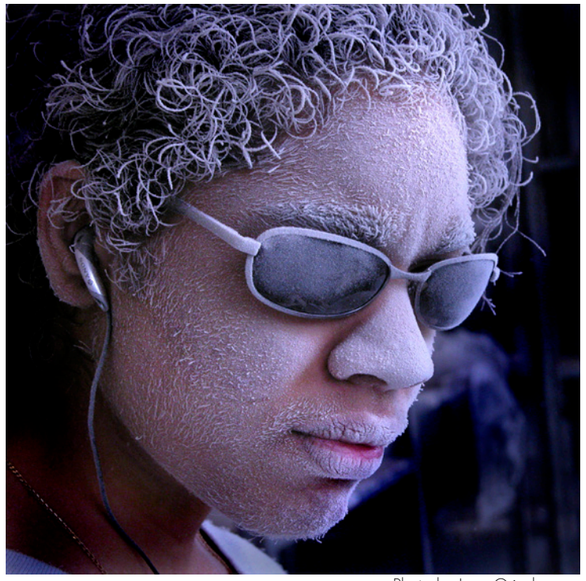


Photo by Juan Grisales

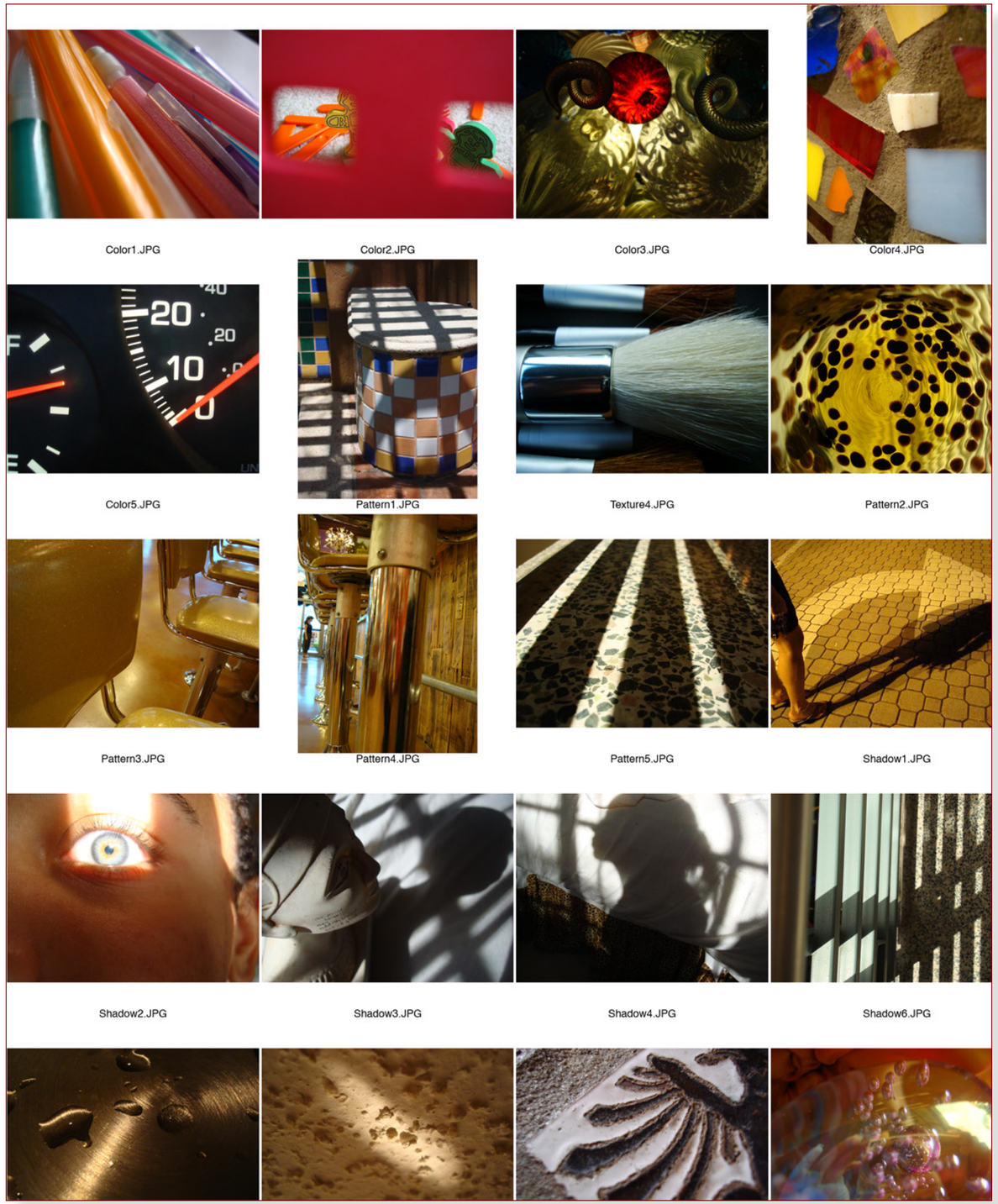
Photo by Roberta Dragan

Photo by Gretchen Rios

Photo by Kirsten McDaniel

Photo by John Marks

Photo by Juan Grizales

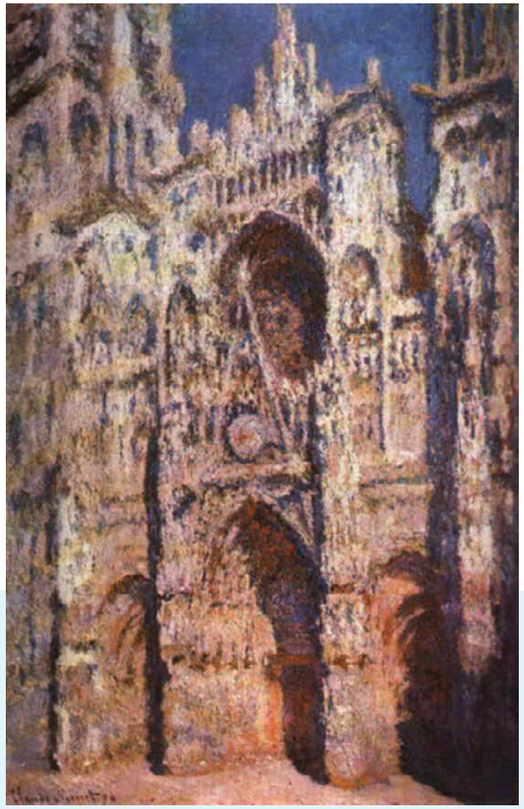


Photos by Marilyn Almonte

Assignment – Stationary Object

Paintings by Claude Monet, "Cathedral at Rouen"

This project gets its inspiration from Claude Monet. During the 1890's Claude Monet worked on series of paintings of the same subject, "*Haystacks in a field*" and "*Landscape with Poplar Trees.*" His most famous series was the facade of the "*Cathedral at Rouen*" with over 30 canvases made of this one building. His goal was to capture the ever changing effect of light and climate on these outdoor subjects.



Your assignment is to find a stationary object (building, architectural landmark, or statue) and photograph it over the course of a week at various times of day and under varying weather conditions. Stand in the same spot while taking at least six photos at various times of day and night, looking for ***dramatic changes in light*** and the scene.

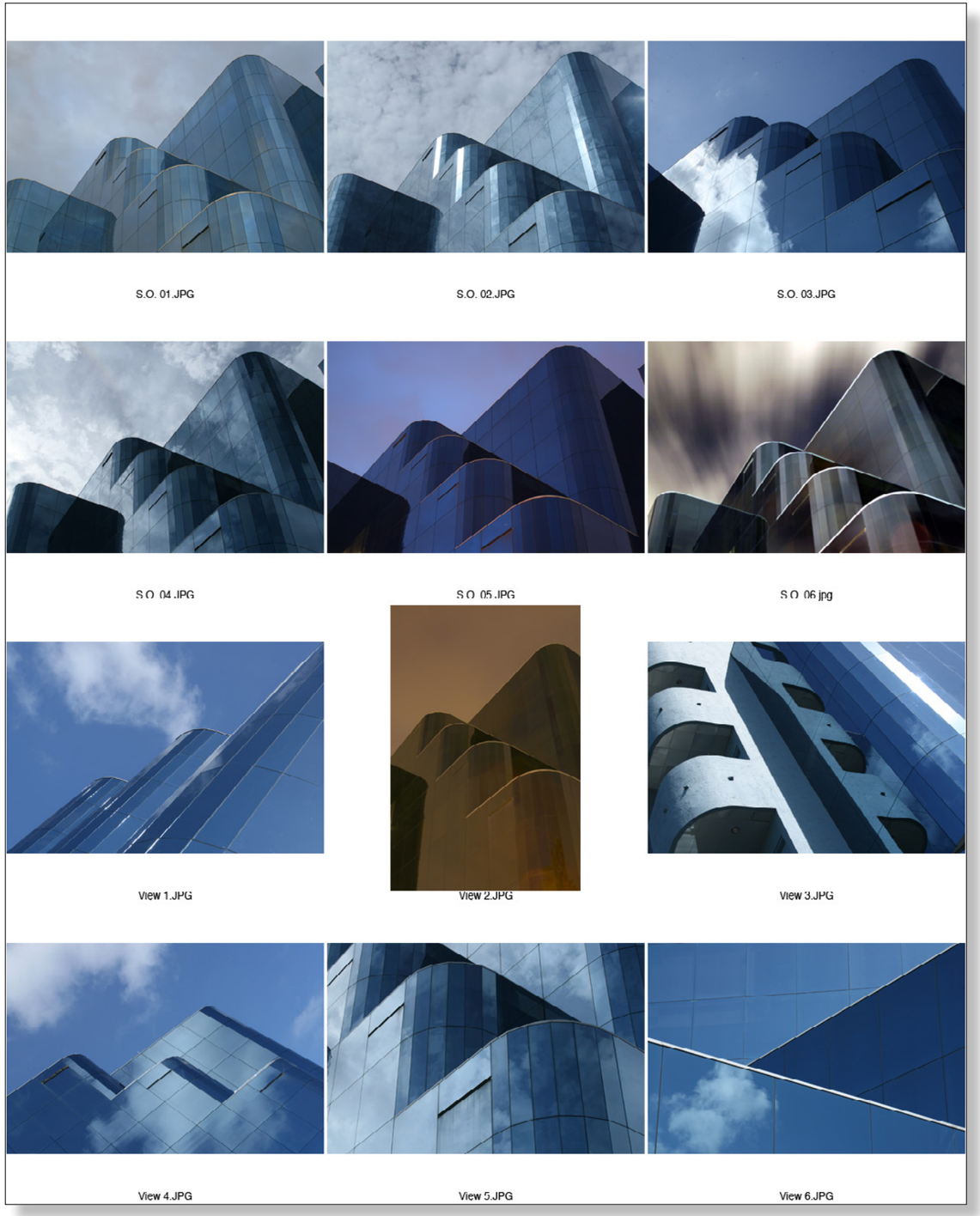
At each visit, also explore ***perspective***. Try different focal length lens, move closer and further away, and change your vantage point as dramatically as possible.

The results of this observation should be a contact sheet like the one at right that contains at least six variations of light and six of perspective.

"Photography gives us an excuse to pause and observe the nuances of life around us. To bear witness and collect them as a souvenir."
– Rick McCawley

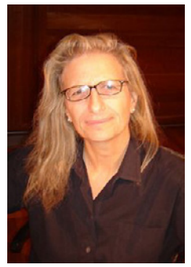
Paintings by Claude Monet, "Haystacks in a field"

Assignment – Stationary Object



Photos by Vincent Farato

Magazine/Portraiture



Annie Leibovitz (born October 2, 1949) is a noted American portrait photographer whose style is marked by a close collaboration between the photographer and the subject. When Leibovitz returned to America in 1970, she became involved with Rolling Stone magazine, which had just launched a short time before. In 1973, publisher Jann Wenner named Leibovitz chief photographer of the magazine, and she remained with the magazine until 1983. Her intimate portraits of celebrities helped define the look of the magazine.

Names to know

Dianne Arbus
Lord Snowden
Yousef Karsh
Horst P. Horst
Eve Arnold
Dianne Arbus
Mary Ellen Mark
Helmut Newton

Arnold Abner Newman (3 March 1918, New York, NY —6 June 2006, New York, NY) was an American photographer of Jewish descent noted for his "environmental portraits" of artists and politicians. He was also known for his carefully composed abstract still life images.

Photojournalism/Documentary

Margaret Bourke-White was born in the Bronx, New York (1904-1981). In 1929, she accepted a job as associate editor of Fortune magazine. In 1930, she became the first Western photographer allowed into the Soviet Union. She was hired by Henry Luce as the first female photojournalist for Life magazine.

Names to know

Henri Cartier-Bresson
Robert Capa
James Nachtwey
Alfred Eisenstaedt
Herbert List
Steve McCurry:
Susan Meiselas
Sebastiao Salgado
William Eugene Smith
Mathew Brady
Jodi Cobb
Sam Able
William Albert Allard
Alex Webb
Dorothea Lange
Marion Post Wolcott
Elliot Erwitt
Robert Capa
Maggie Steber
Harold Edgerton

MAGNUM
Photo Agency

Fashion

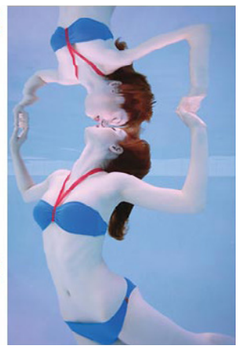
David La Chapelle (11 March 1968, Fairfield, Connecticut) is a photographer and director who works in the fields of fashion, advertising, and fine art photography, and is noted for his surreal, unique and often humorous style. Known to be a major player in the fashion photography world.

Names to know

Patrick Demarchelier
Irving Penn
Horst P. Horst
Nick Knight
Peter Lindbergh
Steven Meisel
Denis Piel
Victor Skrebneski
Mario Testino
Inez Van Lamsweerde
Ellen Von Unwerth
Herb Ritts
Richard Avedon
Josef Astor
Elaine Constantine
Arthur Elgort
Francois Halard

Advertising

Howard Schatz started experimenting with underwater photography in 1992 when he was offered the use of an indoor pool. He became inspired to photograph ballet dancers after his friend, a dancer, posed in his underwater studio. "Here was a physically trained professional, with a beautiful, honed body, in a weightless environment," he recalls. "Classical dancers are taught to look like feathers. Underwater, they are feathers." Schatz was fascinated by the way the body moves in water; he was also intrigued by how light interacts with water. "There's a point at which the light won't exit the water-in other words, the underside of the surface of the water acts like a mirror.



Names to know

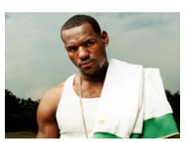
Craig Cutler
Oliviero Toscani
Albert Watson
Henry Wolf
Anne Geddes

Sports

Walter Iooss is synonymous with modern sports photography, his work having graced the cover of Sports Illustrated over 300 times. Steve Fine, director of photography at the magazine, deems Iooss the foremost sports photographer of his generation, "A fixture in American journalism to a degree that I think people who see the cover of Sports Illustrated don't know."

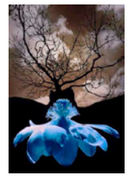
Names to know

Waler Iooss, Jr.
Neil Leifer
Leo Mason
Bill Frakes
Heintz Kluetmeier
Bill Eppridge
Peter Read Miller



Fine Art

Jerry Uelsmann (born 1934–) A pioneer in the art of multilayered imagery, photographer Jerry Uelsmann is best known for his seamlessly grafted composite images in black and white. His photographs combine several negatives to create surreal landscapes that interweave images of trees, rocks, water and human figures in new and unexpected ways. He and his wife Maggie Taylor (an accomplished artist using digital technique) live in Gainesville Florida and. Uelsmann is the author of many books on photography and process.



Names to know

Edward Weston
Gregory Crewdson
Garry Winogrand
Joel Peter Witkin
Josef Koudelka
Joyce Tenneson
Robert Mapplethorpe
Robert & Shana ParkeHarrison
Spencer Tunick
Edward Steichen
Maggie Taylor
Julie Margaret Cameron
Paul Strand
Loretta Lux
Nan Goldin
Cindy Sherman
Bernd & Hilla Becher
Robert Mapplethorpe
Bill Owens

Nature

Ansel Adams (February 20, 1902 – April 22, 1984) was an American photographer best known for his black-and-white portraits of the American West. Adams also wrote many books about photography, including his trilogy of technical manuals (The Camera, The Negative and The Print); co-founded Group f/64 with other masters like Edward Weston, Willard Van Dyke, and Imogen Cunningham; and created, with Fred Archer, the zone system. The zone system is a technique for photographers to translate the light they see into specific densities on negatives and paper, thus giving them better control over finished photographs. Adams also pioneered the idea of visualization (which he often called 'pre visualization', though he later acknowledged that term to be a redundancy) of the finished print based upon the measured light values in the scene being photographed.

Names to know

Frans Lanting
Franco Fontana
Stephen Dalton
David Doubilet
Sam Abell
Art Wolffe
David Muench
Galen Rowell
Edward Curtis
Jim Brandenburg
Christopher Newbert
James Balog

What are your Rights?

Q. What is copyright and why was it created?

A: Copyright is the law of the USA that protects the work of photographers from being used without permission. In other words, from the moment photographer took a photo, copyright protection exists in his work.

Copyright gives the exclusive right to make and sell copies of the photo, to display the photo in public; and to license usage for money to other people. It also gives legal protection to creators. The current Digital Millennium Copyright Act, which took effect in 1998, prohibits use of images without payments.

Before release of any picture, the creator should put a notice on the work to advise the world that the work is copyrighted and the owner owns the copyright. This notice should consist of the following: "© Copyright [Your Name] YEAR"

Q. What is DMCA?

A: The Digital Millennium Copyright Act makes a crime the act of accessing materials and distributing then for financial gain while material has copyright protection.

Q. What is not covered By Copyright?

A:Copyright covers form but not idea. For example, if photographer takes a great photo of of natural thing, beautiful mountains or beach, he can't prevent other people taking the same photo. Copyright does not apply when other laws supercede it, like trademark or privacy.

Q. What are the photographer's individual rights?

A: A photographer has the right to sell or commercially exploit a picture of a stranger but its depends on numerous factors such as where the subject's permission was obtained. Further, the subject of the photograph might have a right of privacy and a right of publicity. The law in the United States is pretty simple. Photographers are allowed to photograph anything with the following exceptions: Certain military installations or operations.

•People who have a reasonable expectation of privacy. Example, a photographer can shoot pictures of children; his rights don't change because of their age or where they are, as long as they're visible from a place that's open to the public.

Q. What is fair use?

A: Fair use is a limitation to all rights belonging to an artist under the Copyright Act. It allows educators, researcherrs and critics the use of images for research and commentary as long as it is not for profit, and doesn't prevent the creator from making money.

Q. What is public domain?

A: Works that are not copyrighted are called public domain and can be used without permission. However, photographers should give credit to the source. It exists to allow the free exchange of knowledge. Without this, museums would be allowed to keep images under perpetual copyright, thus denying everyone the opportunity to view, critique, or otherwise examine works. In other words, an exact reproduction of an image in the public domain does not possess creativity itself. Therefore, the reproduction is not protected under copyright law.

Copyright Infringement

Copyright allows the creator to recover certain damages, such as attorney fees and court costs. Also statutory damages or awards based on how deliberate and harmful the infringement. Statutory damages could be as high as $100,000. This is why registration is so important.

To qualify for these benefits, photographers must follow certain rules:

This issue has rules which photographer must to follow in order to recover these fees. Unpublished images must be registered before the infringement takes place

Published images must be registered within the first three months following publication.

Forms

Q. When is my work protected?

A:Your work is under copyright protection the moment it is created and fixed in a tangible form that it is perceptible either directly or with the aid of a machine or device.

Q. Do I have to register to be protected?

A: No. In general, registration is voluntary. Copyright exists from the moment the work is created. You will have to register, however, if you wish to bring a lawsuit for infringement of a U.S. work. See Circular 1, Copyright Basics, section "Copyright Registration."

Q. Why should I register if copyright protection is automatic?

A: Registration is recommended for a number of reasons. Many choose to register their works because they wish to have the facts of their copyright on the public record and have a certificate of registration. Registered works may be eligible for statutory damages and attorney's fees in successful litigation. Finally, if registration occurs within 5 years of publication, it is considered prima facie evidence in a court of law. See Circular 1, Copyright Basics, section "Copyright Registration" and Circular 38b, Highlights of Copyright Amendments Contained in the Uruguay Round Agreements Act (URAA), on non-U.S. works.

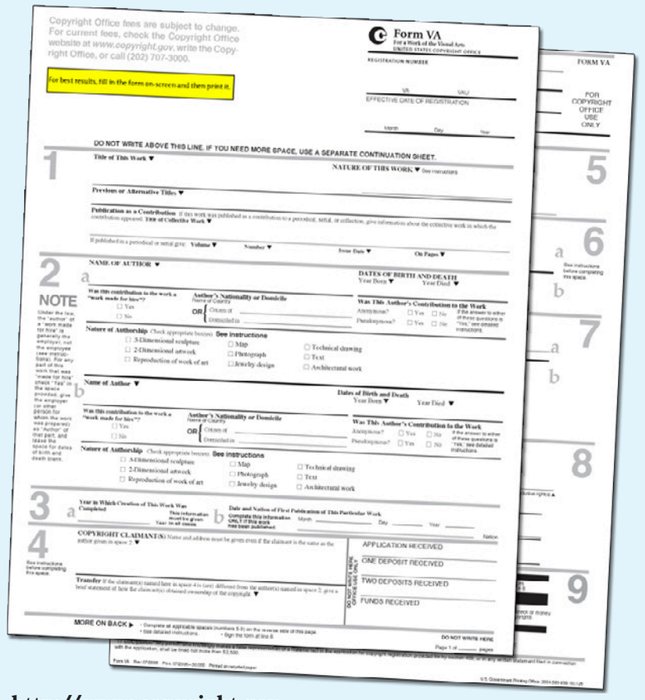
Q. How long does a copyright last?

A:The term of copyright for a particular work depends on several factors, including whether it has been published, and, if so, the date of first publication. As a general rule, for works created after Jan. 1, 1978, copyright protection lasts for the life of the author plus an additional 70 years. For an anonymous work, a pseudonymous work, or a work made for hire, the copyright endures for a term of 95 years from the year of its first publication or a term of 120 years from the year of its creation, whichever expires first. For works first published prior to 1978, the term will vary depending on several factors.

Q. How to copyright a photo?

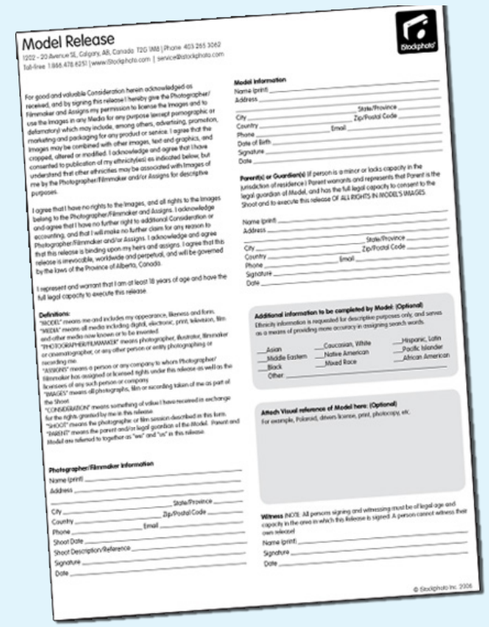
Get the PA (Performing Arts) Copyright Form at: http://www.copyright.gov/forms. Mail the form, the $45 ($35 for online submission), the artwork in question to U.S. Copyright Office in Washington D.C. Most Photographers do this once a year, four times for published works, and attach a DVD with all of the year's work. The charge is for filing the form and covers all the images with payment of the one fee.

Copy Rights Forms



http://www.copyright.gov

Model Release Forms



http://www.istockphoto.com

Model Releases

Q. What is Model Release?

A. A model release is a written agreement between you and the person you are photographing, or the person who owns the property you are photographing. The purpose of the release is to protect the photographer from any future lawsuits the person might file for claims such as a share of the profits, denigration, and invasion of privacy.

A model release says the person being photographed has given consent to be photographed and to the use of the images you capture. It doesn't just apply to professional models or situations where people know they are posing for photos. The photographer should seek a signed model release any time the photos contain recognizable images of people, unless you are certain you will never want to use them for anything other than editorial purposes.

Q. How about public property?

A. A property release says the owner of a certain property, such as a pet or a building, has given you consent to take and use images of the property. You don't need one for public property, such as government buildings (although you may run into problems just from photographing them, for security reasons). But for images of private property — and particularly of objects that are closely identified with specific people — you are safer if you get a release.

The photographer will need them if they ever have to defend themselves in court. Art objects in public places and architecture can be cause for copyright infringement.

"Peter Beard was threatened with a lawsuit for a photo he'd taken a dozen years earlier. In 1987, Beard had photographed a 17-year-old girl near Lake Rudolph in Kenya. But by 1997, that girl had moved to Los Angeles, where she was waiting tables and looking for work as a model. A New York friend called to tell her that a SoHo gallery was selling her picture for thousands of dollars. She reacted by hiring a lawyer and demanding $50,000 plus 15 percent of Beard's sales." – New York Observer

Stock Photography

Q. Who uses Stock Photography?

A. A customer who uses stock photography instead of hiring a photographer can save time and money, but can also sacrifice creative control. Stock images can be presented in searchable online databases, purchased online, and delivered via download or email.

A collection of stock photography may also be called a photo archive, picture library, image bank or photo bank. As modern stock photography distributors often carry stills, video, and illustrations, none of the existing terminology provides a perfect match.

There are two major types of Stock. ***Rights Managed*** and ***Royalty Free.*** Rights managed is the more exclusive. In this case, very select photos are sold to an exclusive client for an amount based on usage and exclusivity in a given market place. An example: American Express buys a photo of an American flag, and purchases the exclusive rights to the image or international magazine publication.

The second kind is royalty free. The rights are sold to the end user for non-exclusive use. A few companies, called "Micro stock" sell images for $1-$10 depending on size. Cheap price, lower quality, non-exclusivity.

Stock photography consists of existing photographs that can be licensed for specific uses. Book publishers, specialty publishers, magazines, advertising agencies, filmmakers, web designers, graphic artists, interior decor firms, corporate creative groups, and others use stock photography to fulfill the needs of their creative assignments.

Professional Organizations NPPA, PPA, ASMP, APA

NPPA

National Press Photographers Association. Based in Durham, N.C., it is made up of still photographers, television videographers, editors, and students in the journalism field. NPPA has over 9,000 professional members world wide. NAPPA publishes national and regional magazines, sponsors contest, and aids members with insurance benefits, and professional development.

Web site: www.nppa.org
Phone: (919) 383-7246

PPA ?

Professional Photographers of America is a non-profit association for pro photographers in the world. It is the world's largest association helping members progress their artistic careers by increasing business and expanding their creative range. They also offer the capability to make network with other pros, further artists' education and create a venue from which to share and teach others. PPA's advocacy efforts include working closely with the U.S. Copyright Registration Office and Congress to support photographers' rights. It is PPA's policy to support and uphold the highest professional imaging and ethical standards. The Association continues to prove that collective knowledge and united efforts not only benefit individual members, but also serve to advance the profession as a whole.

Web site: www.ppa.com
Phone: (404) 614-6400

ASMP

The American Society of Media Photographers is a smaller society of professional photographers, including many photojournalists. ASMP members are primarily those who photograph for publication including wedding or portrait photographers. This 5000-member organization advocates for photographers' legal rights, supports information-sharing among members, and provides business and technical information. Most of the material is freely available to the public along with web tutorial on registering creators copyright and another one on model releases and property releases. It also helps users to find qualified photographers for project assignments and find rare images for commercial applications.

Web site: www.asmp.org
Phone: (215)451-0880

APA

Advertising Photographers of America is successful Advertising and Commercial photographers group.

APA was started in 1982 by a group of independent and concerned advertising photographers who realized the necessity of exchanging information and ideas, resolving common problems and strengthening the relationships that exist between photographers, their clients and their suppliers, also helping photographer to make/save money.

Web site: www.apanational.com
Phone: (800)272-6264

Web Sites

Picture Sharing

***Flickr:** www.flickr.com
Share your photos with family and friends
Photo bucket: www.photobucket.com
Provides a simple and reliable service for sharing and publishing digital photos online.
Snapfish: www.snapfish.com
Makes it fast and easy to upload your photos from a computer, digital camera or camera phone.
Slide: www.slide.com
Create a slide show to embed in your website.
Usefilm: www.usefilm.com
Share your work, and get great feedback.
Fotobasic: www.fotobasic.com
With Fotobasic you can create stuning portfolios in your photo web site.
Picasa: www.picasa.google.com
With Picasa you can quickly find, edit and share all the pictures on your PC, Not for MAC.
Thumbnail Cafe: www.thumbnailcafe.com
Thumbnail is an easy to use photo sharing program, you can organize your photos add descriptions and secure them
Deviant Art: www.deviantart.com
an edgy art and photography community online. Includes sales of art work.

Publishing

***Blurb:** www.blurb.com
Blurb's BookSmart™ software lets you create your own book, publish, and share them with your Family, friends, and clients or even sell it in their online book store. My favorite for Photo books. Check out my titles: http://www.blurb.com/user/rmccawle
LuLu: www.lulu.com
Same as Blurb, with additional options to get and ISBN number and be sold in online stores.
Xlibris: www2.xlibris.com
Xlibris gives you lots of tools so you can publish your own book. Variety of design, production and publishing services.
i photo: www.apple.com
With iphoto you can create your own book, web page, calendars, organize your photos and much more.

Models

***Model Mayhem:** www.modelmayhem.com
Professional models, make-up artists, and, photographer community. My personal favorite.
One Model Place: www.onemodelplace.com
The Largest Modeling Community.
Model Launch: www.modellaunch.com
Elite: www.elitemodels.com
Premier Modeling agency.

Printing

***Shutterfly:** www.shutterfly.com
A site for printing and sharing your photos. You can upload and share with all your friends and family. Also pick up at select Target stores.
OFoto: www.ofoto.com
Kodak's site where you can share, print and edit your photos
Kinko's: www.fedex.com
A site for your printing services
Overnight Prints: www.overnightprints.com
Is a site for printing and where you can create your own design and It's also fast and easy
Mpix: www.mpix.com
every kind of printing including but not limited to books, gallery wraps, ect.

Photographers

***Art In The Digital Age:**
www.artinthedigitalage.com
My own site, with featured artists from around the world working with digital technology.
***Rick McCawley:** www.rickmccawley.com
My personal site with info about my many projects
Herb Ritts: www.herbritts.com
Master of the Arts and a commercial photographer
Jerry Uelsmann: www.uelsmann.com
A Photographer
John Lund: www.johnlund.com
A Digital Photographer
Keith Carter: www.keithcarterphotographs.com
A photographer and an educator
Mary Ellen Mark: www.maryellenmark.com
A Documentary photographer
Man Ray: www.manraytrust.com
A photographer, painter, and maker of objects and films
William Eggleston: www.egglestontrust.com
Premiere art photographer.
Masters of Photography:
www.mastersofphotography.com
A site about famous photographers

Web Sites

Glossary

AF Lock - stops autofocus operation once the subject is in focus and also useful when shooting a subject outside the focus area in the viewfinder. The photographer should first lock the focus with the subject inside the focus area, and then recompose the shot as necessary.

Artifacts - artifacts simply refer to distortions of an image produced by either the image sensor (CCD/CMOS) and/or optical system, internal image processing algorithms or compression algorithm (JPEG)

Aperture - is a circular hole in the front of the camera lens which controls the amount of light allowed to pass on to the film.

Autofocus - device used in certain cameras, projectors and enlargers that focuses the image automatically.

Automatic exposure control (Program Mode) - system of exposure setting in a camera, in which the electric current produced or inhibited by the action of light on a photoelectric cell operates a mechanism that adjusts the aperture and/or the shutter speed automatically.

Balance - placement of colors, light and dark masses, or large and small objects in a picture to create harmony and equilibrium.

Blooming - each pixel (photosite) on a digital camera sensor (CCD/CMOS) has a limit as to how much charge it can store. Blooming (or Streaking) is the name given to an overflow of charge from an oversaturated pixel (photosite) to the next on the sensor.

Blown out Highlights- the brightest areas of a subject in a photograph.

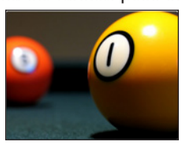
Blur - unsharp image areas, created or caused by subject or camera movement, or by selective or inaccurate focusing.

CCD/CMOS - the sensor is the chip (CCD or CMOS) which records light falling on it, in the digital camera. It is the device which actually captures "the picture" (a digital camera's film).

Color Balance - adjustment in color photographic processes ensuring that a neutral scale of gray tones is reproduced accurately.

Color Temperature - way of expressing the color quality of a light source. The color temperature is measured in Kelvin (K). Examples include: Daylight, Shade, Incandescent, Tungsten, Florescent, Candle and Infared.

Depth of Field - distance between the nearest point and the farthest point in the subject that is perceived as acceptable sharp along a common image plane. page



Diffuser - any material that can soften or spread the light from a light source. The closer a diffuser is to a light source the less it scatters light.

Digital Zoom – is the cropping of a center part of the captured image.

Dynamic range - dynamic range is the ratio between the brightest and darkest recordable parts of an image or scene. Bright sunlight to deep shadow has a high dynamic range.

EV (Exposure Value) - is the combination of the sensitivity of the CCD/CMOS (or ISO), aperture and shutter speed.

Frame - used to describe the area of the world that you see through you camera's viewfinder.

Filter - colored glass, gelatin or plastic disks, which modify the light passing through them, mainly in terms of color content. They can be used at the camera or printing stages.

Fish-eye lens - extreme wide-angle lens with an angle of view exceeding 100° and sometimes in excess of 180°. Depth of field is practically infinite and focusing is not required.

Flash - artificial light source giving brief but very bright illumination. There are two types; electronic, which may be used repeatedly, and expendable in which the bulb can be used only once.

F-Stop - the measurement of a lens's aperture. The f-number is a fraction of the focal length of the lens. F- Numbers are also called F-stops.

Focal Length - focal length is measured in millimeters, it is defined as the distance from the lens to a point where parallel rays are focused to a point (diverge), traditionally measured in millimeters (mm).

Focal point - point of light on the optical axis where all rays of light from a given subject meet at a common point of sharp focus.

Focus - position in which rays of light from a lens converge to form a sharp image.

Frame - used to describe the area of the world that you see through your camera's viewfinder.

Ghost images - bright spots of light, often taking the shape of the aperture, which appear in the camera viewfinder or in the final photograph when a lens is pointed at a bright light like the sun.

Gobo - anything put in front of a light source, to reduce the light falling on the subject. GOBO short for Go Between.

High Key - photograph which contains large areas of light tones, with few middle tomes or shadows.

Interpolation (resampling) - is an imaging method for increasing the size of a digital image. Some digital cameras use interpolation to produce a larger image than the cameras sensor captured or to create digital zoom, most photo packages also support some method of interpolation for resizing images. How smoothly images are enlarged without introducing jaggies (pixelation) depends on the sophistication of the algorithm.

ISO - the international Standard for rating sensor and film sensitivity to light.

Mega Pixel - one million Pixels, Mega-Pixel will give you and approximate file size. i.e. - 3Megapixel X 3= 9 megabyte file. There is approximately 35megabytes in a 35mm piece of fine grained film. There for at about 11 MegaPixels Digital Cameras exceed the resolving capabilities of 35mm Film. Practically speaking 8 Mega Pixel is as good as film.

Lenses - a number of lens elements assembled together to focuss the image in a camera.

Low Key - an image who's overall tone is dark, also see High Key.

Macro - photographs of an object where the subject is almost life size i.e. flower petal.

Over Expose - more light hits the sensor (CCD or Film) than is optimal for proper exposure the result is an image with no detail in the highlights. Also see Blown out highlights.

Panorama - picture presenting a continuous view of the landscape, produced from a composite of several images.

Glossary

Perspective - relationship of size and shape of three-dimensional objects represented in two-dimensional space.

Plugged shadows - darkest areas in a photographic print.

Reflector - any material that reflects, or bounces, light. Reflectors are usually white or off-white to reduce the possibilities of colorcast.

Selective Focus - when you focus on a plane and throw the rest out of focus by using a large aperture this is known as a selective focus.

Shutter Speed - the length of time the shutter opens to let light strike the sensor.

Telephoto lens - compact lens construction which provides a long focal length with a short back focus. Also called a tele lens.

Under Expose - the result of too little exposure in the camera or at the enlargement stage.

White Balance - white balance is a name given to a system of color correction to deal with differing lighting conditions. Normally our eyes compensate for different lighting conditions, but the camera has to find the "white point" to correct other colors cast by the same light.

Lighting Terms

Accent Lighting - directional lighting to emphasize a particular object or draw attention to a display item.

Ambient Light - is the available light surrounding a subject. Light already existing in an indoor or outdoor setting that is not caused by any illumination supplied by the photographer.

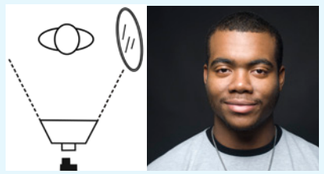
Artificial daylight - artificial light having a similar color temperature to daylight.

Artificial light - all light not originating from a natural source, normally the sun.

Available Light - term applying to light normally occurring in a scene, not supplemented by illumination intended for photography.

Back Light light coming from behind the subject.

Bounce light - light that is directed away from the subject toward a reflective surface.



Broad Lighting - portrait lighting in which the main light source illuminates the side of the face closes to the camera.

Butterfly Lighting - lighting achieved by positioning the main light directly in front of the subjects face and adjusting the height to create a shadow directly under, and in line with, the nose

Catch Light- reflection of a light source in the subject's eyes.

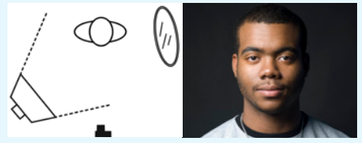
Diffuse lighting - lighting that is low or moderate in contrast, such as on an overcast day.

Fill Light - is used to reduce the contrast of a scene and to provide some illumination for the areas of the image that are in shadow.

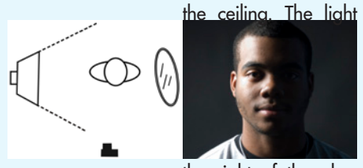
Floodlight - a light focused with a lens to illuminate a person or object to a level much brighter than its surroundings.

Full Spectrum Lighting - a marketing term, typically associated with light sources that are similar to some forms of natural daylight (5000k and above, 90+ CRI), But sometimes more broadly used for lamps that have a smooth and continuous color spectrum.

Incandescent light - The most common bulb used in household fixtures. It's also the color temperature you would use under this illumination.



Indirect Lighting - the method of lighting a space by directing the light from luminaires upwards towards the ceiling. The light scattered off the ceiling produces a soft, diffuse illumination for the entire area.



Rembrandt Lighting - main light is 45 degreese up and to the right of the photographer, creating a triangular shadow on the opposite side of the nose.

Split Lighting - lighting placed directly to one side of the subject dividing the face along its center, creating a dramatic contrast.

Valance Lighting - lighting from light sources on a wall typically above eye level, shielded by horizontal panels. The light may be upward or downward directed.