

Intro to Digital Photography: Week One

Instructor: Roger Buchanan

NOTE: this document is available at www.thenerdworks.com as a PDF.

Week One Outline: - Survey, Activities: Image Review controls, Camera function, Modes, “Shutter-lag & Panning”, Terminology, Accessory Gear and your Homework.

Activity 1: Reviewing your pictures: being able to zoom in on your pictures allows you to check focus, etc....




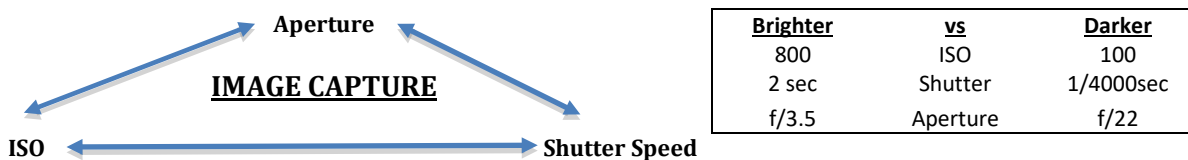
Press the playback  button. **Point and Shoot** cameras zoom in for detail, zoom out for thumbnails, **dSLR** use   buttons

Image Capture Settings:

- **Aperture** refers to the diameter of the opening that lets light from the lens through to the sensor. It is noted as the “f-stop”, with smaller numbers being larger openings. *Aperture controls how much blur the background gets.*
- **Shutter Speed**, is how long the sensor is exposed to light. *Controls how the camera depicts motion.*
- **ISO**, commonly referred to as “Speed”, denotes how sensitive the sensor will be to light.








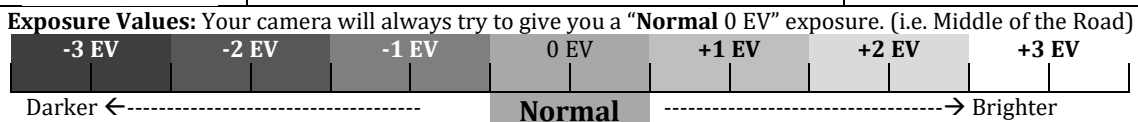
NOTE: Changing any setting will require changing one other setting to bring the photo back to being the **Normal** exposure value. (An excellent learning tool called **Camera Sim** shows how Aperture/ShutterSpeed/ISO interact. www.camerasim.com)

Activity 2: Work in Pairs: Examine the Sample Handouts. 1) Depth of Field; 2) Aperture and Shutter Speed

Activity 3: Finding your “Shooting Mode Controls”

- Picture Taking Modes: a) Auto, b) Scenic (Semi-Auto) and c) Manual;

Camera Mode Dial	Picture Taking Mode	Photographers Control of Menus and Buttons
	Auto	+ almost no control
	Scenic (semi-auto): Camera uses a “Recipe” for Subject <div style="display: flex; justify-content: space-around; font-size: small;">  Portrait  Sports Action  Macro  Landscape </div>	++ a little control
	Manual: P, S, A, M.	+++ full control



Activity 4: Requires a partner:

- Shutter lag – how to avoid “camera delay” when taking a picture.
- Panning – capturing a well-focused subject that is moving by moving the camera while taking the picture.

Terms:

- Sensor: Pixel, Resolution, Megapixels;
- JPEG: image format for transport and sharing of Photos, but NOT for editing;
- Memory Cards: **Type** = Physical Shape of Card, and **Capacity** = Storage Volume measured in GigaBytes (GB);
- **Histogram:** Exposure graph showing the amount of light each pixel captured. (See Reverse of this page)

Activity 5: Camera Accessories: Gear to help improve your photography success. (Not meant to be expensive!)

Homework. “Composition” – What is Composition? Why is it important?

- Orientation – One in Landscape orientation, and One in Portrait orientation, for each subject.
 - Subject One **Landscape: a scenic picture;** (take in each orientation, Landscape and Portrait)
 - Subject Two **Portrait: a person posing.** (take in each orientation, Landscape and Portrait)

Camera Designs:

Compact Point and Shoot: Small and self-contained camera with few accessories.



Least expensive system

Hybrid Point and Shoot: Larger but still an all-in-one, totally self-contained, but with more performance and accessories.



More expensive system

Mirrorless ILC: (Interchangeable Lens Camera) Camera with separate lens that does NOT use a mirror viewfinder system.



Still more expensive system

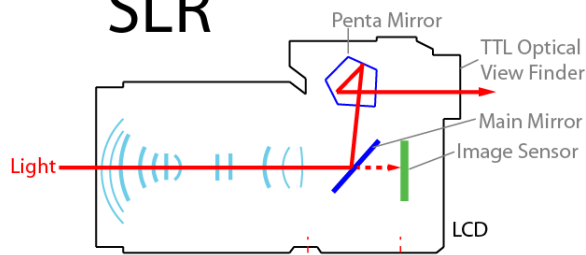
Digital SLR: Camera body with separate lens, most capable style of all consumer cameras. Most costly, with most accessories. Uses mirror viewfinder system.



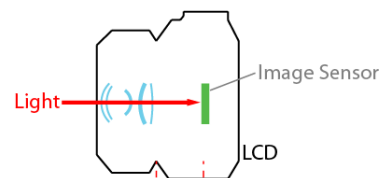
Most expensive system

Mirror Viewfinder System vs Mirrorless Design

SLR

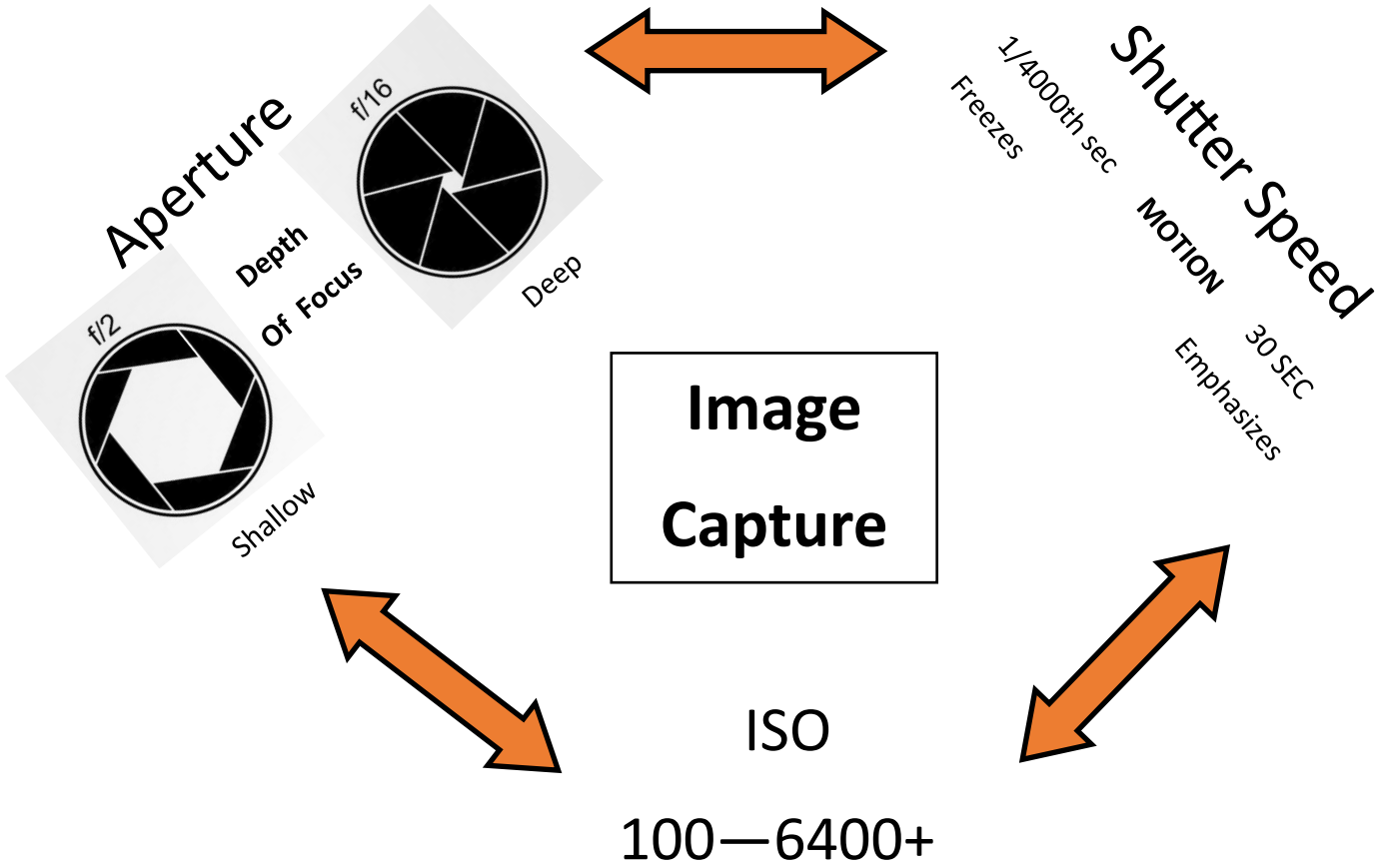


Mirrorless



In a dSLR the mirror swings up out of the way when the photo is made

Image Capture settings



Shutter Lag is the delay caused when you try and take a picture with one big press of the shutter button.



One Step Press
Cause of delays



Takes Picture!

Click?



Two Step Press
Use this Method



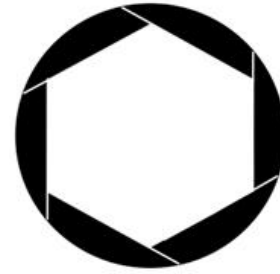
- Focus
- Measures Light
- Adjust Exposure Settings
- White Balance
- Prepares to write file Data

Takes Picture!

Click!

Aperture affects Depth of Focus:

Note: All shots taken using a tripod!



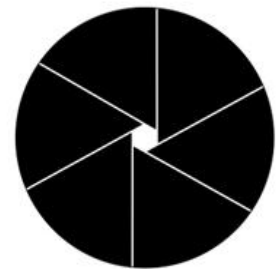
f/1.4



f/4.0



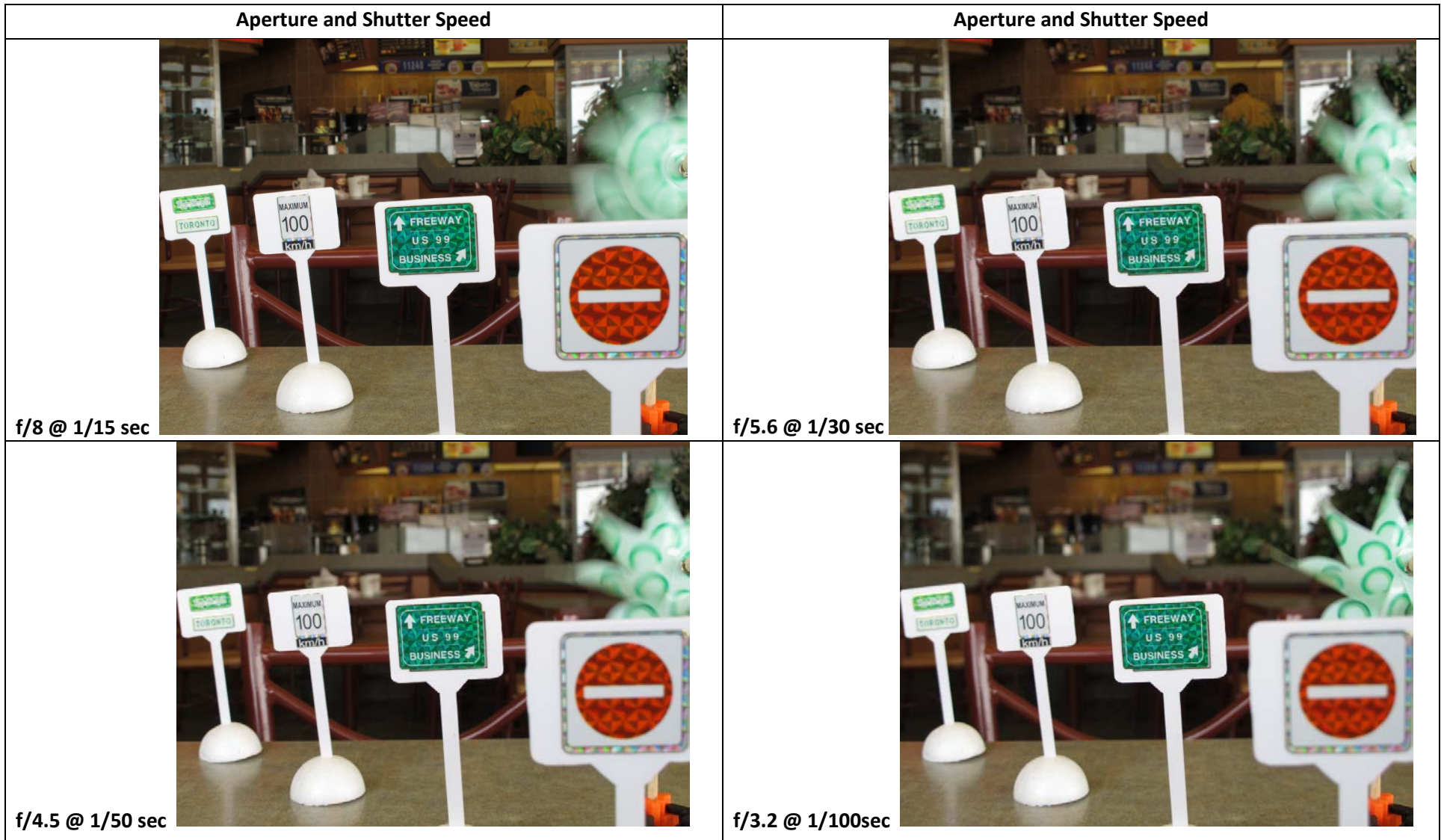
f/9.0



f/16

These photos were created using "Aperture Priority" where the photographer chooses the Aperture and the camera meters the available light and sets the Shutter Speed. The ISO remains as set by the photographer!

Aperture affects Depth of Field but Shutter Speed affects Motion Blur.



NOTE: Each of the above photographs is properly exposed, and yet each photo was taken with different Aperture and Shutter Speed settings. These four photographs are examples of what are said to be “**Equivalent Exposures**” (i.e. Properly exposed, but made with different settings)

Pixels and Histograms



To the Left:

Pixels are very small, and do not become visible unless we enlarge them significantly.

These are the pixels from a TV image, similar to the pixels that make up a digital photograph.

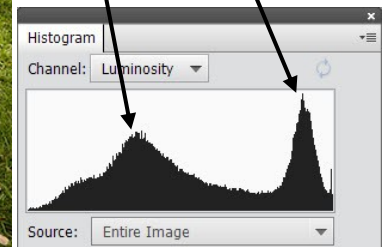
To the Right:

The Histogram is a graph of the colours of each pixel in the image, and how many of that colour. Histograms **DO NOT** give the location of colours. Dark pixels on the Left, Bright ones on the Right.



Green Grass

White Dress



Intro to Digital: Histograms Explained

The Histogram feature of your camera is the best way to confirm that your image has been exposed properly.

After the sensors' pixels record the light, the onboard image processor calculates a graph of the exposure. This graphical representation of the Pixels Tones vs Amounts is what is called a "Histogram".

The various Tones that were captured are represented along the Bottom Axis. The Left starts with the Darkest Tones moving to the Right for the Brightest Tones. Hence the phrase "Left to Right, Dark to Light".

The Vertical Axis is simply an Amount of each of the Tones recorded.

ACTIVITY:

Below are three images, and below them a Histogram. Which of the 3 images does the Histogram represent?

HINT: Count the tones, count the amount.

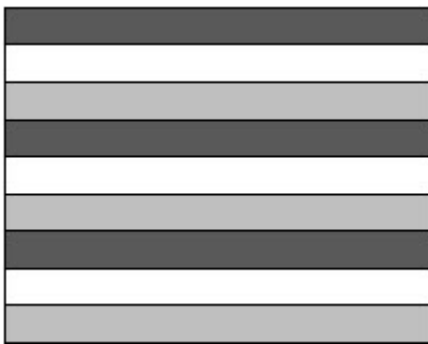


Image 1.



Image 2.

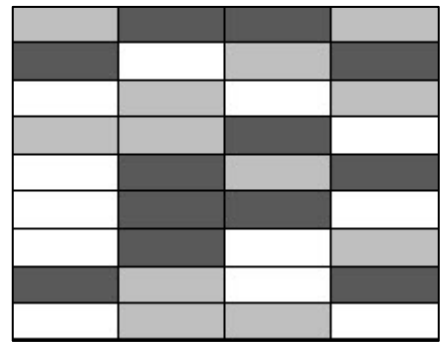
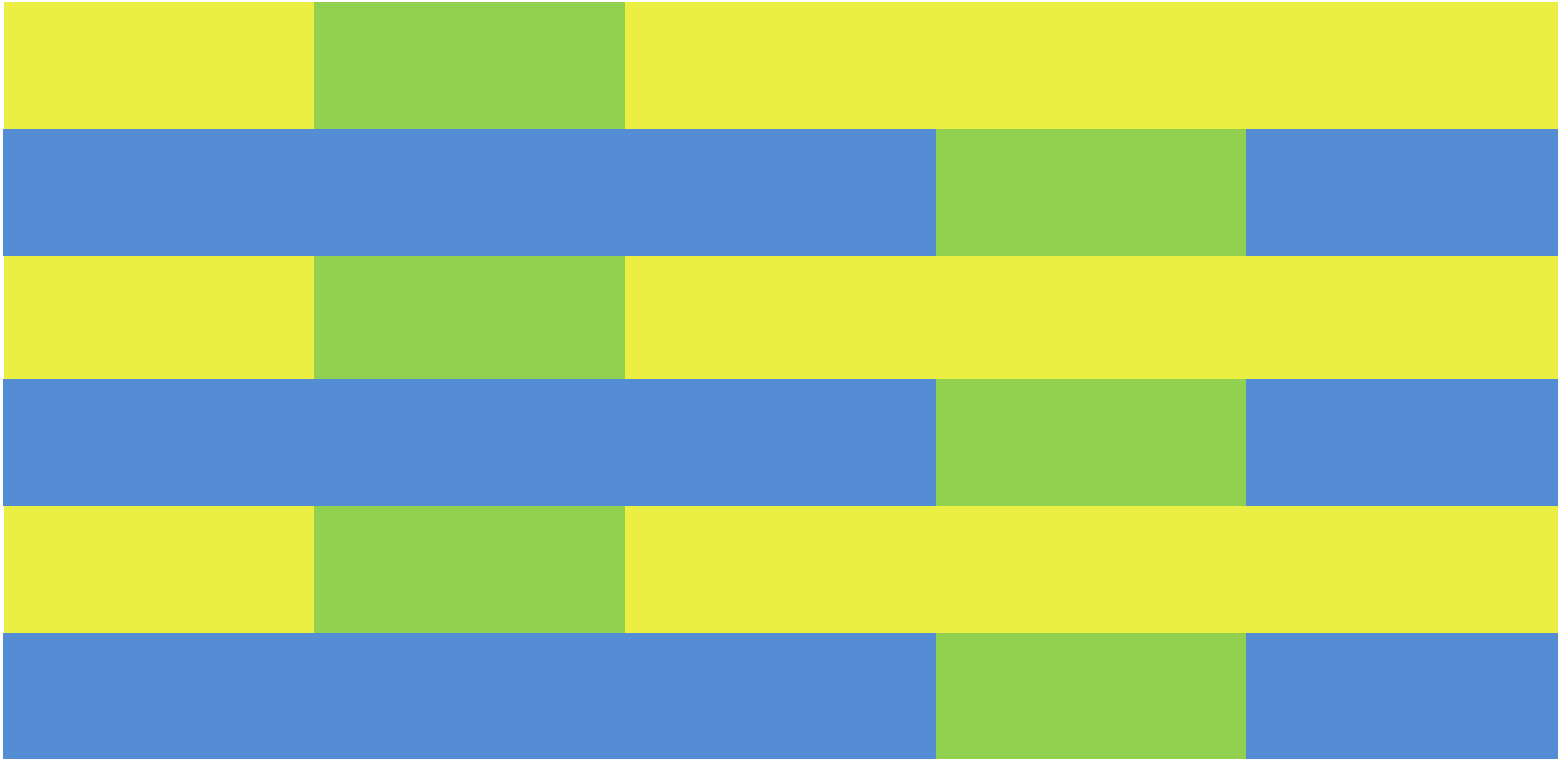


Image 3.



To ensure you get the best exposure possible, always check your Histogram.

Colour Interpretation.



Are the Green rectangles the same shade of Green? (See next page for answer)

Colour Interpretation.



The Green ARE the same shade! They appeared different because of the nearby colours having an influence. Yellow neighbour made the green appear brighter. Blue neighbour made the green appear darker.

Intro to Digital Photography: Week Two

Review of Homework “Composition” – Camera Orientation – Landscape and Portrait

Camera Set-up: Usually only done once to give the camera the organizational settings for managing your photos, and is usually accessed through a “Setup” or “Menu” button on the camera. There are usually THREE options:

(1)  CAPTURE; (2)  REVIEW; (3)  SETTINGS.

We are going to go to “(3)  SETTINGS” in order to set up the following:

- *Date/Time
- *File Numbering
- *Format
- *Zoom: Optical vs Digital

ACTIVITIES:

1) **Colour Skills Test:** See sample Chart provided by Instructor!

2) **Histograms:** For each of the images shown by the instructor draw a “representative” Histogram in the appropriate box below:

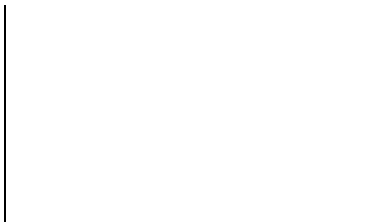








Image 1



Image 2

3) Camera Control Icons

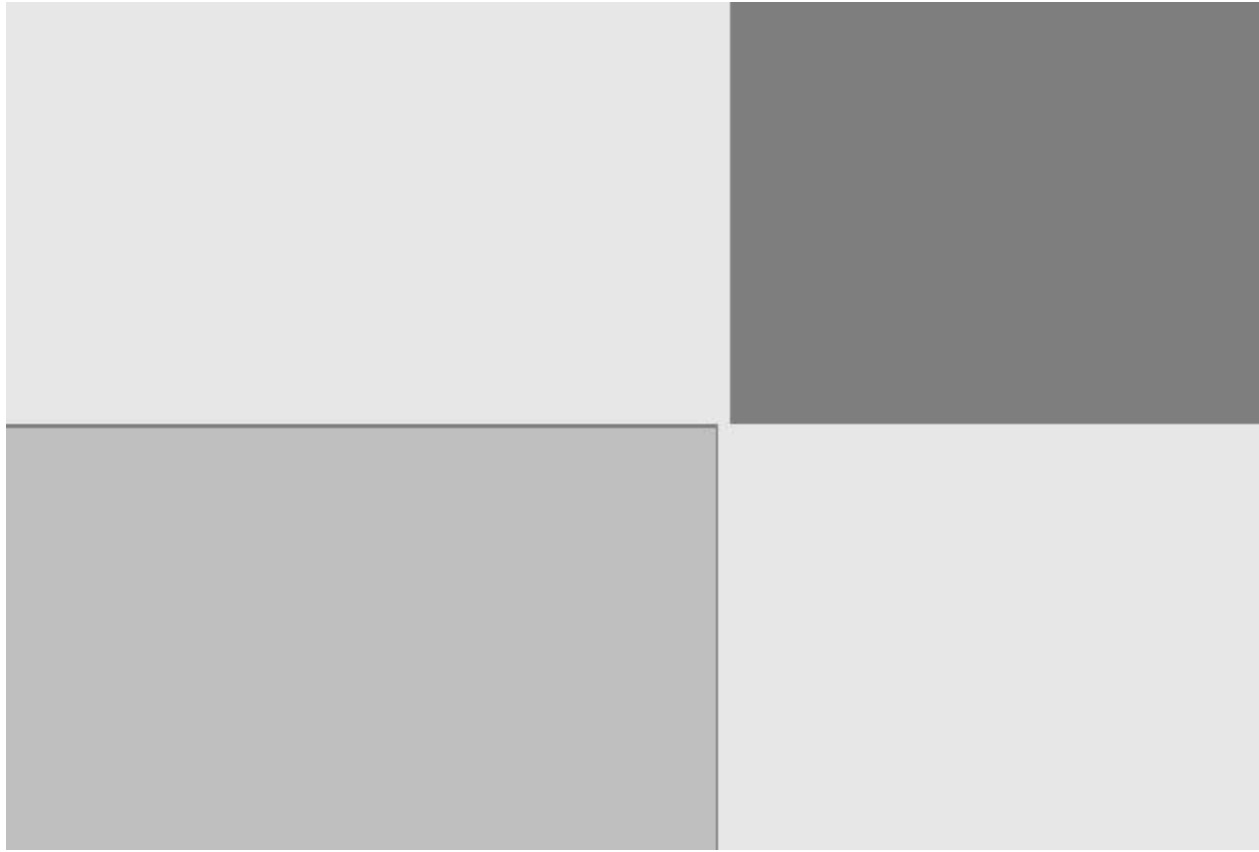
	ISO – Controls how sensitive your camera will be. The higher the number the more sensitive the camera will be, but higher ISO is noisy ISO 100-400 is good for outside, ISO 800-3200 for inside.
	Flash – Cycle through the many settings... Forced-Off, ON, Auto (shown here). Use flash to add light to a scene. Know how to turn your flash OFF when flash is prohibited!
	Self-Timer – Used with a tripod the self-timer allows you to get in the picture. Self-timers range from 2 seconds to 10 seconds, or even a user defined custom amount of time & number of photos.
	Drive Mode – For taking many pictures in quick succession. Start shooting before the action happens and you will more likely get at least a couple of good shots. Better than timing one shot!
	Macro – Used for very close up photography. Imagine a ladybug filling the viewfinder, that type of photo. Keeping the camera steady is very important. Macro is the time for a tripod of some kind.
	Delete – NOT RECOMMENDED. The trashcan leaves your memory card fragmented, making your camera slower when storing pictures. You also waste power from your battery reviewing pics.

Demo of Composition: When framing your image a helpful guide is “**The Rule of Thirds**”.

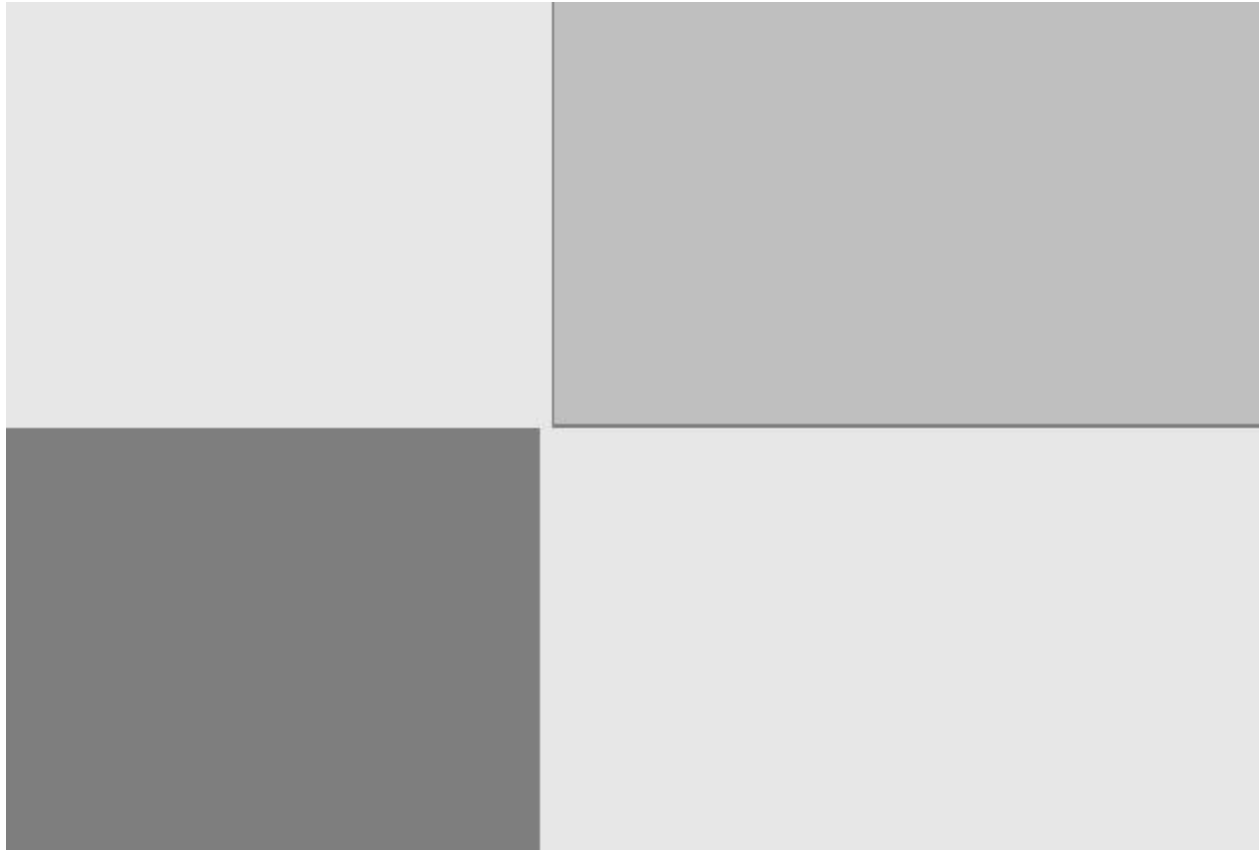
Homework: Two photos each printed at two different locations for the purpose of comparing print quality. (ALSO includes doing it yourself)

Photo Subject	Print Location “A”	COST	Print Location “B”	COST
1. Landscape	Print 1A		Print 1B	
2. Portrait	Print 2A		Print 2B	

Note: All prints should be done with **NO adjustments**, at the same size (4 x 6) and surface type (**glossy**).

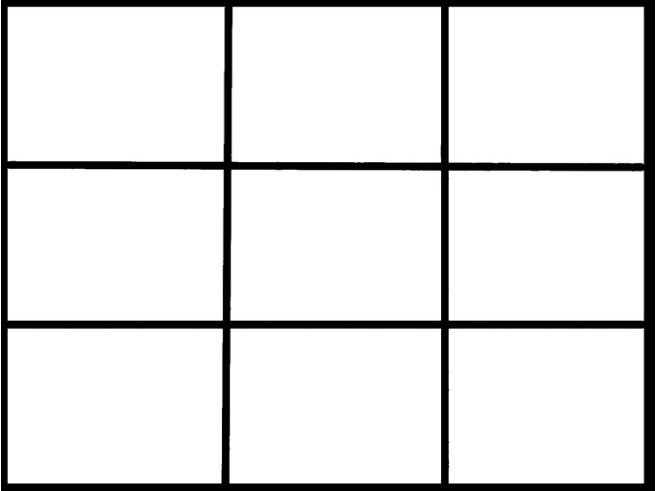

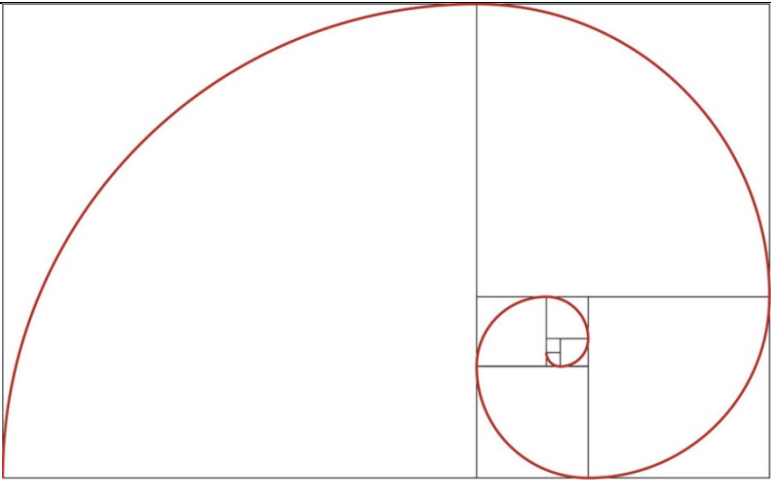



Histogram Analysis: Image One



Histogram Analysis: Image Two

Composition “Rules”: Suggestions Actually

Rule of Thirds	
Described	Applied to Image
	
Golden Ratio	
Described	Applied to Image
	

Intro to Digital Photography: Week Three

Instructor: Roger Buchanan

For info on other Digital Photo courses check-out the following websites:
www.thenerdworks.com or www.leisureonline.ca

Week Three: - Lighting Terms, Activity is "Lighting Colour and Exposure Settings", Review and Evaluation.

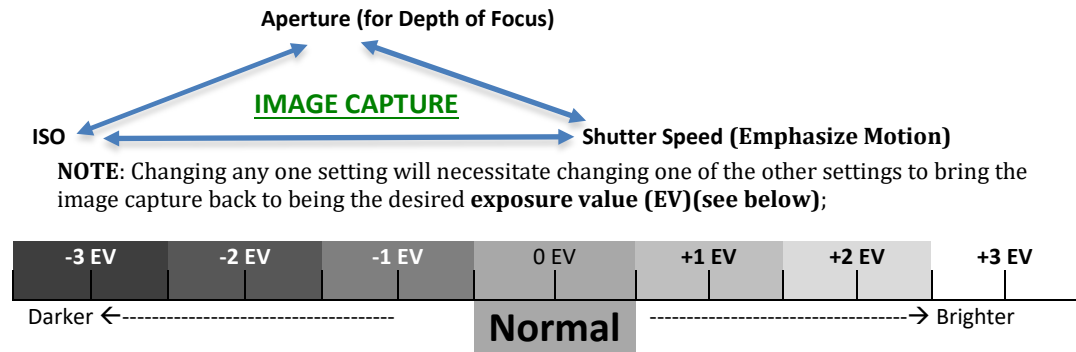
Homework Review: 2 sets of two prints.

Lighting Terms:

- **Light Intensity** – referring to hard, soft or diffused (artificially soft) lighting;
- **Light Direction** – referring to how the subject is lit... front, back or side lighting;
- **Key Light** – the light that is providing the major portion of illumination

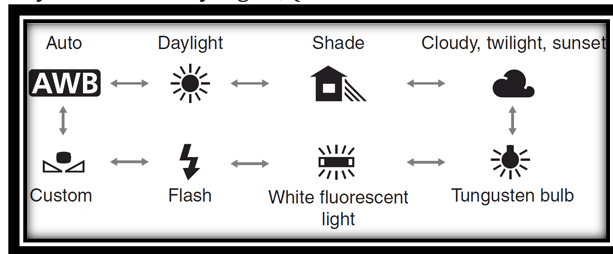
Image Capture Settings (see below)

An image capture setting may be described as **Shutter Speed @ f-stop using ISO #**
 (i.e. 1/125 sec at f/3.5 with ISO 200.)



ACTIVITY: Working with a partner. This requires one flower and a black background.

1. **White Balance (Colour of Light)** – adjusting the camera to represent white properly (i.e. "White Balancing") in different coloured lighting such as Daylight, Cloud, Shade, Tungsten, Fluorescent, Flash. White Balance is always set to the "Key Light"; (Note: Flash **must be OFF** for all but Flash WB)



2. **Exposure Compensation** – the camera's exposure compensation control lets you "+" (lighten) or "-" (darken) the image (depending if the original is too dark or to light)







45 minutes: Review and Q and A. **5 minutes:** Course Evaluation: When evaluating the worth of the course PLEASE consider ALL of the following:

Did you meet your **LEARNING EXPECTATIONS**? Was it also **worth the TIME** that you invested in being here?

Visit www.thenerdworks.com if you have any questions about this course, or anything photography related.

White Balance Colour Settings

Our eyes adjust to the colour of light shining on a subject, the camera needs to be told the type of light.

	
<p>Auto</p>	<p>Daylight</p>
	
<p>Cloudy</p>	<p>Shade</p>
	
<p>Tungsten</p>	<p>Fluorescent</p>
	<p>TIP: Regarding AWB (Auto White Balance) AWB “calculates” what it thinks is the correct White Balance each time you take a photograph. When taking many pictures *of the same subject* AWB may calculate White Balance differently between shots, thereby altering the colour of your subject slightly. So use a *specific* WB instead!</p>
<p>Flash</p>	