

Intro to Photographic Lighting: Week One

Instructor: Roger Buchanan

These notes are available at www.thenerdworks.com

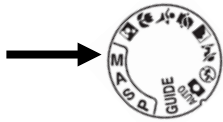
Week One: - Characteristics of Light, Modifying Light, Principles of Lighting, Activities;

Week Two: - Metering the Light, Placement of Light, "Equivalent" Exposures, Bracketing;

Week Three: - Accessory Flash, Bare Bulb lighting, Macro lighting Demo, Posing Tips and REVIEW

The instant feedback of Digital Cameras means that Lighting can be assessed almost instantly.

Activity 1: Manual exposure.



Manual allows you to more easily balance Ambient/Flash mixed lighting.

Types of Light:

Natural – Light from the Sun, Moon or a Fire;

Ambient – refers to the amount of available light;

Continuous – the light source is always producing light;

Flash – controlled quick release of a predetermined volume of light.

Properties of Light:

Quality – relates to the shadow edge that is created, Hard or Soft;

Quantity – relates to the size of the light source, and distance from subject, affects Exposure;

Direction – always described in reference to the subject. When the light shines on the front of the subject then the subject is referred to as being "Front lit", from behind "Back lit";

Colour – Warm light is Orange'ish red, Cool light is Blue'ish. The colour of light is measured using the Kelvin (K) temperature scale, where light is described as a certain number of "degrees Kelvin"

Light interacts with Subjects via one of three methods:

1. Transmission of Light (Windows allow light to pass right through)
2. Absorption of Light (Plant leaves absorb sunlight in photosynthesis)
3. Reflection of Light (Reflection is of Prime Interest to Photographers)
 - Diffuse Reflection (like Haze in the air)
 - Direct Reflection (like a Mirror reflection)
 - Glare (Brightly shining reflections)

Lighting Principles: (All require planning to get best results)

Size of Light Source (Determines the shadows produced)

Type of Reflection (often controlled through use of Polarizing Filters)

Direction of lighting is responsible for revealing details but also making reflections.

Light shows the Subject, Shadows reveal the Detail!

Lighting requires us to reveal Depth, Shape and Texture.

Activity 2 : Photograph the prop, use the flashlight provided to make 27 different images:

- at different angles – front, side and 45 degrees;
- elevations – level, above and 45 degrees;
- distances to the prop – near, medium and far.

Near			
	Front	Side	45
Level			
Above			
45			

Medium			
	Front	Side	45
Level			
Above			
45			

Far			
	Front	Side	45
Level			
Above			
45			

Activity 3: Use the softbox adapter with the flashlight to photograph 27 different images of the prop:

- at different angles – front, side and 45 degrees;
- elevations – level, above and 45 degrees;
- distances to the prop – near, medium and far.

Near			
	Front	Side	45
Level			
Above			
45			

Medium			
	Front	Side	45
Level			
Above			
45			

Far			
	Front	Side	45
Level			
Above			
45			

Examine the effect of the softbox on shadow details as compared with previous samples.

Activity 4: Reflections and photographing glasses. Subject looks slightly “away” from light source.

Activity 5: Bouncing, Diffusing, Concentrating and Colouring Light while taking photographs.

Modifying Light: Sometimes the Type and Properties of available Light may not be good enough for the capture of a well exposed photograph. At this point you need to modify the light in one of the following ways:

- Bouncing** – The reflection of light onto subject (often used to fill shadows);
- Diffusing** – Opaque dome on flash, bed sheet held between light source and subject;
- Concentrating** – Snoot or Fresnel lens;
- Colouring** – Using a colour film between the light source and subject.

Noise in the photograph can become a problem when Slow Shutter Speeds and/or High ISO are used.

Activity 6: Get accurate colour by matching the mixed lighting using a **Custom White Balance** setting.










The Icon for Custom with balance is (Nikon is “PRE Preset Manual”)

Homework: Make a photo in **manual exposure mode** using ambient lighting (Room or Outdoor Lighting) and an additional continuous light source (Flashlight or Lamp) of your choice.

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>	

Intro to Lighting: Week Two

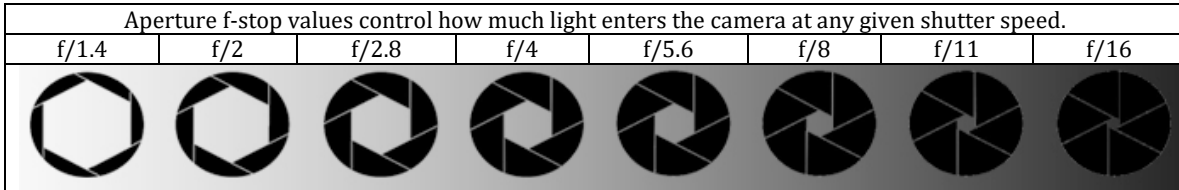
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Homework: Manual exposure with continuous light.

Week Two: - Techniques of working with Light


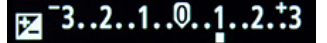


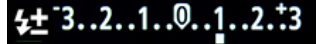

F-Stop Definition: An f-stop is a volume of light. A change of 1 f-stop is a doubling of light or a half of light. Aperture changes are measured in f-stop values as follows:



“Equivalent” Exposures are equal brightness but made with different settings of ISO, Aperture & Shutter Speed.

$$f/2 @ 1/200\text{sec} = f/2.8 @ 1/100\text{sec} = f/5.6 @ 1/25\text{sec}$$

Activity One – Exposure Compensation and Flash Compensation

Control	Icon	Control View	Compensation Value	#1	#2
Exposure Compensation			 background	0	+2
Flash Compensation			 subject	0	-1

Activity Two – 2nd Curtain Sync, controls where the blurring of a moving subject happens with flash photo.

Activity Three – Accessory Flash (Manual Control)

- Manual Mode – Flash settings adjusted on Flash body;
- Output Level – Power flash, ranges from 1/64th (Low) to 1 (Full);
- Zoom – Controls the distance of flash beam - nearest 24mm to furthest 105mm.

Activity Four – Bare bulb vs Diffused flash:



High Speed Sync: The flash strobos when using faster than normal shutter speeds. (SEE REVERSE PAGE)

Thinking about using older flash units?: [READ THIS](#)

DEMO: Positioning Multiple Lights for Portrait Photography (Three Light Portraits) **SEE REVERSE PAGE**

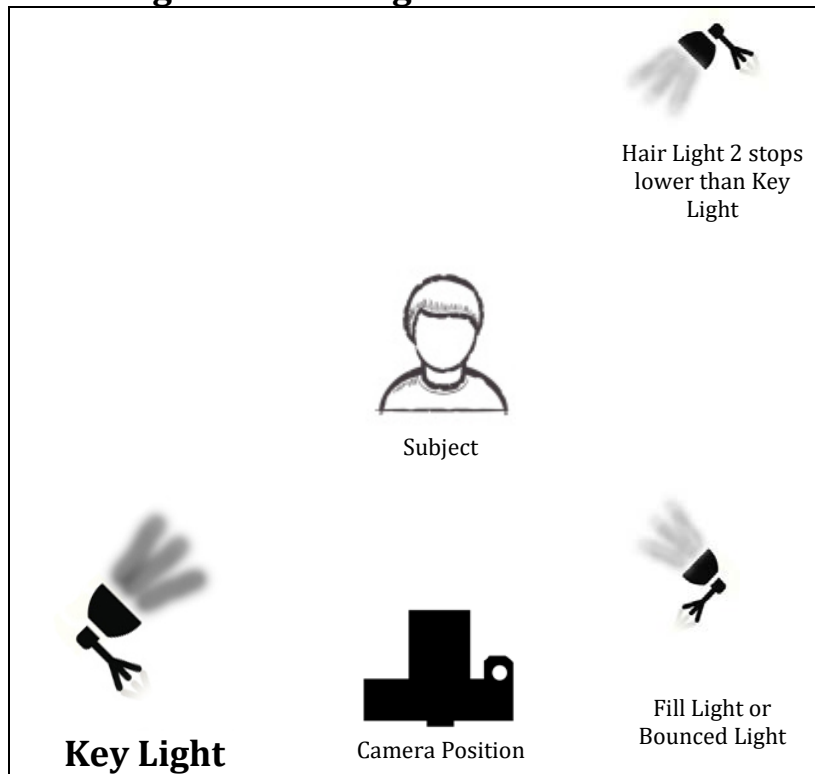
Key Light (Main Light) **Fill Light** (Secondary light) **Hair or Accent Light**

Recommended website for learning more about flash photography is www.strobist.com

Homework: Choose “A” or “B”. For a challenge try both!

Option A	Option B
Find a subject to photograph with: • Small Light Source for hard sharp edged shadows; • Large Light Source for soft faint edged shadows.	• One photo FILL FLASH only • One photo BOUNCED LIGHT only • One photo BOTH FILL FLASH and BOUNCED LIGHT

1) Three Light Positioning for Portraits:

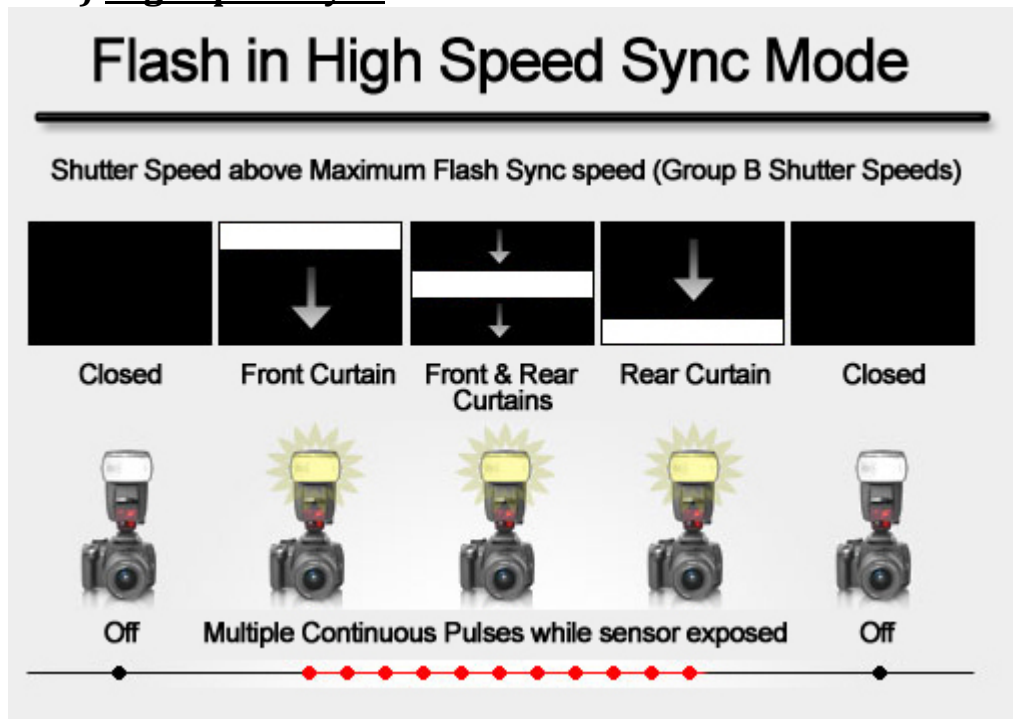


Key Light: The key light provides the majority of the lighting for the portrait;

Fill Light: The Fill Light Provides less light and is used to balance out the light from the Key Light;

Hair Light: The Hair Light is intended to provide just enough light to highlight the rim of the subjects hair.

2) High Speed Sync



Intro to Lighting: Week Three

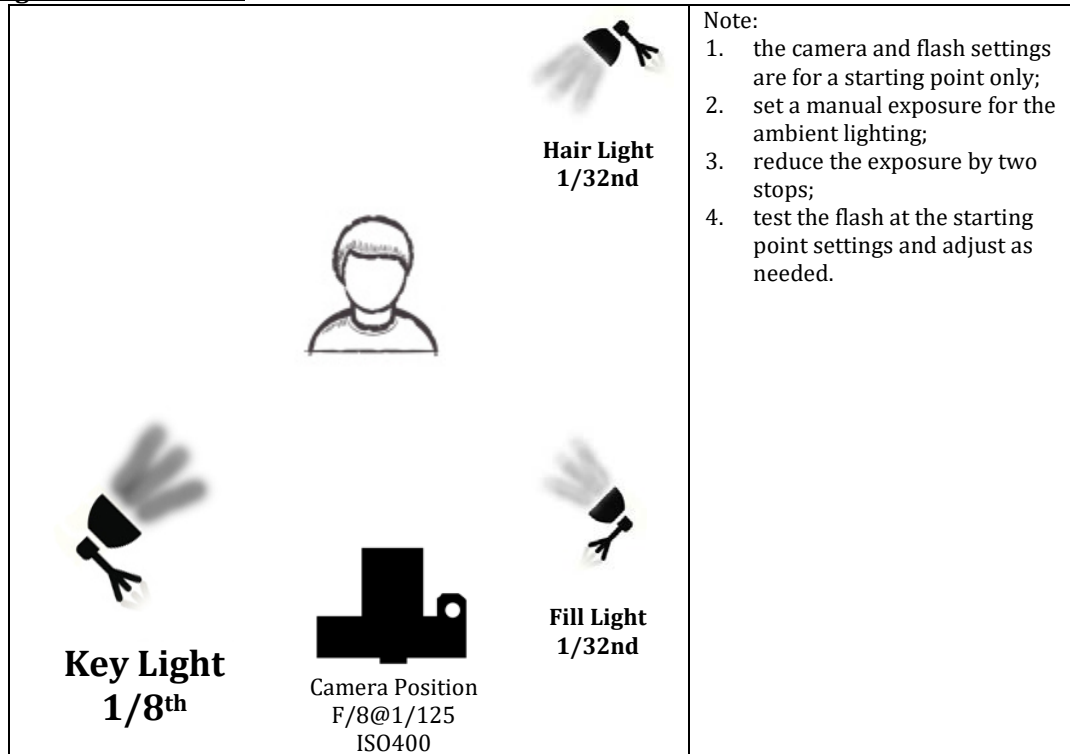
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Homework: Choose "A" or "B". For a challenge try both!

Option A	Option B
Find a subject to photograph with: <ul style="list-style-type: none"> • Small Light Source for hard sharp-edged shadows; • Large Light Source for soft faint edged shadows. 	<ul style="list-style-type: none"> • One photo FILL FLASH only • One photo BOUNCED LIGHT only • One photo BOTH FILL FLASH and BOUNCED LIGHT

Three Light Portrait Demo:



Note: the power output levels in the table below are only recommended starting points...


Type of Light	Power Output	Source	Position	Height	Distance
Key Light	1/8 th	Umbrella/Softbox	45 degrees front	Elevated	~4 feet
Fill Light:	1/32 nd	Diffused/Bounced	45 degrees front	Elevated	~4 feet
Hair Light:	1/32 nd	Gelled Spotlight	Opposite Key Light	Elevated	~4 feet

Posing Tips: Waist Turn (thinner), "Chin Down, Eyes Up" (big eyes), Key Light Triangle (eye to cheek highlight)

Macro Lighting: Demonstration

- **Dedicated Ring Flash** - mounts to the lens, with its controller/power source mounted on Hot-Shoe
- Ring Flash Speedlight Adapter - Adapter fits over Speedlight and the Reflector Ring fits around lens.
- **Light Tent** - Opaque tent illuminated by dual continuous light sources (usually desk lamps) providing wrap around lighting.

Positioning Flash: How will I position the flash? **Velcro** straps, **Zip-ties**, **Gorillapod**, **Light stand**?

Review: Week One	Review: Week Two
Manual Exposure	f-stop defined
Types of Light: <ul style="list-style-type: none"> • Natural; • Ambient • Continuous; • Flash. 	Equivalent Exposures – Exposure Settings (ISO, Shutter Speed & Aperture) are said to be “Equivalent” if they produce the same Exposure of an Image.
Properties of Light: <ul style="list-style-type: none"> • Quality – Hard or Soft; • Quantity – size of the light source • Direction – reference to the subject. • Colour – Warm red, Cool Blue 	Exposure Compensation  Flash Compensation 
Reflections can be either: <ul style="list-style-type: none"> • Diffuse; • Direct; • Glare. 	2nd Curtain Sync
Consider the properties of: <ul style="list-style-type: none"> • Size of Light Source; • Direction of Light Source; • Types of Reflections. 	Manual Flash Controls: <ul style="list-style-type: none"> • Mode; • Output; • Zoom.
Positioning of Light Sources: <ul style="list-style-type: none"> • Angle to Subject; • Height of Light Source; • Distance of Light Source. 	Bare Bulb vs Diffused Flash
Modifying Light: You can change the light you use in any of the following ways. Bounce, Diffuse, Concentrate, Colour.	High Speed-sync 
White Balance for Colour	Old flash can be dangerous for digital cameras!

Course Evaluation Was this class worth both your time and expense?