

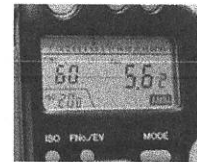
# UNDERSTANDING LIGHT METERING

By Clem Wehner



## CAMERA EXPOSURE SETTINGS

	LOW 1/STOP						HIGH 1/STOP		
f/stops:	2.0	2.8	4.0	5.6	8.0	11	16	22	....
shutter speeds:	1/8	1/15	1/30	1/60	1/125	1/250	....		
	SLOW SPEED					FAST SPEED			



## Light Meters

Measure the intensity of light.

Handheld or internal



## Light Metering Methods

- INCIDENT (direct) LIGHT METERING
- REFLECTED LIGHT METERING

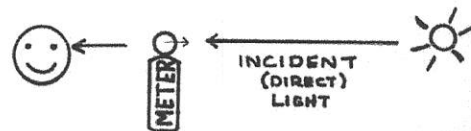
## Why Measure Light?

To determine the camera settings for good exposure (manual exposure mode)

SHUTTER SPEED and APERTURE (f/stop)



## INCIDENT LIGHT



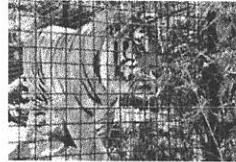
**Taking an INCIDENT (direct) light reading**  
(most accurate method)



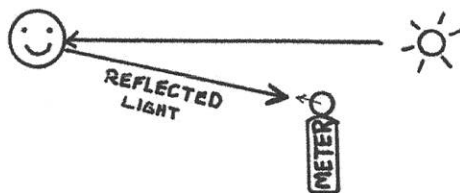
1. Place meter at the subject.
2. Aim meter at the light source.

**When to use REFLECTED light**

If you don't have access to the subject)

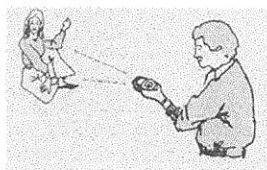


**REFLECTED LIGHT**



EX- BROTHER-IN-LAW

**Taking a REFLECTED light reading**  
(less accurate method)



Aim meter at the subject.

**Built-in Light Meters**

- ALL digital cameras have a built-in light meter.




- They are REFLECTED light meters only!
- Will NOT measure incident (direct) light.
- Very prone to erroneous readings!

**Want to shoot in MANUAL mode,  
but don't have a handheld light meter?**

**Why camera light meter may be wrong**


**PROBLEM #1:**

- Camera's light meter averages the light in the scene.
- Your subject may not be in average light
- Subject will be improperly exposed in the photo




**Using your camera's light meter**  
(to get a light reading to use in Manual mode)

1. Put camera in an AUTO exposure mode: (AUTO, P, S, or A)



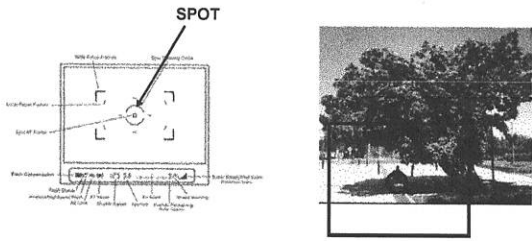
2. Point camera at the subject. Press shutter halfway down.
3. Read exposure setting in viewfinder or camera's screen.



4. Select MANUAL (M) mode and set shutter and f/STOP.

**Solution to problem #1**

1. Put camera in SPOT metering mode.
2. Put spot on the subject.



**Why not just use AUTO exposure?**

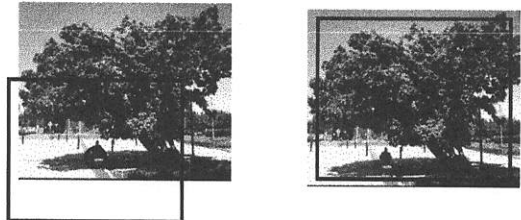
1. The camera's light meter may be wrong

(Reflected light readings are less accurate than incident readings.)

2. Manual mode lets you tweak the exposure from the settings you started with.


**Solution to problem #1**

1. Put camera in SPOT metering mode.
2. Put spot on the subject.
3. While holding shutter button down halfway, re-compose the shot, then shoot.

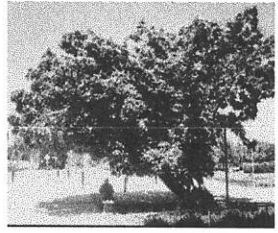


**Spot metering on the subject brightened the subject (and the whole scene)**

BEFORE





AFTER




In-camera light meters

**PROBLEM #2**

- To expose properly, camera was calibrated to a scene of medium brightness (on average). 
- If the scene is too light, camera will underexpose.





REAL WORLD- brighter than medium gray



RESULTING IMAGE

But, spot metering can be tricky



- You must be careful where you put the spot, or you may get an unexpected exposure.

In-camera light meters


**PROBLEM #3**


- A camera's internal light meter cannot measure light from a flash unit.
- So, it can't be used to set camera exposure for studio lighting.

(you must use a FLASH METER)


**Suggestion:**

**Put spot on something medium gray** 



Then:


1. Hold shutter halfway down
2. Recompose the shot
3. Press the shutter the rest of the way



Result: a properly exposed image

**SOLUTION TO ALL THESE PROBLEMS**

Use a handheld light meter and take incident readings  
( if possible )



## SOME USES FOR A LIGHT METER

### The Problem

BRIGHT LIGHT

DIM LIGHT



### 1. DETERMINING BRIGHTNESS OF LIGHT ON A SUBJECT



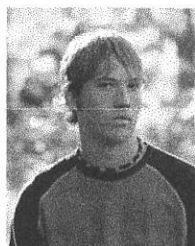
Use the light meter to spot the camera's exposure to the background



well exposed

### 2. BALANCING LIGHT

SUBJECT IN SHADE with BRIGHT BACKGROUND



Subject will be underexposed

### HOW TO DO IT:

#### 1. METER THE BACKGROUND

- . SET CAMERA TO METERED f/STOP AND SHUTTER SPEED



#### 2. METER THE SUBJECT

- . CALCULATE THE BRIGHTNESS DIFFERENCE BETWEEN BACKGROUND AND SUBJECT
- . SET FLASH TO THE DIFFERENCE IN f/stop


**RESULT**

properly exposed background


AND

properly exposed subject


not this



this




f/16



f/4

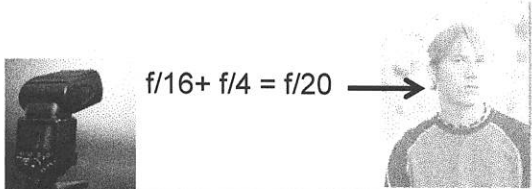
*Can I just set the flash to the same brightness as the background?*

f/16




f/4


f/16 + f/4 = f/20



Remember,  
**LIGHT IS ADDITIVE**

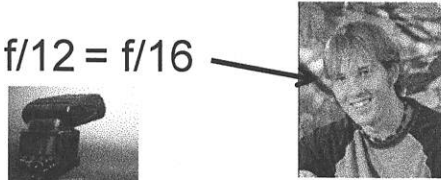


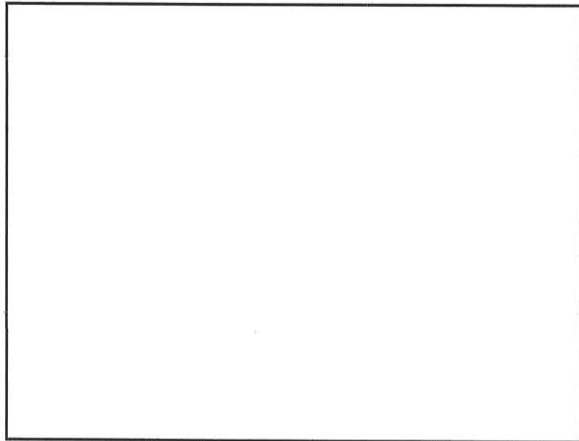
f/16



f/4

f/4 + f/12 = f/16





**3. SETTING LIGHTING RATIOS**

1. Turn on only the main light and set its brightness
2. Measure the light on the subject.

**3. SETTING LIGHTING RATIOS**  
FOR PERFECT PORTRAIT LIGHTING RATIO

**3. SETTING LIGHTING RATIOS**

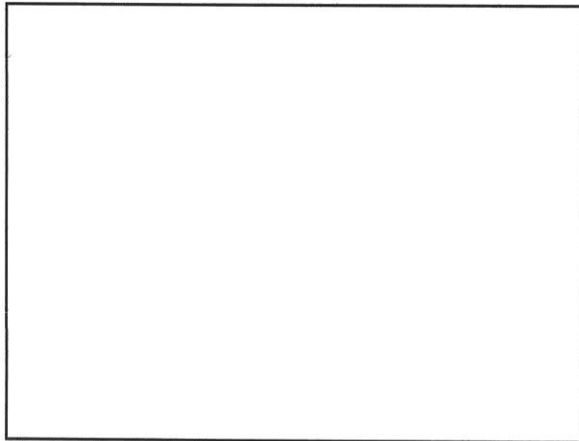
1. turn on the fill light. Adjust brightness until:  
meter reads 1 f/stop less than main light

**3. SETTING LIGHTING RATIOS**  
PERFECT PORTRAIT LIGHTING RATIO

One f/stop bright

to low side

**3. SETTING LIGHTING RATIOS**



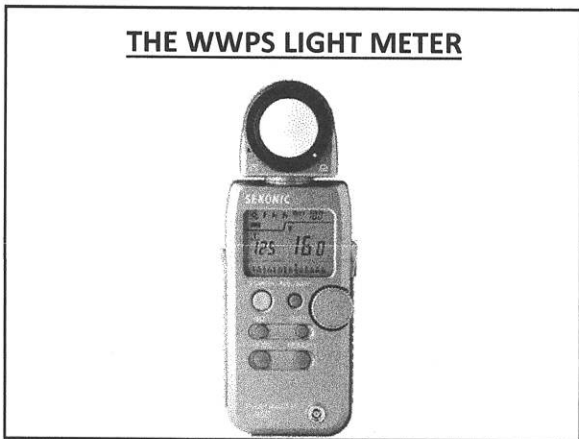
### SUMMARY

INCIDENT LIGHT

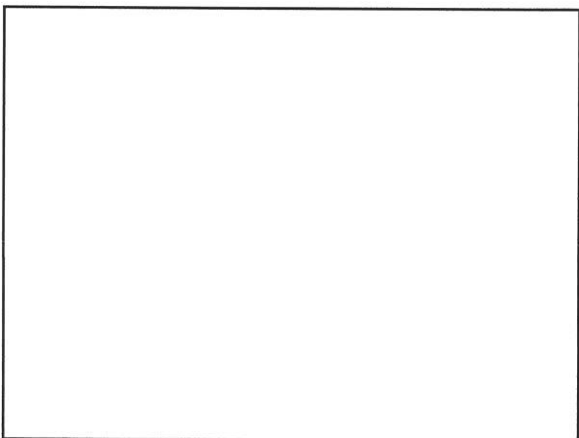
REFLECTED LIGHT

Most accurate

Less accurate  
Prone to errors



- ### USES OF LIGHT METER- SUMMARY
1. DETERMINING BRIGHTNESS OF LIGHT
  2. BALANCING LIGHT
  3. SETTING LIGHTING RATIOS

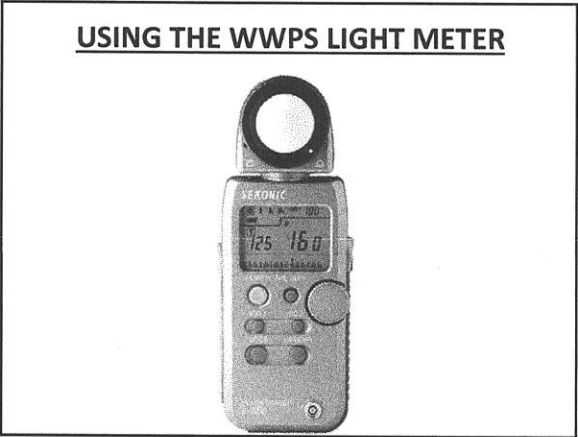
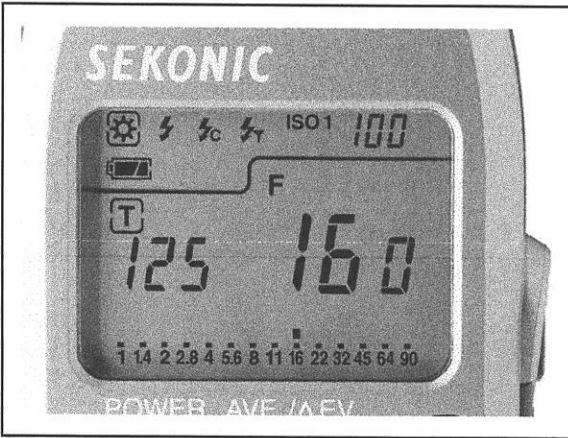
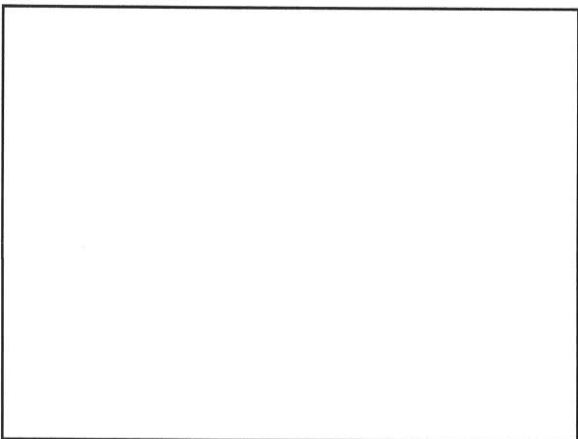


# Questions?



The End

1. Turn on power switch.
2. Extend the dome for direct incident light, or retract the dome for reflected light.
3. Set ISO to the same as the camera by holding down ISO-1 and turning dial.
4. For ambient light, hold down MODE, turn dial to select ambient (sun symbol). Turn dial to select either shutter speed or aperture. Press trigger to measure the unknown light element.
5. For flash lighting, hold down mode, select flash (lightning bolt). Turn dial to set shutter speed to same as camera. Press trigger, then fire flash units. Read aperture on meter.



**CAMERA EXPOSURE SETTINGS**

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f/stops:	2.0 2.8 4.0 5.6 8.0 11 16 22 ....	
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	SLOW SPEED	FAST SPEED

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