

An illustration in a flat, cartoonish style showing three photographers and various studio equipment. One photographer is crouching in the background with a large telephoto lens. Another is standing on the left, also with a large telephoto lens and a shoulder bag. A third is in the center foreground, adjusting a camera on a tripod. To the right, there are three more tripods: one with a studio light, one with a softbox, and one with a large umbrella light. The background is a light, textured grey.

A Practical Approach in Flash Photography

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Why Use a Flash ?



Use flash to enhance your image in various situations

- Low light conditions
- Backlit Scenes
- Fill Flash
- Under shades
- Freezing Actions
- Creative Effects



Ex: Flash & no Flash



Two main type of Flash Photography

1. Flash mounted on top of Camera (Hot shoe mounted)



2. Off Camera Flash (OCF)/Master Slave system

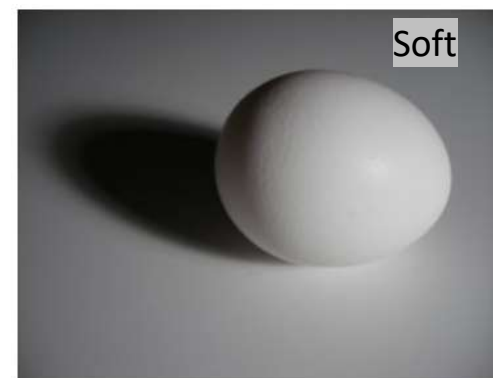
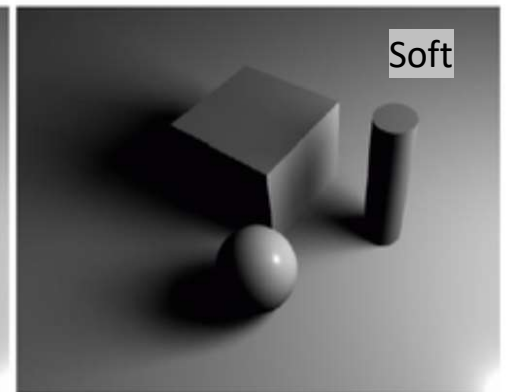
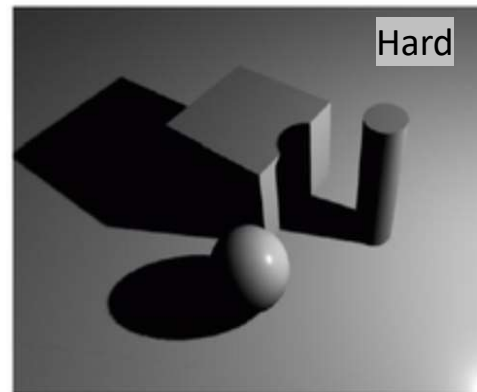


Why Hot Shoe Mount not a Preferred Choice for Portraits?

1. Harsh Shadows –unflattering, hard light, more blemishes
2. Red eye effect – light reflects off the retina of the eyes
3. Unnatural lighting – too close to the sensor (same direction as the camera)
4. Flat light – reduced texture and depth in the subject
5. Small light source – producing glares from reflective surfaces
6. Limited power and range

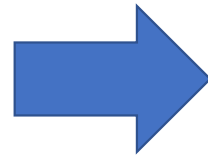
Solution: OCF

What are the advantages of OCF setup?



Using a Light Modifier for OCF setup

1. Diffuse and spread light evenly
2. Enhance Portrait lighting
3. Soften harsh light
4. Reduce glare and highlights
5. Add catchlights in eyes



Rule of Thumb:

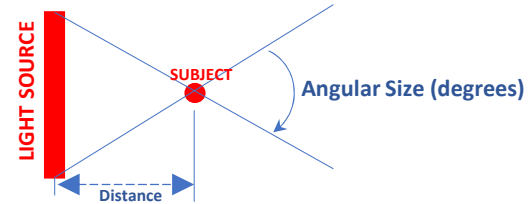
The larger the modifier, the better the light quality

..What are the trade offs??

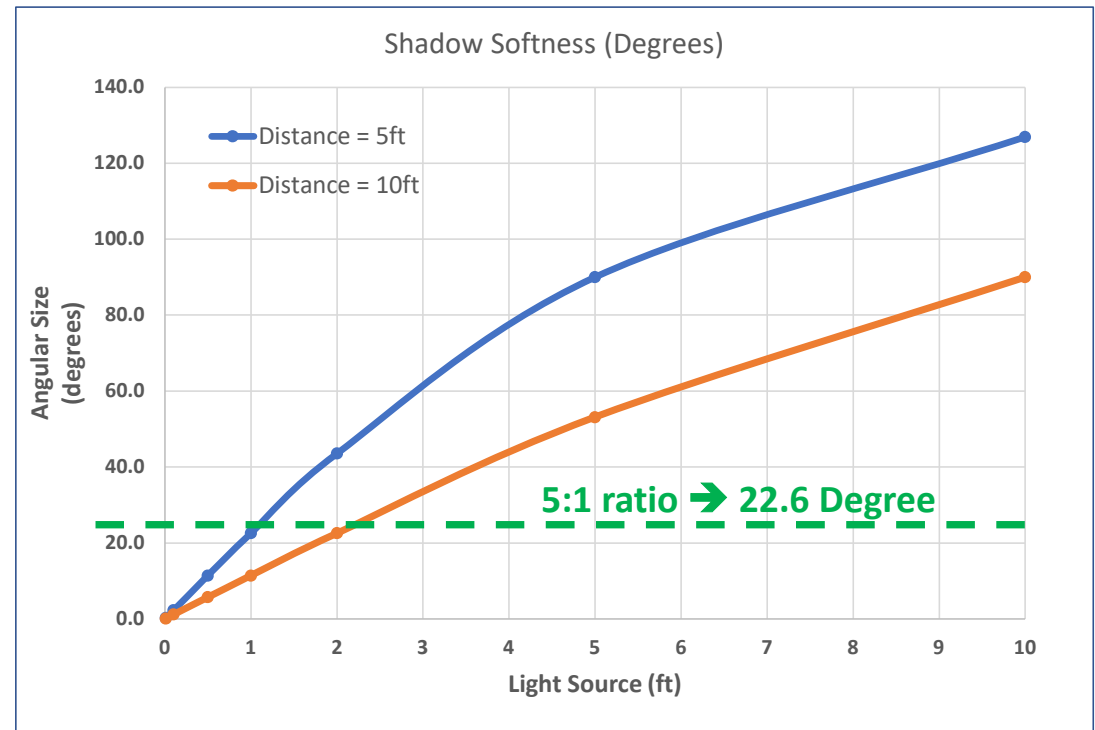
What size Modifier Should I use to Achieve Good Result?

The softness of the shadow is defined as “Angular Size”

$$\text{Angular Size} = 2 \cdot \arctan \left(\frac{\text{Size of Light Source}}{2 \times \text{Distance to Subject}} \right)$$



| Light source (ft) | Distance (ft) | Angular Size (degrees) |
|-------------------|---------------|------------------------|
| 0.01 | 5 | 0.2 |
| 0.1 | 5 | 2.3 |
| 0.5 | 5 | 11.4 |
| 1 | 5 | 22.6 |
| 2 | 5 | 43.6 |
| 5 | 5 | 90.0 |
| 10 | 5 | 126.9 |
| 20 | 5 | 151.9 |
| 0.01 | 10 | 0.1 |
| 0.1 | 10 | 1.1 |
| 0.5 | 10 | 5.7 |
| 1 | 10 | 11.4 |
| 2 | 10 | 22.6 |
| 5 | 10 | 53.1 |
| 10 | 10 | 90.0 |
| 20 | 10 | 126.9 |



Examples of OCF (1 light setup)



Examples of OCF (1 light setup), cont.



Examples of OCF (1 light setup) – Front light balanced w/Ambient



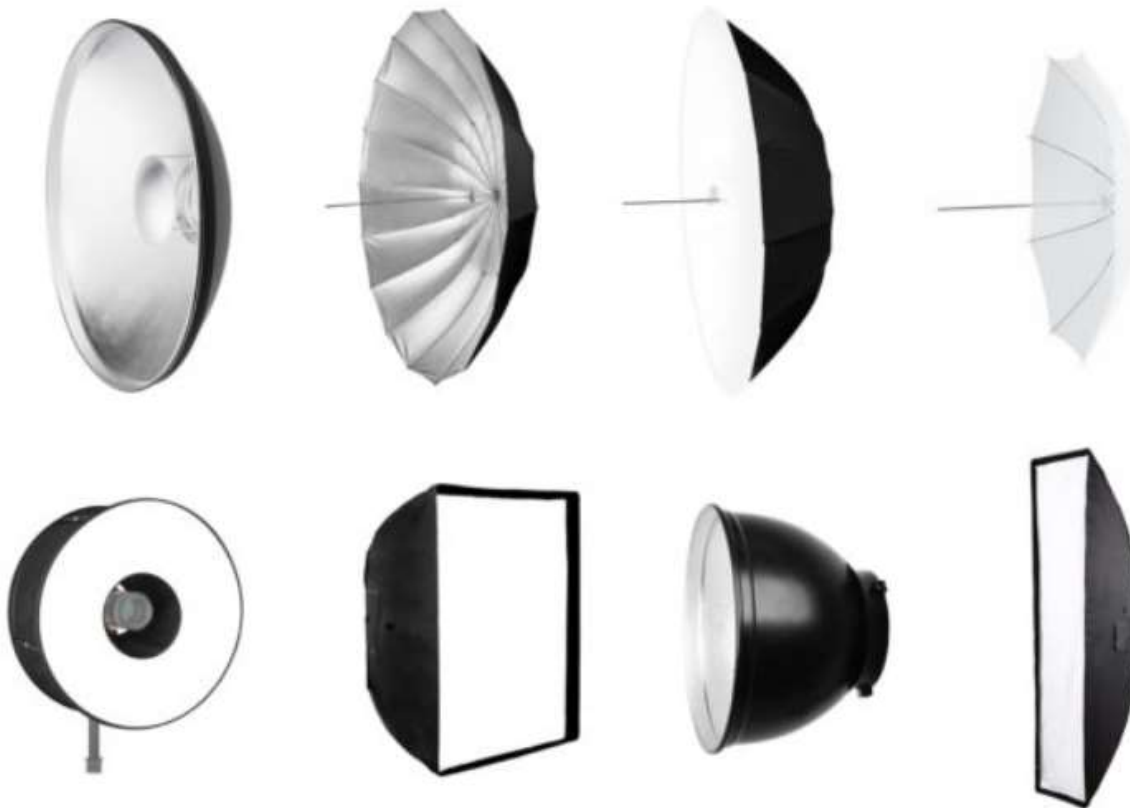
Examples of OCF (1 light setup) – Front light balanced w/Ambient



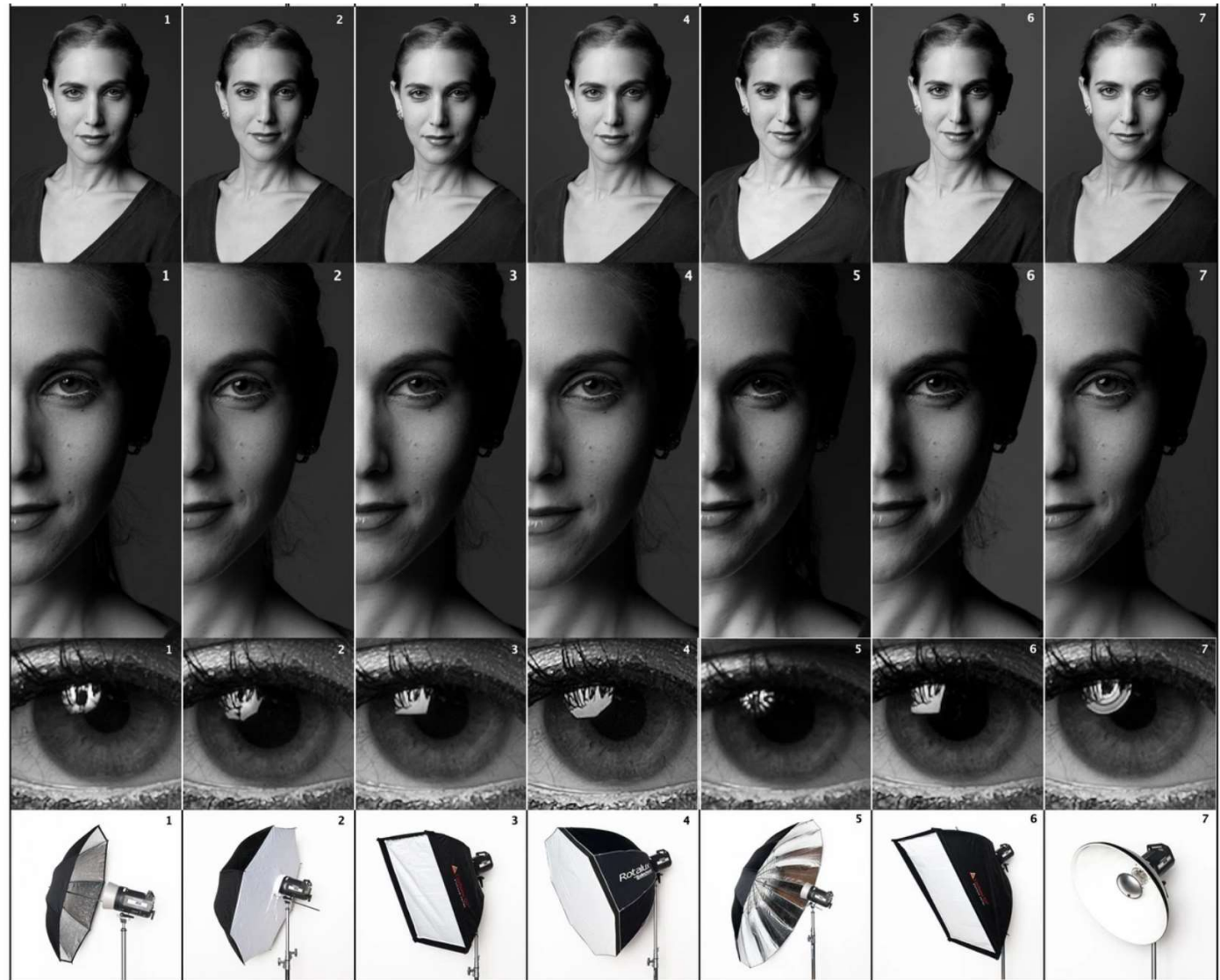
The brighter the background, the brighter the flash power



What kind of Light Modifier should I use?



Types of OCF Modifiers



Original Source and all credit to <http://thelightingacademy.com/blog/comparing-light-modifiers-part-i/>

Assembled by @gmjhowe

What kind of Flashes should I use?



Godox Flashes



AD100Pro

[Learn More](#)



AD200Pro

[Learn More](#)



AD300Pro

[Learn More](#)



AD400Pro

[Learn More](#)



AD600M/AD600BM

[Learn More](#)



AD600Pro

[Learn More](#)

Light and Distance Relationship

Intensity of light is **inversely proportional to the square** of the distance from the light source

$$\text{Illuminance} = \frac{F}{D^2} ; F = \text{Flash power}, D = \text{distance}$$

$$\text{for the same illuminance} = \frac{F}{D^2} = \frac{F(\text{new})}{D(\text{new})^2}$$

$$F_2 = F_1 * \left(\frac{D_2}{D_1} \right)^2$$

Ex: What is the Flash power if the distance is doubled?

Distance (D1) = 10ft,

New Distance (D2) = 20ft

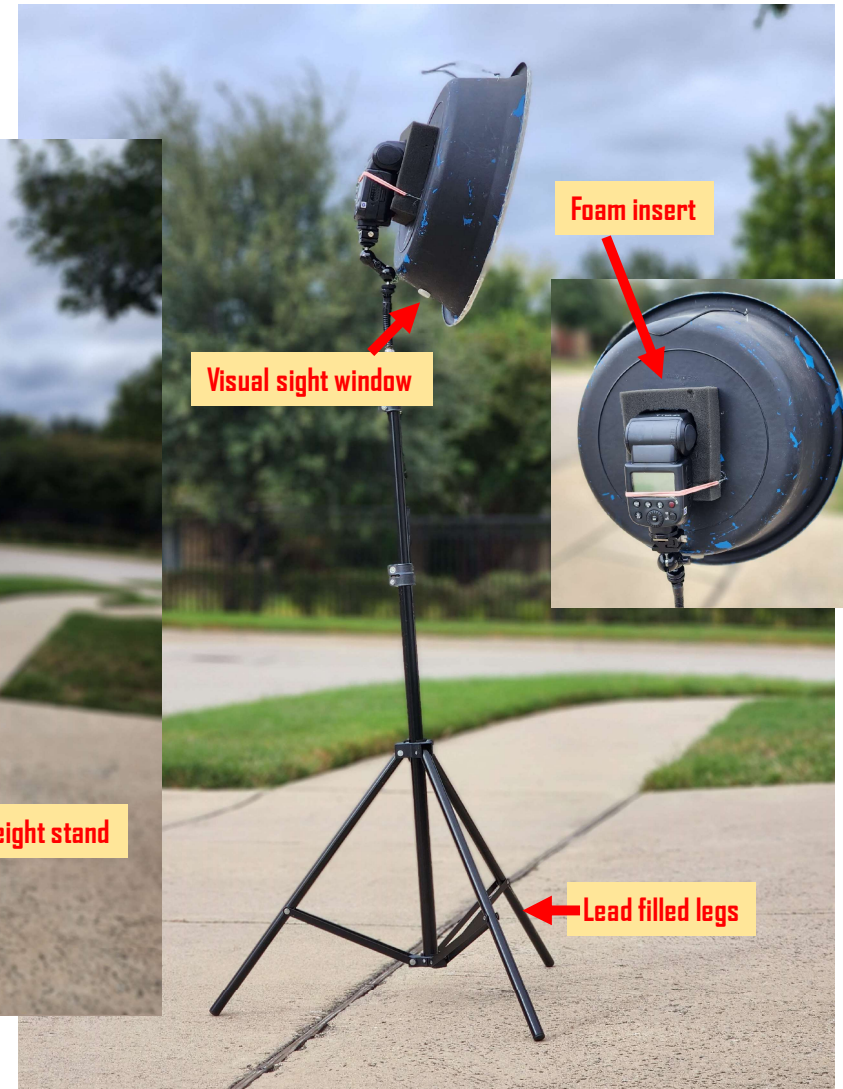
Flash power (F1) = 10%,

New Flash power (F2) = ?

$$F_2 = 10\% * \left(\frac{20}{10} \right)^2 = 10\% * 4 = 40\%$$

2X distance → 4X Flash power

Homemade 15" lightweight Softbox



Multiple lights setups..



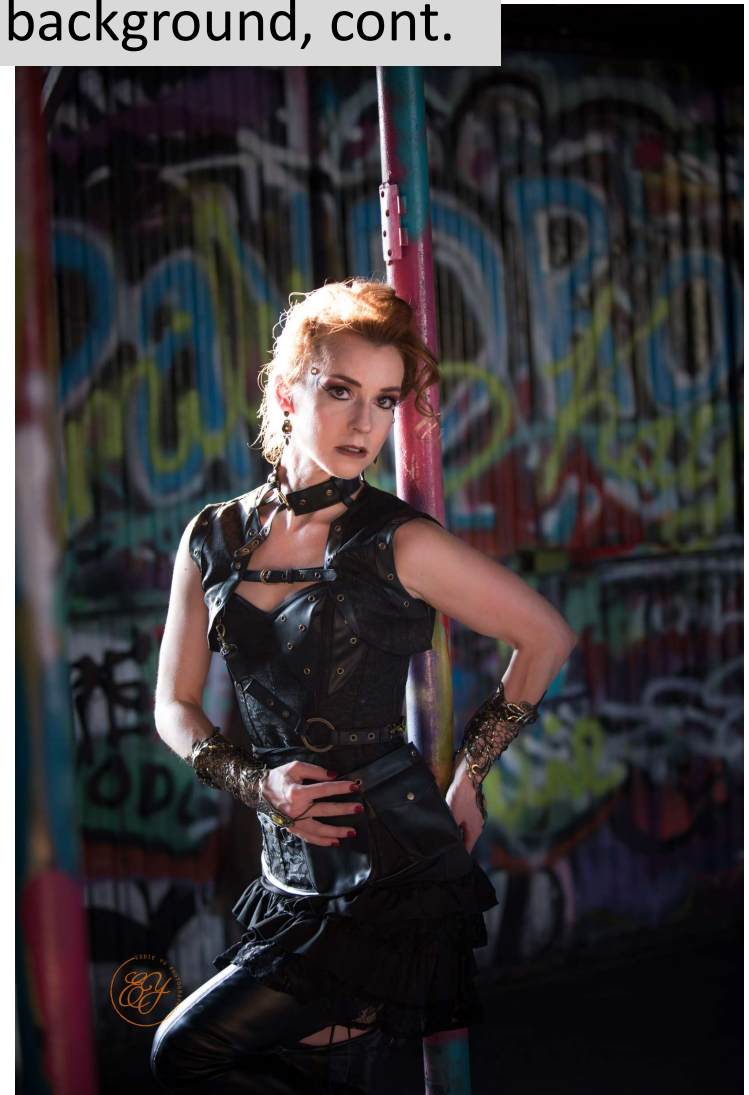
Added a second OCF to separate subject & background



Added a second OCF to separate subject & background, cont.



Added a second OCF to separate subject & background, cont.



Ways to Adjust Flash Power

AUTO MODE → TTL/iTTL metering

- The camera measures the amount of light coming through the lens to determine the proper exposure settings for a photograph.
- The camera's metering system evaluates the scene and communicates with the flash to determine the appropriate amount of light needed for a well-exposed image.
- Unfortunately, TTL likely will not produce accurate power if a modifier is used
 - Solution: use flash compensation



Ways to adjust flash power

- MANUAL MODE → Use master-slave remote system



Ways to adjust flash power (OCF system)



What is Guide Number

GN – Represents the power of a flash unit

$GN = \text{Aperture} * \text{Distance}$

$\text{Distance} = GN / \text{Aperture}$

Ex:

Aperture = 10 (f/10)

GN = 100 (in ft, ISO100)

Distance = $100\text{ft} / 10 = 10\text{ft}$ @ ISO100, f/10

GN online Calculator

www.scantips.com

Guide Number Calculator

Full Power Guide Number: 100 at ISO: 100 at Zoom mm

To New ISO: 100

Num Equal flashes Ganged as one: 1

☐ Compute as Fill flash level: 0 EV

Compute

Results will use

- ☒ Third stops
- ☐ Half stops (flagged as *1/2)
- ☐ Full stops

are within ±0.167 EV

To New Flash Power Level

- ☒ 1/1, 0 EV
- ☐ 1/2, -1 EV
- ☐ 1/4, -2 EV
- ☐ 1/8, -3 EV
- ☐ 1/16, -4 EV
- ☐ 1/32, -5 EV
- ☐ 1/64, -6 EV
- ☐ 1/128, -7 EV
- ☐ +2/3 EV
- ☐ +1/2 EV
- ☐ +1/3 EV
- ☒ +0 EV
- ☐ -1/3 EV
- ☐ -1/2 EV
- ☐ -2/3 EV

New GN is GN 100, 0 EV (unchanged)

Conventional Guide Number computes Either distance at A or f/stop at B

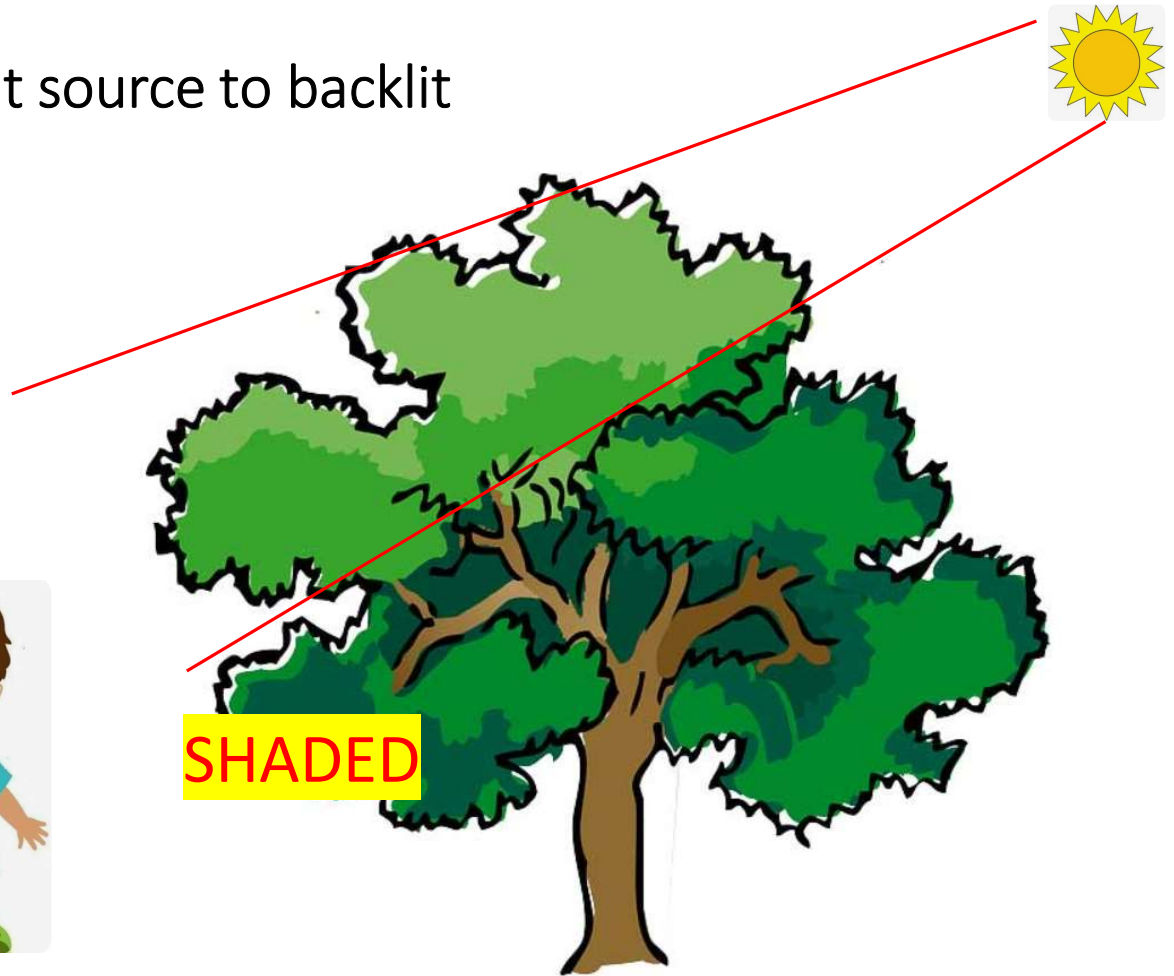
A. For Aperture f/10 **Distance** 9.92 (at precise f/10.08)

Exposure is ± 1 EV at distance 7.02 to 14.03 (span 7.02)

B. Or for Distance 8 **F/stop** f/12.5 **Nominal f/13** is -0.05 EV

Exposure is ± 1/3 EV at distance 7.13 to 8.98 (span 1.85)

Instead of using a second light source to backlit the subject, use the sun



Backlit by Natural light



Backlit by Natural light, cont.



Backlit by Natural light, cont.





Colored Gels as the Second Light



Second Flash using a Colored Gel



Second Flash using a Colored Gel



Four Flashes with Two Colored Gels

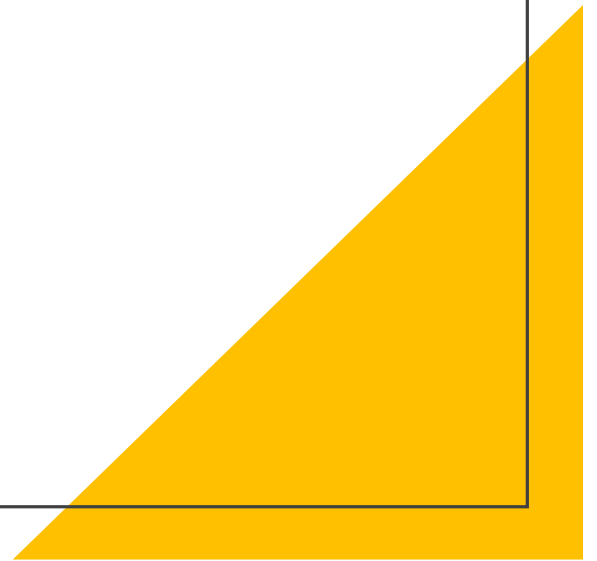




*Thank
you*



THE END



No More slides after this