Flash Photography

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Speedlights (Flashes)

- Many of us will already have one or more speedlights (flashes) in our camera bag. Speedlights are small portable devices that can be used at home and on location.
- They range from relatively inexpensive third party units to more expensive branded units.
- Using speedlights is an easy and relatively inexpensive way of providing artificial light.

- Most cameras except the top of the range will have some sort of flash built in.
- These flashes are convenient but don’t really provide a quality light source. They are also small and limited in what they can do.
- It is however better to have a pop-up flash than not being able to take a photograph due to poor light.
- Some cameras also use this flash as a means of controlling other flash units.

- A better way is to buy an external flash which will not only give you a more powerful light source, but also much more creative control.

- Flash is one of the most misunderstood aspects of photography.

- However….

- If we can understand the basic fundamentals, it will go a long way to helping us achieve more pleasing flash images.
- The key strategy should be to firstly consider the ambient light, then decide on the flash mode best suited to what you want to photograph and finally whether you can improve the quality of the light through the use of flash.

When to use flash?

- Is there enough ambient light?
- Is my subject in a shadow?
- Is it a high dynamic range scene?
- Is there more light behind my subject than in front of it?
- Do you want to freeze action?
- Do I want to see catch lights on the eyes of people and animals?
- Do I want to reduce post processing?
- Do I want to have creative lighting?

Our goal as photographers should be to create an image that doesn't look like it has been flashed.

How I use Flash?

- I use flash often in my photography, but my goal is to try to make the flash as subtle as possible.
- I use flash to lighten shadows, put catch lights in eyes, reduce dynamic range and be creative.
- I always strive to modify the light from the flash or light the subject indirectly.
- I firmly believe that well used flash makes the subject pop and involves far less post processing.
- In worst case scenarios where I need to over power a strong ambient light, I will revert to using direct flash.

Reduce Shadows

Catch lights in eyes

Reduce Dynamic Range

Reduce post processing time

Be creative

Understanding Flash

Guide numbers

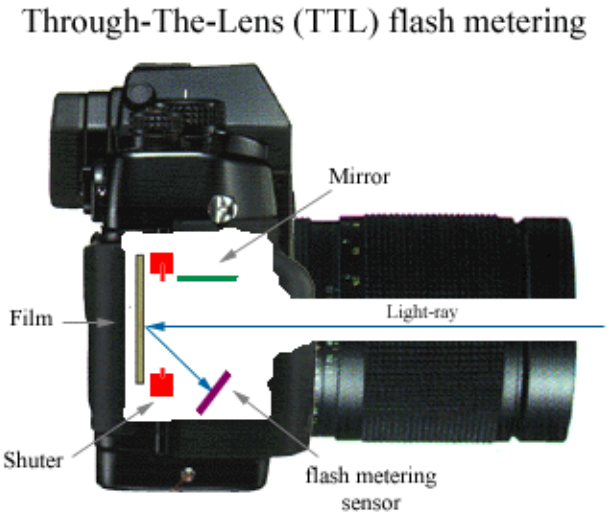
- A flash unit's guide number indicates how much light the unit will emit in relation to a standard ISO rating (100 ISO).
- At 100 ISO the guide number divided by the subject distance is the Aperture
  - Flash Guide No. 54 @ 6m = f/9
- The higher the guide number, the more powerful the flash.
- Flashes with Fresnel lenses and zooming capability will have a guide number quoted at one focal length, typically 35mm.

Flash modes

- Manual
  - The flash sends out a fixed amount of light based on the power setting.
  - Full, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, 1/128
  - Just like aperture, shutter speed and ISO, power levels are in one stop increments.
  - Takes more time to set-up.
  - Subject distance needs to be relatively constant.
  - More consistent light output.

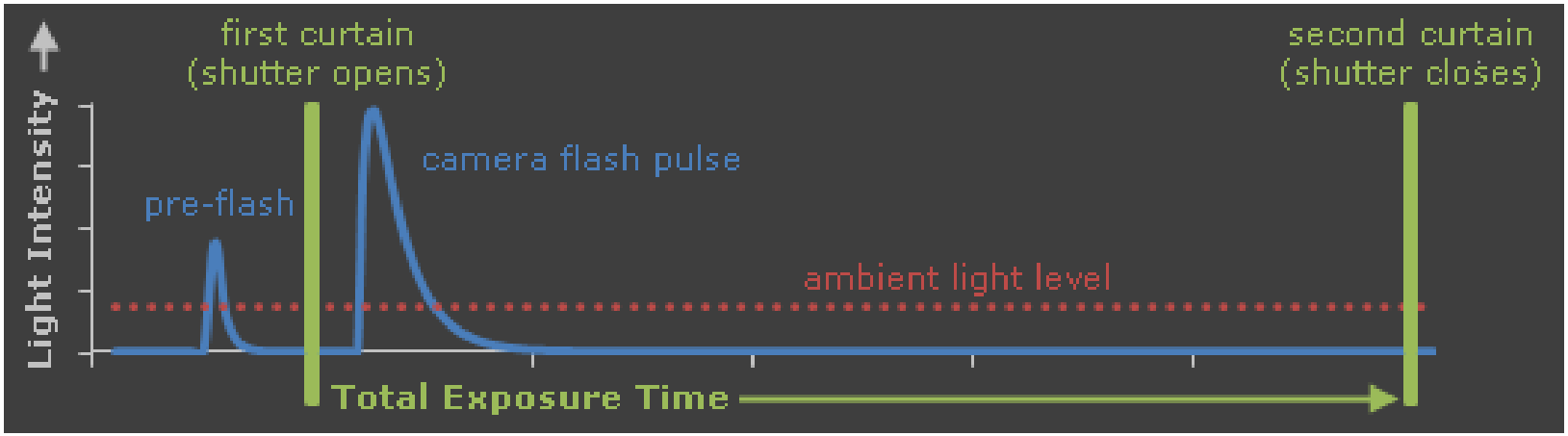
- Auto
  - Flash sends out light based on settings.
  - The light reflects back and a sensor on the flash measures it.
  - Once light level has been achieved, the flash shuts off.
  - Much more simpler compared to manual flash and able to be used on the move quickly and for moving subjects.
  - Inconsistent results.
  - Can allow you to use old speedlights on modern digital cameras.

- TTL
  - Through The Lens metering
  - Similar to Auto but in this case the flash is controlled by the camera



- The light from the flash reflects from the subject back through the lens. It then reflects off the film or sensor plane and is metered.
- Once the required light level has been achieved, the camera sends signal to flash to stop.
- Better than Auto as it now takes the lens and filters into account.
- Still can have inconsistent results.

- Multi-TTL (called i-TTL for Nikon and e-TTL for Canon)
  - The camera and flash communicate to balance ambient light with flash.
  - A series of pre-flashes are fired and measured.
  - Adjustments are made and once the correct lighting is achieved the camera will fire.

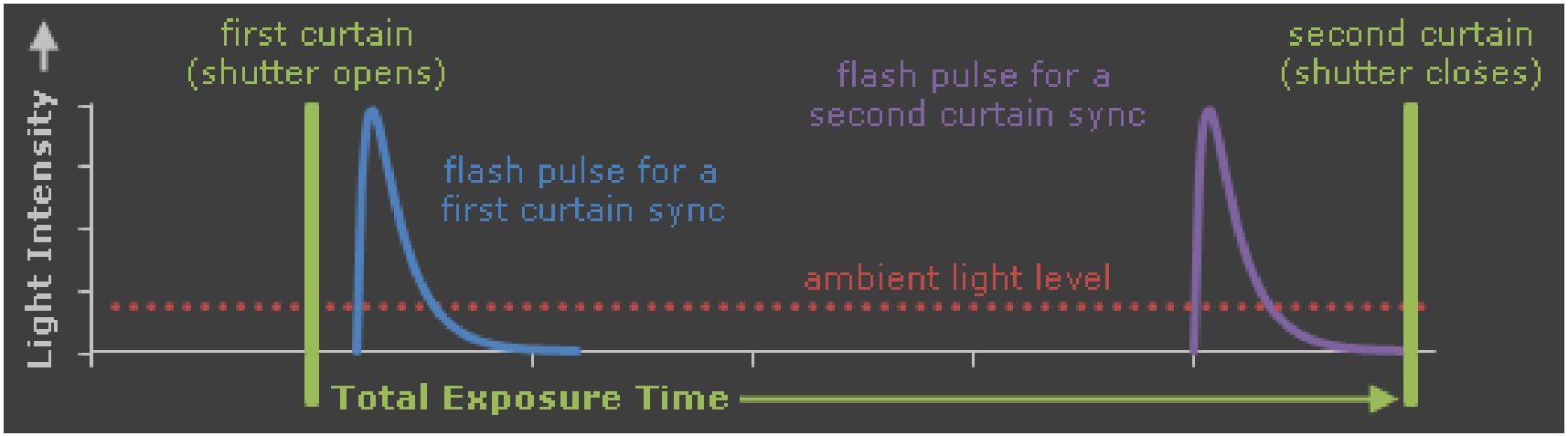


  - Produces more pleasing results but is inconsistent.
  - Requires a good understanding of ambient light.

- Red eye reduction
  - Occurs when using a photographic flash very close to the camera lens.

- Best way to overcome this problem is to remove the flash from the camera, or direct the flash so that it is bouncing off walls or a ceiling.
- Can be improved to some extent through red eye reduction which is a pre-flash or an illuminating light which causes the retina to close.
- Can be corrected in post processing.

- Front & Rear curtain sync
  - **Front Curtain Sync** – this tells your camera to fire the flash at the start of the exposure. ie when you press the shutter, the flash will fire immediately and the shutter will remain open afterwards capturing ambient light.
  - **Rear Curtain Sync** – this tells your camera to fire the flash at the end of the exposure. ie when you press the shutter your lens opens up and starts collecting light and just before it closes the flash will fire to light up and freeze your main subject.



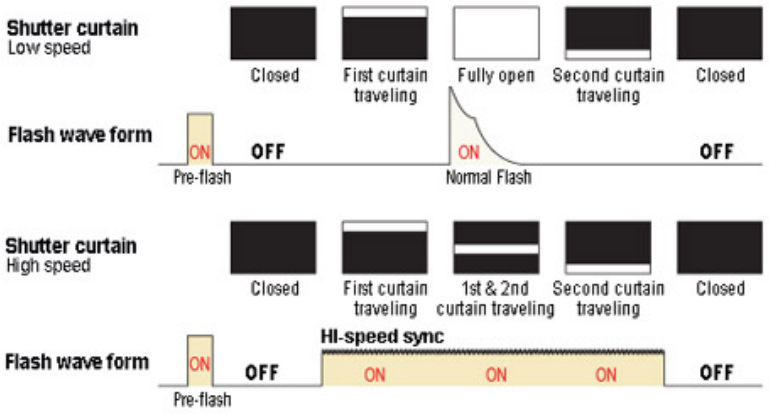
Front curtain sync	Rear curtain sync
	

- The amount of movement in the image will depend on the shutter speed and how fast the subject is moving.

- Slow sync
  - In slow sync the camera sets the shutter speed based on ambient light and the flash illuminates the foreground.
  - This is effective at removing black backgrounds.
  - Many cameras have a night portrait or a night landscape mode that uses this effect.

Sync speed & High speed flash sync

- Sync speed is the shutter speed that you can shoot with flash. The maximum speed typically it is now between 1/200th and 1/300th of a second.
- High speed sync allows you to shoot at shutter speeds up to the maximum allowable on your camera by using a series of pulses. This allows flash photography at high speed at the cost of significant power loss.



Other settings/features

- Manual/auto zoom
- Flash sync speed
- Modelling lamp

- Optical slave
- Bounce card
- Wide angle lens
- Turning and tilting
- External power
- Sync cords

- Flash compensation
  - Like exposure compensation where we can adjust how our camera records the ambient light, flash compensation allows us to decrease or increase flash output.
  - With a knowledge of this, we can then use both ambient and flash compensation to enhance our images.
  - We would typically dial negative flash compensation as a way to reduce the amount of light, resulting in a more balanced and pleasing image.
  - On the other hand we would have to increase flash compensation to balance with a strong backlight.

Sunlight – front lighting

Camera was set to Aperture Priority and high-speed sync is turned off. This ensures that the aperture and shutter speed remain constant, with the only variable being the flash output.

-3 -2 -1 0 +1 +2 +3

Strong backlight

-3 -2 -1 0 +1 +2 +3

Main subject in shadow with dark background

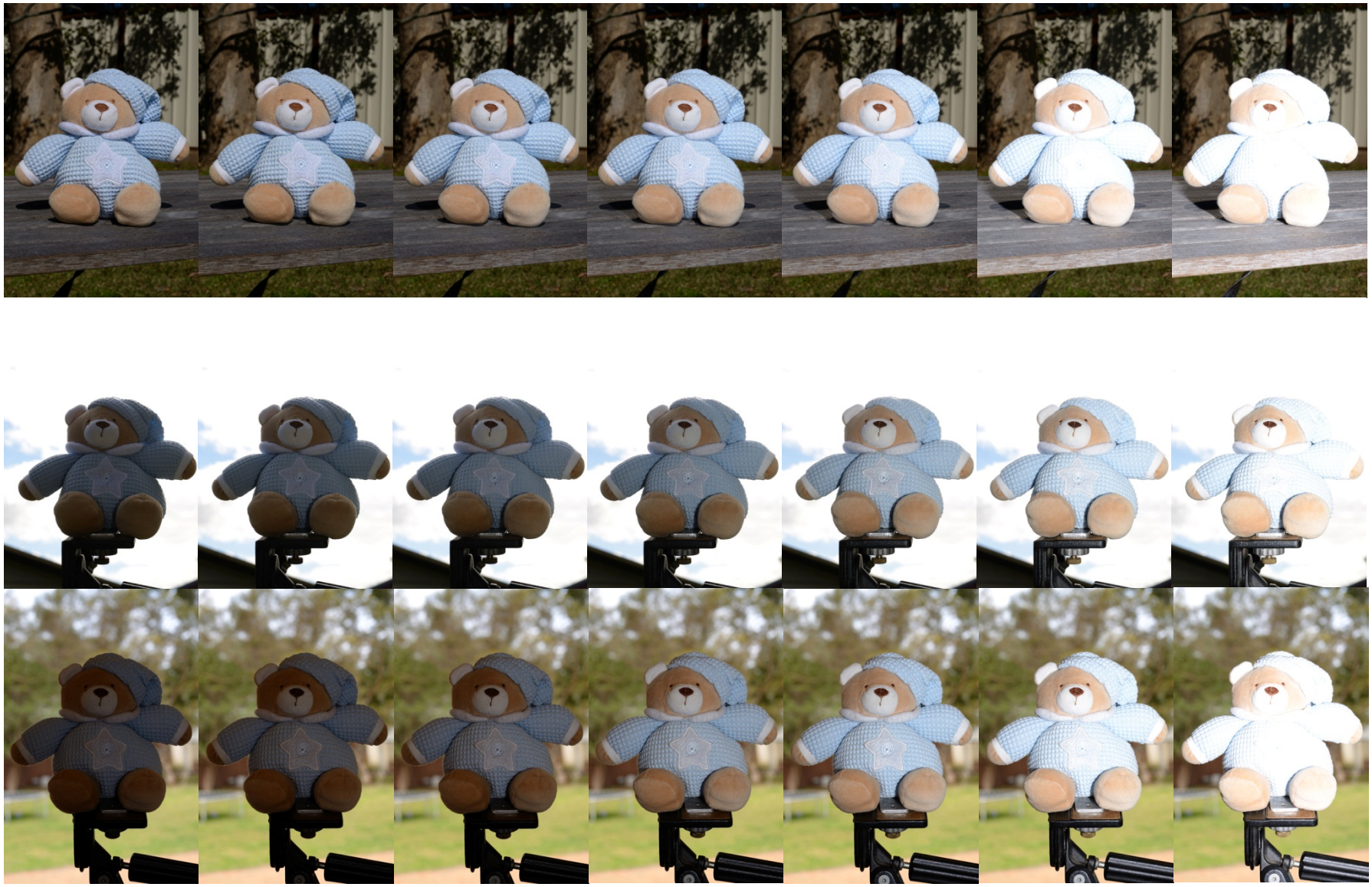
-3 -2 -1 0 +1 +2 +3

Main subject in shadow with bright background

-3 -2 -1 0 +1 +2 +3

- Things we need to consider
  - The subject brightness
  - The background brightness
  - The size of the main subject in proportion to the overall scene.
  - The distance to the subject
  - The power of the light source
  - Shadows
  - Aperture and shutter speed

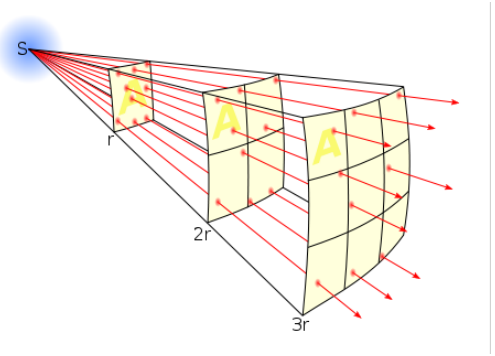
SHUTTER CONTROLS AMBIENT – APERTURE CONTROLS FLASH

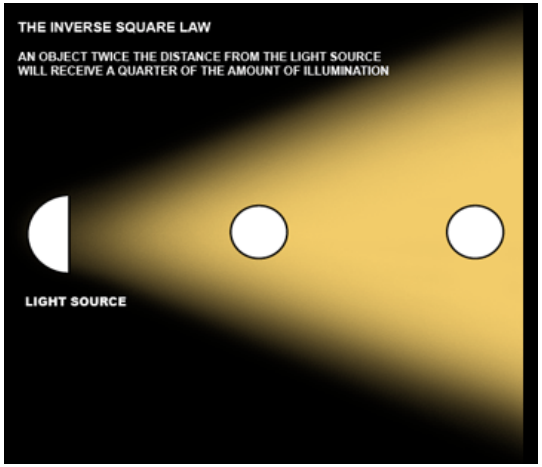


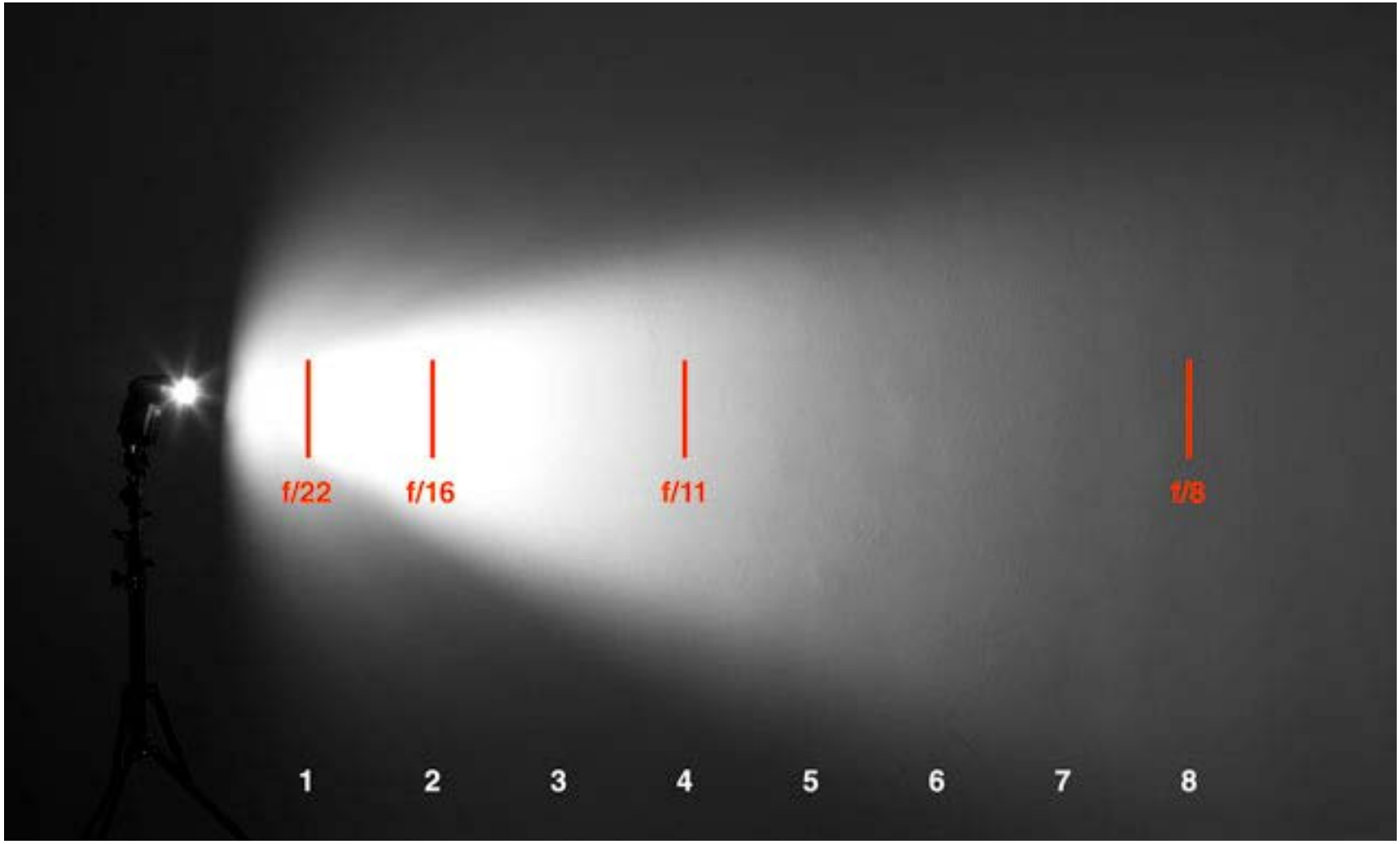
No matter the flash power, the ambient light in the background is consistent.

Inverse square law

- Basically all the *inverse square law* says is that an object that is twice the distance from a point source of light will receive a quarter of the illumination.
- So what it means to us photographers is that if we move our subject from 3 metres away to six metres away, we will need four times the amount of light for the same exposure.






f/22
f/16
f/11
f/8
1
2
3
4
5
6
7
8

Using flash to control background

- With an understanding of the Inverse Square Law, and how light falls off with increased distance, we can use a combination of exposure compensation and flash compensation to control backgrounds and improve separation.
- By dialling in negative exposure compensation, you can make backgrounds darker, whilst retaining the correct exposure for the main subject through the flash.
- For Nikon, the camera and flash systems are integrated, so when you underexpose the ambient light, the flash automatically follows, so you need to apply positive compensation to the flash.
- For Canon, the flash operates independently to the camera, so when you underexpose the ambient light, the flash still provides the correct amount of light on the main subject.
- Please refer to your operating instructions for other camera brands.

Using flash to control background

Camera was set to Aperture Priority and high-speed sync turned off. The aperture is constant, but the shutter speed changes when negative exposure compensation is applied. Your shutter speed will be limited by your sync speed, so you may want to try the test with high-speed sync turned on.

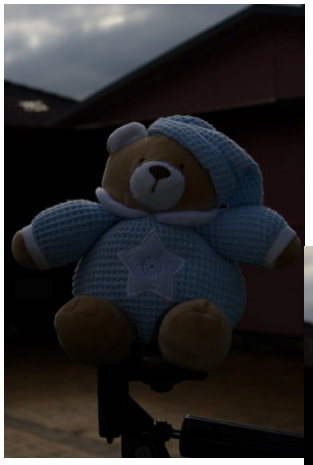
Ambient 0, Flash 0

Nikon – Ambient -2
Flash 0
Canon – Ambient -2
Flash -2

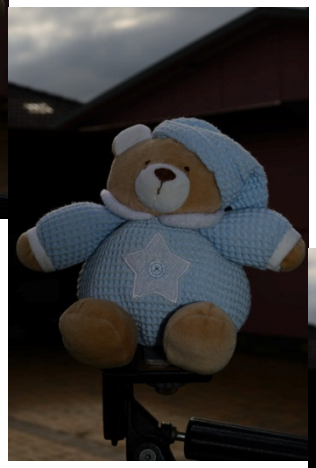
Nikon – Ambient -2
Flash +2
Canon – Ambient -2
Flash 0

Nikon – Ambient -2
Flash +3
Canon – Ambient -2
Flash +1

Ambient 0
Flash 0



Nikon – Ambient -3
Flash 0
Canon – Ambient -3
Flash -3



Nikon – Ambient -3
Flash +2
Canon – Ambient -3
Flash -1

Nikon – Ambient -3
Flash +3
Canon – Ambient -3
Flash 0

Nikon – Ambient -3
Flash +4
Canon – Ambient -3
Flash +1

How to improve the quality of light.

- Understand ambient light and how it will affect your photograph.
- Use the correct flash mode.
- Decide whether flash will be the key light or fill light.
- Bounce the flash off a ceiling or wall.
  - Note that light will pick up colour of whatever it bounces off.
- Take the flash off the camera.
- Use a light modifier.
- Use coloured gels to balance light with ambient.

Light modifiers

- The best way to improve lighting is through the use of a modifier. Modifiers can used to improve the quality of the light or control light in a specific way. There are many options available and many that are relatively inexpensive.

Flash diffusers

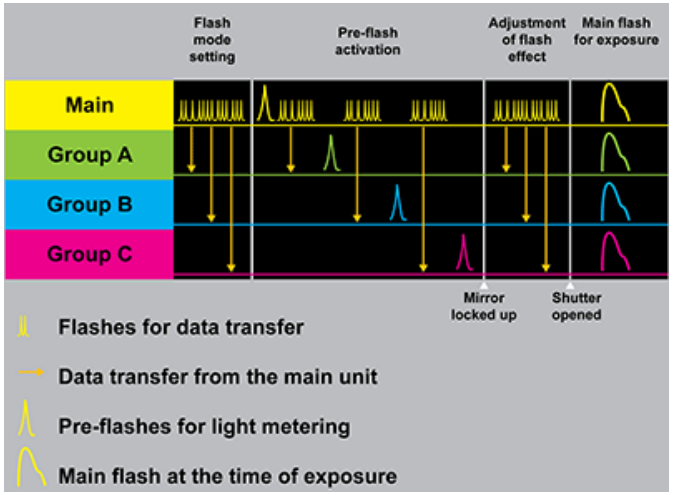
- A diffuser is used to soften harsh light by spreading it to produce a larger light source. Placed between the subject and light source, it gives the effect of a bright overcast day where the light evenly wraps around the subject. It can be as simple as a piece of opaque plastic that sits over the top of a flashgun or as complicated as a diffusion panel.

Colour correction

- Photography gels are precisely coloured acetate sheets used to alter the colour of the lights. There are different reasons for doing this, including aesthetic effects and balancing the artificial lights with the ambient light.

Creative Lighting System (Nikon)

- Nikon's creative lighting system (CLS) is a simple way to control multiple speedlights from the back of the camera.
- Speedlights are set into groups and are controlled remotely through pre-flashes.



- Once a photographer is happy with the light setting, flash value lock can be pressed so that the pre-flashes cease and all settings are locked.

Useful places to get information and equipment.

- www.strobist.com
- www.joemcnally.com/
- http://zackarias.com/

- www.photo-shop-studio.com
- www.ebay.com.au
- www.imagemelbourne.com.au