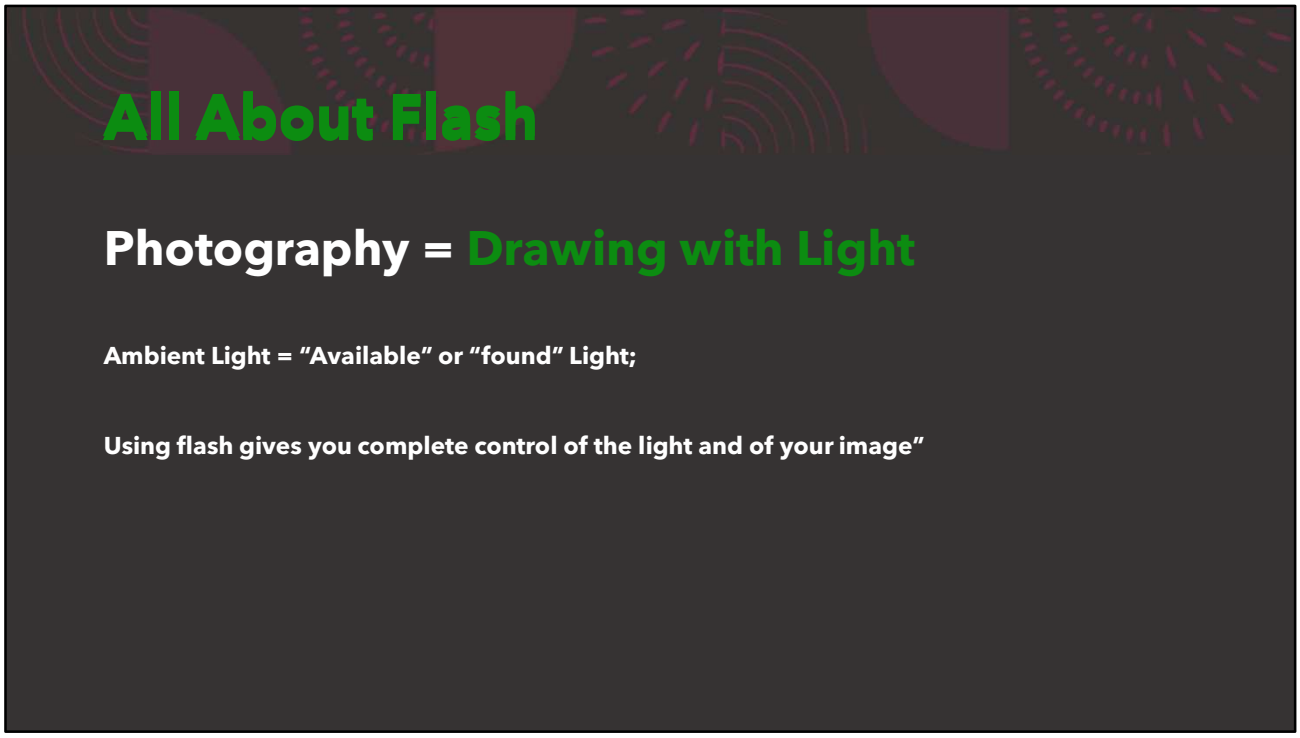
All About Flash

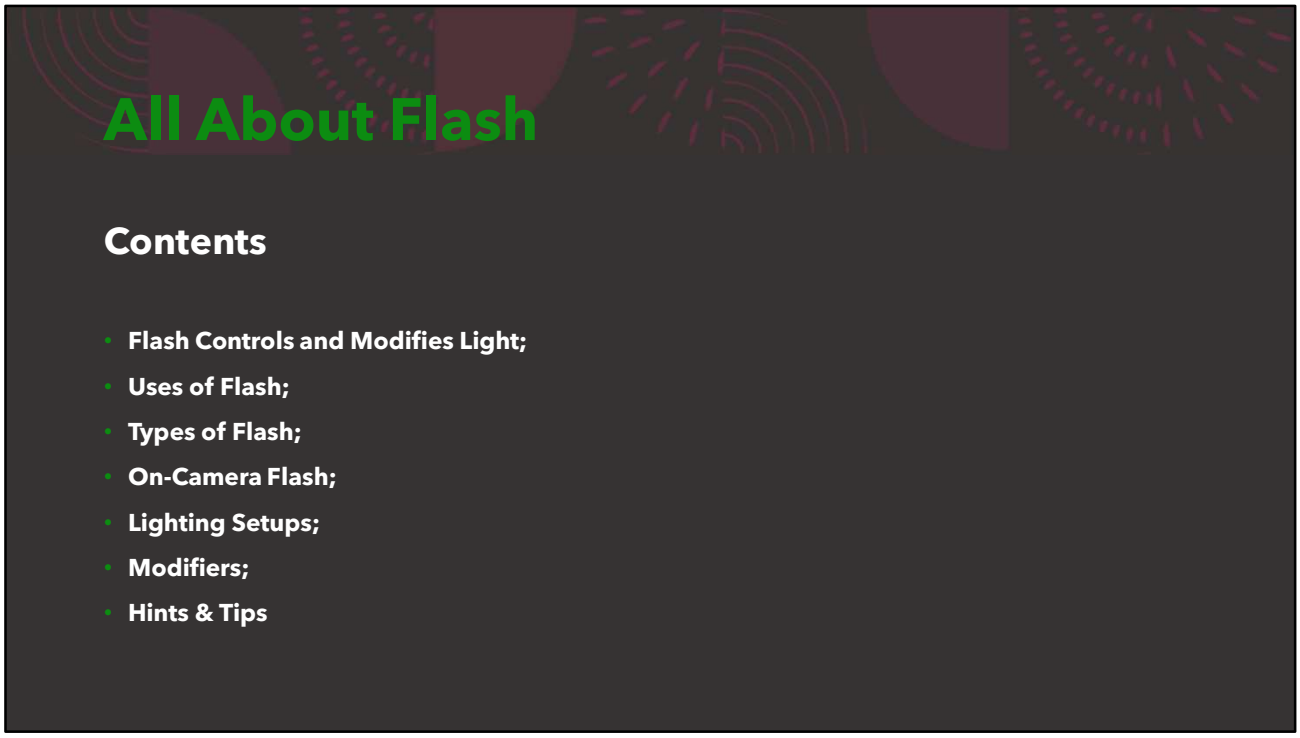


Good evening.

Starting at its simplest, all photography is literally "Drawing with Light" from the Greek phos meaning light, and graphê meaning "drawing or writing."

Most of the time, we use the light that's already there. This is variously called "available," "found," or most commonly (and the term I'm going to generally use tonight) "ambient" light. It could be the sun in the sky, or coming through a window. It doesn't have to be natural light, though, it could equally be a nearby streetlight, or the light of the room you're in.

"Flash" is the process of bringing light to where you're shooting. Sometimes it can be used to add the ambient light; at others it can overpower or cancel out the ambient. In other circumstances, the ambient light be removed entirely and the only lighting is from flash.



I've divided my talk into seven main sections, which I hope are clear and relatively self explanatory:

At its most basic, the purpose of flash is to control and modify light. Using flash allows one to control the Amount, Direction, Quality, and Colour of light;

Flash has a two core uses: either to Provide additional Light; or since it is usually a momentary flash; "freeze" the view in a "longer" exposure;
I'll talk briefly about the 5.5 main types of flash;
I consider On-Camera flash separate to any of those;
I talk through Some Common Lighting Setups;
Before finally discussing the main Modifiers that can be added to or around flashes;

The problem with going straight from a “contents” slide to the first of those pieces of content is that you risk repeating yourself by saying that flash controls and modifiers the Amount, Direction, Quality, and colour of Light (are there any Terry Pratchett fans in here? I keep wanting to say “Colour of Magic!”).

I’m also using this section to discuss that Light on a subject is described as either short: when the main light on the subject is on the opposite side of the subject to the camera; or Broad, when it’s on the

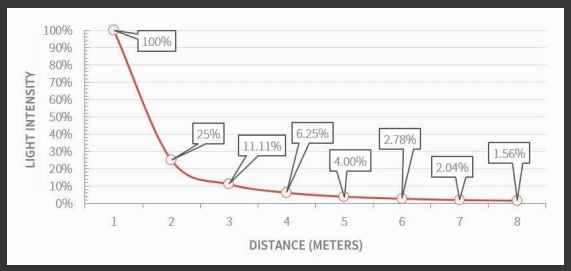
near side.

All About Flash

Flash Controls and Modifies light

The Amount of Light

- **Lux(lx)**
- **The simplest form of how Flash works: it adds light;**
- **Inverse Square Law;**
- **"It's more like cooking than it is a maths class."**



Scientifically, the output of a light source is measured in Lumens. You may have noticed that modern LED bulbs express their power in Lumens (lm)
The basic unit of illumination is the Lux (lx), which is sometimes referred to as the meter-candle. It is the amount of illumination falling of each square meter of surface (pressure=force/area analogy)

And *that* is as close as I'm going to get to any maths tonight. I found a nifty quote from the strobist website that flash is "more like cooking than it is maths" or science (I think that extends to most photography): everything is the manipulation of numbers and ratios, but really it's adding things in or taking them out until it "feels" right.

All this is to introduce the fact that light (and actually most things) diminishes by something called the inverse square law. As the distance of a surface from a light source increases, the light hitting it reduced by the square of that distance.
1m = full power
2m = ¼
3m = 1/9
4m = 1/16
5 = 1/25 power

So when your subject is close to the light, moving either a little bit will make a lot of

difference to the amount of light

Using flash is usually quite easy to move relative to your subject. I had a right nightmare trying to move the sun to be over John's shoulder *just so* at the weeeknd

All About Flash

Flash Controls and Modifies light

Quality of Light

- Light modifiers;
- Hard/Soft Light;
- Diffused/Specular Light

Flashes can also be used to control or modify the Quality of light.

We'll talk about modifiers in more detail later, but for now suffice to note that the hardness/softness of a light is the rate at which a shadow diminishes – how wide its edge is.

A Hard Light will have a quick transition from shadow to light;

A Soft Light will cause a shadow to fade slowly from dark to light. This is controlled by the apparent size of the light source to the subject. *sun in sky/cloud*

analogy

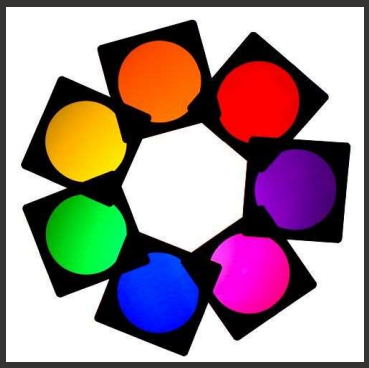
Diffused and Specular Light is similar but distinct: A specular light will produce dark shadows and bright highlights on the subject; a Diffuse light won’t

All About Flash

Flash Controls and Modifies light

Colour of Light

- **Corrective and Creative White Balance;**
- **Gels and Filters**

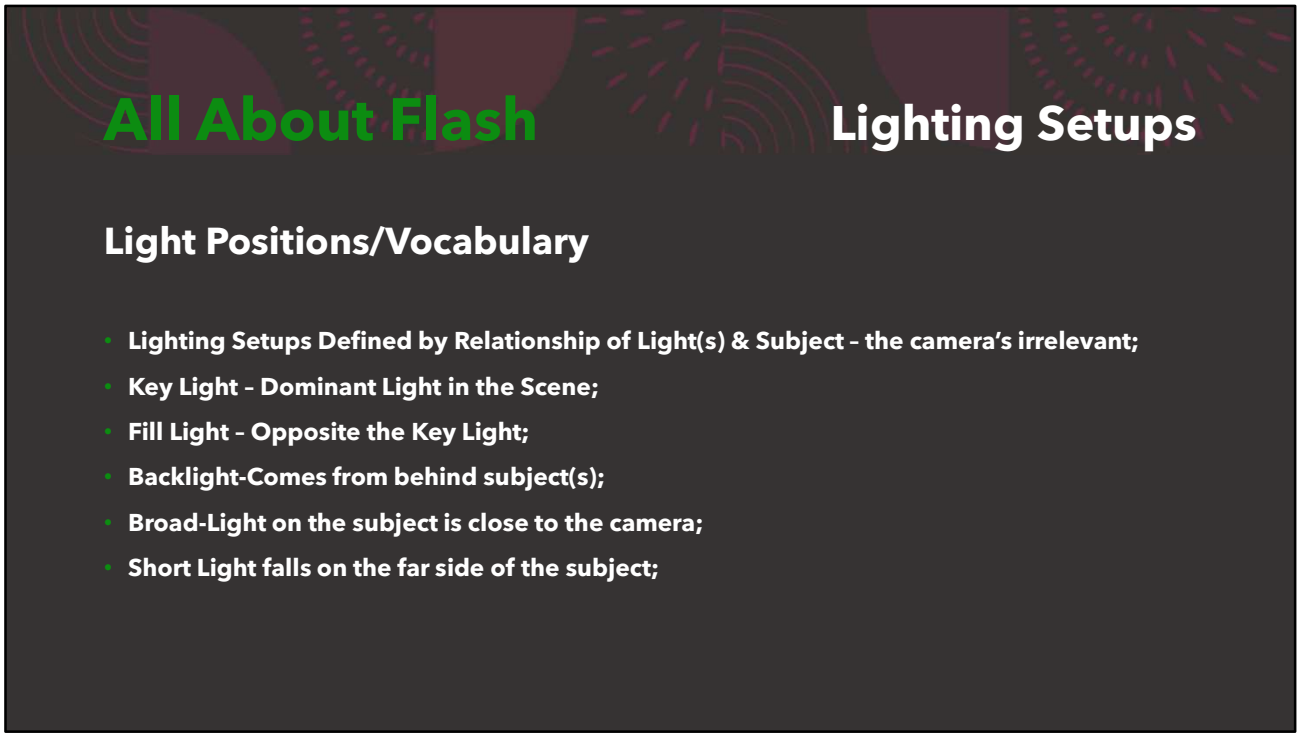


The colour of light leaving the flash will affect the light falling on the subject!

This can be used **Correctively,** to adjust for different white balances in an image (for example one might want to use an orange gel or filter in front of a flash that its light match the amber street light where you're shooting.

They can also be used **Creatively** to add colour to an image. I saw one example online that used a blue light on a subject's face and an orange one on the back of their head to create a dramatic portrait.

How to Use Flash Gels in Photography: The Essential Guide (photoworkout.com)



This particular slide has moved about quite a bit while I've been working this up, and it's settled here, I thought it might be useful to clear up some terms and vocabulary:

First off, the position of the camera is irrelevant to a lighting setup. It's all about the relationship between the light and subject;

The Key or Main Light is the dominant, so brightest,

light in the scene. Depending on the situation it might be a flash, room lighting or even the sun;

A Fill light is one placed opposite the key light, and reduces or removes the shadows this forms;

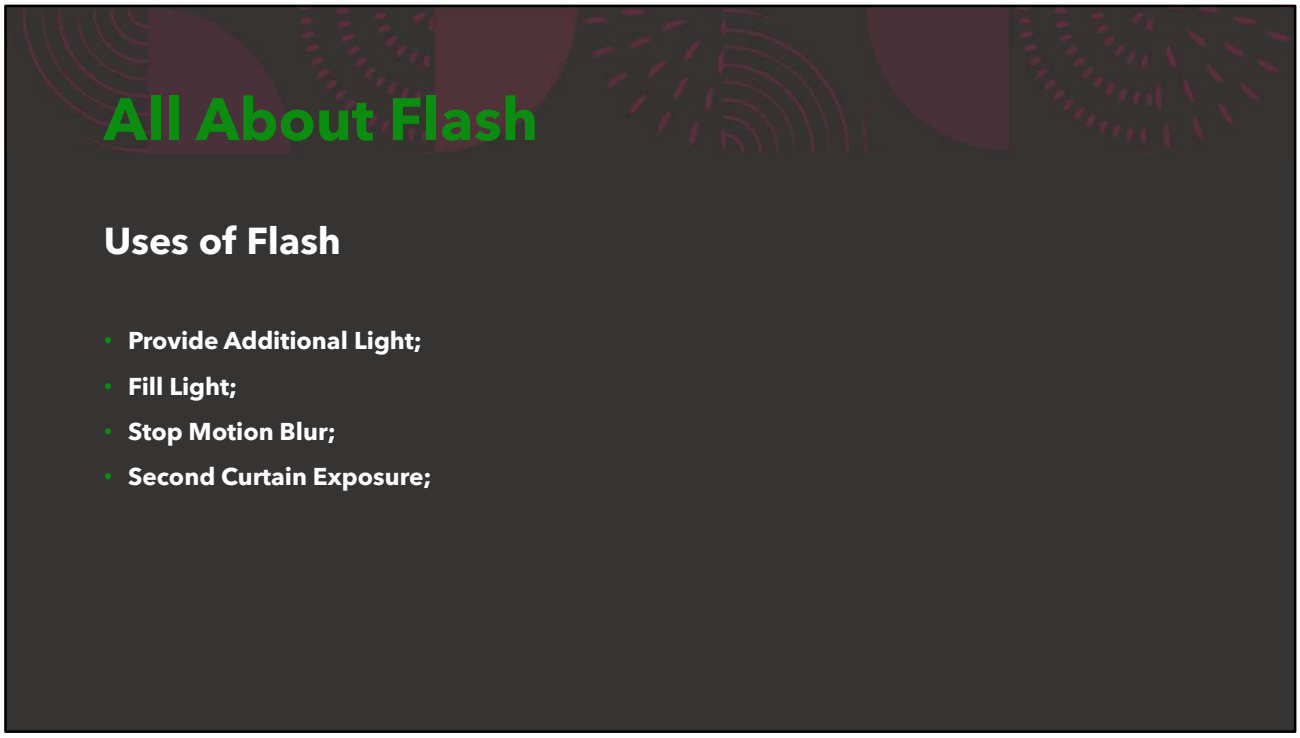
A Backlight comes from behind the subject, so the subject comes between the light and the camera;

https://shotkit.com/backlighting/

Broad Light is when the light on the subject is close to the camera.
Useful for broadening (look wider) the face of a narrow subject.

Short Light, by way of contrast, is when the light is on the far side of the subject, relative to the camera. It can be used to narrow a subject.

https://digital-photography-school.com/understanding-broad-and-short-lighting-in-photography/



A flash is anything that can be used to provide additional light to a scene;

Fill Light uses this reduce shadows by casting light into them;

The Light a Flash creates is usually a momentary **flash** (hence the name) of light. This can be used artistically to freeze motion such as with water droplets;

This can also be used alongside/concurrent with a longer exposure. Using First or Second Curtain

controls how the two combine.

All About Flash

Uses of Flash

Provide Additional Light

- Compensate for a lack of light;
- Can be used indoors;
- More limited use outside because of limited power;
- Guide Number;

Providing additional light can for example be used indoors, where there's less natural light than outside, allowing deeper depth-of-field, shorter shutter speeds and less noisy images;

They can be of less use outside (but still can be useful) – limited power is more likely to be a factor though.

Which is probably a good time to bring up Guide Number (often quoted as GN). This is the amount of light/how powerful a speedlight is. It is the distance

at which the flash can give a proper exposure at ISO100 multiplied by the f-number. Eg. Godox TT600 is GN60 so would give good exposure at7.5m @ f8 or 21m @f2.8

All About Flash

Uses of Flash

Fill Light

- Shines light on the details of a subject that falls in the shadow of the key/main light;
- Can be used inside as part of larger setup;
- Allows subject to stand in front of the sun outdoors;
- Can use reflectors as well as flash

Fill Light works by inserting additional light onto the subject, aimed at the shadows from the key/main light.

When used inside, it's by definition part of a larger setup. I'll talk later about the three-light system of Key, Fill and Rim Lights.

Used outside it can reduce the shadows cast by an overpowering sun.

People can use a reflector to create the Fill light, rather than another flash.

[What is Fill Light — The Unsung Hero of 3 Point Lighting (studiobinder.com)]

All About Flash

Uses of Flash

Stop Motion

- To freeze water drop about 1/1000s;
- To expose inside >1/250s;
- Flash makes up that difference

Flash Usually creates a momentary flash of light.

A common example is water droplets:

To “freeze” a waterdroplet, you need an exposure of around 1/1000th of a second. To get a good exposure inside (so to get foreground water and the background visible) you probably need four ties that; around1/250th second. Flash (probably combined with High-Speed Sync) makes up that difference by creating a longer exposure of the background and foreground, but in which the droplet is blurred out of existence, with a 1/1000 second exposure of the

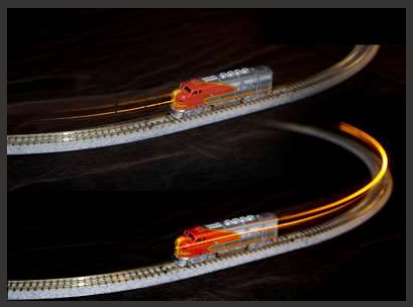
droplet, powered by the flash.

All About Flash

Uses of Flash

Second Curtain Exposure

- Flash "normally" goes off at the start of the exposure = light trails in front of the subject;
- 2nd Curtain flash goes off at the end of the exposure = light trails lead to the subject;



explanation of curtains

Flash normally fires with the first curtain,at the start of the exposure. This gives a perfect exposure of the subject, with light trails going in front of it;

When it fires with the second curtain, at the end of the exposure, the light trails will be rendered first, leading to the subject, which again is perfectly exposed.

All About Flash

Types of Flash:

- Speedlights;
- Monolights;
- Pack and Head;
- Ring Flash;
- Reflector;
- Continuous Flash

There are three main types of flash: Speedlights; Monolights are what (at least I) think of as “studio” flashes; Pack & Head flashes splits a moonlight into two – the light itself and the power pack.

I said in my introduction that there were 4.5 types of flash. There are two that I consider “half” type: the Reflector and Continuous Flash. Reflectors are only “half” a type because they’re not a light! They do add light into a scene, though, by bouncing light that “missed” the subject. Continuous flash also splits into the three main types, except obviously the light

stays on rather than flashing.

All About Flash

Types of Flash

Speedlight

- Typical "off-camera" flash;
- Small size / Low Output;
- (relatively) Low Price / Few modifiers;
- TTL / Colour Inaccuracies;
- Can be mounted on the camera, or remotely

Speedlights are the typical "flashgun," they have hot-shoes to allow them to be used as on-camera flashes, or remote systems allow them to be used off the camera.

As such they're usually smaller than the a "studio" flash and have a correspondingly lower power output. As described earlier, this output is normally quoted as the Guide Number.

I'll talk later in more detail about TTL, but essentially it's the "auto" mode for your flashgun. Apparently, the colour temperature can be variable, which will

cause more work for you in post-production.

All About Flash

Types of Flash

- Monolight

- "Typical" Studio light
- Larger & Heavier / More powerful;
- Most types of modifiers can fit / More expensive;
- Solve Colour inaccuracies / Only newer models have TTL;
- Need a stand & can be top-heavy

Monolights are the typical studio light. They're larger and heavier than speedlights, so more powerful. They're also generally more expensive. You shouldn't get the temperature/colour issues that can arise with speedlight. TTL is starting to be available for studio lights – obviously things that are "starting" to become available are more expensive.

All types of modifiers should be available for monolights. They always need to be supported, either with a stand, which can get top-heavy, or to be wall-mounted, which obviously limits movement.

They’ve traditionally relied on main-power, but battery-powered versions are becoming available.

All About Flash

Types of Flash

- Pack & Head

- "A classic among seasoned pros";
- Most expensive;
- Separate Power Source and Light Source;
- Head weighs less ∴ can be handheld;
- Cable required to link elements

Pack & Head Lights are the "top level," lighting system for seasoned pros. As such they're obviously the cheapest version!

They're like a moonlight but split the power and light sources. This reduces the weight of the head (light sources), allowing it to be handheld or counteract the top-heaviness of a monolight.

The downside of splitting the light and the power is that you DO need to connect them with a cable.

All About Flash

Types of Flash

Ring flash

- Surrounds the Lens;
- Provides Even Light to the Subject;
- Gives Tight Portraits "Soft Fashion Look;"
- Risk of vignetting and typical on-camera issues.

Rings flashes are a ring of light that goes around the front of the lens.

This gives an even light to the subject, giving portraits a "soft fashion look." Conversely there's a risk of vignetting and the typical on-camera falsh issues, which we'll talk about later.

All About Flash

Types of Flash

Reflector

- Not Really a Light;
- Adds Extra Light;
- Bounces Light Back to Subject;
- Main Use is to "Fix" or Lift Shadows;
- Change Light Colour/Quality
  Silver Most Light but may be Harsh;
  White Gives Softer Light;
  Gold Warms Light (but can Easily be Done in Post);
  Black Blocks Light

Obviously, not really a light, it does add extra light into the scene, though, which is why I've only counted them as "half" a type of flash.

It bounces light back onto the subject – it's recycling light!

Main purpose is to use that extra light to "fix" or lift shadows.

The reflected light takes on some of the properties of the reflective material, especially from its colour.

https://blog.upskillist.com/how-to-use-a-reflector/

All About Flash

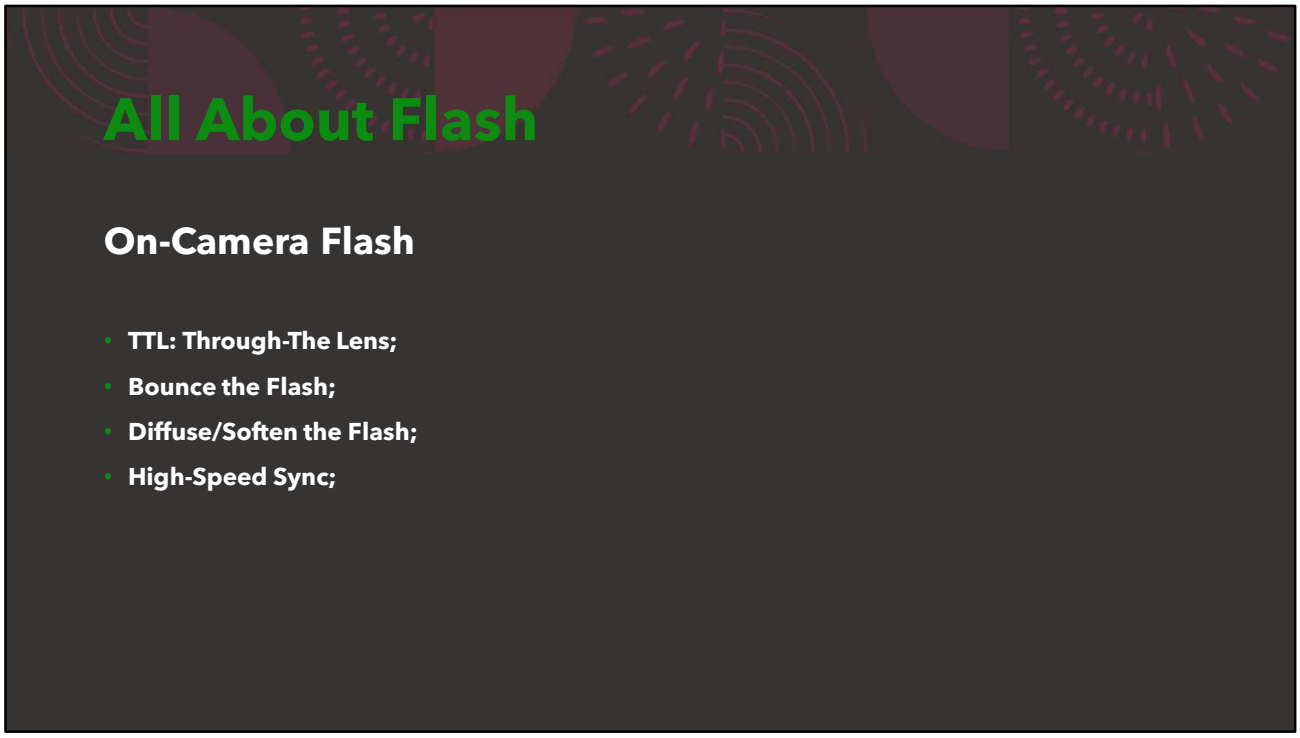
Types of Flash

- **Continuous Flash**

- **Light stays on!**
- **Makes Visualisation easier / Can't "freeze motion;"**
- **Similar options to flash / Require more power for the same output;**
- **Often produce colour-cast (easily corrected in post-production)**

Continuous Lights are available in the same four types as "flashy" flashes, but the light stays on. This makes visualising the result easier, because you can just point them at your subject and see the result. Conversely, the "motion freezing" options we talked about earlier aren't available.

Tend to be LED lights, so can produce a colour cast. This can easily be corrected for in post-production, for be used artistically.



On-Camera Flash uses either your camera's in-built flash, or a speedlight. Often produces harshly lit, flat images to hard shadows.

TTL has been mentioned before, and is an "auto" mode for your flash;

Try bouncing your flash of a surrounding wall or ceiling;

Or use something to diffuse or soften the flash's light;

High Speed Sync uses those shutter curtains we

talked about earlier to shoot at faster speeds than would normally be possible.

https://www.digitalphotomentor.com/8-common-flash-photography-mistakes-to-avoid/

Produces a short visible or infrared light burst – a pre-flash – microseconds before the "real" flash goes of to measure the ambient light and adjusts the flash 's power level to suit, for the real shot.

Generally used by setting the flash compensation. This is measured in fractions of stops and is relative to the ambient light level.

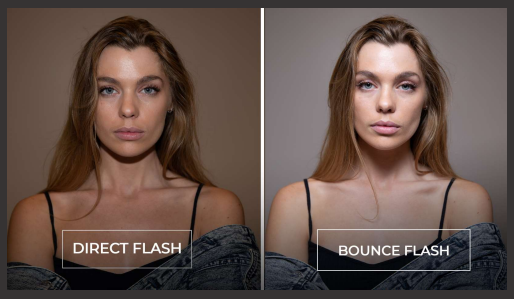
Note that, as the name suggests, TTL works through your camera's lens, so results may vary if your lens is off-camera.

All About Flash

On-Camera Flash

Bounce the Light

- Changes the Direction the Light is coming from;
- Increases Distance from Flash to Subject;
- Increases Effective Size of Flash;
- Light can be "Polluted" by the Colour of what it Bounces off of;



One of the simplest ways to avoid the harsh, flat images that usually result from on-camera flash is to bounce the flash off a convenient wall or ceiling (normally at least). It softens the light by increasing the distance between the light source & the subject and increases the effect size of the light source.

Note though that the resultant light can be "polluted" by the colour of whatever it bounces off – like we talked about with reflectors earlier.

All About Flash

On-Camera Flash

Diffuse/Soften the Flash

- Basic modifiers;
- Usually Semi-translucent material in Front of Flash;
- DIY Versions;
- Dome Flash Diffuser;

Diffusers are a semi-translucent material that sit, in some manner, in front of the flash. This works by distributing the light, so that it's hitting your subject from a variety of angles rather than a neat, tight, organised beam of light. Depending on the diffuser used, it can also increase the "size" of the light.

There's a particular sub-genre of photography that's all about making DIY flash diffusers. This uses bits of cardboard, old milk bottles (a great translucent plastic), paper, tissue paper, pringles tubes and more to make one's own modifiers. I remember once

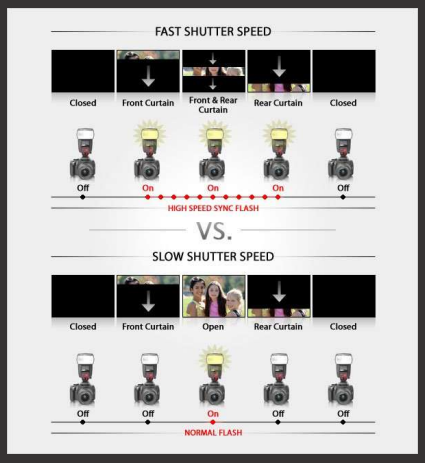
tying a (clean) handkerchief over my flash to diffuse it.

All About Flash

On-Camera Flash

High-Speed Sync

- Cameras Usually sync at 1/200th or 1/250th second;
- This allows even faster Shutter Speeds!
- Flash actually Fires for Longer than Normally;
- ie Use f2 outside in bright sunshine;



We talked earlier about the two curtains. At very faster shutter speeds, the second curtain will start to close **before** the first one is fully open. In standard flash mode, this would mean that the flash only lights a small part of the image between the two curtains. In HSS the light stays on for longer so the entire image is lit.

I've looked into 11 what I'm loosely calling lighting setups:

Rembrandt lighting, which we'll be trying next week, is a high contrast, dramatic setup, named for the 17th Century painter;

Butterfly lighting is so-called because of the shape of the shadow formed under the subject's nose;

Clamshell lighting

Rim light is placing a light behind the subject to illuminate their outline;

Loop lighting is also named for the shadow formed under the nose;

Split lighting produces very dramatic images, lighting only half of the subject;

Low-Key Lighting is another dramatic setup, producing dark images that are popular for nudes and gymnastic (Greek for nude!) photography;

High-key is the opposite, producing very bright images;

Balancing Ambient Light takes advantage of the “two exposure” technique we’ve discussed before, that leaves the background visible but still highlights the subject;

Finally, I talk about isolating the background, either by darkening or lightening it;

All About Flash

Lighting Setups

Rembrandt Lighting

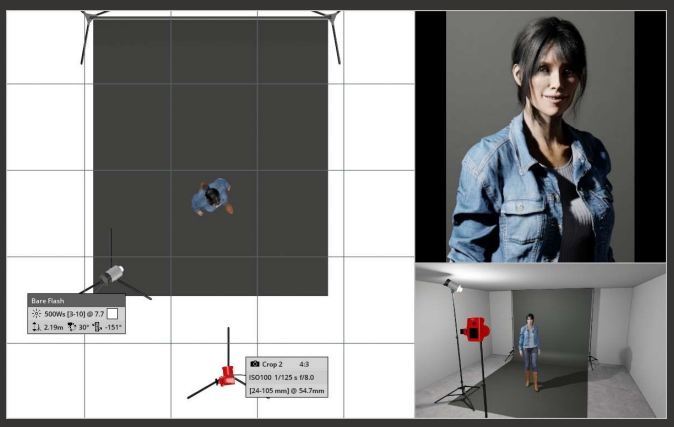
- 1-Light Setup;
- Named for 17thC Dutch Painter;
- Example of Chiaroscuro High-Contrast Lighting;
- Key Light is Above Subject, >45°;
- Triangle of Light Should be Smaller than Eye
  Doesn't Break Nose's Shadow

Rembrandt Lighting is named for the 17th Century Dutch Master and is a type of (forgive my Italian) *Chiaroscuro* high-contrast lighting. Chiaroscuro combines the Italian words for *Light* and *Dark*.

All About Flash — Lighting Setups

Rembrandt Lighting

- Key Light is Above Subject, >45°;
- Triangle of Light Should be Smaller than Eye
  Doesn't Break Nose's Shadow



This is an export from a program I discovered called Set.a.Light 3D, which allows a person to simulate a complete studio setup, different lights, camera, modifiers (all of which can be set and adjusted), posable models. Pretty much everything.

The light should be set above and at an angle to the model (pointing at them).

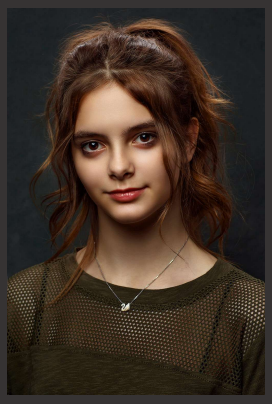
The triangle of light formed on the "short" side should be smaller than the eye and shouldn't break the shadow's nose.

All About Flash

Lighting Setups

Butterfly / Paramount

- 1-Light Setup;
- Shape of Shadow Under Nose;
- Light is 45° Above Subject;
- Aim the Light at Subject's Nose;
- Allows the model's skin to be "idealised" as much as possible



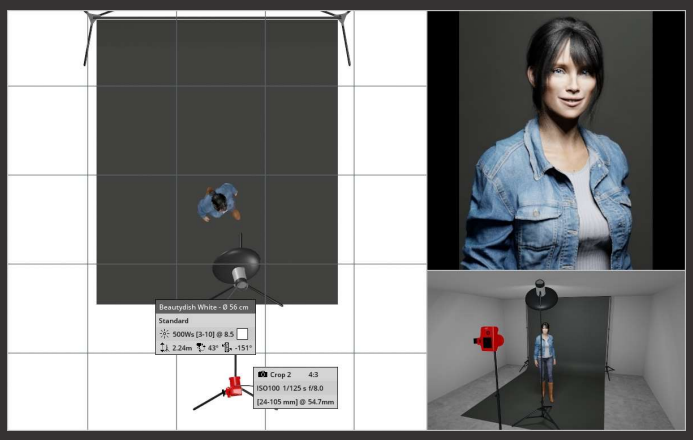
Butterfly lighting is named for the shape of the shadow formed under the subject's nose. It's also referred to as Paramount or Hollywood Light, because it was used often in early films.

It's usually a soft light, and comes from above the subject, so idealises their skin.

All About Flash — Lighting Setups

Butterfly / Paramount

- Light is in front of subject;
- Light is above them;
- Aim the light at their nose;
- A Reflector can be used to Reduce Shadows



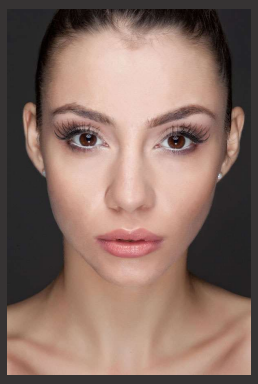
Place the light in front of and above the subject. It should be targeted at their nose. You'll note in this image (which is deliberately crude) that there's a deep shadow underneath their chin, covering the neck; this can be reduced using a reflector.

https://bidunart.com/what-is-butterfly-lighting-and-how-to-use-it-in-photography/

All About Flash — Lighting Setups

Clamshell

- 1- or 2-Light Setup;
- Light Setup Resembles a Clamshell from the Side;
- Angle Key Light Down Towards Subject @ 45°;
- Fill Light (Can be a Reflector) Works from Below;
- Fill Light 2-Stops below Key;
- Fill Light reduces any heavy shadows



A clamshell lighting setup, when viewed from the side, supposedly resembles a clamshell. It's a development of the Butterfly setup.

It produces images that are bright and eye-catching, rather than moody and dramatic. It is also *not* considered a slimming setup (worth bearing in mind). It will form a double catchlight in the subject's eyes.

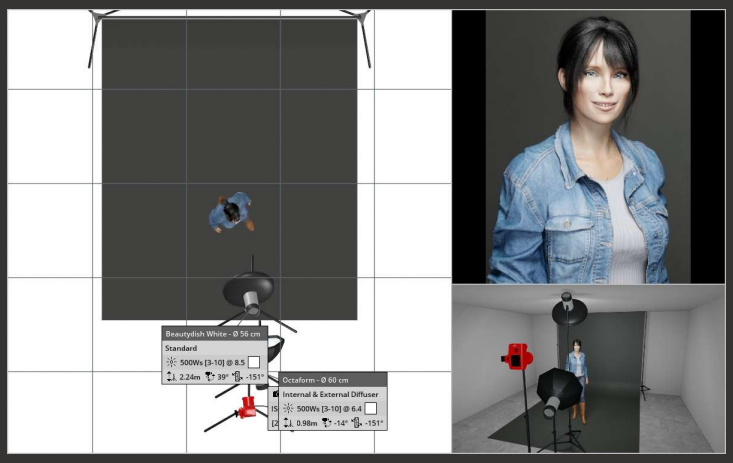
https://www.photoworkout.com/clamshell-lighting/#:~:text=Clamshell%20lighting%20is%20a%20common,textures%20in%20your%20subject%27s%20face.

All About Flash

Lighting Setups

Clamshell

- Set up a Butterfly show:
- Light in front of and Above Subject;
- Add a Second Light Source, in Front of the Subject, but Below them;
- 2nd Light Should be 2-Stops below Key



Start by setting up a Paramount shot, as described previously: Place a light in front of and above the subject, targeted at their nose.

Add in a second light source, also in front of the subject, but this time below them. This one will point upwards.

The Fill light can be either a “proper” flash, or a reflector.

All About Flash

Lighting Setups

Rim Light

- Positioned Behind the Subject to Illuminate their Outline;
- Also called Hair or Halo Lighting;
- Often used in Combination with Main and Key Lights in "3-Point Lighting;"
- Fine-Tune Position for Desired Effect;
- Light Should be on the same side as Key Light

A Rim light, also called a Hair or Halo Light, stands behind the subject and is aimed at them.

While they're often used as part of multi-light setups, they can also be used on their own, or as in this case I found online, alongside another rimlight.

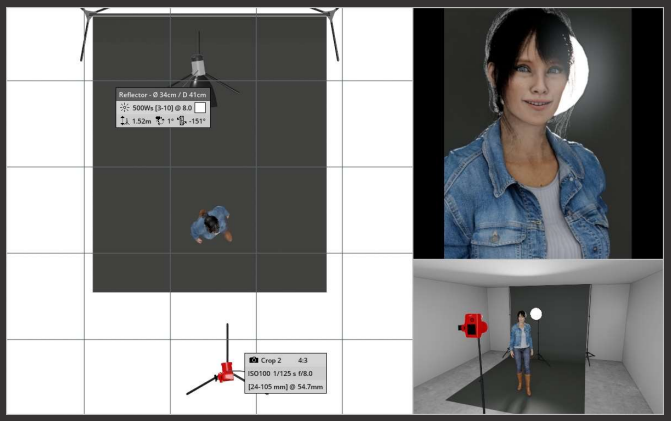
The three-light system originated in old-Hollywood. It traditionally comprises a Key, Fill, and Rim light. They're usually in that order WRT respective power levels.

All About Flash

Lighting Setups

- Rim Light

- Simply place the light behind the subject and point it at them!
- Avoid or Control Flare and Light Spill;
- Light Source may Be in Shot

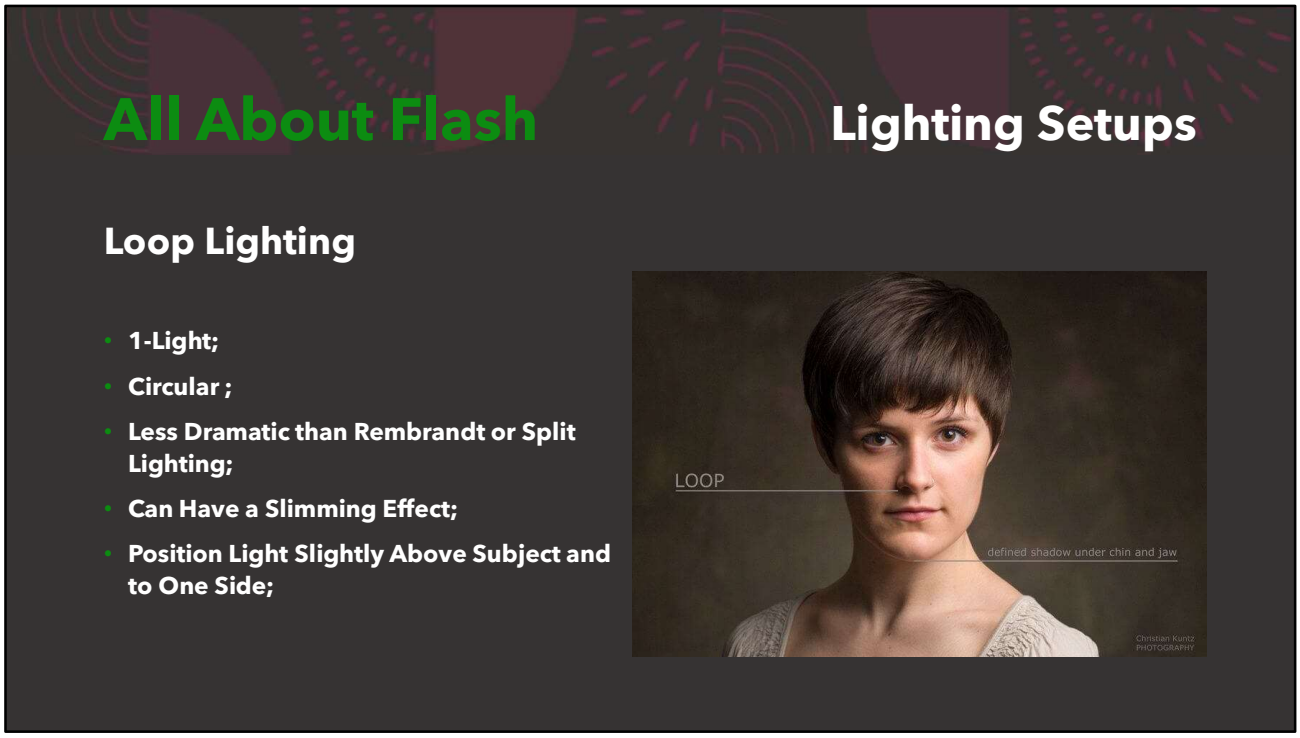


Set up the scene by simply placing the light behind the subject and pointing it at them.

Make sure that your subject completely blocks the light to avoid flare; you may also want to use a lens hood. Modifiers such as snoots or grids will be discussed later, but can be used to reduce the risk of light spilling around the subject.

One thing to bear in mind with rim lighting is that

the flash can become visible in your final frame (as deliberately done here). This can of course be used artistically as part of your image.



Loop lighting creates a dynamic, flattering look. It casts a shadow under the subject's nose. This is enough to add dimension to the face, but doesn't create any harsh, unflattering shadows on it. It's less dramatic that Rembrandt or split lighting, and can have a slimming effect to boot!

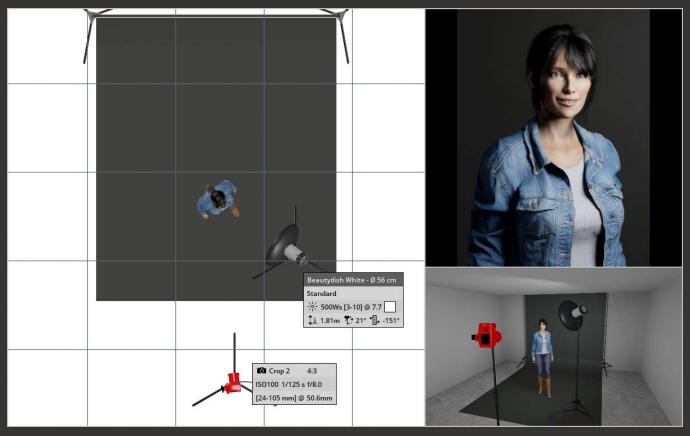
https://www.studiobinder.com/blog/what-is-loop-lighting-photography/

All About Flash

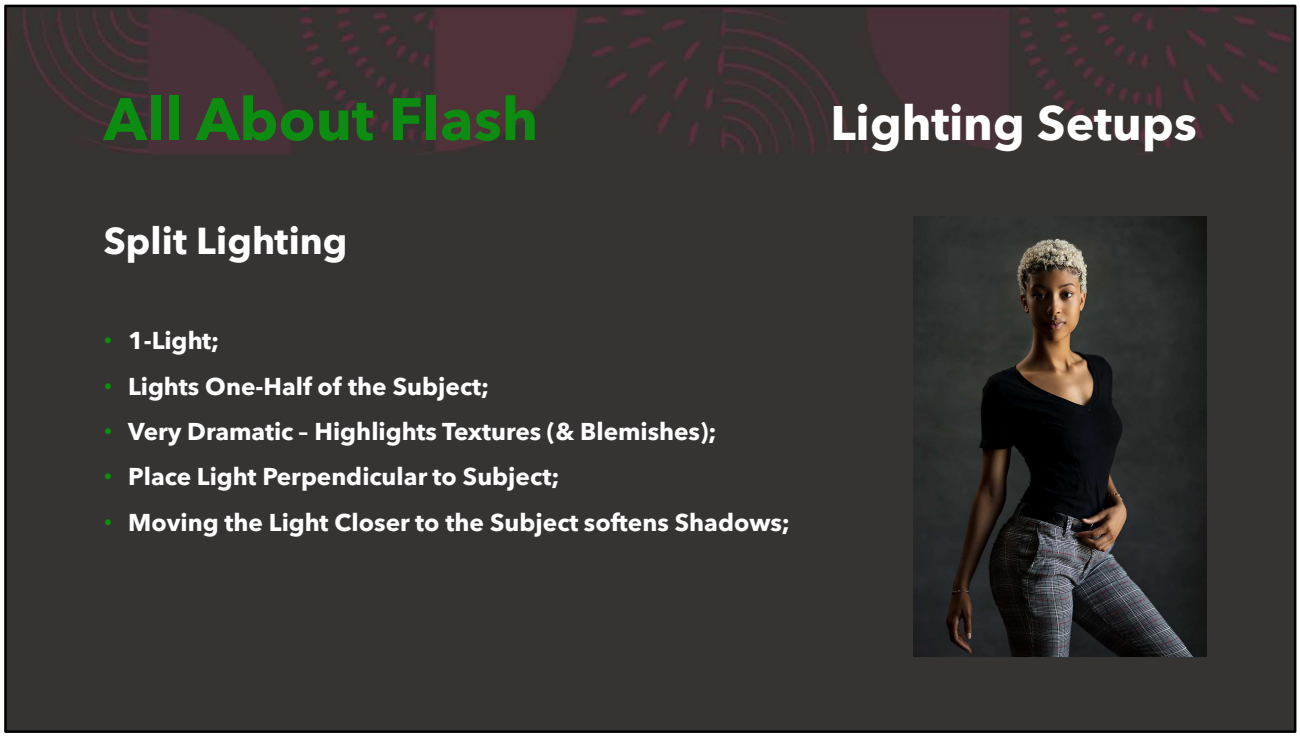
Lighting Setups

Loop Lighting

- **Light is to the Side of the Subject;**
- **Light is *Slightly* Above Subject's Eyes;**



Place the flash to the side of the subject, and slightly above their eyes.



Split lighting light one half of the subject: “splitting” it in two. This creates a high-contrast, dramatic, and assertive images. It is often taken to emphasise the subject’s power and glamour. It can make a wide face seem narrower.

https://www.studiobinder.com/blog/split-lighting-photography-definition/

https://bidunart.com/what-is-split-lighting-technique-and-how-to-use-it-in-portrait-

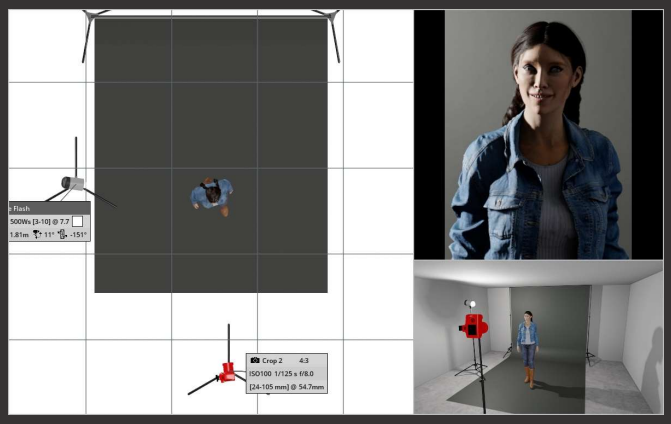
photography/

All About Flash

Lighting Setups

Split Lighting

- **Position Light to One Side of Subject;**



The set-up for Split Lighting is simple: put the light to one side of the model.

As with all these set ups, they're starting points that can be fine-tuned by changing the distance from light to the subject, angles, heights, by adding additional lights or reflectors and by using different modifiers.

All About Flash

Lighting Setups

Low-Key

- Dramatic!
- Popular for Nudes and Gymnastic Photography;
- An Extreme Example of Chiaroscuro;
- Low-Light Doesn't Mean Under-Exposed;
- Control Where the Light Does and Doesn't Shine;
- Easier with a Black Background!
- Often Uses Split Lighting;
- Use Wide Aperture and Low ISO

Low-Key images are hyper dramatic, and especially popular for nudes and gymnastic photos. It's an extreme example of Chiaroscuro high-contrast lighting.

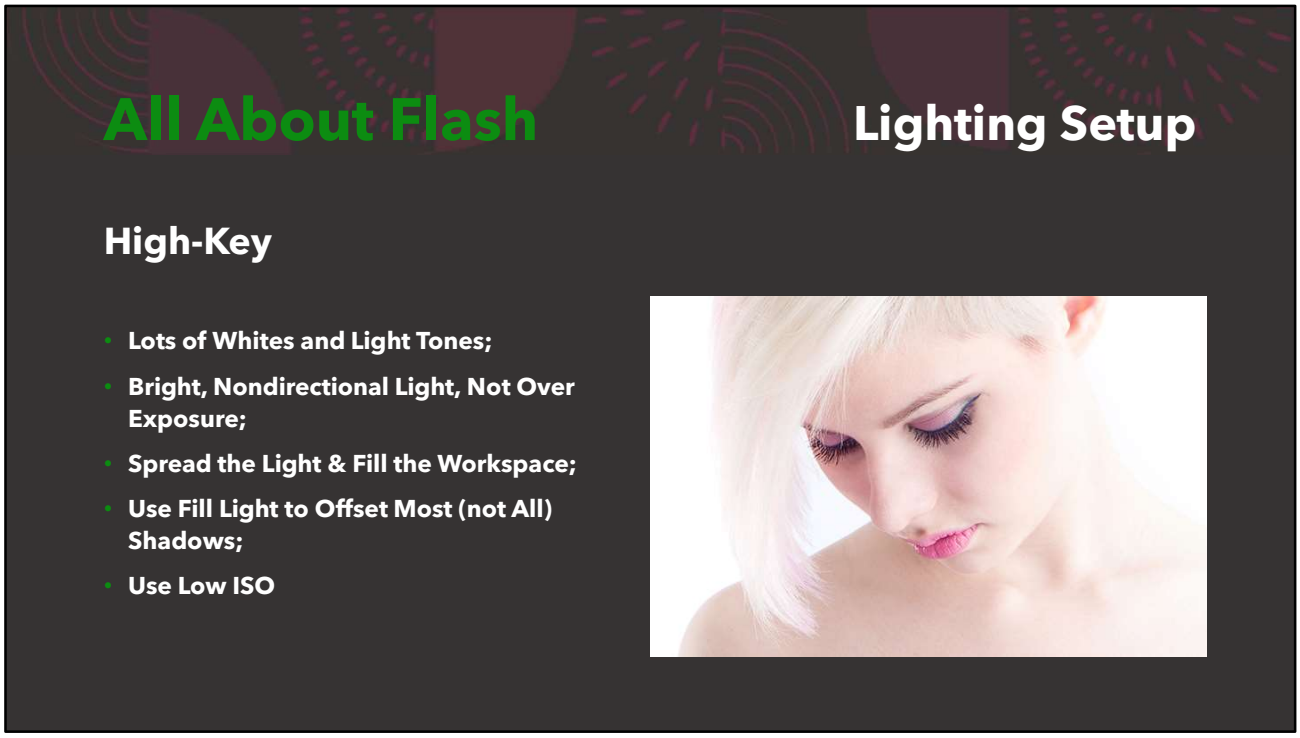
It's important to remember that while low-key images are dark and moody, emphasising shadows, that doesn't mean they should be "under-exposed." The whole point is to fully control where the light does and doesn't shine.

It’s most often, not exclusively, used with a black background. Regardless, move the model away from the background – this has the effect of darkening in;

There’s no set light positions (so I’ve not done a diagram), but use a wide aperture (low f-number) and low ISO.

https://digital-photography-school.com/making-low-key-portrait/

https://www.studiobinder.com/blog/what-is-low-key-lighting-definition/



High-Key Images are, shockingly, the opposite of Low-Key ones. While Low-Key emphasises blacks and dark tones, High-Key has lots of whites and light tones.

It's a brightly-lit frame with soft lighting, minimal shadows and low contrast that results in cheerful and airy image.

The Fill light will often be as strong as the Key.

To set up a High-Key image, you need to create as much non-directional light as possible. Use Scrims, softboxes and reflectors to spread the light out and

fill the workspace. You can still leave some shadows though.

https://www.studiobinder.com/blog/what-is-high-key-lighting-definition/

All About Flash

Lighting Setup

"Balancing Ambient Light"

- Two Exposures at Once!
- Ambient Exposure is Mix of Aperture and Shutter;
- Flash Exposure is Aperture;

1. Find Ambient Exposure
2. "Dial Down" to Desired Background;
3. Add Flash on Subject;

Like several of the things we've discussed this evening, balancing ambient light takes advantage of the dual nature of flash photography: The background exposure is set by a mix of the ambient light and the shutter speed; the subject exposure is set by the flash and the aperture.

The technique amounts to reducing your exposure so that the background is "sufficiently" dark. Flash is then added to correctly expose the subject.

Taking this to its extreme leads to the background becoming black, to isolate the background completely from the subject.

Start by setting the camera's USO as low as possible and the shutter speed to its sync speed. Increase your f-number/narrow your aperture until the background is black.

You can then use the flash to properly expose the subject.

The opposite to this is using flash to make the background white.

This can be done with a single or multiple flashes.

Looking first at a single light: we use the inverse square law I described earlier. If a flash is set up a constant distance from the background, the brightness of the background will increase as the subject gets closer to it.

This technique requires the subject and background to be close to each other but a long way from the light source. Where with the black background we

set the camera's exposure to suit the background, to make the background white we set up the camera to suit the subject.

This method works but doesn't have the amount of control as a two-light system.

Lights should be set up to **only just** overexpose the background; if it's too bright, the background will blow out, affecting the subject by blurring their edges and causes flare.

As a rule of thumb, the subject should either be 8' (2.5m) or 12'(3.6m) from the background. At the closer distance, overexpose the background by 1 stop; at the farther by 1.5 stops. Any brighter and you run the risk of lens flare.

https://www.dpmag.com/how-to/shooting/lighting-for-white-background-portraits/

Flash modifiers are simply things that go between the light and the subject to adjust light's quality. They generally fall into two main categories:

Diffusion Domes, softboxes, umbrellas, scrims, and beauty dishes "enlarge," diffuse and soften the light.

Snoots, grids, and Fresnel lights target and harden the light.

Because there's always *something* that doesn't properly fit into the categorical system you're trying

to set up: Coloured Gels which we talked about earlier change the colour of the light. Gobos are physically black pieces that block the light from certain places.

https://digital-photography-school.com/a-beginners-guide-to-light-modifiers/

All About Flash

Flash Modifiers

Diffusion Dome

- Usually Semi-translucent material in Front of Flash;
- Diffuses & Spreads out Light;
- Doesn't have to be a Sphere!

We talked about diffusion domes as part of the on-camera section; I won't repeat myself, but I have copied the notes across in the Powerpoint file to be put on the website.

Diffusers are a semi-translucent material that sit, in some manner, in front of the flash. This works by distributing the light, so that it's hitting your subject from a variety of angles rather than a neat, tight, organised beam of light. Depending on the diffuser used, it can also increase the "size" of the light.

There’s a particular sub-genre of photography that’s all about making DIY flash diffusers. This uses bits of cardboard, old milk bottles (a great translucent plastic), paper, tissue paper, pringles tubes and more to make one’s own modifiers. I remember once tying a (clean) handkerchief over my flash to diffuse it.

All About Flash

Flash Modifiers

Softbox

- Usually Semi-translucent material in Front of Flash;
- Generally Larger than Dome = Softer Light;
- Soft, Flattering, and Malleable Light;
- Dark/Black Exterior;
- Light Interior, Normally White or Silver; (White is Softer. Silver is Punchier);
- Often used with a Honeycomb

My research about softboxes suggest that they most closely recreate the effect of soft daylight coming through a window.

Physically they tend to be made of reflective materials that bounce light around inside before it leaves softbox through a diffuse screen towards the subject (or background).

They come in a variety of sizes: the bigger the softer the light will be.

https://www.studiobinder.com/blog/what-is-a-

softbox-used-for-in-photography/

All About Flash

Flash Modifiers

Umbrella

- **Soft, Abundant and Forgiving Light;**
- **Shoot-Through;**
- **Reflective**

We probably all remember umbrellas from our school photographs, this is because they produce a soft, abundant and forgiving light. They're useful for lighting relatively large areas, making them ideal for groups.

They come in two types: Shoot-Through when the Umbrella sits between the flash and the subject; and Reflective, when the flash is aimed **away** from the subject and the umbrella bounces the light back to its real target.

Convertible umbrellas have a removable black cover so that a Shoot-Through can be converted to a reflective one.

https://digital-photography-school.com/a-beginners-guide-to-light-modifiers/

https://www.wikihow.com/Use-Light-Umbrellas

All About Flash

Flash Modifiers

Umbrella

Shoot Through

- White;
- Ideal for Groups or Large Areas;
- Position between Light and Subject to Diffuse Light;
- Usually Need to be Placed Closer to Subject;

Shoot-Through umbrellas are white in colour. They're better for casting a soft-glow on the subject, but can do so over larger area, making them ideal for shooting groups. Aim your flash directly through the umbrella to the subject.

All About Flash

Flash Modifiers

Umbrella

- Reflective
- Black top & Silver Shade;
- Light Source Sits Between Umbrella and Subject;
- Aim Flash at Umbrella;
- Creates a Crisp Picture, such as a Portrait

Reflective umbrellas have a black “top”/outside and are silver inside (or a warming gold). The flash faces away from the subject and its light bounces off the umbrella to the subject. These give a more constrasty image than a Shoot-Through umbrella.

All About Flash

Flash Modifiers

Scrim

- A Sheet of Fabric that Diffuses the Light that Passes Through;
- Historical Difference: Scrim/Silk;
- Physically Large: Perhaps 2m high;
- Often used Outside;

Scrims, alternatively called silks (apparently there's an historical difference), are very large sheets of translucent material – often over 2m to a side. This means that it could, for example, be used to diffuse the sun on an outside shoot.

https://jakehicksphotography.com/latest-techniques/2021/9/16/lighting-setup-scrims-with-daylight-amp-flash

All About Flash

Flash Modifiers

Beauty Dish

- Parabolic Reflector Distributes Light Towards Focal Point;
- Distinctive, Circular Catchlights;
- Softer than Naked Light / Harder than Softbox;
- Rapid Fall-Off;
- Light a Small Area and Flatten Features;
- Sculpts Facial Features / Can Highlight Skin Flaws;

Physically, Beauty Dishes are a reflective plate mounted in front of the light source to bounce the light back and around a parabolic dish. The parabolic shape serves to minimise light spill and target most of the light at the subject but gives it the apparent size of the dish – typically 15-30cm. The light is generally harder than that produced with a softbox, but much, much softer than a naked light.

https://improvephotography.com/11001/what-is-a-beauty-dish/

A snoot is a tube that goes over the front of the light, acting as a spotlight and allowing one to light the main subject without the surrounding scene. It produces a hard light, so is best for high contrast, Chiaraoscuro images.

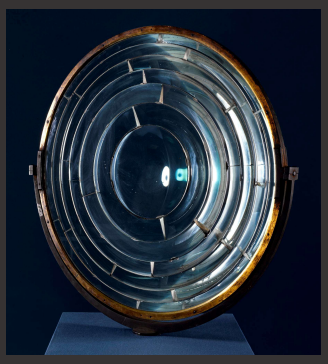
https://digital-photography-school.com/snoot-in-photography/

All About Flash

Flash Modifiers

Fresnel Light

- Focusable Light – Lens can Narrow or Widen Flash;
- Concentric Rings Formed into Lens – Reducing Size and Weight;
- Invented in 1820s by French Engineer Augustin Jean Fresnel to Improve Lighthouses;
- Light Moves Closer To or Further-Away From Lens;



Fresnell lights (note the odd spelling, fre-nell from the French inventor) have concentric rings formed into the lens. Each ring bends the light more until it converges into a single beam of light.

https://www.photographytalk.com/what-is-fresnel-lighting

All About Flash

Flash Modifiers

Grids

- Goes in Front of Another Modifier;
- Creates "Spotlight Effect" – Targeting an Area of the Image;
- Often Used for Hairlight;
- Grid Size Measured in Degrees;
  10° Casts a Narrow Beam / 40° Casts a Wide One;

Physically, a grid is literally that: a grid of black material over the light source. They're often used in combinaton with other modifiers, such as a softbox. Like a snoot or fresnell light, the grid creates a spotlight effect, allowing a particular part of the image to be targeted.

Grids are often used as hairlights, or to light other secondary details in the composition.

The size of the grid is measured in degrees, the greater number of degrees, the wider the beam the grid produces.

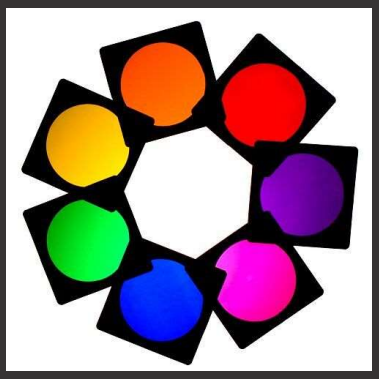
https://digital-photography-school.com/using-a-grid/

All About Flash

Flash Modifiers

- Coloured Gels

- Simply Coloured Material (Usually Plastic) in Front of Light;
- Can be Used to Correct/Match White Balance;
- Can be Used Artistically



We talked earlier about coloured gels, so I'm not going to repeat myself.

This can be used **Correctively,** to adjust for different white balances in an image (for example one might want to use an orange gel or filter in front of a flash that its light match the amber street light where you're shooting.

They can also be used **Creatively** to add colour to an image. I saw one example online that used a blue light on a subject's face and an orange one on the

back of their head to create a dramatic portrait.

[How to Use Flash Gels in Photography: The Essential Guide (photoworkout.com)]

All About Flash

Hints & Tips

- **Set up Each Light Individually;**
- **Don't Aim a Light Directly at the Centre of the Background:**