Videography 101

Lighting

Ben Ellis, October 9, 2022

Fundamentals of Lighting

1. Key Light
2. Fill Light
3. Back Light
4. Background Light
5. Kicker Light
6. Rim Light

Key light is “main” light.
Fill is filling in the shadows
Back light gets the hair/shoulders of subject.
Background light gets the background.
Kicker Light gets background and subject
Rim light is behind subject pointing at camera.

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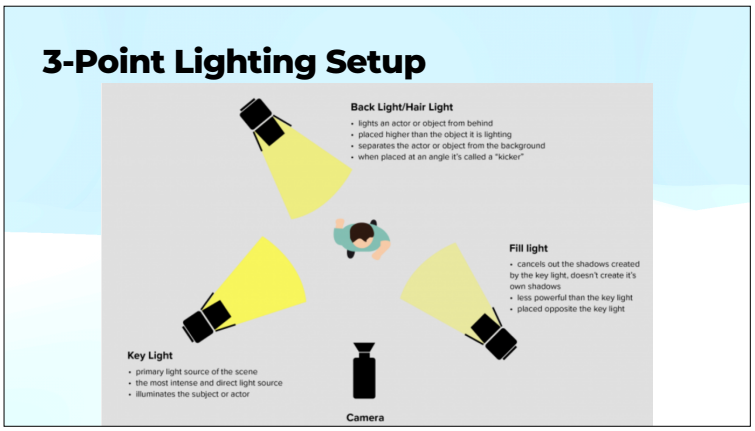
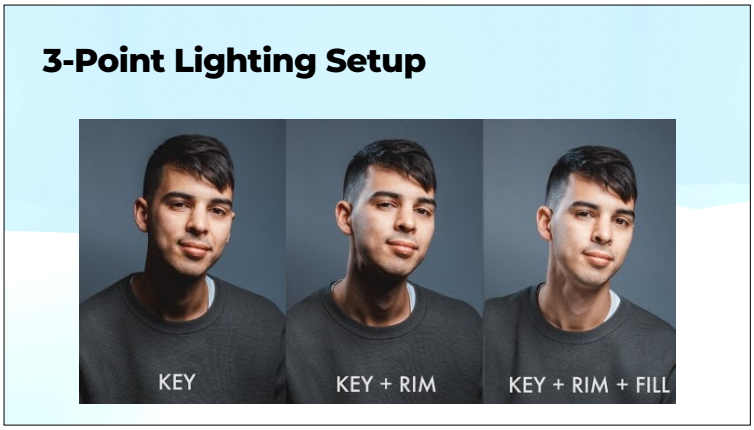
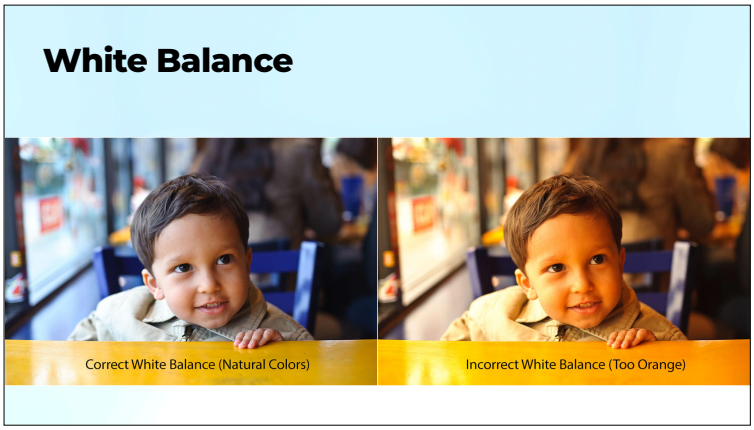






Not all light is created equal. What you might see as white light from different sources can actually have different colors, or what are referred to as color temperatures. Direct sunlight at noon (which I'll just refer to as sunlight) is considered to be a "normal" color temperature, so all light sources are compared to this as the standard. For example, light from an incandescent light bulb appears to be more orange than sunlight. On the opposite side of the spectrum, shady areas appear to be more blue than sunlight. In videography, we refer to these differences as being "warmer" (or more orange) and "cooler" (or more blue) than our neutral sunlight reference point.

Color Temperature

Light Type	Color Temperature in Kelvin (K)
Candle Flame	1,000 to 2,000
Household Lighting	2,500 to 3,500
Sunrise and Sunset	3,000 to 4,000
Sunlight and Flash	5,200 to 6,000
Clear Sky	6,000 to 6,500
Cloudy Sky and Shade	6,500 to 8,000
Heavily Overcast Sky	9,000 to 10,000

Let's talk a bit more about color temperature. Color temperature is measured in units of Kelvin (K) and is a physical property of light. There is a large margin for variance between different light sources, even if they appear to be exactly the same. For example, maybe you've been in a room with rows of overhead fluorescent lights and noticed that there were some bulbs that were a slightly different color than the others. Maybe they were older or a different brand of bulbs, but regardless of why, they had a different color temperature than the rest of the bulbs. Similarly, sunlight at noon can have a different color temperature than it does at sunset.

A neutral color temperature (sunlight at noon) measures between 5200-6000 K. You'll find most external flash units come set from the factory in that range, which means they are basically trying to imitate sunlight. An incandescent light bulb (warm/orange) has a color temperature of around 3000 K, while shade (cool/blue) has a color temperature of around 8000 K. Here's a chart that gives you a few different light sources and their typical range of Kelvin measurements:

Color Temperature

Photographically speaking, things get tricky when the scene you are photographing has multiple light sources with different color temperatures. This situation is known as mixed lighting. Take a look at this image

This scene had chandeliers hanging over the tables that had incandescent bulbs in them, while indirect sunlight was coming through the windows behind me. After adjusting the white balance for the tungsten overhead lighting, the sunlight that is lighting the side of the tablecloth and the flowers on the right looks blue.

Color Temperature

It’s not just different light sources that can give you different color temperatures. Different lighting conditions can also have different color temperatures. Take a look at these two photos.

They were taken only moments apart, but between the first and second image the sun went behind a cloud, creating shade and giving a cooler color temperature. The light source (the sun) didn’t change, but the conditions did.

White Balance

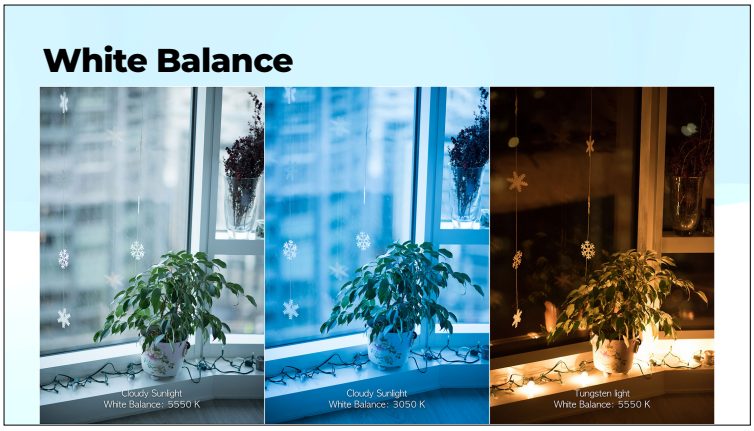
- Balances the color temperature in the image to make whites look white instead of blue or orange.
- Can be done in camera or in post-production

White balance balances the color temperature in your image. It adds the opposite color to the image in an attempt to bring the color temperature back to neutral. Instead of whites appearing blue or orange, they should appear white after correctly white balancing an image.

White Balance

Typical settings include “sun”, “shade”, “tungsten” and “fluorescent”. Some cameras come with the option to manually set a color temperature by choosing a specific Kelvin value.

In the image on the left, you can see how orange the light bulbs look when I have my camera set to a neutral white balance, but once I change it to the color temperature of the bulbs (either manually or with a preset white balance), they look normal. Why is that? My camera is “cooling” down the color temperature of the bulbs by adding blue to the photo, giving us the appearance of white light. Notice that while the light bulbs now look white, the bokeh in the background now looks blue.



Still having trouble understanding what's going on? Take a look at these images of the same scene that were taken in daylight.

Now that it's daylight, you can see that 5500 K is the correct white balance for the color temperature. What happens if I set my white balance to 3050 K in daylight? The image turns blue! This is how much blue was added to the photo of the orange incandescent bulbs to balance the orange and make the color temperature of the incandescent light look normal.