

Topic 82

Camera Filters & Color Temperature

Understanding color temperature is one of the crucial rules of photography you must learn before you can begin to break them.

So what is color temperature? In short, each light source has its own individual color, or 'color temperature', which varies from red to blue.

Candles, sunsets and tungsten bulbs give off light that's close to red (hence the 'warm' look they give to pictures), whereas clear blue skies give off a 'cool' blue light. It's fairly obvious stuff once you read it.

Color temperature is typically recorded in kelvin, the unit of absolute temperature. Cool colors like blue and white generally have color temperatures over 7000K, while warmer colors like red and orange lie around the 2000K mark.

When you set your camera's white balance manually (find out how to make a custom white balance setting) you can choose from a number of pre-set color temperature options like Tungsten, Daylight, Cloudy and Shade, or customize your own setting.

Color temperature is measured in 'kelvins' formerly known as 'degrees kelvin'. To get the idea, think of a piece of metal being heated in a fire. First it gives off a reddish glow and, as it gets hotter, the color gets whiter and then, as it really warms up, it starts to give off a bluish glow. In Physics of course, we can't use any old bit of metal for the kelvin scale, we need a 'theoretical black object'. The photographer's color temperature chart is a loose interpretation of the kelvin scale, the numbers are not used in any precise manner.

As photographers all we need to know is that different types of light source emit different colors. 5000 kelvins is what we photographers call white light and is represented by 'average daylight', whatever that is, actually it's fairly obvious if you look at the chart below. We also need to know that household bulbs give off an orange light and a cloudy day will appear blue.

White balance (WB) is the process of removing unrealistic color casts, so that objects which appear white in person are rendered white in your photo. Proper camera white balance has to take into account the "color temperature" of a light source, which refers to the relative warmth or coolness of white light. Our eyes are very good at judging what is white under different light sources, but digital cameras often have great difficulty with auto white balance (AWB) — and can create unsightly blue, orange, or even green color casts. Understanding digital white balance can help you avoid these color casts, thereby improving your photos under a wider range of lighting conditions.

AUTO WHITE BALANCE

Certain subjects create problems for a digital camera's auto white balance — even under normal daylight conditions. One example is if the image already has an overabundance of warmth or coolness due to unique subject matter. The camera then tries to compensate for this so that the average color of the image is closer to neutral, but in doing so it unknowingly creates a bluish color cast on the stones. Some digital cameras are more susceptible to this than others.

A digital camera's auto white balance is often more effective when the photo contains at least one white or bright colorless element. Of course, do not try to change your composition to include a

colorless object, but just be aware that its absence may cause problems with the auto white balance.