

UNSEEN

GUIDE TO PHOTOGRAPHY:
ADVANCED



SHARING HOPE OVER DARKNESS



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INTRO

Maybe you have a DSLR camera (a.k.a. a camera with changeable lenses and/or lots of settings, including a “manual” mode) and are looking to hone your photography skills. Or, you might have a staff member, intern, or volunteer who is interested in photography and has a nice camera to work with.

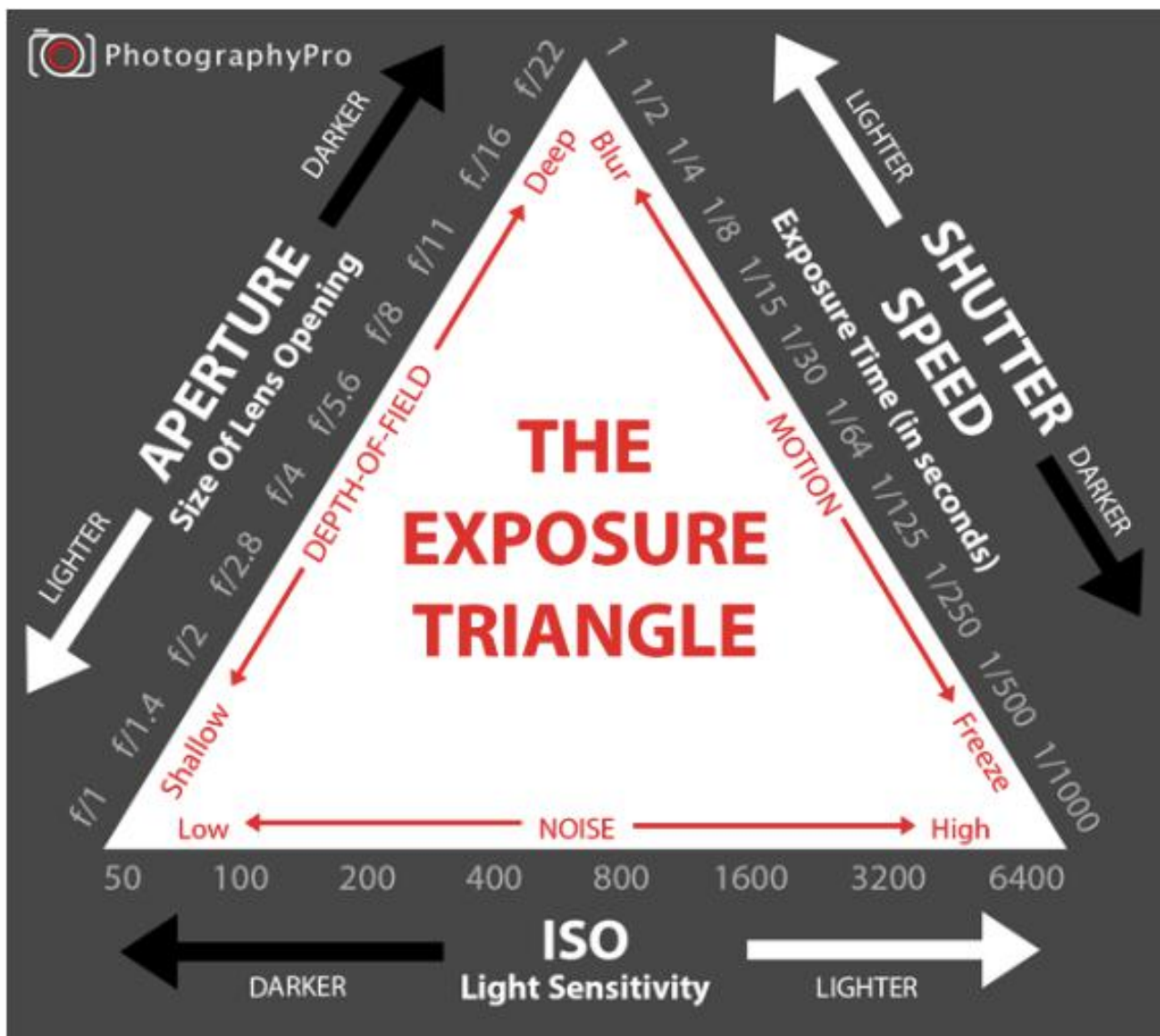
This guide provides basic DSLR camera tips for practicing shooting in Manual mode (and getting away from Auto mode).

1 - EXPOSURE TRIANGLE

There are 3 key elements to photographing in “Manual” mode, which are all a part of the Exposure Triangle:

- 1 - ISO
- 2 - APERTURE
- 3 - SHUTTER SPEED

You'll see these settings on every DSLR camera you work with. It looks a little complicated, but don't worry, we're going to break it down so it's easier to understand!



Graph from *PhotographyPro*

1.1 - ISO

ISO stands for *International Organization for Standardization*. But that's not important. What *is* important is that **ISO is how much light is being "sensed" by your camera**. If it's nice and bright outside, you should set your ISO to a smaller number (ex. 100 or 200)—a lower ISO is less sensitive to light and has a finer grain. If it's dark outside, you'll need to set your ISO to a higher number (ex. 400, 800, 1600)—a higher ISO is more sensitive to light, but has a larger grain.

What is grain? As mentioned above, the bigger the ISO number, the more "grain" you allow in the photograph. Grain is also referred to as "noise." You want to be careful of this. Have you ever looked at an old photograph and seen lots of dots all over it? It appears "grainy" or "noisy." Sometimes photographers like that and it's a style choice. However, the majority of photographers like to have clear, crisp photos, with minimal grain. This relates back to finding good light (see the basic photography guide). Always make sure you have great lighting when shooting so you don't have to set your ISO to such a high number, increasing your chances of a "grainy" photo.

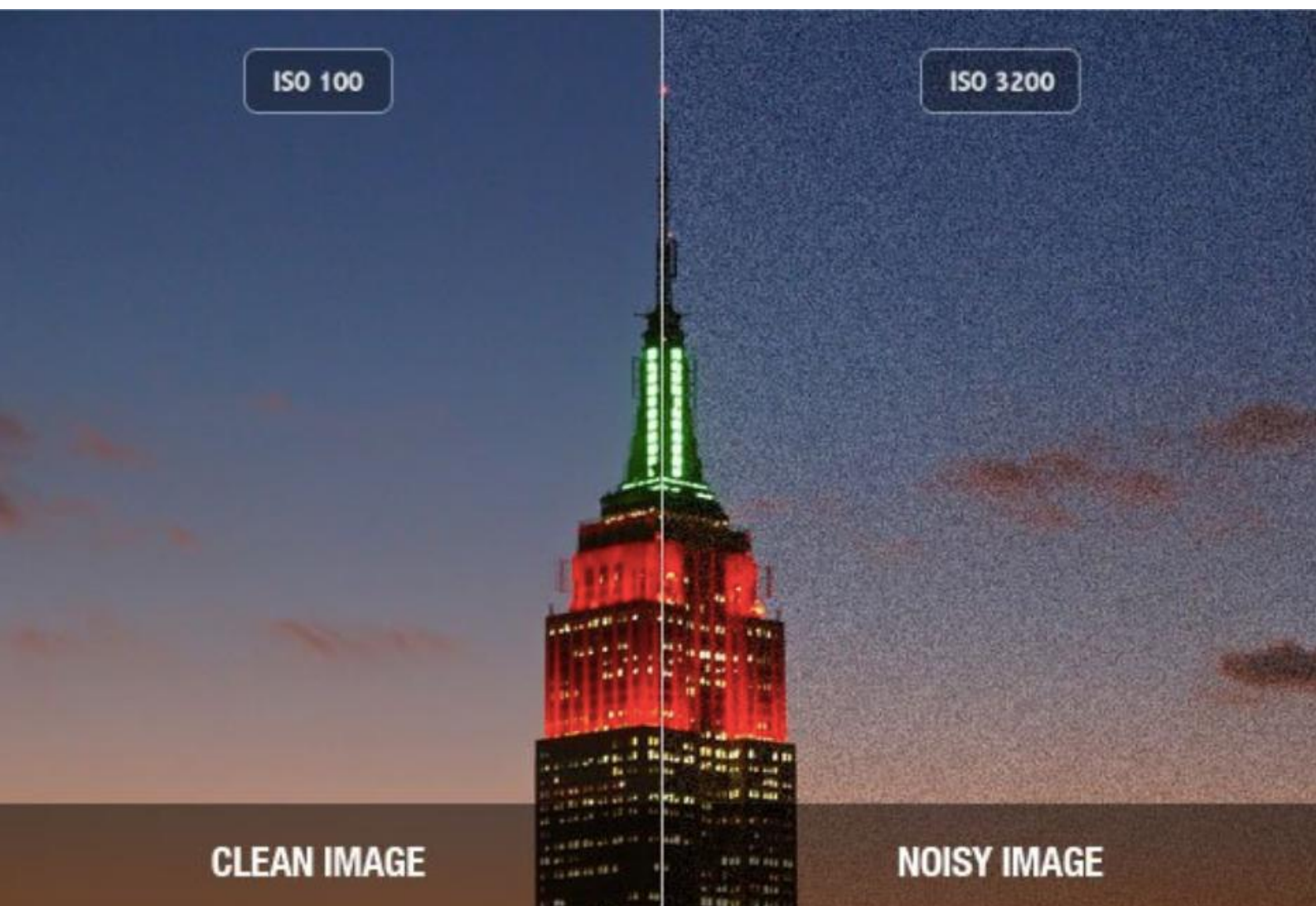


Image from *Exposure Guide*

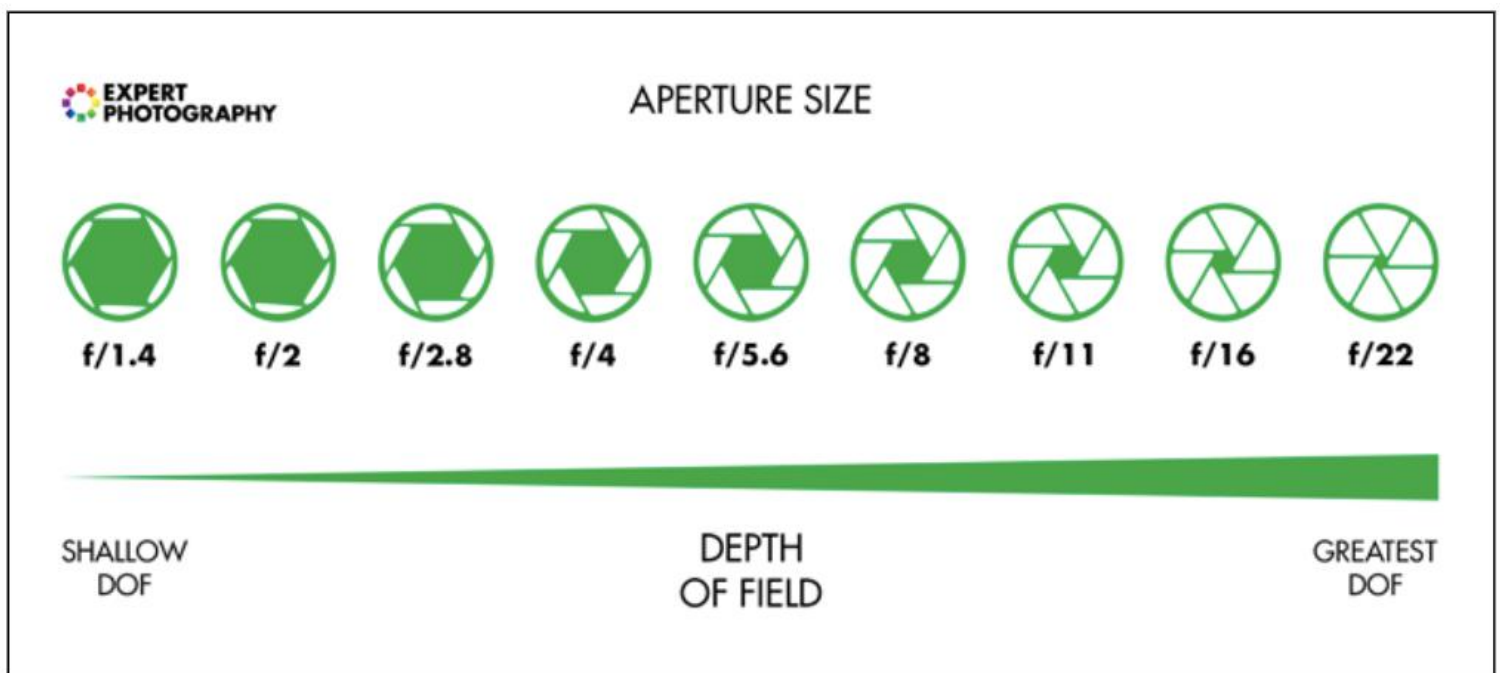
1.2 - APERTURE

Aperture controls the depth of the photograph. It's a measurement of how much light you're letting into the camera. Aperture is also what f-stops refer to. At a lower f-stop, you get the whole frame in focus (foreground and background). At a higher f-stop, you only get what you focus on *in focus*, and the rest of the frame will be blurry. This sounds backwards, but the larger the aperture, the lower the number. For example, a low f-stop would be F/1.8, and a high f-stop would be F/1.2.

You may see some numbers on your camera that say F/1.2, F/2.8, F/5.6, F/8, F/16 and maybe all the way up to F/128 depending on how awesome your camera is. All these f-stops control how much light your letting in. (See diagram below)



But here's what you need to know about aperture: If you want that look of a person being in focus, and the background blurry (ideal for portraits), you want a higher aperture (F/1.4 - F/2.8). If you want the background in focus (i.e. a landscape photo), you want a lower aperture (F/11 - F/22, and up)



Graph from *Expert Photography*



Graph from *Photography Hero*

1.3 - SHUTTER SPEED

Shutter Speed is exactly what you think it is: the speed of the shutter. When you click your shutter button, the shutter speed is measuring how fast your camera is capturing all that light you are letting in through your ISO settings and aperture settings. The faster the shutter speed, the more crisp your photo is going to be. The slower the shutter speed, moving objects will be blurred. (e.g. Think of a moving car. If you shoot a photo of a car with a super fast shutter speed, it will look like it has stopped in time. If you shoot a photo of a car with a slow shutter speed, it will appear blurry as if it's moving.)

However, shutter speed also controls light. **A faster shutter speed will make the image darker** (there's less time for light to enter the camera). **A slower shutter speed will make the image brighter** (there's more time for light to enter). Take a few shots with multiple shutter speeds (using your in-camera meter) until you have the right speed.

Unless you're using a tripod and shooting very still objects, always have your shutter speed at no less than 1/60 of a second (even that's kinda slow). If you're shooting pictures of moving kids, you want your shutter speed set to at least 1/250 of a second or faster.



Moving cyclists shot with a **slow shutter speed**



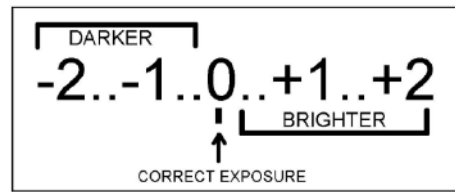
Moving cyclists shot with a **fast shutter speed**



1.4 - ALL 3 TOGETHER

All three of these elements work together when creating an image!

Here are a couple scenarios to give you examples on how to use all 3 of these together in manual mode.



SCENARIO 1

It's a nice, overcast day and you want to shoot a portrait of someone.

1. **Set your ISO** to about 100-200. If it's bright enough, 100 or 200 will be ideal.
2. **Set your Aperture** to somewhere between F/1.8 or F/4 (depending on how blurred you want your background)
3. **Set your Shutter Speed.** This will vary depending on how bright it is. You'll want to use your camera meter to help. The slower the shutter, the brighter the image will be. If it's really bright out, your shutter may need to be about 1/2000 of a second. If it's bright, but not that bright, it may be 1/500. Adjust your shutter speed until the meter in your camera is in the middle so you can take a properly exposed image.

SCENARIO 2

You're indoors, it's dark, and you want to shoot some pictures at an event.

1. **Set your ISO** to somewhere between 800-1600. This will allow more light into your camera and won't be too grainy (although you will have some).
2. **Set your Aperture.** Since it's dark, you'll likely need to have it set high. (F/1.2 - F/2.8)
3. **Set your Shutter Speed.** In this case, you'll want to go lower to let more light in. **Tip:** Never shoot slower than 1/60 of a second unless you're shooting with a tripod (or the image will be blurry due to camera shake).

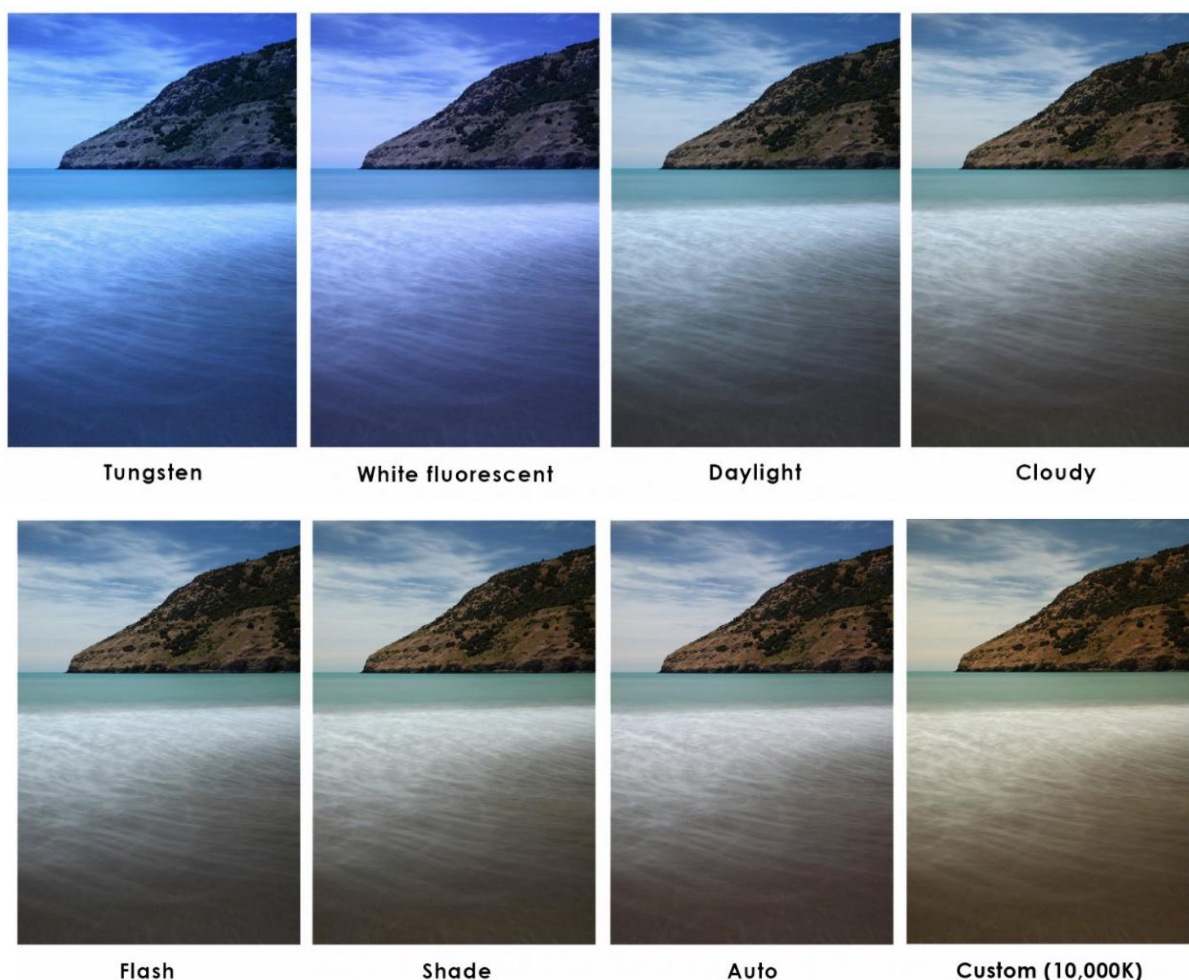


YOU DID IT!!
YOU GOT THROUGH THE
EXPOSURE TRIANGLE.

WE KNEW YOU COULD DO IT!

READY FOR MORE?





Graph from *Hugh Deck*

2 - WHITE BALANCE

Another important thing to be aware of when you're shooting images is your camera's *White Balance* setting. White Balance controls the temperature of the image—how warm (yellow) or cool (blue) the image appears.

Your camera measures light temperature in Kelvin, and you can manually set your white balance to whatever you please. A higher temperature will make the image more “warm” or yellow. A lower temperature will make the image more “cool” or blue. Your camera will also have some auto temperature settings—usually Tungsten, Cloudy, Fluorescent, Daylight, etc. to match typical lighting settings.

We recommend trying out several until you are happy with your image, and it's balanced (not too warm/yellow and not too cool/blue).

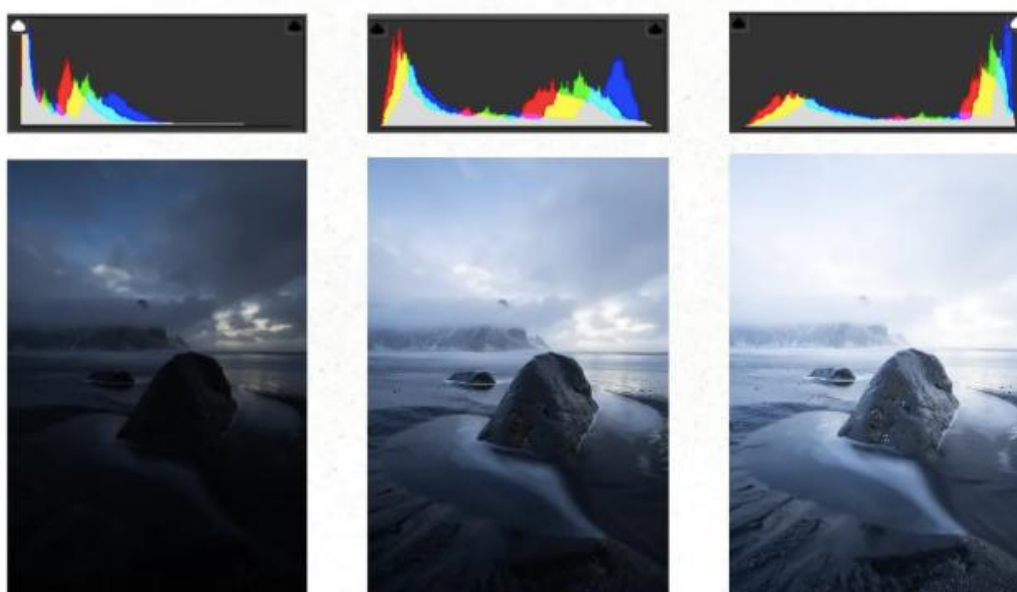
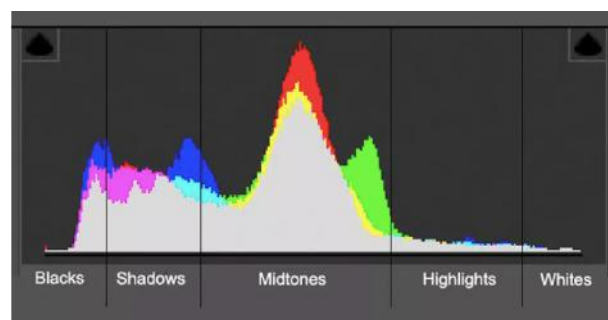
Tip: Photographers often like their images more on the warmer side. Starting out with setting your camera's white balance to “Cloudy” could be an option if you're shooting outdoors. When shooting indoors, you'll want a cooler temperature if the lights already have a very yellow tone.

3 - HISTOGRAMS

Want to get even more technical? Your camera should have the option to view an image's "info." When you take a photo, you should be able to review the photo. By pressing the "info" button, you can usually change the display so the histogram is showing. The image preview on the screen can be deceiving of how an image's exposure really is. A histogram is an accurate way of telling you if your exposure is just right.

A histogram measures all the *tones* within the photo. It measures blacks, shadows, midtones, highlights, and whites. On the right is one example of a properly exposed photo on a histogram because it has a wide variety of all the tones.

The diagram at the bottom shows all 3 in comparison. If most of your graph is way over to the left, it's underexposed since it's lacking midtones, highlights and whites. If most of your graph is way over to the right, it's overexposed because it's lacking shadows and blacks. You want to have a good balance of darks and lights all throughout the graph—as shown in the middle example.



Underexposed

Correct Exposure

Overexposed

4 - FORMAT (RAW / JPEG)

For great quality photos, you want to make sure you are shooting images in the correct format. There are multiple formats out there, but we're going to focus on the two most popular ones - **RAW vs. JPEG**.

RAW Format - A RAW image is the unprocessed, raw data that is collected on your camera's sensor when you snap a picture. The same data that is collected in the histogram (explained above). RAW photo files are very large and can only be opened by a photo editing software such as Adobe PhotoShop or Lightroom.

JPEG Format - A JPEG image is a processed, final image format. You can open a JPEG image on almost any program and easily share them on social media.

You may be thinking, "Why shoot in RAW format then? JPEG sounds much easier and less hassle."

RAW formatted photos are much better quality and better for editing. If you have editing software, we highly recommend shooting in RAW format (adjustable in your camera settings). This format allows you to adjust exposure settings and correct white balance seamlessly in your editing software. If you only shoot JPEG images, you won't have as much freedom when it comes to editing them post-production.

When would you shoot in JPEG? Most professional photographers never shoot in JPEG. If they do, they are shooting in RAW *and* JPEG. However, maybe you're not a professional and don't plan to edit your photos all that much. Or, maybe you don't have editing software, nor do you want to purchase it. Maybe you just want to practice shooting using the *Exposure Triangle* tips! This is a great time to shoot in JPEG format. JPEG images will take up much less space on your memory card and you can quickly upload them to your computer.

TIP: Change your JPEG settings to "large." Yes, they will take up more space, but they will be much better quality!

You just shot photos in RAW format. Now what?

Open the photos up in your editing software. Edit them according to your preferences (adjusting exposure, contrast, white balance, etc.). **Time to export!** This is when you want to export your RAW photos as JPEG images. A common export setting is JPEG, 8"x10" at 300 dpi (dots per inch). This setting will ensure you have great quality JPEGs to use in web and print materials. We recommend researching more on settings depending on what size you plan to print. A very large print will require different size settings.

The Bottom Line - In order to have *high quality photos* to print, you need to shoot them in a *high quality format*. Whether a RAW format or *large* JPEG format (either will work), it's important that you pay attention to what format you are shooting in.

PHEW!

Maybe you're thinking, this is a *LOT* to think about. Most DSLR cameras have an option where you can set the ISO on "auto" and control the Aperture and Shutter Speed manually. Or, you can set the Aperture on "auto" and control the ISO and Shutter Speed. Or, lastly, you can set the Shutter Speed on "auto" and control the ISO and Aperture manually. You should also be able to set your White Balance on auto mode as well if that's helpful!

THE KEY IS TO PRACTICE AND HAVE FUN WHILE SHOOTING!

Just like any skill or sport, practice makes perfect :) YouTube and Google also have endless resources on photography, but we hope this guide has been comprehensive and helpful!



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