The DSLR CRASH COURSE

By Photzy

Photzy.com is proud to publish a licenced, revised, edition of this revered eBook on how to use a DSLR camera.

The original author has been teaching short, single-session, photography classes since 2006. It was his goal, in originally authoring this premium guide, to give you an opportunity to be a part of his classroom training. Reading this premium guide, and participating in the exercises and assignments, gives you the same opportunity that his 'in-person' students receive. Unlike a regular ebook, it's designed to quickly get you up to speed with basic photography principles, and provide you with a platform to experiment and refine your techniques.

You will learn to take better pictures, in 4 hours, by studying this premium guide!
The guide starts off with a section of 'Photography Exercises' to help familiarize you with the basic techniques of photography. It uses a show-and-tell approach. This approach has been proven time, and again, to be effective in getting beginning photographers to experiment intelligently with their photography. The approach emphasizes deep understanding, and it strives to help simplify the learning process.

In the following section that is titled, 'Analyzing The Shot', the guide will take you through a number of photographs and describe how the combination of camera settings was chosen. This section will also offer further advice on how you can apply these techniques to your own photographs. We have taken great care in designing this premium guide so that is easy to use. It has been elegantly crafted, so that it provides the most effective tool to teach you photography.

You will notice that this premium guide is horizontally laid-out. This maximizes your screen area for reading. The guide is also filled with diagrams, and photos, that are used throughout to illustrate each point.

HOW TO USE THIS PREMIUM GUIDE

Have your camera nearby while reading this premium guide. The typography for the exercises is highlighted in color.

When you see a paragraph displaying this color, perform the exercise by following the instructions.

Your execution of each exercise will help you discover a new technique. Try not to skip ahead, when learning and performing the exercises, as they are inter-related. After going through the exercises- move onto the section titled "Analyzing The Shot". Here, you will see how your newly learned techniques have been applied in real picture-taking situations.

CONTENTS

ANALYZING THE SHOT

WHAT YOU WILL LEARN

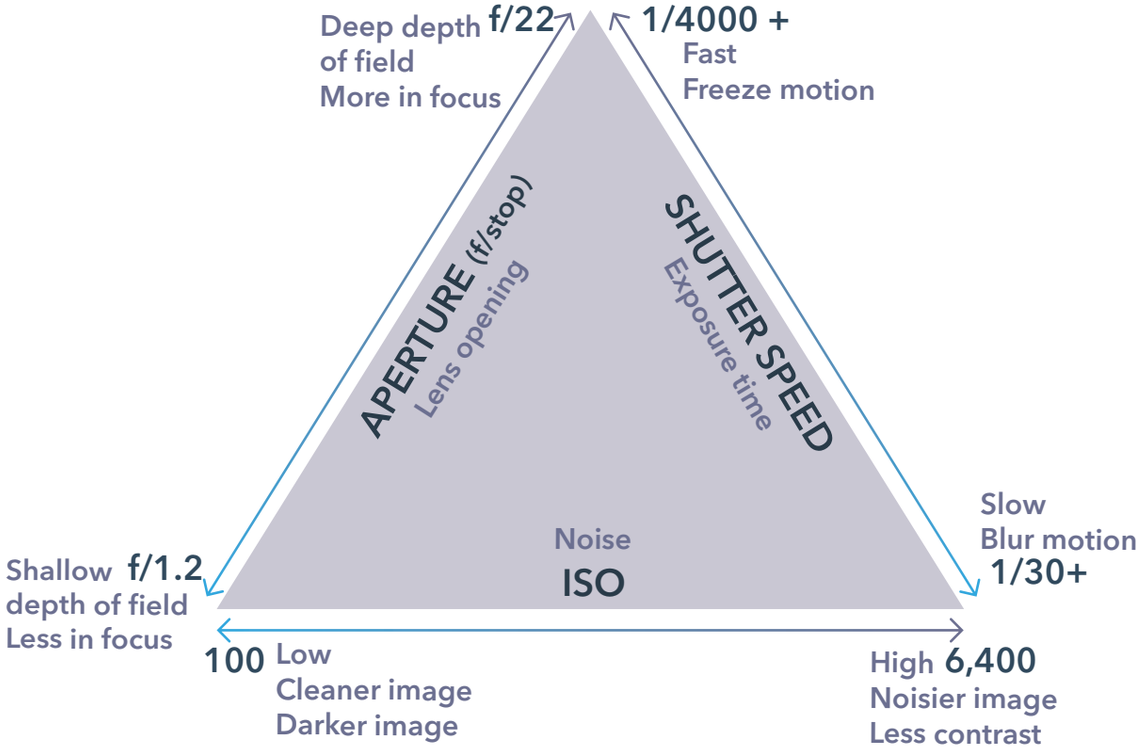
- The Role of Light in Your Photography: including how it affects Exposure, the Camera Position, and Your Storytelling
- How to Use Natural Light to Convey Atmosphere (This Lesson Alone Will Improve Your Photography)
- How and Why You Should Use Natural Light Any Time of the Day- Not Just 'The Golden Hour'
- Gain an Understanding on the Mood of Light
- Learn Why - There is 'No' Bad Light (You're Likely Missing Out on Amazing Opportunities)
- How to 'Adapt' to the Natural Light For the Best Results
- Discover the Inter-connectivity of Light and Color and Learn Important Facts About this Relationship
- How to Understand the Histogram and its Importance to Natural Light Photography
- Why You Should be Thinking About the Post-Processing… Even While You're Taking Your Photographs
- Specific Examples on How to Diffuse Natural Light for a Softer Effect
- Learn about Special Tools that can Assist You in Your Natural Light Photography
  (Knowing when and where the light will be is a huge help)
- How to Work with Natural Light… Indoors (This Lesson is Huge for Most Photographers)
- The Importance of 'Light Direction' when Working with Natural Light Outdoors
- How to Find, and Use, Multiple Natural Light Sources in a Scene (This takes You from Amateur to Pro Status)
- Dealing with the Dynamic Nature of Light
- Why You Must Post-Process Your Photos to Improve the Light
- Specific Tips on the Post-Processing Controls that Improve the 'Light' in Your Photographs
- What Type of Gear You Need for Award-Winning Twilight Shots
- Challenges and Solutions on Using 'The Golden Hour' Effectively
- How to Make the Most of a Cloudy Day
- What to Do – When You Have to Shoot in the Midday Sun
- Examples on How to Work through Challenging Indoor Lighting
- Overcoming Fog for Dramatic Results

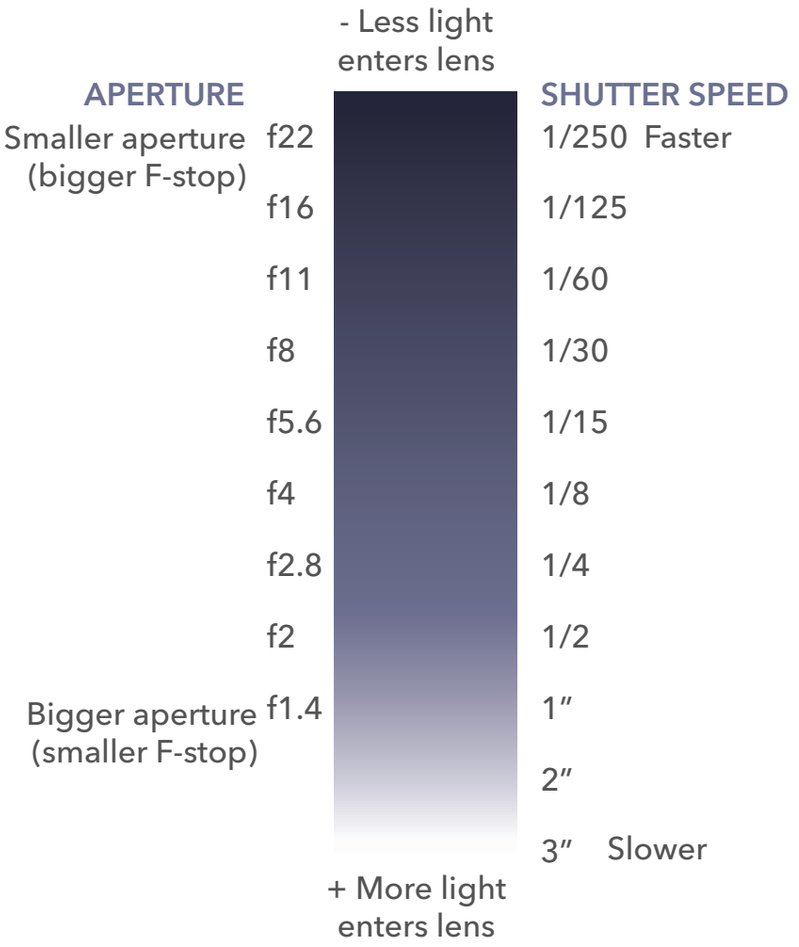
BASIC TRAINING:

GETTING READY

THE EXPOSURE TRIANGLE: ISO, APERTURE AND SHUTTER SPEED

We will start by explaining image exposure, and how image exposure is interrelated to ISO, aperture, and shutter speed. Imagine an 'Exposure Triangle', which consists of ISO, Aperture and Shutter Speed at each point of the triangle.



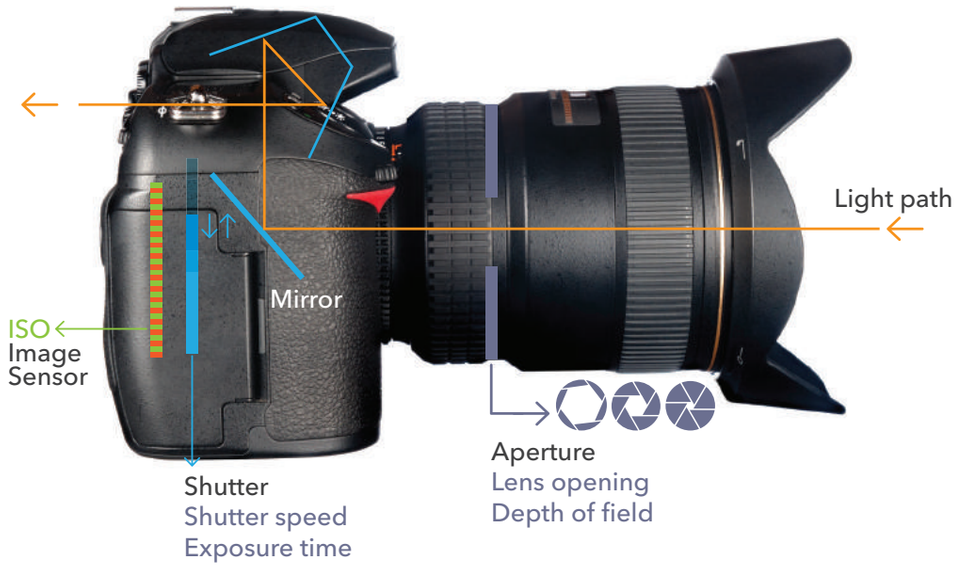


The three camera functions of ISO, aperture, and shutter speed work together to deliver the desired amount of light to the imaging component. This 'correct amount of light' records the image onto a sensor or a piece of film.

KEY LESSON

A higher f/stop number indicates a small aperture opening, which results in less exposure to the imaging medium. And in the reverse: a lower f/stop number indicates a larger aperture opening, which results in more exposure to the imaging medium.

THE EXPOSURE TRIANGLE: ISO, APERTURE AND SHUTTER SPEED



This diagram shows how light enters your camera through the lens, becomes focused, passes through the shutter curtain, and finally exposes the light sensitive image sensor or film.

Aperture

Aperture is the size of the opening, inside the lens, that allows a measured amount of light to pass through and reach the shutter curtain.

The sizes of the aperture openings, inside the lens, have been given measured numerical settings called, f/stops.

A larger aperture opening, indicated by a lower f/stop number (e.g. f/2.8), lets more light pass through the lens and onward toward the camera shutter.

A smaller aperture opening, indicated by a higher f/stop number (e.g. f/16), lets less light pass through the lens and onward toward the camera shutter.

Shutter Speed

Shutter speed is the speed at which a shutter curtain opens and closes, inside the camera, allowing light to pass through and expose the light sensitive component behind it.

Light passes through the curtain, to the imaging medium, to expose a picture, when the curtain is open, and the light is blocked from passing through, and exposing a picture, when the curtain is closed.

The speed at which the curtain opens and closes regulates how much light is going to reach the digital sensor or film.

A slower shutter speed (e.g. 1/10th of a second) lets a larger quantity of light pass through than a faster shutter speed, and thus increases the exposure.

A faster shutter speed (e.g. 1/1000th of a second) lets a lesser quantity of light pass through, and thus reduces the exposure.

Iso

ISO is the light sensitivity setting on the camera sensor, or the light sensitivity rating of a piece of photographic film.

A higher ISO rating (e.g. ISO 1600) makes the imaging medium (digital or film) more light sensitive than a lower ISO setting (e.g. ISO 400), and thus produces a lighter image with a given quantity of light.

A lower ISO rating (e.g. ISO 100) makes the imaging medium (digital or film) less light sensitive than a higher ISO setting (e.g. ISO 400), and thus will produce a darker image with a given quantity of light.

THE EXPOSURE TRIANGLE: THE CORRECT EXPOSURE

PART I

Most cameras have a built-in exposure meter, which may look something like these diagrams.

Shutter speed: 90 | Aperture: f4

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

Underexposed (too dark)

Overexposed (too bright)

Correct exposure. Pointer is exactly in the middle.

Research your own camera, to determine exactly what the meter indicator inside the viewfinder looks like for your particular model. Even if your light meter looks differently, they function in the same way.

The exposure meter tells the camera, (and you), whether the photo will be underexposed (too dark), properly exposed (good brightness and tone), or overexposed (too light).

In 'Manual Exposure Mode', you will be in control of all three of the camera functions that affect exposure: ISO, aperture, and shutter speed. You will set these camera functions using the exposure meter as your guide.

KEY LESSON

We are NOT referencing Manual Focus. This often gets confused. Manual focusing of the lens is a completely different camera function, and it is not related to exposure.

You must research how your particular camera adjusts these three settings; do that right now. To help get you started in identifying the nomenclature of a DSLR type camera body- we have included the diagram illustrating a Nikon and a Canon camera. Notice that each camera has a rotary dial on the front of the camera body, as well as one on the rear of the camera body.

Depending on how your camera is set up, one of these two dials would change the shutter speed and the other one would change the aperture when the camera is in 'Manual' shooting mode. The ISO is generally adjusted with another set of buttons on the camera body, or inside a menu within the camera software.

- Before we move to the exercises, do the following:
  If your camera has an "Auto ISO" function, please turn that off. Also, if your camera has Active D-Lighting (Nikon) (or the equivalent contrast optimizing function – other brands), turn that off as well. This is to ensure that you reap the maximum benefits from the exercises without the camera intervening and affecting your results.

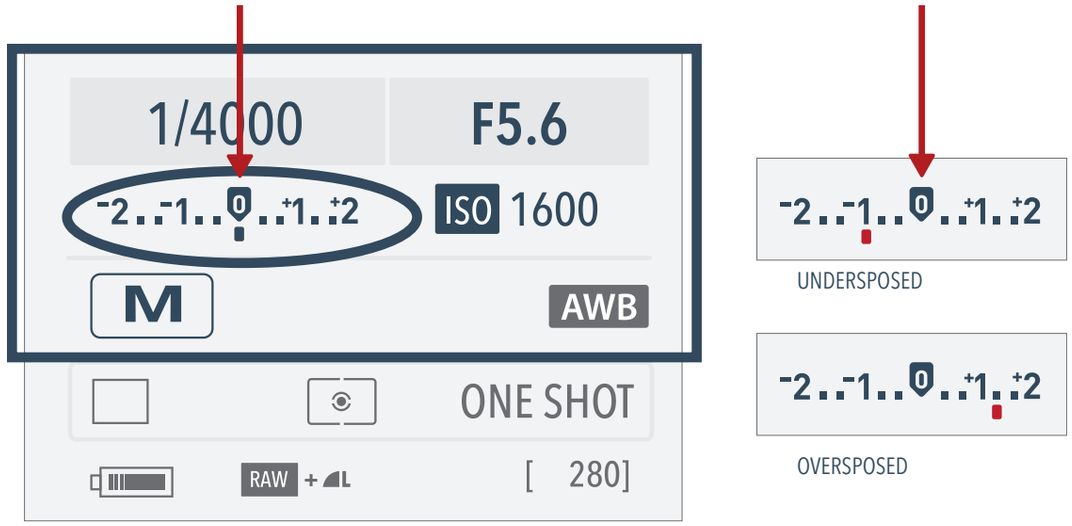
THE EXPOSURE TRIANGLE: THE CORRECT EXPOSURE — PART II

Step 1

Go to a room that has plenty of light. The ideal time for this exercise is at midday when the outdoor lighting does not change much. At dawn, or dusk, the light levels change too rapidly to do this exercise properly.

Choose a subject to photograph, (e.g. a cup of coffee), and place it on a table. Set your camera to these settings:

- Shooting mode (sometimes referred to as "Exposure Mode'): Manual
- Metering mode: 'Matrix' Metering (if you are using Nikon) or 'Evaluative' Metering (for Canon users)
- ISO: 1600
- Aperture setting: f/5.6
- Shutter Speed: This is the final element of the 'Exposure Triangle' – the final camera function that needs to be set to achieve a proper exposure. Point the camera at your subject, look into your viewfinder to see the exposure meter, which may look something like the image on the side.



The shutter speed shown on the diagram will be different

When the pointer is exactly in the middle (see red arrow on graphic) of the exposure scale, press the shutter release button all of the way down to take the picture.

Your photo should be correctly exposed.
You can stop here if you wish, as you have already achieved a correct exposure.

To learn about shifting your exposure (getting the same exposure with different combinations of ISO, aperture and shutter speed), and to learn more about the relationships within the Exposure Triangle, proceed to Step 2, on the next page.

First shot.

THE EXPOSURE TRIANGLE: THE CORRECT EXPOSURE — PART II

Step 2

- Now that you have taken the 1st shot, you will proceed to the 2nd shot, shooting the same subject, and keeping the same composition.
- Without moving the shutter speed dial, move ONLY the aperture dial towards the next higher f/stop number. For example, if your aperture (f/stop) was set at f/5.6 - you will be moving it to f/8. The meter will now tell you that the photo will be underexposed (too dark).
- Go ahead and take the picture anyway. True enough, you will get a darker picture.

First shot.

Step 3

- For the 3rd shot, do not touch the aperture dial. You will move ONLY the shutter speed dial, towards the next slower shutter speed. For example, if your shutter speed was set at 1/125th of a second in your first shot – you will now adjust it to 1/60th of a second.
- You will notice that the meter tells you that you're getting a correct exposure again!
- Go ahead and take the picture. The exposure of this 3rd shot will look like the 1st shot, while the 2nd shot looks darker.

2nd shot

Slightly underexposed

Step 4

- For this 4th shot do not touch the aperture dial or the shutter speed dial. Change the ISO setting to ISO 200. This will significantly decrease the light sensitivity of the imaging sensor.
- The meter will tell you that your photograph will be seriously underexposed (way too dark).
- Go ahead and take the picture anyway. You will get a much darker picture!

3rd shot

The exposure should be the same as the 1st shot

4th shot

Severely underexposed

THE EXPOSURE TRIANGLE: THE CORRECT EXPOSURE — PART II

This simple exercise demonstrates the relationships between ISO, aperture, and shutter speed. A correct exposure is created when all three elements work together to capture just enough light.

The 1st shot had a correct exposure, with the guidance of the camera's light meter.

The 2nd shot took away 1-stop of light, by 'closing down' the aperture to the 'next higher' f/stop number. This 1-stop of underexposure creates a darker picture.

In the 3rd shot, you put the 1-stop of reduced exposure 'back' into the equation by slowing down the shutter speed by 1-stop. 1-stop of light was removed in shot 2, and 1-stop of light was added in shot 3, equally out the exposure to the same amount of light reaching the imaging sensor as in shot 1.

The 4th shot used a much lower ISO setting. The light sensitivity was reduced by 3-stops: 1600/800/400/200. Each time the ISO setting is divided in half, 1-stop of exposure is lost resulting in a darker shot. This 3-stop reduction in exposure resulted in a much darker result.

KEY LESSON

Exposure is measured in, and referred to, as 'stops' or 'a stop'. When you change the aperture from one f/stop number to the next, you have changed the exposure '1-stop'. If you changed the aperture, two f/stop numbers, you have changed the exposure 2-stops. This is exactly the same with shutter speeds. If you change from one shutter speed number to the next, you have changed the exposure 1-stop.

For example, if you changed the shutter speed from 125th of a second to 1/60th of a second that's 1-stop of exposure change. What happens if you change the shutter speed to 1/90th of a second? The 1/90th setting would not be a 'full stop' of exposure change. It would be a, 1/2 stop, of exposure change. You need to learn the aperture and shutter speed scales to effectively learn the "stop" system of measurement. (You can see those scales in the diagram back in the Exposure Triangle section of this premium guide.)

How does ISO play into the stop system? Every time the ISO setting is doubled, or divided in half, the exposure will change by 1-stop. For example, if your ISO is set to 400 and you change it to 800 – you have moved the exposure 1-stop. If you changed the ISO from 400 to 200 – you have also moved the exposure 1-stop.

DIFFICULT EXPOSURE CONDITIONS USING MANUAL MODE — PART I

Handling Backlighting

When starting out learning about camera metering and exposure, the Manual exposure (sometimes referred to as 'Shooting') mode is the best mode to handle backlighting conditions.
The auto modes do have some limited control with backlighting, and we will discuss that shortly.

Backlighting occurs when your subject has a strong light source behind them relative to your camera position. If backlighting isn't properly dealt with, your subject will likely be rendered as a silhouette within the image.

Step 1

- Set your camera to manual exposure mode, ISO 1600, and f/5.6. Only the Shutter Speed now remains a question mark.
- Do NOT turn on your flash.
- Your metering mode should be Matrix/Evaluative.
- Find a room, and ask the subject to stand against a wall.
- Point your camera at the subject, and then frame the shot so that you include their head to their waist.
- Choose a shutter speed, guided by the exposure meter, and take a picture.
- You should get a good shot with just the right exposure.

No backlighting

DIFFICULT EXPOSURE CONDITIONS USING MANUAL MODE

PART I

Step 2

- In that same room, now ask your subject to stand in front of a very bright open window.
- There needs to be plenty of light coming through that window.
- Point your camera at the subject, and then frame the shot so that you include their head to their waist.
- Choose a Shutter Speed, guided by the exposure meter, and take a picture.
- This is where the exposure meter will fail you. The backlighting will create an underexposed (dark) face on your subject.

> **!** You'll need to review your camera manual to see how your particular camera model handles the intermediate stop settings.

Backlighting fools the camera's exposure meter, causing the subject's face to be dark – a silhouette.

KEY LESSON

The exposure meter CANNOT tell between the subject and the bright background, so it tries to give you an exposure that attempts to balance both the subject and the background, which is not possible under these conditions. The light to shadow contrast range is too great for the camera to record.

DIFFICULT EXPOSURE CONDITIONS USING MANUAL MODE

PART I

Step 3

- In order to get your subject properly exposed, you need to override the exposure meter's recommended shutter speed.
- Do this by slowing down the shutter speed two full shutter speed settings – (2-stops).
- The exact number of stops cannot be made into a formula, because it depends on the intensity of the bright light that is coming behind your subject.
- Experiment with several different shutter speeds to get just the right exposure on your subject's face.

  For example, if your meter recommended 1/500th of a second for a shutter speed, try 1/250th of a second. That's 1 full stop of increased exposure.
- If the subject's face is still too dark, try 1/60th of a second for a shutter speed. That's 3 full stops of increased exposure.

- What would be 4 full stops of increased exposure be (by changing the shutter speed)?
  The new shutter speed would be 1/30th of a second.
  1/500th +1 stop = 1/250th +1 stop = 1/125
  1/125 +1 stop = 1/60th +1 stop = 1/30th

By adjusting the exposure in Manual mode - by increasing the exposure several 'stops' - the subject's face is now properly exposed. However, the details of the background are now overexposed and become lost.

DIFFICULT EXPOSURE CONDITIONS USING MANUAL MODE

PART I

KEY LESSON

Different cameras handle the demarcation between stops differently. Some cameras default to 1/3-stop increments between stops. Others are set to 1/2-stop increments between a full stop. Some cameras allow you to set these increments in your camera menu.
What do these increments mean? It means that your camera will make adjustments between the 'full one stop' settings.

Here is an example:
To change a shutter speed from 1/60th of a second to 1/30th of a second is one full stop of exposure adjustment (refer back to that earlier diagram in the exposure triangle section). However, if your camera is set up to 1/3-stop increments, it will not go directly from 1/60th of a second to 1/30th. It will change like this: 1/60th, 1/50th, 1/40th, and finally 1/30th.

If your camera is set up for 1/2-stop increments the shutter speed changes would occur like this:
1/60th, 1/45th, and finally 1/30th.

These 'in-between' settings also occur with the aperture and the ISO.

DIFFICULT EXPOSURE CONDITIONS USING MANUAL MODE — PART II

Handling Backlighting

The earlier technique (part I) was good only if you wanted to properly expose the subject, without placing any importance onto the background. This next technique is for situations where you want to properly expose BOTH the subject and the background. It involves using an electronic flash, which equalizes the amount of light exposing the subject and the background.

Step 1

- Set your camera to the Manual exposure (sometimes also referred to as the 'shooting') mode, ISO 400, and a shutter speed of 1/200th of a second.
- Only the aperture setting remains a question mark in this instance.
- Do not turn on your electronic flash, yet.
- Ask the subject to stand in front of a very bright window. There needs to be plenty of light coming through that window.
- Try to find a window with a nice view of something outside of the window (e.g. a garden or the neighbor's house).
- Point your camera at the subject; frame the shot so that you include the subject from their head down to their waist. Make sure you can also see the scene outside of the window.
- Choose an aperture (f/stop), guided by the exposure meter, and take a picture.
- This is where the exposure meter will fail you and give you an underexposed (dark) face on your subject.

Backlighting fools the exposure meter, causing the subject's face to be dark. The background is also a bit too bright, with a loss of detail

DIFFICULT EXPOSURE CONDITIONS USING MANUAL MODE

PART II

Take note of the background, does the exposure look correct, or is it too light?

Step 2

- If you can see the vibrant greens of the garden, or the bright colors of your neighbor's home, then move on to Step 3.
- If the outdoor scene is too light, increase your f/stop number, which decreases the aperture size, and let's less light pass through to the shutter curtain. For example, go from f/8 to f/11. This will decrease the exposure on the background by 1-stop.
- Conversely, if the outdoor scene was too dark (underexposed), lower your f/stop number (a larger aperture) to increase exposure. For example, go from f/8 to f/5.6. This will increase the exposure on the background by 1-stop.
- When you are happy with the exposure for the background, move to Step 3.
- At this point, your subject's face will still be dark.
- That is because the light levels outside are much higher than the light levels inside, which is what is illuminating your subject's face.

Step 3

the flash, and the background scene is properly exposed by your manual exposure settings.

- Turn on your electronic flash.
- This could be your camera's built-in flash, or it could be an external electronic flash (a flash unit that is mounted onto your camera's hotshoe).
- Make sure that the flash mode is set to TTL.
- Take a picture. Both your subject and the background are now properly exposed.

DIFFICULT EXPOSURE CONDITIONS USING MANUAL MODE — PART II

KEY LESSON

Canon, Nikon, and Pentax each have their own TTL flash metering system. Of course, they all have their own proprietary names as well - respectively E-TTL, i-TTL, and P-TTL. Some electronic flash units will give you an option between one of those designations and just plain old TTL. You are going to have to do some research and see what your particular equipment is capable of doing. For the exercises in this premium guide, just use the TTL setting (if possible).

Aperture Priority Mode, Shutter Priority Mode, And Program Mode

Aperture priority mode, and shutter priority mode, simplifies the picture taking process by automating one element in the Exposure Triangle. Program mode automates the selection of two points of the Exposure Triangle: aperture and shutter speed.

In aperture priority mode, you will control the ISO and the aperture, but your camera will choose the appropriate shutter speed.

In shutter priority mode, you will control the ISO and the shutter speed, but your camera will choose the appropriate aperture.

In program mode, you will control the ISO, but your camera will choose the appropriate aperture and shutter speed combination.

This means in aperture priority mode, if you change the ISO setting, your shutter speed will automatically change as well. Likewise, if you change your aperture the shutter speed will also change to maintain exposure.

This means in shutter priority mode, if you change the ISO setting, your aperture will automatically change as well. Likewise, if you change your shutter speed the aperture will also change to maintain exposure.

This means in program mode, if you change the ISO setting, your aperture and shutter speed will also change to maintain exposure.

KEY LESSON

When using the automated modes the exposure meter gauge, (visible inside the viewfinder), usually disappears from the viewfinder view, and only displays the aperture and shutter speed numerically – For example, inside the viewfinder you might see "f8 60. This indicates that the camera settings are f/8.0 at 1/60th of a second as determined by the camera meter and exposure (shooting) mode.

MAKING PICTURE TAKING EASIER

Aperture Priority Mode, Shutter Priority Mode, And Program Mode

Try this

- Set your camera to aperture priority mode (Canon labels it as 'Av', while Nikon labels it as 'A'. For other camera manufacturers consult your camera manual, if you're unsure.)
- Set your ISO to 1600 and your aperture to f/5.6.
- Point your camera at a bright light source; observe the shutter speed that was chosen by the camera. You will notice that the chosen shutter speed is a relatively high number.
- Now, point your camera at a dark corner, (or perhaps under a table), and observe the chosen shutter speed. You will notice that the shutter speed drops to a lower number (a slower shutter speed). You might even hit as low as 1 second, which appears as a "1".

  Light meter readings are so sensitive that they can be affectedby even the slightest change in the camera angle.
- If you perform the above exercise in shutter priority mode, it is the aperture that will change as you move the camera around.
- If you perform the above exercise in program mode, both the aperture and the shutter speed will change as you point the camera in different directions.

MAKING PICTURE TAKING EASIER

Aperture Priority Mode, Shutter Priority Mode, And Program Mode

Backlighting Fix When Using The 'Auto" Exposure Modes

- Set your camera to aperture priority mode, ISO 1600, and f/5.6.
- Set the metering mode to matrix/evaluative. Your camera will automatically choose the shutter speed.
- Do not turn on your flash.
- Find a room, and ask the subject to stand against a wall. Point your camera at the subject. Frame the shot so that you include everything from the subject's head down to their waist.
- Take a picture. You should get a good shot with a correct exposure.
- In that same room, now ask your subject to stand in front of a very bright window. There needs to be plenty of light coming through that window. Point your camera at the subject.
- Frame the shot so that you include everything from the subject's head down to their waist. Take a picture.
- This is where the camera, (guided by the exposure meter), will fail you. The subject will have an underexposed (dark) face (a silhouette).
- Press and hold the 'exposure compensation' button (use your camera manual to locate where this is positioned on your particular camera), and then change the exposure compensation setting until it indicates +1.
- Take a picture. This change in the 'exposure compensation' will brighten your subject's face a little bit. Use the +2, or the +3 settings if the subject is still too dark.

What the exposure compensation setting did…
was to 'tell' the camera to slow down the shutter speed, thereby letting in more light and increasing the exposure on the subject's face.

In shutter priority mode, the exposure compensation setting will change the aperture.

In program mode, the exposure compensation setting will change the aperture and shutter speed settings equally.

KEY LESSON

If your camera is a Canon DSLR, it has this type of power switch on the rear of the camera. Turn the switch to the 'ON' position for exposure compensation to be controllable from the rear dial on the camera.

Turn this switch to the 'OFF' position when you're not using exposure compensation, so that you don't accidently bump it and create problems with your exposures.

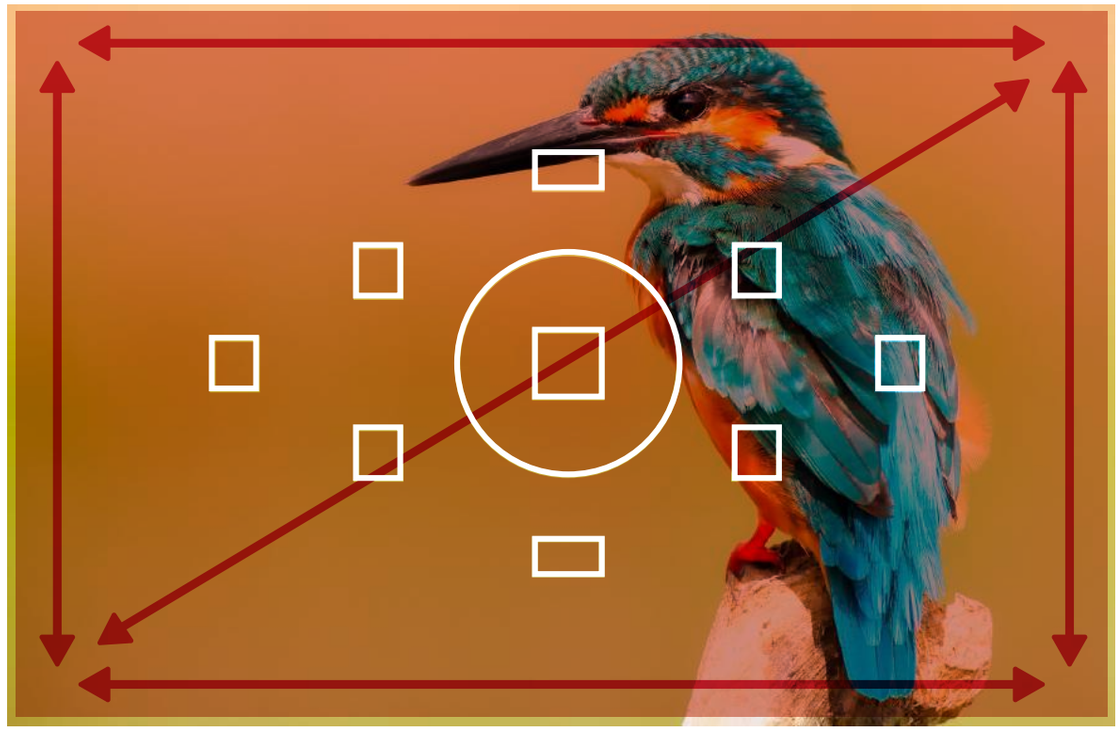
EXPOSURE CONTROL: EXPOSURE METERING MODES

Matrix/Evaluative Metering Mode

There are three main exposure metering mode settings in a camera: Matrix/Evaluative, Spot Metering and Center-Weighted.

The first mode we will discuss measures the entire frame that is visible in the viewfinder, and then averages all of the readings to give the best overall balanced exposure.

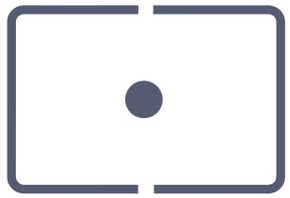
In Nikon cameras this mode is known as the, 'Matrix', metering mode. In Canon cameras, this mode is known as the, 'Evaluative', metering mode. This metering mode is a good all-around mode for most subjects.



The meter reads the entire frame.

EXPOSURE CONTROL: EXPOSURE METERING MODES

Spot Metering Mode



The Spot metering mode confines the camera's light meter to a very small percentage of the viewfinder area. This percentage can vary by camera. Some cameras confine the spot meter reading to the center area of the frame, while others allow the spot to be moved around within the frame.

Research your equipment to see how your particular camera uses the Spot meter setting.

The Spot meter is a good choice when you encounter a difficult lighting situation, such as: backlighting, night photography, extreme contrast in a scene, when using multiple constant lights in a lighting scenario (such as portraits), etc.

KEY LESSON

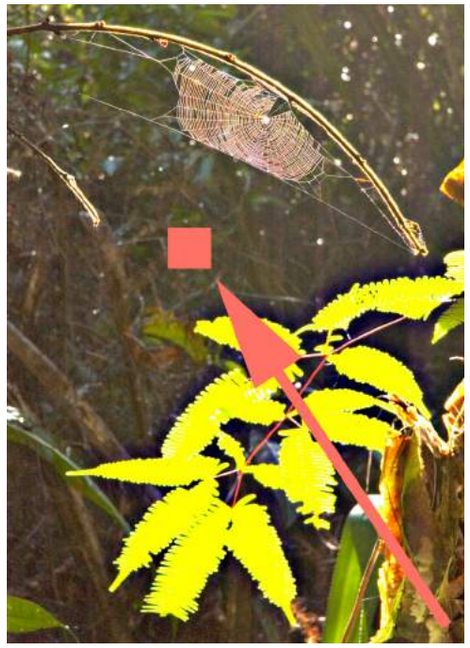
Be careful when using the spot-metering mode, because your exposure can vary greatly. Because of this, spot metering is best used in Manual exposure mode.

When using the Spot meter mode, place the 'spot' on the most important part of the picture.

This tells the camera to measure only that tiny little area where the Spot metering point is, ignoring anything outside of this area.

This results in a good exposure that draws the attention to the leaves. The background went dark from underexposure.

To demonstrate how much the placement of the spot meter can affect your image- look at the photograph of the fern. In this example, the spot reading was taken from the fern (indicated by the red square).



Because the camera measures only that tiny little area where the Spot metering point is positioned, (pointing at the dark background), you will get a bad exposure for the intended subject (the fern leaves), because the camera is going to expose for the dark background. The overall scene will be considerably brightened, because the background is a lot darker than the area where the leaves are located. Over-exposure has burned out all of the texture and detail on the leaves.

In this example, the spot reading was taken from the background (indicated by the red box). As you can see this resulted in a gross overexposure of the fern.

EXPOSURE CONTROL: EXPOSURE METERING MODES

Spot Metering Mode

Try this

- Select the Spot-metering mode on your camera. If your camera allows the metering area to be moved- set it to the center of the viewfinder.
- Set your camera to Manual exposure mode, ISO 1600, and f/5.6.
- Repeat the exercise we did earlier.
- Place your subject against a wall and take the same head to waist pictures using the Spot-metering mode.
- Now place your subject in front of the bright window.
- Use the Spot metering to take the exposure reading from the subject's face (excluding the bright window area). This time, because you are using Spot metering, you will get quite consistent results between the wall shot and the window shot, because the Spot meter mode is unaffected by the backlighting.

Some Canon cameras can move the spot meter point using this button, which is located in the upper rear portion of the camera body.

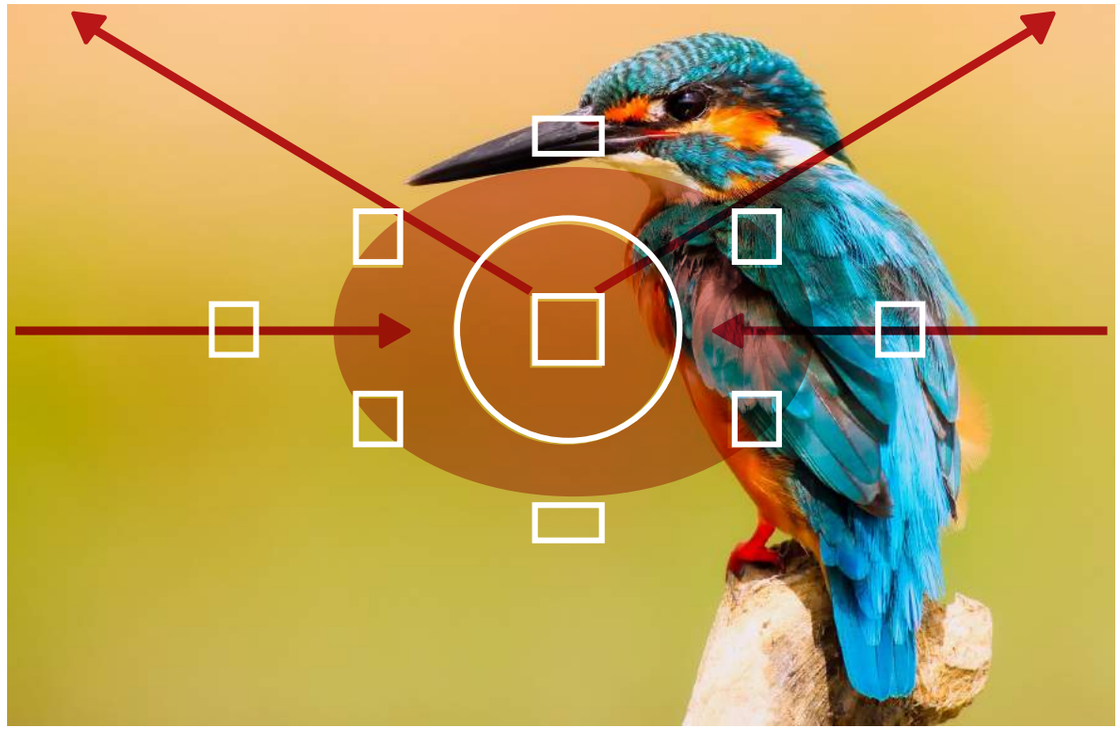
Some Nikon cameras can move the spot meter point using this dial on the rear of the camera.

EXPOSURE CONTROL: EXPOSURE METERING MODES

Center-Weighted

This metering mode option also reads the entire frame. However, it gives significant importance to the central part of the frame. The exact percentages may vary by camera manufacturer. As an example, Nikon cameras give a 75% input to meter reading from the central area of the frame and a 25% input to the meter reading from the rest of the frame.

The Center-weighted metering mode works well for any subject where the importance lies in the central part of the frame- particularly portraits.



The meter read the entire frame, but places an emphasis on the central area of the viewfinder.

FOCUSING TECHNIQUE PART I

Focus, Lock, And Recompose

Knowing the right focusing technique can make the difference between sharp pictures and out-of-focus pictures. There are two main focusing techniques. The first one is called 'Focus, Lock and Recompose'.

Before you get started with this section, you must have your camera set up properly. Nikon users set your 'Focus Mode' to 'AF-S'. Canon users set your 'Focus Mode' to 'One Shot'. If you are using another brand of camera, you'll need to do a little research in your manual.

You want to set your focus mode so that the camera/lens focuses once- when you begin to depress the shutter release button, a picture is then taken when the release button is fully depressed, and finally after the picture is taken the focus is released for the next shot.

Nikon users, you must also select the 'AF-Area Mode' and set it to 'Single Point'.

Most cameras allow the photographer to move the single focus point area around the viewfinder. You would accomplish this using the same buttons that were used to move the spot meter reading area. (Refer back to see those buttons again.)

Step 1

- Set your camera to aperture priority mode, ISO 1600 and f/5.6.
- Find two cups and place them on a table. Both of the cups should be about two feet away from you.
- Position the camera at table height. Point your camera at the 1st cup. Make sure the cup is right in the middle of the frame, and your 'focus point' is aimed right at the cup.
- Press the shutter release button halfway to focus the lens, and then all the way to take the picture.
- Your cup should be sharply in focus.

The cup is sharp, because the focus point is positioned right on it.

FOCUSING TECHNIQUE

PART I

Step 2

- Now, we want both the cups to be in the picture. Aim the camera right in the middle of the 2 cups (with the focus point centered between them), focus, and take the picture.
- You will end up with the 2 cups out of focus, while the background will be in focus!
- This is because your camera will focus on wherever the focus point is positioned.

The cups are out of focus, because the focus point was positioned centrally between the cups. This put the focus point on the chair, leaving the two subjects of the photo completely out of focus.

Step 3

- In order to get both of the cups sharply focused, focus on one of the 2 cups (as you did in step 1).
- Hold the focus- by keeping your finger depressed halfway down on the shutter release button.
- Move the camera so that both cups are properly positioned in the viewfinder, and then press the shutter release button all the way down to take the picture.

Now both cups will be in focus!

Both cups are sharply focused- even though the focus point was moved off of the cup and back to the chair before the picture was taken. This result is because we used the 'Focus, Lock, and Recompose Technique'.

By pressing the shutter release button halfway down, you 'locked' the 'focus' on the cup, and by moving the camera sideways, you 'recomposed' the picture to include both cups. In this final shot, both cups are in focus because they are both at equal distances from the camera.

FOCUSING TECHNIQUE PART II

Using The Right Focus Point

The most often used focus point on your camera is the center focus point, which was why I asked you to use it in the earlier exercise. Having said that, you can also use the other focus points if you just don't want to recompose the shot.

Most photographers find the focus, lock, and recompose technique easier when photographing non-moving subjects.

However, moving the focus point can be advantageous for certain types of photography like wildlife, sports, or portraits.
Why would this be? Perhaps, you won't have time to recompose, but your point of interest, where you want the focus to be, is away from the central part of the frame.

Step 1

- You will now repeat the exercise with the two cups, only now you will select a different focus point- a different focus point from the central one that we previously used. Look through the viewfinder.
- Compose the shot with both cups positioned in the frame, as you did in the 'focus, lock, and recompose' exercise.
- Look for a 'focus point' that is positioned on one of the two cups (not the central one – the central one should be positioned at the background).
  Take note of the focus point that you wish to use.
- You are now going to move the focus to the point that you have selected. Set your camera to aperture priority mode, ISO 1600 and f/5.6.
- Position the camera at table height. Point your camera at the two cups. Make sure that your newly selected 'focus point', (not the center one), is positioned on the appropriate cup.
- Press the shutter button halfway to focus, and then all the way to take the picture. Both cups should be sharply in focus, and there was no need to recompose the shot.

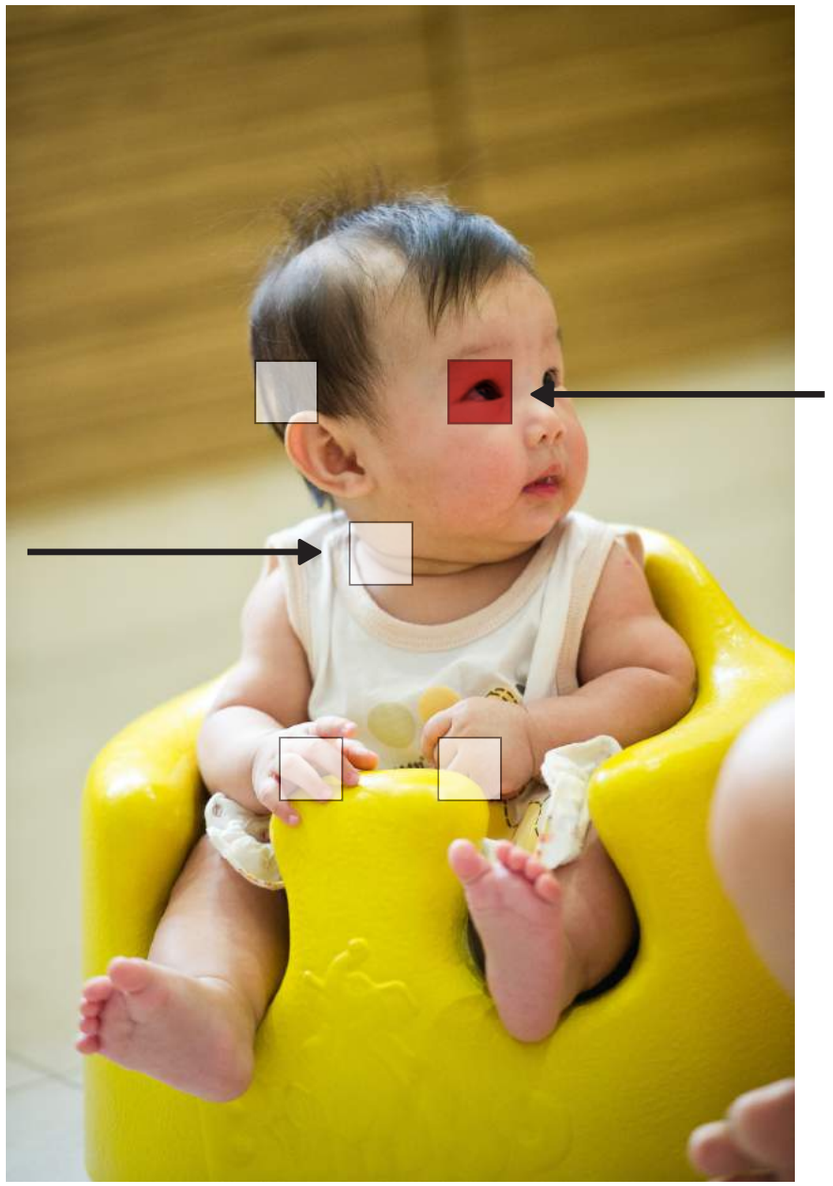
Nikon and Canon users- remember the dial, or button, that you used to move the focus point (and spot meter point) previously? You are now going to use those same tools to move the focus- to the focus point position- that you just chose in the viewfinder. If you are unsure how to do this… You are going to have to consult your manual. This also applies to users of other camera makes and models.

FOCUSING TECHNIQUE PART II

Using The Right Focus Point

We can combine both focusing techniques as well. This is when the selected 'focus point' does not fall EXACTLY where we want it to focus on. We can still perform the 'Focus, Lock, and Recompose Technique' using any focus point.

This allows us to focus on any part of the picture, with the nearest focus point selected, so that when we do a 'Focus, Lock, and Recompose', the camera only needs a slight movement.



In this example photograph, the baby was moving. The photographer wanted the child's eye to be in focus; that was the main point of interest. The focus point was moved from the center spot (the small black arrow) to a focus point that was positioned over the eye (the large black arrow). There were other potential focus points that could have been chosen, but they weren't properly positioned over the main point of interest.

FOCUSING TECHNIQUE

PART II

For focus accuracy, focus on high contrast areas.

KEY LESSON

Your camera's autofocus system works best when you focus on areas with higher contrast. If you are focusing on a cup, try to focus on the rim of the cup, not on the featureless central body of the cup. Have you noticed that you cannot focus on a plain blue sky? Your lens will struggle to find a spot to lock focus on. When faced with a low contrast situation, you can use the 'Focus, Lock, and Recompose' technique. Look for an area of similar distance away from the camera that has some contrast. Focus on that, lock focus, and the recompose. If there is no area of contrast to focus on (for example a very foggy landscape scene)- you may have to switch to manual focus.

FOCUSING TECHNIQUE PART II

Depth-of-Field Control

Depth-of-field is the range of distance, from the foreground to the background, that is sharply focused in a picture. It is referred to as 'shallow depth-of-field' when the subject is sharp- while the background and foreground are out of focus.

Pictures that have the entire photograph in focus- from foreground to background- are referred to as having 'deep depth-of-field'.

There are 3 factors that affect depth-of-field. They include the chosen aperture, the focal length of the lens, and the distance of the focus placement from the camera. When you're first learning photography, you will want to concentrate on your use of aperture and lens focal length first.

Step 1 - At f/5.6, (or the widest aperture that your lens has), the background is out of focus.

Step 1

- Set your camera to aperture priority mode, ISO 1600, and f/5.6. If you have a lens that has a wider aperture (lower number) than f/5.6 – then set your f/stop to the widest opening.
- Set your lens focal length to 50mm.
- Go outdoors, and ask the subject to stand at an open spot with plenty of space around them.
- Standing about 3 feet away from the subject, take a picture at f/5.6 (or the widest aperture you have on your lens).
- Notice that the background is slightly out of focus behind the subject.

FOCUSING TECHNIQUE PART II

Step 2 - At f/11 the background is becoming more in focus, as the depth-of-field increases with the use of a smaller aperture.

Step 3 – At f/22 the background is at its sharpest point. This means the depth-of-field range has been extended from the subject all the way to the background.

Step 2

- Now, set your aperture to f/11. Take another picture of your subject.
- Notice that the background is getting sharper.

Step 3

- Now, set your Aperture to f/22. Take another picture of your subject.
- The background is now even sharper.

As you move from a smaller f/stop number f/5.6, (the smaller the number the larger the aperture size - or an even smaller f/stop number - i.e. f/4, f/2.8, f/2.0, f/1.8, f/1.4, f.1.2 etc.) to a bigger f/stop number f/22 for example, (a smaller aperture size), your depth-of-field increases (the range of focus from foreground to background), making your background (as well as anything in front of your subject) appear sharper.

Typically, if you wanted a portrait of a person with an out-of-focus background, an aperture of f/2.8, or larger, will give you that shallow depth-of-field.

If you are a landscape photographer, who is shooting a beautiful scenic that requires everything to be sharply focused, you would use a small aperture like f/16 or f/22 - so that the depth-of-field window (the window of focus) extends from the flowers that are five feet in front of you all the way to the sunset ten miles away.

DEPTH-OF-FIELD CONTROL

Distance To Subject & Lens Focal Length

There are two other factors that control depth-of-field.

1. The distance from the camera to the subject

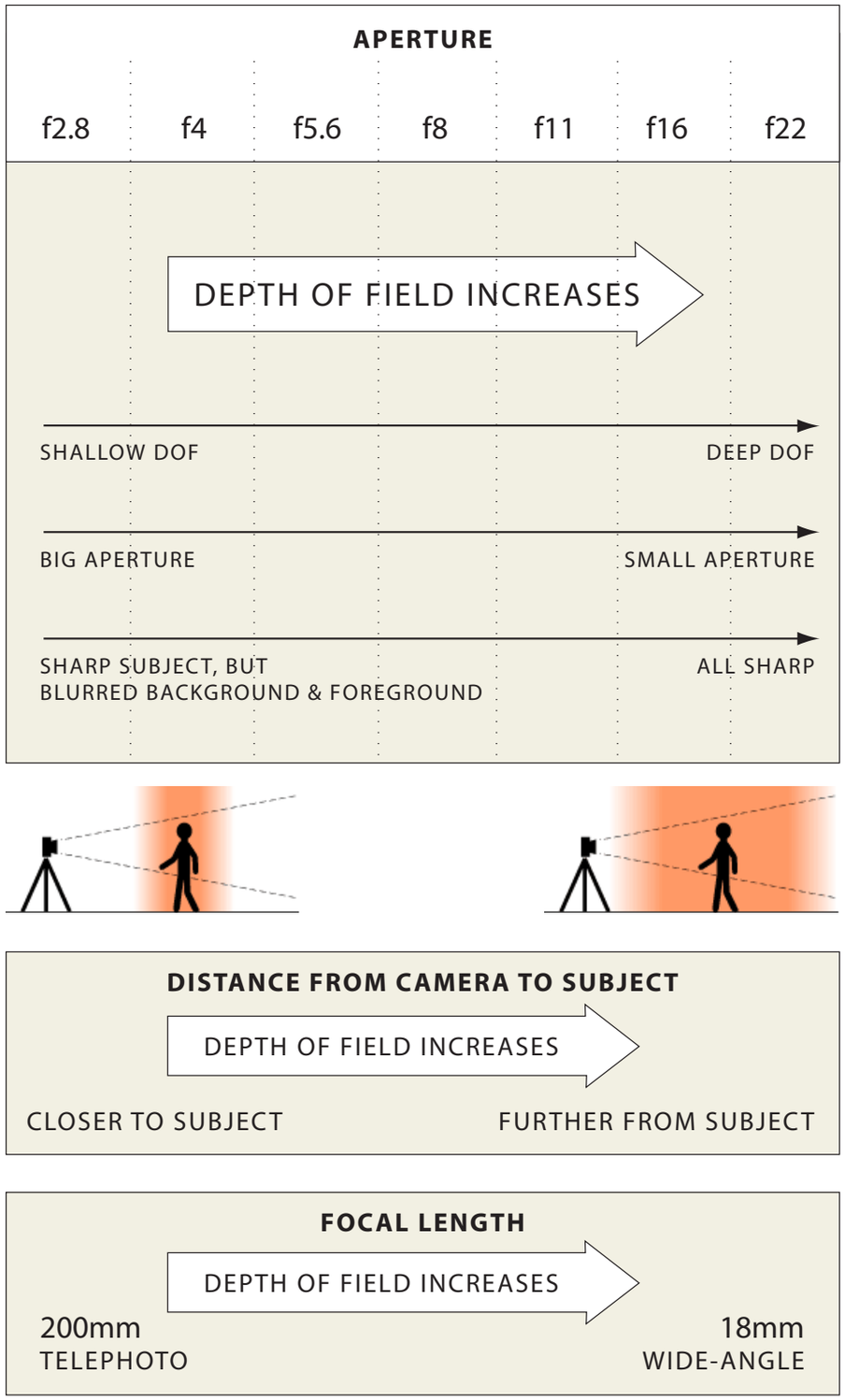
1.1. The closer you are to your subject, the shallower the depth-of-field window will become.

1.2. The further you are from your subject, the deeper the depth-of-field window will become.

2. The focal length of the lens

2.1. The longer the focal length of your lens, the shallower the depth-of-field window will become.

2.2. The shorter the focal length of your lens, the deeper the depth-of-field window will become.



DEPTH-OF-FIELD CONTROL

Distance To Subject

Step 1

- Set your camera to aperture priority mode, ISO 200, and f/5.6.
- Set your lens focal length to about 50mm.
- Go outdoors, ask the subject to stand at an open spot with plenty of space around them.
- Stand about 3 feet away from the subject, and take the subject's photograph at f/5.6.
- Take notice that the background is slightly out of focus.

Step 2

- Without changing any exposure settings, take a few steps back, so that you are now about 10 feet away from the subject.
- Focus and take another picture.
- Take notice that the background has become sharper.
- This shows you that your depth-of-field increases when you are further away from the subject.
- On the other hand, when you move closer to the subject you will get less depth-of-field (background becomes out of focus).

DEPTH-OF-FIELD CONTROL

Distance To Subject

Step 3

- Standing in the same location from the subject (about 10 feet away), zoom out your lens to the 18mm focal length setting (use a wide angle lens – the widest that you have).
- Your camera should still be in aperture priority mode, ISO 200, and at f/5.6.
- Take another photograph.
- Take notice that the background is now very sharp.

Step 4

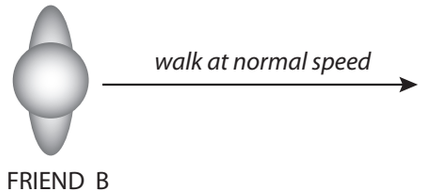
- Without changing any of the other exposure settings, adjust your lens to the 50mm focal length setting (standard angle).
- Focus and take another picture of your subject. Take notice that the background has become slightly out of focus.
- If your lens has telephoto capability, (higher than 50mm), adjust the focal length to the maximum setting (don't go higher than 200mm for this exercise).
- Focus and take another picture of your subject. Take notice that the background now appears quite out of focus.
- This shows you that your depth-of-field increases as the focal length of the lens becomes wider. On the other hand, as the focal length of the lens increases- you get less depth-of-field (background becomes out of focus).

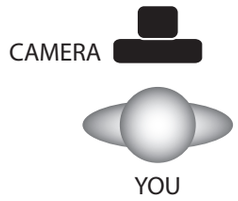
Controlling the Shutter Speed in Aperture Priority Mode

Shutter priority is the reverse of aperture priority, and is usually used when you need to use a specific shutter speed to freeze motion (a high shutter speed) or to create motion blur (a slower shutter speed).

Step 2

- Get indoors. Mount your DSLR onto a tripod. You will need to get 2 friends to help you with this exercise.
- Set your camera to aperture priority mode, ISO 1600, the focal length of the lens at 50mm, and the aperture at f/4.
- Get Friend 'A' to stand still about 8 feet in front of your camera.
- On your cue, have Friend 'B' walk briskly behind Friend A from left to right- at a distance of about 12 feet from the camera (refer to diagram).
- Take a picture as Friend 'B' walks behind Friend 'A.





KEY LESSON

For your reference, a shutter speed of 1/125th of a second is considered the mid-point for shutter speed control.

Anything below 1/125th is considered a 'slower' shutter speed. With each step of the shutter speed setting (below 1/125th) the shutter is becoming slower and slower. For example, starting with 1/125th of a second and moving in the direction of slower shutter speeds: 1/60th, 1/30th, 1/15th, 1/8th, etc.

Anything above 1/125th is considered a 'faster' shutter speed. With each step of the shutter speed setting (above 1/125th) the shutter is becoming faster and faster. For example, starting with 1/125th of a second and moving in the direction of faster shutter speeds: 1/250th, 1/500th, 1/1000th, 1/2000th, etc.

MOTION CONTROL

Step 2

- Repeat the exercise using an aperture of f/11.
- You will notice that Friend 'B' begins to have more motion blur.

Step 3

- Repeat the exercise using an aperture of f/22.
- You will notice that the motion-blur increases as the shutter speed is slowing down.

Step 4

- Check out your LCD panel on the back of your camera, and compare the 3 shots.
- Set your LCD display so that you can see the aperture and shutter speeds that were used for each shot.
- You will notice that the 1st shot, using f/4, has the highest shutter speed, and therefore friend 'B' looks pretty sharp. Friend 'B's' motion has been somewhat frozen through the use of a higher shutter speed.
- The 2nd shot, taken at f/11, has a slower shutter speed, and therefore friend B begins to exhibit motion blur.
- The 3rd shot, using f/22, has the slowest shutter speed, and therefore exhibits the most motion blur.
- This exercise demonstrates how you can control the shutter speed through your choice of aperture, while using aperture priority mode.
- In the exercise, if the f/4 aperture does not give you a sufficiently high shutter speed to freeze the motion of friend 'B', there are two options: Use a larger aperture (e.g. f/2.8), if your lens has that capability, or use a higher ISO setting.

Your exposure controls are all within the 'Exposure Triangle' (explained earlier).

PERSPECTIVE CONTROL

Wide Angle Lens vs. Telephoto Lens

Using the right lens for the job can give you dramatically different results.

Wide-angle lenses exaggerate the size of objects that are closer to the lens, and will also make objects that are further away from the lens appear smaller.

Telephoto lenses do the opposite. A telephoto lens draws distant objects in closer. This optical effect creates what is called 'perspective compression'. The foreground, and the background, of a photograph created with a telephoto lens appears to be closer together than it actually is.

Step 1

- Get a friend to stretch out their hand with their palm facing you. Focus on the subject's face, but keep their palm in the picture.
- The tips of subject's fingers should touch the top edge of the picture, and the base of the subject's palm should touch the bottom edge of the picture.
- Set your camera to aperture priority mode, ISO 1600, and f/5.6.
- Use a lens that is the closest to the 18mm focal length that you own.
- Take a picture.

Step 1 - Wide Angle Lens: the palm of the subject's hand fills the frame and their head appears small.

MOTION CONTROL

Step 2

- Repeat the exercise with your lens set to a focal length of 50mm.
- The tips of the subject's fingers should touch the top edge of the picture, and the base of the subject's palm should touch the bottom edge of the picture (just as before).
- This means that you will need to take a few steps back.
- With your lens at the 50mm setting, take a picture.
- Compare the two shots.
- Your friend's head will appear smaller in the 18mm shot, even though both shots show her palm at the same size. If your lens has a telephoto setting (higher than 50mm) your friend's head may appear larger than her palm.

Step 2 - Telephoto Lens: The subject's palm is the same size, but the subject's head now appears larger in the frame. The telephoto lens has compressed the foreground and the background.

KEY LESSON

A telephoto lens is generally considered the best option when shooting portraits. The compression of the facial features makes them more pleasing in a photograph. A wide-angled lens can be used for portraits when the subject(s) are much further away from the camera, or the photographer wishes to use the distortion as a special effect.

PERSPECTIVE CONTROL

Wide Angle Lens vs. Telephoto Lens - PART I

Let's look at two scenarios where we can apply this principle of 'using the focal length of the lens for an effect'.

If you were asked to take a photograph, which depicts the long train of a bride's wedding gown, the right lens to use would be a wide-angle lens. In this case, the wider the better, as the distortion will add to the effect of the train being quite long.

KEY LESSON

Any lens that has a focal length of less than 18mm is considered ultra-wide. Any lens with a focal length of 35mm, or wider, is considered a wide-angle lens.

The lower the number- the wider the angle of view- the more pronounced the distortion.

Using an ultra-wide (14mm) lens exaggerates the length of a bride's train.

PERSPECTIVE CONTROL

Wide Angle Lens vs. Telephoto Lens - PART II

On the other hand, if we wanted to shoot a mountain range, and make the peaks appear in a layered fashion, we should use a telephoto lens.

Short telephoto lenses (60mm - 105mm) are also popularly used in portrait photography due to their characteristics, which make flattering portraits.

KEY LESSON

Any lens with a focal length longer than a 55mm is considered a telephoto lens. The higher the number of the focal length- the more pronounced the telephoto effect is. Lenses in the 60mm – 135mm focal length are considered 'short' telephoto lenses. 135mm – 250mm are considered 'medium' telephoto lenses. Above 250mm are consider 'super' telephoto lenses.

The use of a telephoto lens (200mm) brings the distant mountains closer.

COLOR CONTROL

White Balance

White balance (WB) is the setting on your camera that tells the camera what the color 'white' should actually look like. The white balance setting should be based upon what the color temperature of the primary light source is.

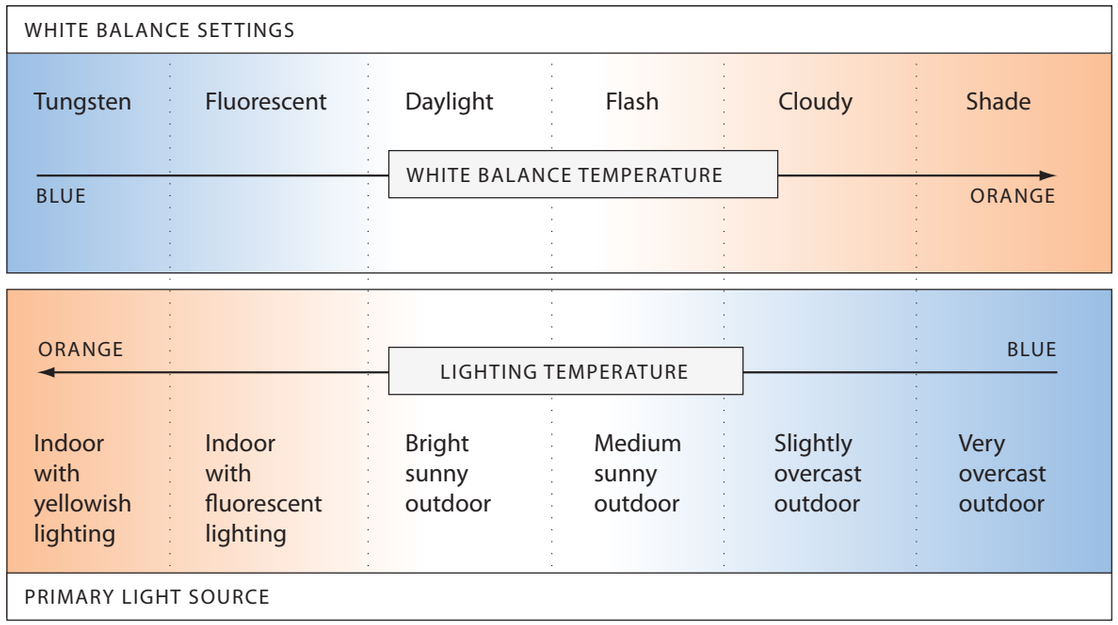
If you're unfamiliar with the color temperature of light- see the recommended reading. Using the right 'white balance' setting will ensure that your pictures come out with the right color tones.

Look at the diagram. Check out the bottom row - Lighting Temperature. If you take a picture, and the result is yellowish/orange in color, you should change the camera's white balance setting to Tungsten.

The tungsten white balance setting adds the color 'blue' into the camera's calculation of a proper 'white color' to compensate for the abundance of yellowish/orange color in tungsten lighting.

On the other hand, if your photo has a bluish color (usually outdoors at dawn, or after a heavy thunderstorm, or in deep shade), you should set your camera's white balance setting to 'Shade'.

The shade white balance setting adds the colors orange and yellow into the camera's calculation of a proper 'white color' to compensate for the abundance of the blue color in some lighting scenarios.



Recommended Reading: Understanding Light: Book One

COLOR CONTROL

White Balance

Using the 'Tungsten' white balance setting in a room with tungsten lights results in a picture that displays proper color.

Using the 'Tungsten' white balance setting in a room that is lit by window light (daylight) will result in a picture looks too blue.

Using the 'Daylight' white balance setting in a room with tungsten lights results in a picture that looks too orange.

KEY LESSON

The 'Auto white balance' setting on your camera will provide acceptable results most of the time. However, if you're taking pictures, and the colors look funny on your LCD preview image, you'll want to set the white balance to one of the custom settings.

IMAGE QUALITY

ISO Settings and Camera Shake

ISO is the sensitivity setting, as relates to the light intensity, being recorded on the camera sensor. Low ISO settings (e.g. ISO100, ISO200) produce the best image quality. Use them whenever you have plenty of light, for example outdoors in bright sunlight.

Higher ISO settings (e.g. ISO1600, ISO3200) can produce digital noise, which can decrease image quality. Use them whenever you have low light, for example outdoors in the evening or indoors.

If you are only posting your photographs online or making small photographic prints, digital noise is not a big problem. Digital noise becomes an issue if you are going to make larger prints. On the other hand, digital noise can give an artistic flavor to a photograph, especially in black and white photography.

In the previous exercises, a high ISO setting was used, NOT because it produces the best image quality, but because we wanted to prevent any camera shake.

Using a higher ISO setting allows us to use a higher shutter speed. That enables us to avoid potential camera shake.

KEY LESSON

'Camera shake' is unwanted blur in a photograph that is caused by using a shutter speed that is too slow.

IMAGE QUALITY

ISO Settings and Camera Shake

A high ISO setting keeps the shutter speed faster for a handheld shot.

Digital noise appears as a grain-like structure in the photograph. It is most visible when a photograph is taken at the higher ISO settings or when the photograph is magnified, such as when making a large photographic print.

Camera shake happens when the shutter speed is too slow for you to hold your camera steady. You can identify 'camera shake blur', in a photograph, because generally everything in the photograph will be blurred. Blur from a lens that wasn't properly focused will generally have 'some part' of the photograph that will be in focus. (Think back to the exercise with the cups and the chair. In the example where both cups were out of focus, it was because the focus was misplaced onto the chair in the background.)

IMAGE QUALITY

Try this

- To get an idea of how camera shake can affect your photos, repeat the previous exercise using subjects 'A' and 'B' with A'' standing still, and 'B' walking behind 'A'… but this time WITHOUT using a tripod.
- You will find that the slower the shutter speed becomes, the harder it is to hold your camera steady and get a sharp photo.
- How then can you ensure that your shutter speed is high enough to get a sharp picture?
- A guide to choosing a suitable shutter speed is this formula, which is based upon the focal length of the lens:

Shutter Speed = 1/focal length of the lens

- For example: If the focal length of the lens is 18mm - your minimum recommended shutter speed is 1/18.
- In practice, you will not encounter such a shutter speed. So the recommended rule is to round up- this means that the minimum recommended shutter speed is 1/20th of a second.
- Similarly, if the focal length of your lens is 50mm, your minimum recommended shutter speed is 1/50. In practice, this means round up to1/60th of a second.
- The longer the focal length of the lens, the higher the shutter speed needs to be to prevent camera shake.

KEY LESSON

Some lenses, or cameras, have a feature know as 'Image Stabilization'. Different manufacturers label this feature differently. Nikon calls this feature 'VR' and Canon calls this feature 'IS'. For Sony cameras the feature is built into the camera and not the lens. Image stabilization allows you to hold the camera anywhere from two to five shutter speeds 'slower' than you could without it. How many shutter speeds you gain is dependent on the image stabilization system. Check your manuals. However, you still need to practice good technique when holding your camera.

FOCUSING TECHNIQUE (MOVING OBJECTS)

Choosing The Right Autofocus Mode

The autofocusing digital cameras have two main autofocus modes. One mode is meant to focus and shoot a single shot.

The second mode is meant to keep focusing as the camera follows a moving object.

For Nikon and Canon the single shot mode is designated like this: 'AF-S' (Nikon) or 'One Shot' (Canon).
The second mode is designated like this: 'AF-C' (Nikon) or 'AI Servo' (Canon).
(For other camera manufacturers – consult your manual.)

There is also a third focusing mode one. This mode is an auto-sensing mode that chooses between the two previously described modes.

The camera makes this choice based upon what is happening inside the frame of the viewfinder.

This 3rd mode is called 'AF-A' (Nikon) or 'AI Focus' (Canon).
(For other camera manufacturers – consult your manual.)

FOCUSING TECHNIQUE (MOVING OBJECTS)

Step 1

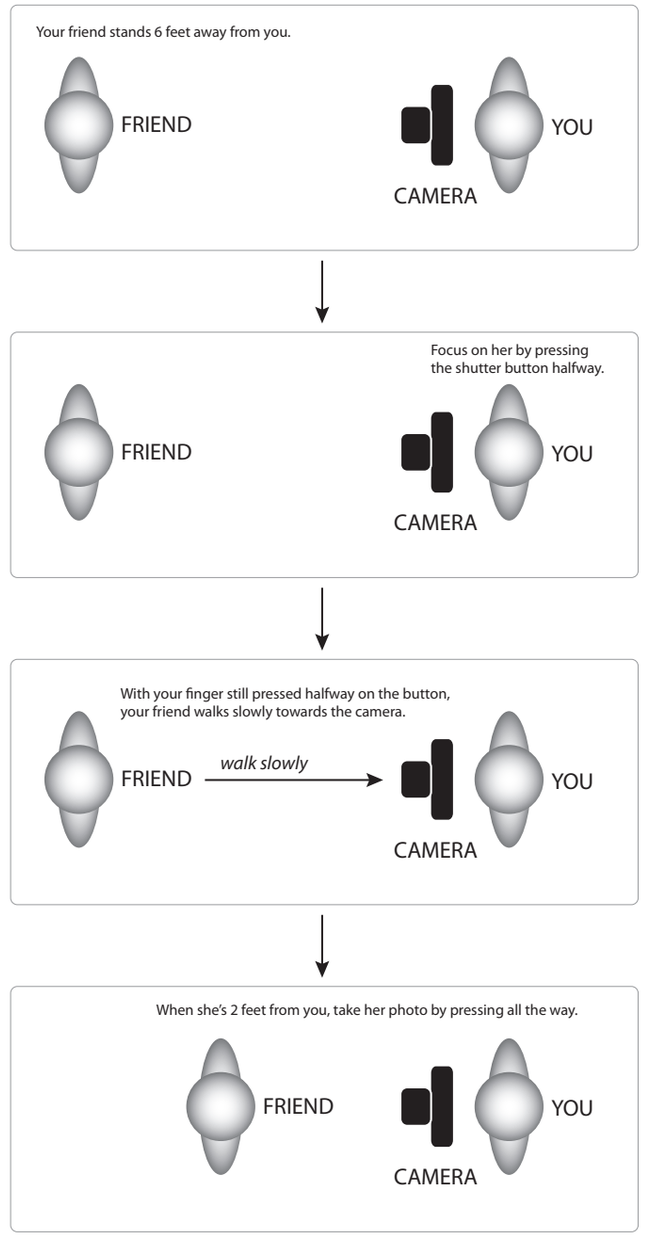
- Set your camera to aperture priority mode, ISO 1600 and f/5.6. The camera will automatically select the shutter speed. Choose a lens focal length of 50mm.
- For this exercise you will need the help of one friend.
- Point your camera at the subject, who is standing 6 feet away from the camera.
- Focus on the subject by pressing the shutter release button halfway down.
- With your finger still pressed halfway down on the shutter release button, ask your subject to begin slowly walking toward the camera.
- As they walk toward you, ensure that your center focus point remains on them.
- When they are 2 feet from you, take the photo by pressing the shutter release button all the way down.

In the resulting photo, your subject will be OUT OF FOCUS.

This is because, by keeping your finger pressed halfway down on the shutter release button, you have locked the focus at 6 feet.

This is a feature of the single shot mode. Once focus is achieved, either the shutter is immediately released, or the focus is locked until the shutter is released.

When the subject slowly walked forward to a distance of 2 feet from the camera- they were no longer at the point of focus, because the focus was locked back at 6 feet.



Your camera needs to be set to the following settings: For Nikon: 'AF-S' mode AND 'AF-Area Mode' should be set to 'Single Point'. For Canon: 'One Shot' mode. For both cameras: Select the 'center' focus point.
(For other camera manufacturers – consult your manual.)

FOCUSING TECHNIQUE (MOVING OBJECTS)

Step 2

This will be a repeat of the previous exercise, BUT with one crucial change:

Your camera needs to be set to the following settings: For Nikon: 'AF-C' mode and 'AF-Area Mode' should be set to 'Single Point'. For Canon: 'AI Servo' mode. For both cameras: Select the 'center' focus point.
(For other camera manufacturers – consult your manual.)

- Repeat the process of placing your subject at 6 feet from the camera, focus by depressing the shutter release button half way down, ask the subject to slowly walk forward toward the camera, keep the center focus point on the subject, and finally release the shutter at 2 feet by fully depressing the shutter release button.
- In the resulting photo, your friend will be IN FOCUS.
- In this focus mode, by keeping your finger pressed halfway down on the shutter release button, you are using the camera's focus tracking feature.
- This means that when the subject moves, the camera will track the distance from you, and continue to focus on the moving subject, as long as your finger is pressed halfway down on the shutter release button AND as long as you keep the focus point on the subject.
- When the subject is at 6 feet, the camera will focus at 6 feet. But, when the subject moves to the 2-foot mark, the camera tracks her change in distance and continues to focus until the shutter release button is fully depressed to release the shutter.

KEY LESSON

This technique can be used for fairly slow moving subjects. If the subject is moving fast or laterally to the camera (as opposed to moving towards you as in this exercise), you will need to use a combination of more advanced techniques: pre-focus and panning.

Recommended Reading:

5 Things You Probably Didn't Know About Camera Shutter Speed

How to Avoid Blurry Photographs

DSLR Auto-Focus Modes Explained

ANALYZING THE SHOT

ANALYZING THE SHOT

Let's study some photographs, and determine how the various lessons in this premium guide were used to produce the work.

Motion Trails At Twilight

When I travel, I sometimes use aperture priority when I want to get the shot quickly, and then move on.

I intentionally set the aperture to f/11 (a small aperture which lets in very little light), which would force the shutter speed to go really slow (in this case 3 seconds).

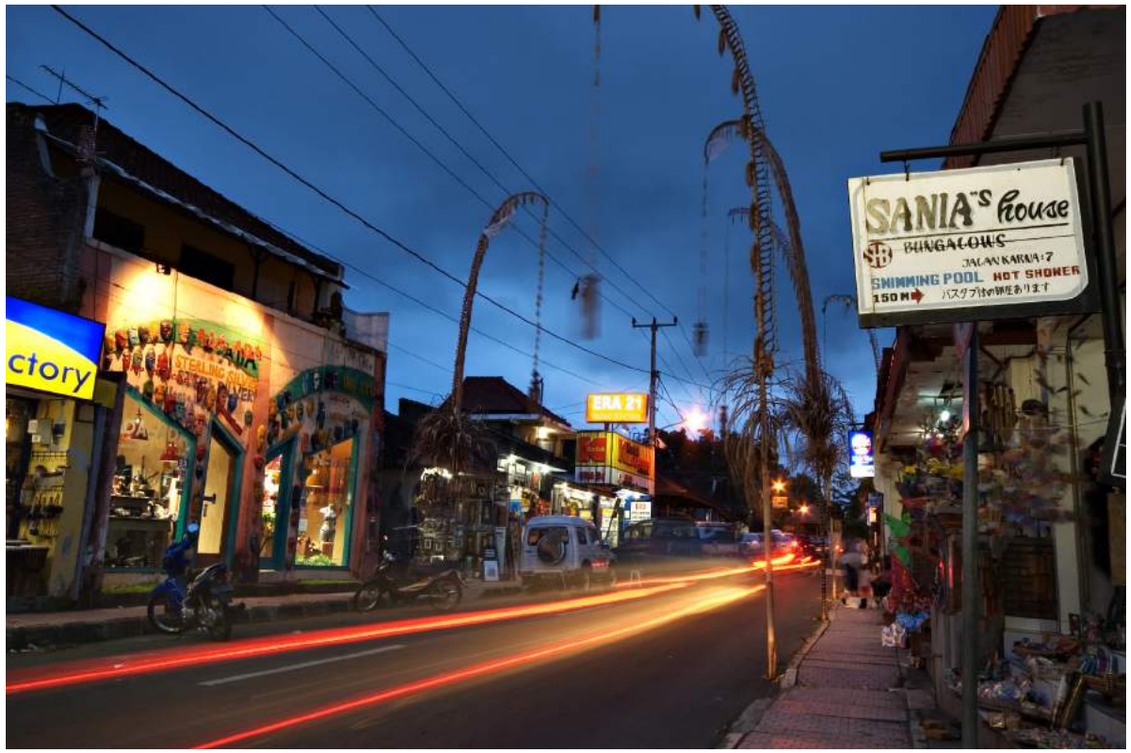
Such a slow shutter speed enabled the taillights of the passing vehicles to create colorful streaks of light.

If you look closely, the slow shutter speed also recorded the movement of the hanging objects, as it was a windy night.

For maximum image quality I set my ISO to 200, the lowest setting that my Nikon D70 would allow.

At such a slow shutter speed, I also needed a tripod. A carbon fiber tripod is expensive, but it's lightweight, and perfect for travel.

I added a +1 stop of exposure compensation because the bright lights from the shops would fool my exposure meter into thinking it was brighter than it actually was, and that would result in a darker picture (underexposed).



Photograph by Andy Lim

Mode: Aperture Priority
ISO: 200
Aperture: f/11
Shutter Speed: 3 seconds
Exposure Compensation: +1
Camera/Lens: Nikon D70 with Sigma 10-20mm lens
Time: 6:16pm

KEY LESSON

For better night photos, don't wait until the sky turns jet black. Instead, aim to capture the deep blue color that occurs just after sunset.

ANALYZING THE SHOT

Maximizing Depth-of-Field

In brightly lit scenes, like this river harbor shot, I will almost always use ISO 200, the lowest setting capable on my Nikon D70.

The aperture was set to f/13 in aperture priority mode, and the camera selected a shutter speed of 1/180.

On hindsight, I could have chosen f/16 for a slightly better depth-of-field and let the shutter speed drop to 1/125th, which would still be fast enough to freeze the action and prevent camera shake, as I was using an ultra-wide angle lens.

But when you travel, it's ok to be a little relaxed, especially when it comes to technical choices like these, because you also want to enjoy yourself!

The beauty of aperture priority (and shutter priority) is that the camera viewfinder allows you to see the combination of aperture and shutter speed at a glance, and thus letting you make the final decision on exposure settings quickly.

My decision here was a balance between good depth-of-field (so that everything was sharp from the boats to the clouds) and also providing a camera shake-free picture.

Choosing too small of an aperture (e.g. f/22) would cause the shutter speed to drop to 1/60th of a second, which is a borderline shutter speed. I didn't want to press my luck, because it was a windy day, and I was a little tired from travelling for days.

Photograph by Andy Lim

Mode: Aperture Priority
ISO: 200
Aperture: f/13
Shutter Speed: 1/180
Exposure Compensation: None
Camera/Lens: Nikon D70 with Sigma 10-20mm lens
Time: 12:00pm

ANALYZING THE SHOT

Preserving The Ambiance

Manual exposure mode was used here, mostly because I have gotten so used to it that it's now my primary shooting mode. For maximum image quality, I set my ISO to 200, the lowest setting that my Nikon D700 would allow.

I knew that my wife was standing close enough to the lights, so that even a relatively low ISO setting of 200 would give me enough light. Using available light is preferred, because it preserves the ambiance of the scene.

Using an electronic flash would have brightened up the entire scene, and thus lost all sense of ambiance. I chose drama over a perfectly lit scene.

I intentionally set the aperture to f/5.6, because that would allow me to use a shutter speed of 1/60th of a second, which is a safe shutter speed to use without a tripod (no camera shake).

The choice of the f/5.6 aperture, and not a smaller aperture (e.g. f/8 or f/11), is because an ultra-wide angle lens provides plenty of depth of field at f/5.6 (I was using a 14-24mm lens).

Again, I didn't wait until the sky turned black. Instead, the deep blue color just after sunset enabled the dark buildings to stand out against the sky.

I focused on my wife using the center focus point, and then recomposed to include the drinks stall, in order to tell a story with my photograph.

My composition used the Rule of Thirds.

Photograph by Andy Lim

Mode: Manual Exposure
ISO: 200
Aperture: f/5.6
Shutter Speed: 1/60
Exposure Compensation: None
Camera/Lens: Nikon D700 with Nikon 14-24mm lens
Time: 6:16pm

ANALYZING THE SHOT

Choosing a Compromise

I had no tripod with me, so in this scene, I increased my ISO setting to 400, because at ISO 200, my shutter speed would have been too slow, potentially causing camera shake.

The aperture was set to f/6.7 in aperture priority mode, and the camera chose a shutter speed of 1/45th of a second. If I wanted more depth-of-field, I would have needed to use f/11. That setting would have dropped my shutter speed to 1/15th of a second, which is way too slow to handhold the camera, and could have caused camera shake.

So, I settled for a compromise between an acceptable depth-of-field (provided by f/6.7) and an acceptably fast shutter speed of 1/45th of a second, which would not cause camera shake. Of course, at that shutter speed, I would still need to hold my camera very steady.

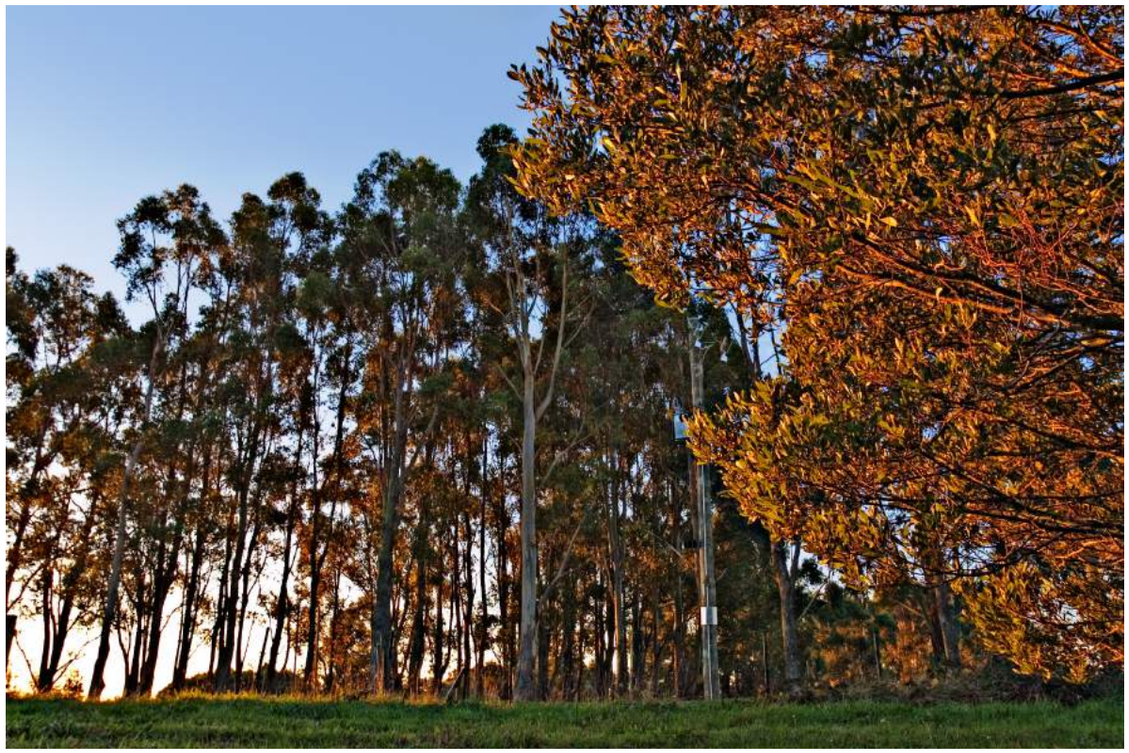
The other path that I could have taken would be to increase my ISO setting to 800.

This would have let me use f/9.5 with a shutter speed of 1/45. Or, I could even increase the ISO setting to 1600 and get f/13.

Neither of those options was good, because such high ISO settings on my crop-sensor Nikon D70 would have produced unwanted image noise.

Full frame cameras (e.g. Nikon D700) have a much better tolerance to image noise at high ISO settings.

The lesson here is to work with the gear that you have.



Photograph by Andy Lim

Mode: Aperture Priority
ISO: 400
Aperture: f/6.7
Shutter Speed: 1/45
Exposure Compensation: None
Camera/Lens: Nikon D70 with Nikon 18-70mm lens
Time: 5:32pm

ANALYZING THE SHOT

Golden Hour

Early morning, or late afternoon, light is preferred for landscape photography.

The simple reason is that the Sun's light illuminates the landscape laterally creating softer warmer light.

Shooting at this time of the day also creates landscapes with more drama, because it casts longer shadows. It also sculpts trees and makes them appear more 3-dimensional.

This scene uses the symmetry created by opposing banks of trees. The trees create a dappled lighting effect on the road that were caused by the long shadows of early morning light.

During the Golden Hour, if there is a blue sky, you can preserve the color of the blue sky by shooting either with the Sun behind you, or by placing it on either side of you.

Shooting with the Sun in front of you may cause the blue sky to wash out into a light blue color, or it may even simply become white. This is because your camera's dynamic range is unable to capture the vast contrast range of bright direct sunshine along with the dark backlighting of the landscape. This can result in an overly dark landscape and a pale sky.

Photograph by Andy Lim

Mode: Aperture Priority
ISO: 200
Aperture: f/9.5
Shutter Speed: 1/60
Exposure Compensation: None
Camera/Lens: Nikon D70 with Nikon 18-70mm lens
Time: 8:06am

ANALYZING THE SHOT

Sunbursts and Silhouettes

Sunbursts, or starburst effects, are created with small apertures like f/22 or f/16. For added effect, try to partially hide the Sun with a foreground object.

In this scene, I used the temple roof both as a foreground mask for the sunburst, as well as to create an interesting silhouette with its ornate carvings. Silhouettes are best done using interesting shapes.

Using Manual Exposure is ideal for this type of shot, because it lets you adjust your shutter speed based on how dark you wish the sky to be.

First, choose an aperture of f/22, because you want to darken the scene enough to create a silhouette. Your ISO setting should be at the lowest that the camera allows.

Looking at the exposure meter, select a shutter speed that gives you a -1 stop of exposure, and then take your first shot.

This means that if your exposure meter recommends a shutter speed of 1/125, set your shutter speed to 1/250 (that is -1 stop of exposure).

Check your LCD panel on the camera preview to see if the sky is dark enough. If the sky is not dark enough, use a higher shutter speed; say 1/500th of a second (-2 stops of underexposure).

Photograph by Andy Lim

Mode: Aperture Priority
ISO: 200
Aperture: f/9.5
Shutter Speed: 1/60
Exposure Compensation: None
Camera/Lens: Nikon D70 with Nikon 18-70mm lens
Time: 8:06am

KEY LESSON

You can create more saturated colors by intentionally slightly under-exposing certain scenes. This is especially true for vibrant colorful skies.

ANALYZING THE SHOT

Sunrise / Sunset

My sunrise, and sunset, photographs usually do not feature the Sun prominently in the frame. And if they do, the Sun is usually hidden behind a cloud, with its rays peeking out.

I usually prefer that the subject is some object that is illuminated by the rising or setting Sun, and not the Sun itself. If you follow my style of shooting Sunsets, you will rarely need to use exposure compensation.

Any exposure compensation that you might use would be for creating richer, more saturated, hues of color (by intentionally under-exposing), rather than correcting exposure errors.

When the Sun is clearly visible in the frame, your scene will have extremely high contrast. Your best plan, in this situation, is to expose for the sky and let the foreground fall into a silhouette.

All four examples photographs in the next two pages, utilize that technique. Although, we did not discuss it in this premium guide, another option when faced with extreme contrast is a technique known as HDR.

ANALYZING THE SHOT

Sunrise / Sunset

Photograph by Andy Lim

Mode: Manual Exposure
ISO: 200
Aperture: f/6.7
Shutter Speed: 1/90
Exposure Compensation: None
Camera/Lens: Nikon D300 with Sigma 17-70mm lens
Time: 5:59am

Photograph by Andy Lim

Mode: Aperture Priority
ISO: 200
Aperture: f/13
Shutter Speed: 1/45
Exposure Compensation: None
Camera/Lens: Nikon D70 with Sigma 10-20mm lens
Time: 6:03pm

ANALYZING THE SHOT

Sunrise / Sunset

Photograph by Andy Lim

Mode: Manual Exposure
ISO: 200
Aperture: f/8
Shutter Speed: 1/90
Exposure Compensation: None
Camera/Lens: Nikon D300 with Sigma 17-70mm lens
Time: 5:55am

Photograph by Andy Lim

Mode: Manual Exposure
ISO: 200
Aperture: f/16
Shutter Speed: 1/250
Exposure Compensation: None
Camera/Lens: Nikon D3S with Nikon 70-200mm lens
Time: 4:53pm

ANALYZING THE SHOT

Midday Portraits

If you are taking pictures of people, at midday, in a garden or forest area, try to find some open shade, and then make sure that the entire person is in the shaded area.
This prevents uneven patches of light from appearing on their faces or bodies that is caused by sunlight coming from directly above at noon that is filtered by forest cover.

By shooting in the shade, you will get a more even light distribution. Your portrait subjects will also appreciate that they don't have to squint their eyes.

Shooting in open sunlight, at midday, may cause harsh unflattering shadows in the eye sockets, which is totally unsuitable for portraits!

The use of a reflector panel, will let you bounce some light back into those shadows, thus creating a much more pleasing portrait.

This scene was shot at f/1.8, a large aperture, which gives an extremely shallow depth of field.

In order to make sure that everybody is in sharp focus, every person in the picture will need to be the same distance from the camera. Otherwise, using a slightly smaller aperture like f2.8, or f4, will greatly increase your chances of getting everybody in focus.

Photograph by Andy Lim

Mode: Aperture Priority
ISO: 200
Aperture: f/1.8
Shutter Speed: 1/750
Exposure Compensation: None
Camera/Lens: Nikon D300 with Nikon 85mm lens
Time: 12:11pm

ANALYZING THE SHOT

Fireworks

Firstly, you need a sturdy tripod. This is because in photos of fireworks, you will be using a very slow shutter speed.

This long exposure is needed, and you won't run the risk of overexposure, because we will be using a 'black card' to block light from entering the camera's sensor, removing it only to let the sensor record the fireworks.

Mount your camera on the tripod, get a black non-reflective card ready (available at any art supply store), and set your camera using the exposure settings shown above.

A remote shutter release, (a wireless, or wired, control that lets you release the shutter without touching the camera) is good to have, but if you don't have one, you can use the self-timer option. In this case, you won't be able to use the 'Bulb' setting for your shutter speed, and you'll simply have to set your shutter speed to the longest automated speed available on your camera model. For most cameras this is 30 seconds.

The idea is to release the shutter without moving the camera even the tiniest bit at the moment the shutter opens. You can also hold your black card in front of the lens as you release the shutter to minimize any camera shake being recorded.

Press the shutter release button. If there are no fireworks at that moment (or if there is only smoke from the previous burst), block the lens with your black card, taking care not to touch the lens at all. The moment the fireworks appear, remove the black card. This can take several cycles, until your shutter finally closes.

Using this method, what the camera records are only the fireworks. The black card lets you selectively record only what you want captured.

Photograph by Andy Lim

Mode: Manual Exposure
ISO: 100
Aperture: f/16
Shutter Speed: 30 seconds
Exposure Compensation: None
Camera/Lens: Nikon D200 with Sigma 17-70mm lens
Time: 10:35pm

Recommended Reading: How to Photograph Fireworks

ANALYZING THE SHOT

Backlit Sunburst

You don't need to always fear backlighting. In this shot, backlighting is used to my advantage. It is used to create a sunburst through a small hole in the leaf.

The small aperture of f/13 creates the multi-point shape of the sunburst. If I had used a larger aperture (say f/2.8 for example) I would have achieved a round flare effect in the sunburst instead the multi-point shape.

Even at f/13, the depth-of-field appears to be quite shallow, as the background is out of focus.

This is because of the 2nd factor affecting depth-of-field, that we discussed earlier in the guide, which is camera-to-subject distance. Because, I was focusing really close to the leaf; I managed to get a shallow depth-of-field.

Another effect created by the backlighting, is what is known as 'rim lighting'. Notice the bright lighting along the branch and the outside edges of the leaves? That is rim lighting.

Experiment with varying amounts of light filtering through a hole to get the optimum sunburst shape.

Photograph by Andy Lim

Mode: Aperture Priority
ISO: 800
Aperture: f/13
Shutter Speed: 1/60
Exposure Compensation: None
Camera/Lens: Nikon D300 with Sigma 17-70mm lens
Time: 11:06am

ANALYZING THE SHOT

Back Lighting vs. Side Lighting - PART I

Depending on the subject, and the resulting composition, I will often choose between the use of backlighting or side lighting.

Rarely do I choose frontal lighting. This is because more dramatic results can be achieved when the lighting strikes the subject at an angle.

For example, if I wanted to highlight the texture of the bark of a tree, and if I wanted the sky a deep blue saturated color, I would go for side lighting.

Mode: Aperture Priority
ISO: 200
Aperture: f/16
Shutter Speed: 1/90
Exposure Compensation: None
Camera/Lens: Nikon D70
with Nikon 18-70mm lens
Time: 9:37am

Photograph by Andy Lim

Back Lighting vs. Side Lighting - PART II

On the other hand, if I think the subject would make a good silhouette, and there is good symmetry in the resulting composition, I would go for backlighting.

Backlighting will wash out the color in the sky, but that's ok, because the strength of the photo is in the main subject and its composition.

In this shot, I used the tree trunk to block out the Sun entirely.

Mode: Aperture Priority
ISO: 200
Aperture: f/8
Shutter Speed: 1/125
Exposure Compensation: None
Camera/Lens: Nikon D300 with Sigma 17-70mm lens
Time: 10:58am

Photograph by Andy Lim

ANALYZING THE SHOT

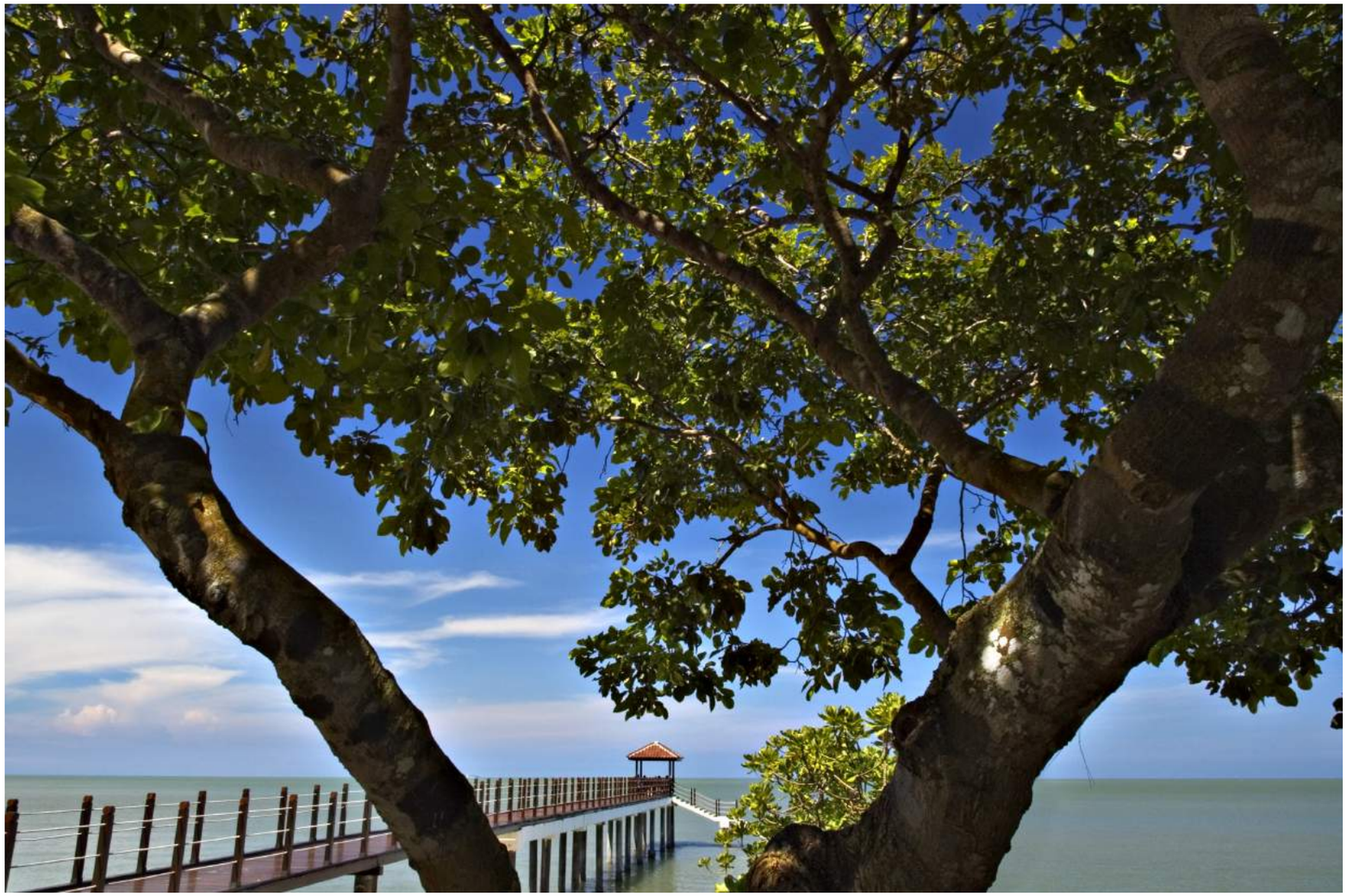
Leading Lines

Slowing down to observe and appreciate the details in a scene will enable you to put together an interesting composition.

I could have easily chosen to take a photo of the pier alone.

But, I used the tree as a foreground element to frame the shot, and the converging branches to lead the eyes of the viewer to the end of the pier.

At midday, the overhead sunlight created deep shadows in the tree branches, but that was fine, because that actually focuses our attention on the brighter parts of the picture.



Mode: Aperture Priority
ISO: 200
Aperture: f/16
Shutter Speed: 1/30
Exposure Compensation: None
Camera/Lens: Nikon D70
with Nikon 18-70mm lens
Time: 11:23am

Photograph by Andy Lim

Recommended Reading:

Understanding Composition

BASIC TRAINING: EXERCISES

SELF-CHECK QUIZ

1. What are the three points of the 'Exposure Triangle'?

2. The acronym 'ISO' represents what aspect of the camera's functionality?

3. A high ISO number can result in what unpleasant attribute in a photograph?

4. If my f/stop number is large, for example f/22, my aperture size is what?

5. When the shutter speed is slow. Is the camera letting more or less light in to expose the picture?

6. Overexposure results in a picture looking too dark or too light?

7. With Manual Exposure Mode, you control the ISO setting, the shutter speed setting, and what other setting?

8. If you change the ISO setting from 200 to 800, will your photograph be lighter or darker?

9. When the light meter is set to matrix/evaluative, what portion of the frame is being measured?

10. The automated shooting modes including aperture priority, shutter priority, and program simplifies picture taking because?

SELF-CHECK QUIZ

11. Name one technique that can help you with a backlighting situation.

12. What is a focus point?

13. When positioning your focus point within the scene that you want to photograph, is it important to have good contrast or low contrast?

14. Is f/2.8 a large aperture or small aperture?

15. If you were photographing a bicycle race, would you want to use a shutter speed of 1/60th of a second or 1/500th of a second?

16. With a telephoto lens is the depth-of-field deeper than with a wide-angle lens?

17. Does moving the camera closer to the subject increase the depth-of-field or decrease it?

18. What type of lens exaggerates the size of an object that is placed close to the lens?

19. If your picture has a yellow/orange colorcast, what white balance setting should you use on the camera?

20. How do you lock the focus of the lens so that you can recompose your shot?

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