



Beginning Shots

1st edition

# Getting to Know Your Digital Camera

Victoria Dye





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# Beginning Shots Series

**BEGINNING SHOTS** – Getting to Know Your Digital Camera

**BEGINNING SHOTS** – Create Beautiful Images – Basic Composition and Lighting

Due out 2016

**INTERMEDIATE SHOTS** – Getting the Most Out of Your Digital Camera DSLR

Due out early 2017

# About Victoria

Victoria has always enjoyed photography. She started at a young age by photographing her model horses with a Disk Camera. During her senior year of veterinary rotations, she had a wonderful time photographing animals with a Pentax Point and Shoot Film Camera. The best images were from Mystic Marineline Aquarium. For graduation in 1994, her father handed down his all-metal Konica Film Camera and she became seriously interested in photography. After taking a local class from a fabulous instructor, and then the Gerlach Nature Photography Workshop, she embarked on her photography career.

21 years later, Victoria still has a never-ending desire to keep photographing. Nature and wildlife are her primary passions, but almost anything can catch her eye. The more she learns the more she wants to teach it to everyone else interested in capturing the world around us.

In 2003 she started teaching and has not stopped since. She teaches locally in Charlottesville, Virginia, statewide, nationwide and recently, in Canada as well. From private sessions to group workshops she loves it all. For her, there's nothing like that moment when a student gets it or learns a new technique. So much fun! This is her first e-book. Victoria's students have always enjoyed her thorough notes, but she's not able to assist as you go, look for Victoria's short video tutorials on [www.victoriasimages.com](http://www.victoriasimages.com).



# A Note from Victoria

Welcome to the world of digital photography! Now you too can create

beautiful images and document your life. Where do you begin? This guide is designed to answer that question and help you get started. Together, we will begin by demystifying how the camera works, learning basic theory, and then dive into the menus and controls that will get you up and running quickly and give you better control over your camera.

This Beginning Shots Guide is Part 1 of a series that is designed to teach in-depth control of the camera, understand light and how to compose dynamic, beautiful images.

To get started, have your camera ready with charged batteries, and media card installed. Since I cannot be there with you, have your Owner's Manual available to look up where various controls are located. If you are just getting the camera out of the box, go through the set up information in the Owner's Manual – setting date and time, charging batteries, and inserting the Media Card.

I will warn you, it may be a bit slow in the beginning, but stick with it; this information will help you become one with your camera.

Let us get started!

Victoria Dye



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CHAPTER 1

# Types of Cameras





There are a variety of Digital Cameras available today. It can be overwhelming trying to decide which to choose. Let's look at the main classes of cameras and their capabilities. I have excluded medium and large format cameras, as these are a specialty group.

### COMPACT/POINT AND SHOOT CAMERAS

are considered the "all-in-one" basic camera. They are characterized by being small, lightweight and having no interchangeable lenses. They have a wide variety of auto settings, but manual settings are limited or absent. In general the following is true compared to a DSLR Camera: smaller sensor size, slower focusing, slower continuous shooting and the ISO quality greater than 400 is worse. They often use Digital Zoom over Optical Lens Zoom to photograph far away subjects. This function greatly decreases image quality. All of these settings and what they mean are discussed later in the book.

**Examples:** Canon Powershot D30, Nikon Coolpix S810c, Sony Cybershot W, H & T Series

### BRIDGE OR ADVANCED COMPACT CAMERAS

are larger than the previous class, and considered an "all-in-one" camera that is lightweight, offers more manual control and usually a larger Zoom Lens, but with no interchangeable lenses. As compared to a DSLR Camera, they have the same limitations. Generally, they are considered more flexible than the previous class.

**Examples:**

Canon Powershot GX1, Nikon Coolpix P7800, Sony Cybershot R Series



Compact Point & Shoot



Bridge Compact

## MIRRORLESS OR COMPACT CAMERA SYSTEMS

are small, lightweight, have limited lens options, but offer more control over Manual Settings than the previous mentioned classes. Some are quite fast for Action Shooting. There is a wide quality variation based on sensor size (described in the next section).

**Examples:** Panasonic Lumix Compact System Cameras, Nikon 1 Series, Sony Alpha Mirrorless Series

## DSLR CAMERAS (Digital Single Lens Reflex)

These cameras are larger, have a wide variety of interchangeable lenses, accessories and provides absolute control over manual camera settings. Auto Modes are limited compared to Compact Cameras. Sensor size and quality are superior, giving you a better quality of image; especially at higher ISO settings. The ability to focus, shoot quickly and more accurately make these cameras superior for sports and action photography. These cameras are also superior for low light photography due to higher ISO quality. There is variation between consumer and pro levels.

**Examples:** Canon EOS series and Nikon D series. There are other brands, but these are the leading ones and have the widest range of lenses and accessories on the market.



DSLR



Mirrorless  
Compact

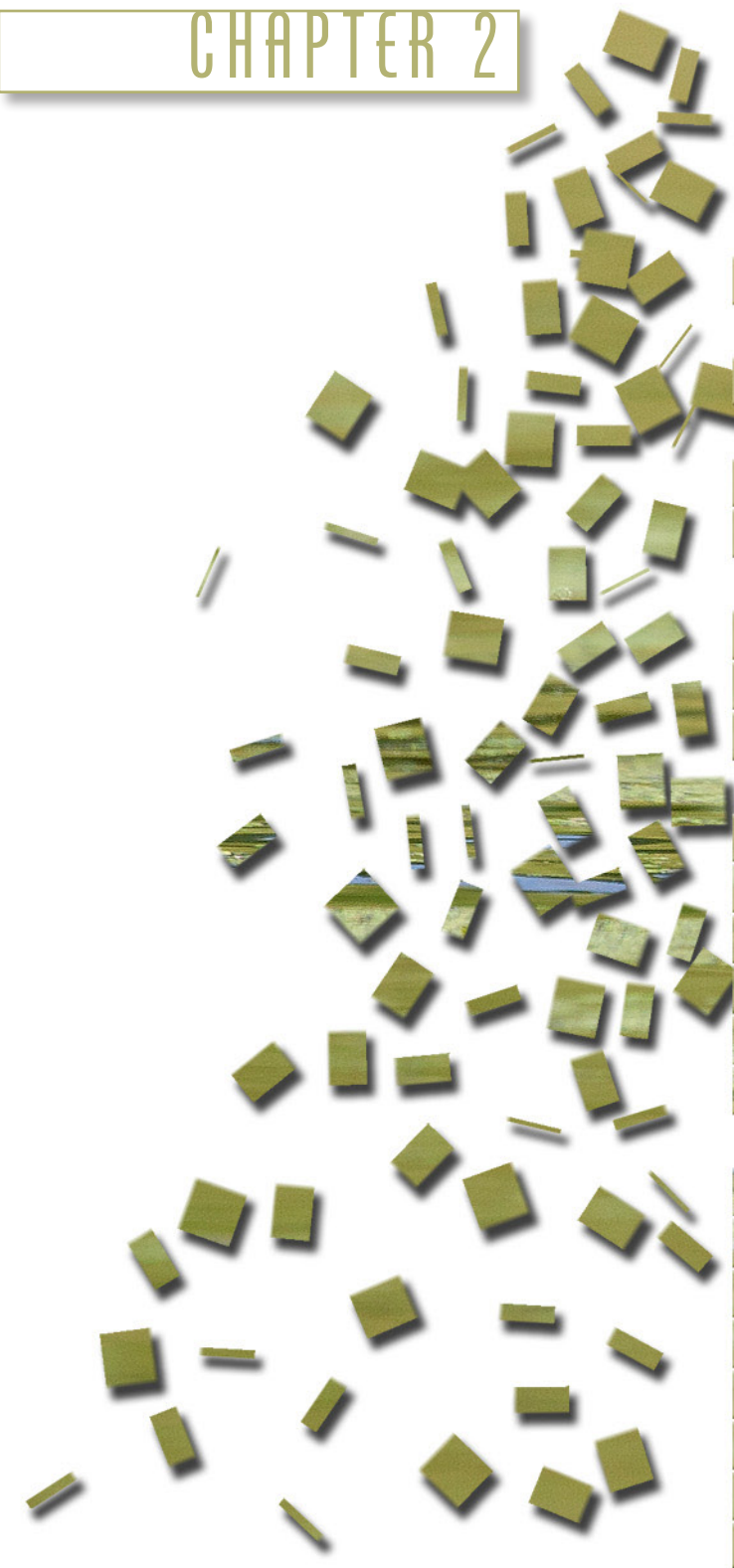
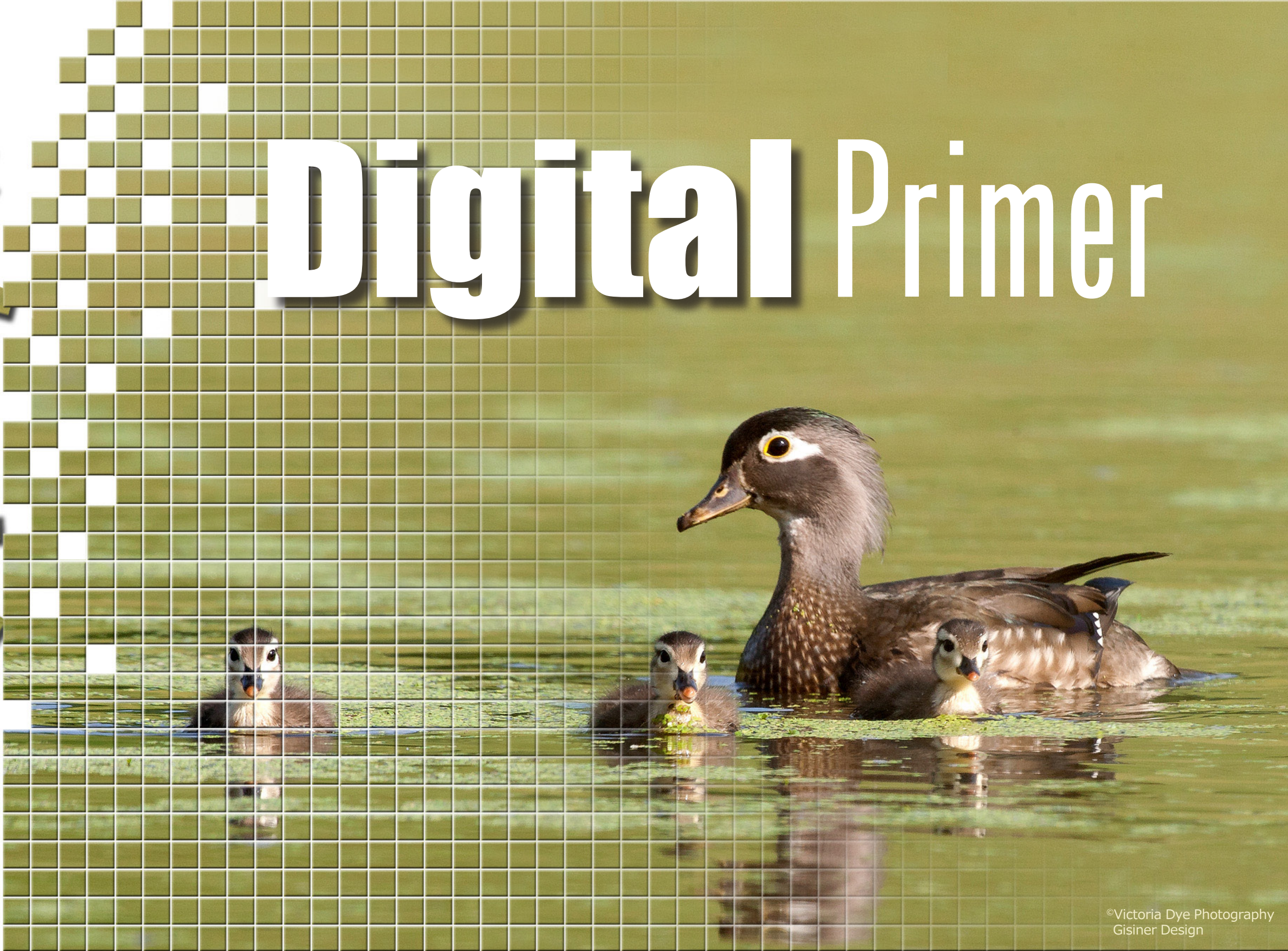


**BOTTOM LINE**

Choose a camera you will use and carry. Be aware of its strengths and weaknesses. If you want to do Wildlife Photography proficiently, a DSLR Camera with the ability to use long, high-quality lenses and shoot in low light is paramount. However, if you're interested in everyday family portraits, a mirrorless camera or smaller may fit the bill. If you want to gain total control over your photography a DSLR Camera is best, but a Mirrorless Camera will get you started.

CHAPTER 2

# Digital Primer



# MEGAPIXELS

(The big thing everyone is talking about!)

A pixel is a two-dimensional (width x height) square dot that contains color information. Mega pixels (MP) are millions of pixels.

A picture is made up of millions of little dots representing different colors and brightness values. Each dot is a pixel, a stone in a mosaic. You need enough pixels to provide a smooth transition of colors and sharp details. The end use of the image will determine how many pixels are required.

Cropping an image also affects final quality and use. The more pixels you have, the more options you have for cropping and large-scale printing. Too few pixels can lead to poor quality, loss of detail and choppy color gradations.



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| Camera Sensor Size<br>(Megapixels) | Largest Image Size<br>(printed at 180dpi) | File Size<br>(Megabytes) |
|------------------------------------|---|--------------------------|
| 8 MP camera                        | 13" x 20"                                 | 23 MB                    |
| 12 MP camera                       | 16" x 22"                                 | 34 MB                    |
| 22 MP camera                       | 20" x 30"                                 | 60 MB                    |

**Figure 2.1**  
Sensor, Image and File Size Comparison

## SENSOR SIZE

Sensor size varies between and within the types of cameras discussed previously. Compact Cameras have significantly smaller sensors than a DSLR Camera.

There are generally 2 types of DSLR sensors, full frame and cropped:

- A full frame DSLR sensor measures 36mm x 24mm in size or 864 mm<sup>2</sup> which is equivalent to 35mm film.
- A cropped sensor is about  $\frac{1}{3}$  to  $\frac{1}{2}$  the size of a full frame sensor.
  - Canon DSLR (APS-C) measures 22.3mm x 14.9mm or 329mm<sup>2</sup>
  - Nikon (DX) measure 23.5mm x 15.6mm or 370mm<sup>2</sup>

Each manufacturer has slightly different cropped sensor dimensions. This information is found in the specifications section.

A full frame camera sensor provides a lot more image information, which is important

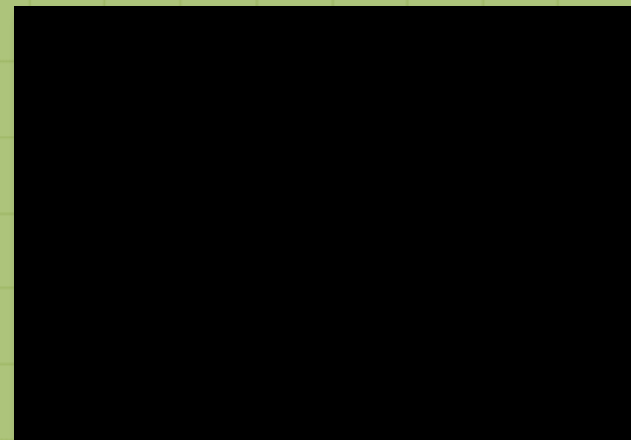
for image quality and printing quality depending on your end use for the image. For example; printing large posters.

Mirrorless Cameras have a wide range of sizes.

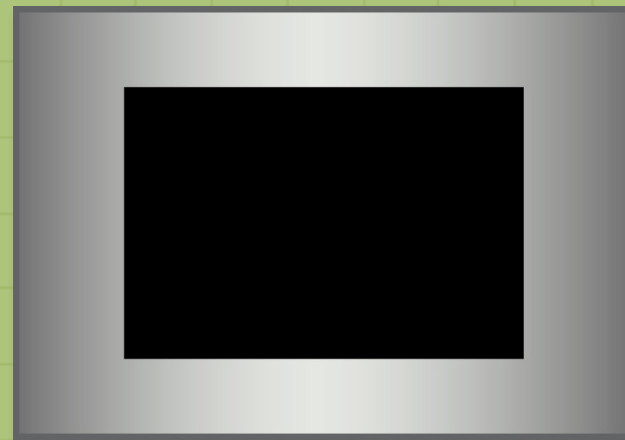
- Nikon 1 series is 13.2mm x 8.8mm, 116mm<sup>2</sup>
- Sony Alpha Nex 6 has 23.5mm x 15.6mm, 370 mm<sup>2</sup>, which is the same as the Nikon DX cropped sensor DSLR
- Panasonic Lumix GX7 at 17.3 x 13.0mm, 225 mm<sup>2</sup>.

A typical Compact Camera has a sensor size of 7.6mm x 5.77mm or 43mm<sup>2</sup>, while Phone Cameras are even smaller at around 4.54 x 3.42mm. That is a huge loss in size and subsequently quality.

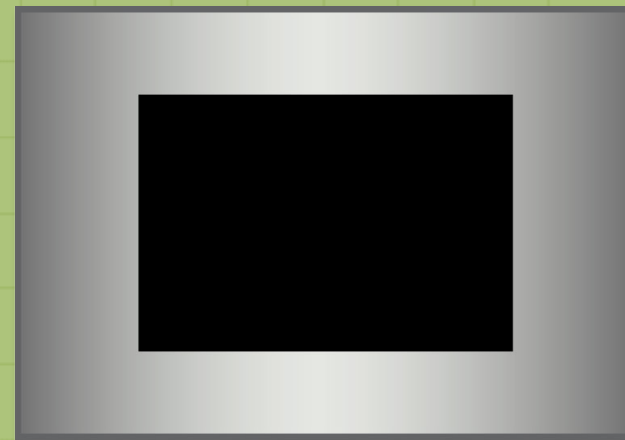
In Figure 2.2, Relative comparison of the sensor sizes; not to scale, but relative to each other.



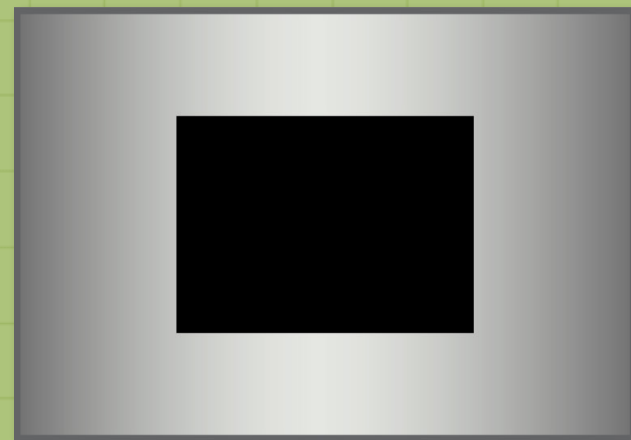
**35mm Full Frame**  
36 x 24mm 864mm<sup>2</sup>



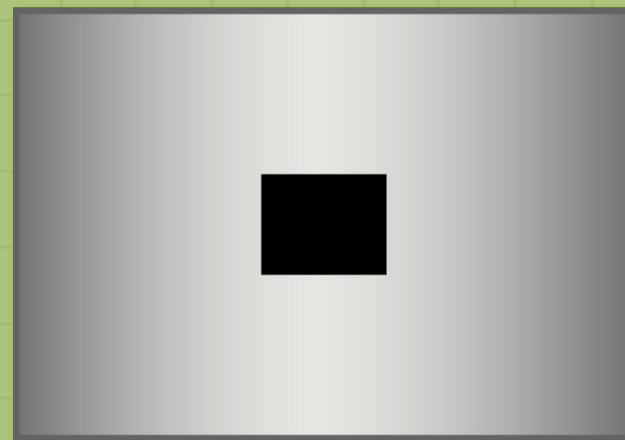
**Nikon DX**  
23.5 x 15.6mm 367mm<sup>2</sup>



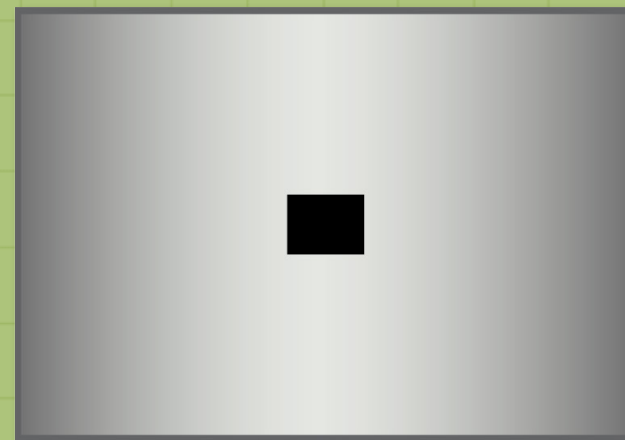
**Canon APS**  
22.3 x 14.9mm 332mm<sup>2</sup>



**Panasonic Lumix**  
17.3 x 13mm 225mm<sup>2</sup>



**Compact 1/1.7"**  
7.6 x 5.7mm 43mm<sup>2</sup>



**Phone 1/3.2"**  
4.5 x 3mm 15mm<sup>2</sup>

*Sensor Size greatly affects final image quality.*

*Cell phones are fine for digital display, but terrible for printing.*

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**FIGURE 2.2**

Not all  
Pixels  
are  
created  
equal.

DSLR Cameras  
have bigger  
Sensors with  
more detail  
information.

## COMBO: Megapixels and Sensor Size

Now, let's combine the number of pixels with the sensor size to get a better idea of quality.

**QUESTION:** What is the difference between a 16MP DSLR full frame, a cropped DSLR 16MP, a Compact 16MP and a Phone 16MP? *They all have 16 megapixels.*

**ANSWER:** The size of the pixel.

**EXPLANATION:** The full frame sensor pixels are larger and contain more color and detail information than the pixels found on smaller sensors. The smaller sensor cameras lose color gradation and details because the pixels are so small.

Imagine enlarging the 35mm sensor image to 8" x 12" or 16" x 24" or even 32" x 48", then imagine stretching the Compact Cameras tiny amount of information to those sizes. There comes a point when the image becomes so large that the loss of detail, distortion and individual pixels can be seen. The threshold for that comes much faster with a small sensor or a camera with fewer megapixels.



**BOTTOM LINE**

If you want to share your Digital Images, on Social Media, then a Compact Camera or Cell Phone will fit your needs. To print Family Portraits or make Personal Books to share, then a Mirrorless Camera will fit your needs. However, if you want to start a business, produce advanced photography and high quality prints, a DSLR Camera is a must... add a full frame sensor and you have it all!

# IMAGE SIZE, FILE FORMATS & IMAGE QUALITY

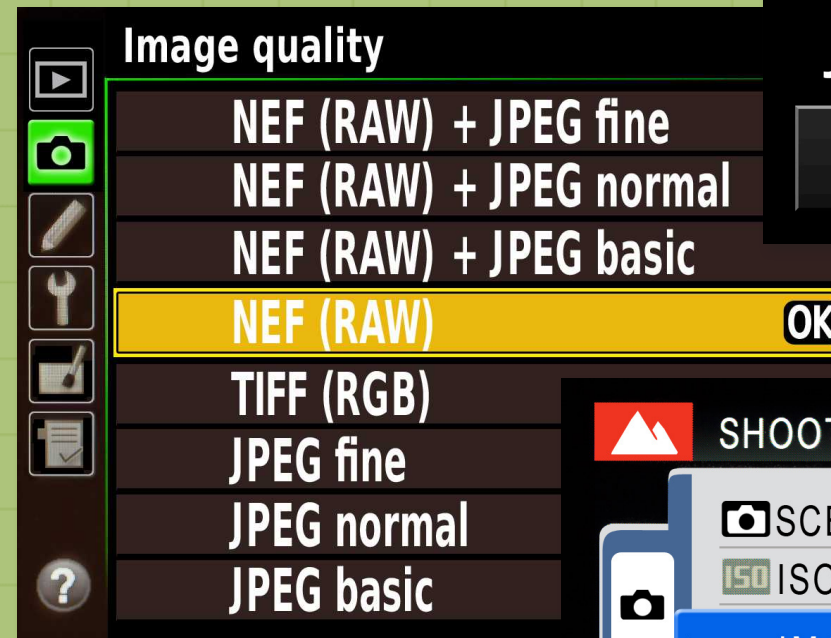
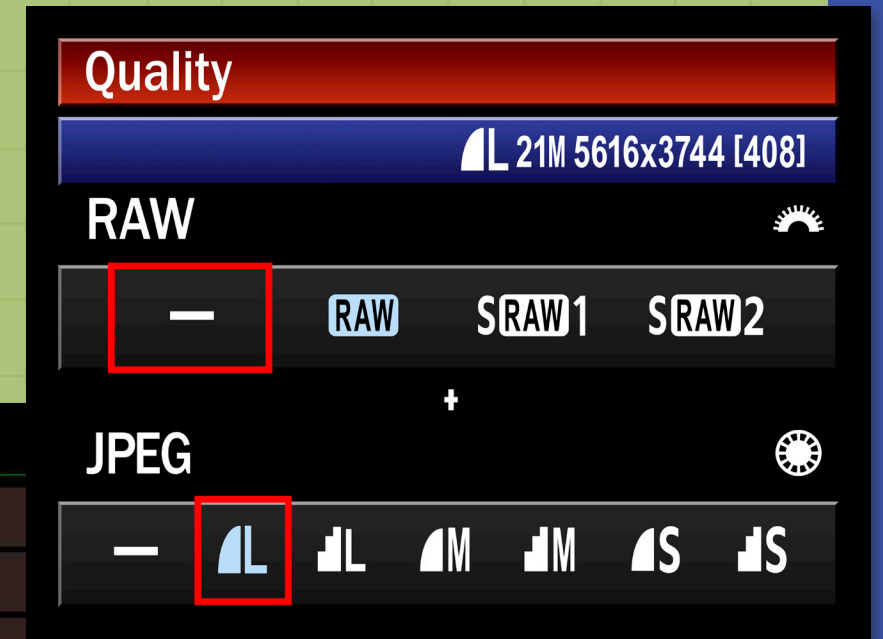
**IMAGE SIZE** is based on how many megapixels the camera uses to record the image. The largest image size is the maximum megapixels you can select, i.e.: 12MP, 16MP, 24MP, etc...

**FILE FORMATS** determine how the image is recorded to the storage media card and on your computer. The most common types are JPEG and RAW.

**IMAGE QUALITY** is determined by the image size and the file formats used to store and compress the file.

Using the Owner's Manual, locate the image size, quality, and file format options on your camera. Some can be found under a single camera menu, but others are separated into different menus. For example, most Canon and Nikon DSLR Cameras have size, quality, and format Menus in one location while Compact Cameras often split them up into separate menu items.

**FIGURE 2.3**  
Canon DSLR Quality and Size Menu



**FIGURE 2.4**  
Nikon DSLR Quality and Size Menu



**FIGURE 2.5**  
Fujifilm Bridge Compact



## IMAGE SIZE

Cameras are sold based on the amount of mega pixels. A 12.1 MP camera takes pictures that contain roughly 12 million pixels. When you look up the specs on the camera, you will find a chart similar to the ones listed in Figure 2.6 and 2.7.

### So what does this all mean?

The Large Category uses the maximum number of pixels.

The 5D Mark III has a RAW category which will be discussed later.

### Remember math and volume?

If you multiply the two dimensions together, you will discover the amount of pixels in the image. For the PowerShot, multiply 4000 x 3000 and you get a number very close to 12 million pixels. For the Mark III, multiply 5760 x 3840 you get around 22.1 million pixels.

Each camera has medium and small options. These options use fewer pixels, producing a smaller file size and image.

### Why shoot a smaller image?

It all comes down to end-usage and storage.

|          |             |        |
|----------|-------------|--------|
| Large    | 4000 x 3000 | 12 MB  |
| Medium 1 | 3264 x 2448 | 8 MB   |
| Medium 2 | 2592 x 1944 | 5 MB   |
| Medium 3 | 1600 x 1200 | 1.9 MB |
| Small    | 640 x 480   | 0.3 MP |

**FIGURE 2.6** Image size options for a Canon PowerShot SX20 IS camera with a maximum of 12.1 MP (megapixels)

|        |             |         |
|--------|-------------|---------|
| Large  | 5760 X 3840 | 22.1 MB |
| Medium | 3840 X 2560 | 9.8 MB  |
| S 1    | 2880 X 1920 | 5.5 MB  |
| S 2    | 1920 X 1280 | 2.5 MB  |
| S 3    | 720 X 480   | 0.3 MB  |
| RAW    | 5760 X 3840 | 22.1 MB |
| M-RAW  | 3960 X 2640 | 10.5 MB |
| S-RAW  | 2880 X 1920 | 5.5 MB  |

**FIGURE 2.7** Image size options for a Canon 5D Mark III camera with a maximum of 22.3 MP (megapixels)

## IMAGE USAGE

How many pixels do you need?

A High Definition (HD) TV only needs 1920 pixels on the horizontal/longest side, to display a great looking image, while the new 4K TV's display 3840 pixels. Most computers range from 1280 to 1920 pixels on the horizontal to look good. Why do you need more? It all depends on your end usage. You will need a lot more pixel information to print an image than to display on a computer monitor. The table provides a general idea of how large an image you can print, while still maintaining quality.

|                                |                       |  |
|--------------------------------|-----------------------|--|
| <b>Large-Canon 5D Mark III</b> | 5760 x 3840 (22.1 MP) | prints up to 21" x 32"                 |
| <b>Large-Canon PowerShot</b>   | 4000 x 3000 (12 MP)   | prints up to 16" x 22"                 |
| <b>Medium 1</b>                | 3264 x 2448 (8 MP)    | prints up to 13" x 18"                 |
| <b>Medium 2</b>                | 2592 x 1944 (5 MP)    | prints up to 11" x 15"                 |
| <b>Medium 3</b>                | 1600 x 1200 (2 MP)    | prints up to 6" x 9"                   |
| <b>Small</b>                   | 640 x 480 (0.3 MP)    | useless for prints,<br>too little info |

**FIGURE 2.8** Megapixel Comparison to Print Sizes

## STORAGE

To save space or not save space, that is the question.

The more megapixels, the larger the file size, the larger the file size, the more space the file will take up on the Media Card and home computer.

**"I only make small 4 x 6 prints."**

While you only plan to print 4"x6", for the most flexibility, use the largest file size possible.

For instance, You got a great shot of an eagle, however, your camera has very little zoom and the eagle is small in the image. You need to crop the picture to make the eagle larger in the picture. Cropping an image discards pixels. By starting with a large image, you still have enough pixel information to make a 4"x6" print.

**Do you care? Nope! WHY?**

Because Media Cards and External Hard Drives are large and cheap. So, don't skimp on image size!

Capture the most information by using the largest size setting. This equals quality; especially if your camera has a small sensor size. Remember, you may only have one chance to catch that special moment or visit that amazing place.

**"I only share images through Social Media."**

In this case you probably are using a Compact Camera or your Cell Phone. One day you capture the most amazing picture and you want to print it. A Cell Phone file rarely provides a good quality print.

# FILE FORMATS

Digital files require a format for saving. *For example*, when saving a Microsoft Word document the program saves the file with the extension .docx. The format allows the computer to store not only your words but also the formatting and digital information specific to the program. File formats allow the computer to decipher complex digital information so we can understand it.

Cameras use two common formats; JPEG and RAW. Older cameras may also have the TIFF format, which is a great format to store edited images on the computer. However, do not use this format on your camera as it takes up too much space.

**JPEG** is far and away the most common format and the one I recommend to use as you get to know your Digital Camera. Learn how to use the camera and compose a good image before worrying too much about editing on the computer.

JPEG compresses the size of a file, enabling you to get more images on the Media Card. A 12 MP image may be up to 34 MB—that is huge! Using the JPEG format 34 MB compresses 10-100x depending on the camera and image quality, discussed in the next section, allowing more images to fit on the Media Card.

JPEG processes or 'develops' the picture in the camera, enabling the file to be read or "seen" on any device. In other words, this means you immediately have a finished product to share. I will discuss Picture Styles/Controls where you can control the editing process to some degree in the next section.

## USELESS FACTOID

JPEG stands for Joint Photographic Experts Group, a committee that created the JPEG standard.

**JPEG pros**  
compressed file  
size, develops  
image in camera  
for viewing  
on all digital  
devices.

**Cons**  
'Lossy' format

The one drawback for JPEG is its 'lossy' format. When the file is opened the computer must reconstruct the image from the compressed format. The computer makes up information to reconstruct your image. When the image is closed the computer discards information in an effort to make the file size smaller. Do not fret overly much about this. If you back-up your files—as I highly recommend—you will always have the original data to return to.

**RAW/NEF** is a great format to gain control over developing images. RAW is a Canon term, while Nikon uses NEF to designate raw files. This format offers pure data to develop an image in a variety of ways, but requires computer processing time to do this. In other words, you must process the image before sharing it. Most devices do not recognize RAW/NEF files. Most Compact Cameras do not have the option. This format also compresses file size, but not as much as JPEG, so the files take up more room. I like this format for Fine Art Photography as it gives me more control over image development.

Many DSLR Cameras have several RAW settings; SRAW1 and SRAW2 are seen on my Canon 5D Mark II. These are smaller sized raw files. DSLR Cameras also provide the option to shoot RAW and JPEG at the same time,

allowing you to have both file types, one in each format. However, this option takes up a lot of space on the Media Card. Many people think this is a safe way to bridge from shooting JPEG to RAW.

*My opinion?* **JUST SWITCH to RAW.**

Otherwise you will have duplicate files taking up storage space.



**BOTTOM LINE**

**I**n the beginning use JPEG format. For intermediate to advanced photographers that want to develop their own editing style or are unsatisfied with JPEG results, use the RAW/NEF format.

## IMAGE QUALITY (JPEG ONLY)

Now that you have the size and file format settled you need to decide on the quality setting for the JPEG format. Some cameras have a RAW quality setting as well.

Cameras give you 2-3 quality levels to choose from. Quality is affected by the compression of the file. When the camera compresses the file size it discards data leaving a framework of information in which to rebuild the image when it is reopened. The quality is related to how much information is retained for the framework. Higher quality means more information is preserved, lower quality means less information.




| Quality of File  | Compression Size of File (Megabytes) |
|--|--------------------------------------|
|  Standard | 2.2 MP file                          |
|  Fine     | 14.5 MP file                         |
|  RAW      | 16.7 MP file                         |

FIGURE 2.9 Compression size based on Quality of a 22MP file

An uncompressed 22 MP file from my Canon 5D Mark II is 120.3 megabytes. This is huge! See how compressed the file becomes in Figure 2.9.

Higher quality images are not compressed as much and take up more space. Figure 2.10 shows that the Large Size Setting set to Fine Quality can fit 408 images on the card vs. 844 images on Large Size with Standard Quality (Fig 2.11).

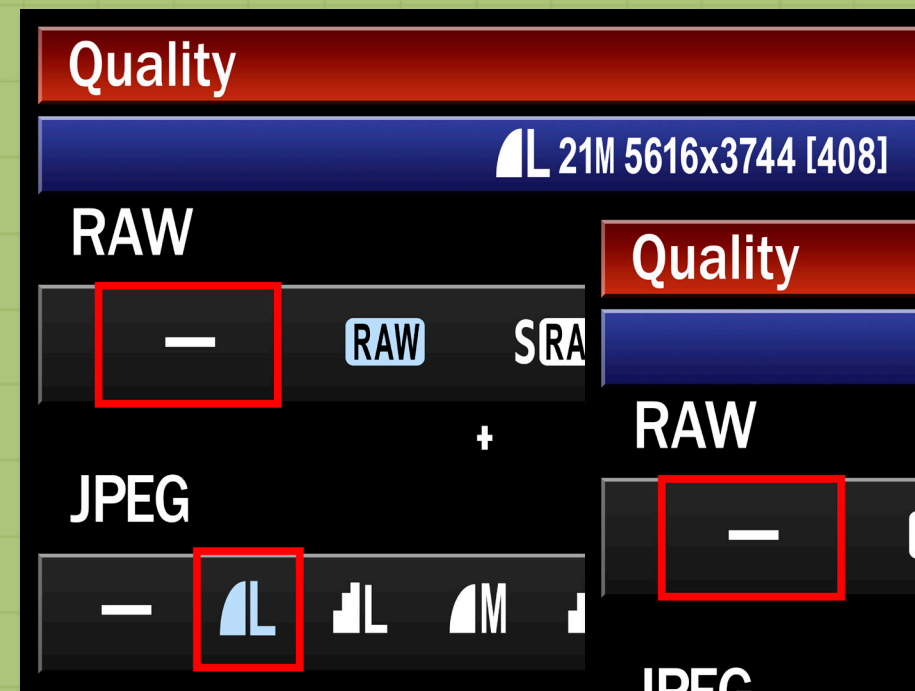


Figure 2.10  
Canon DSLR JPEG Fine Quality



Figure 2.11 Canon DSLR JPEG Standard Quality

The RAW setting, which has much larger file sizes, has significantly fewer images at 109 (see Figure 2.12). The number of images you get on a Media Card varies with the size of the Media Card and the size/quality setting.

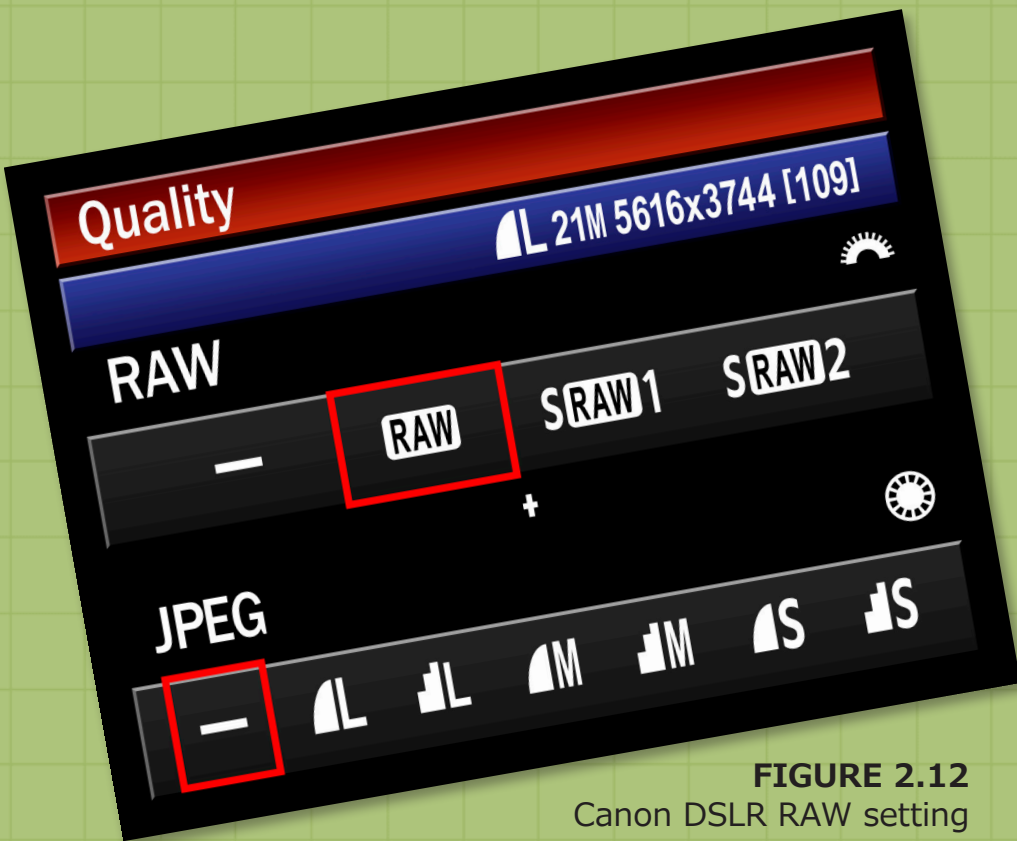


FIGURE 2.12 Canon DSLR RAW setting

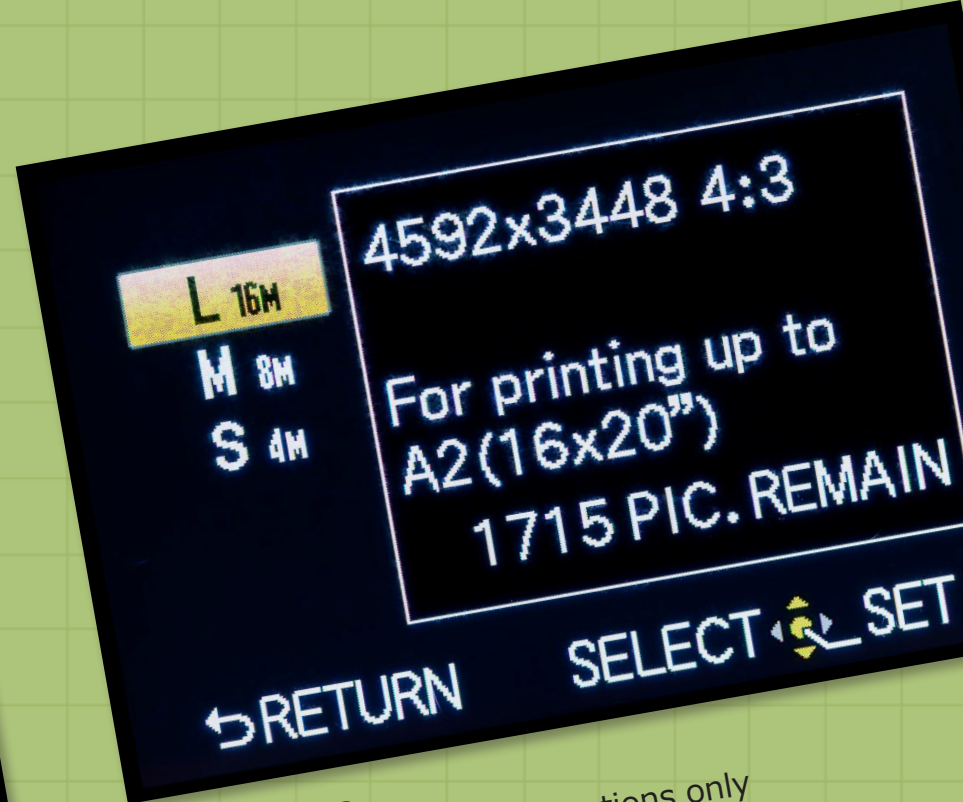


FIGURE 2.13 Panasonic Lumix GX1 Size options only

The Panasonic Lumix splits the image size and quality setting between two menus. Figure 2.13, shows the image size, giving you the largest recommended print size.

Figure 2.14, is the second image highlighting the highest quality setting for the JPEG mode, RAW mode and JPEG/RAW combo. The quality setting symbols vary between camera manufacturers.



FIGURE 2.14 Panasonic Lumix Size Quality Options

## BOTTOM LINE

In JPEG format, set file size to largest setting with the best quality. As your skills develop consider switching to RAW, but keep it at the largest size. Avoid shooting both RAW and JPEG—just switch to RAW.

## PICTURE STYLE (CANON)/ PICTURE CONTROL (NIKON)

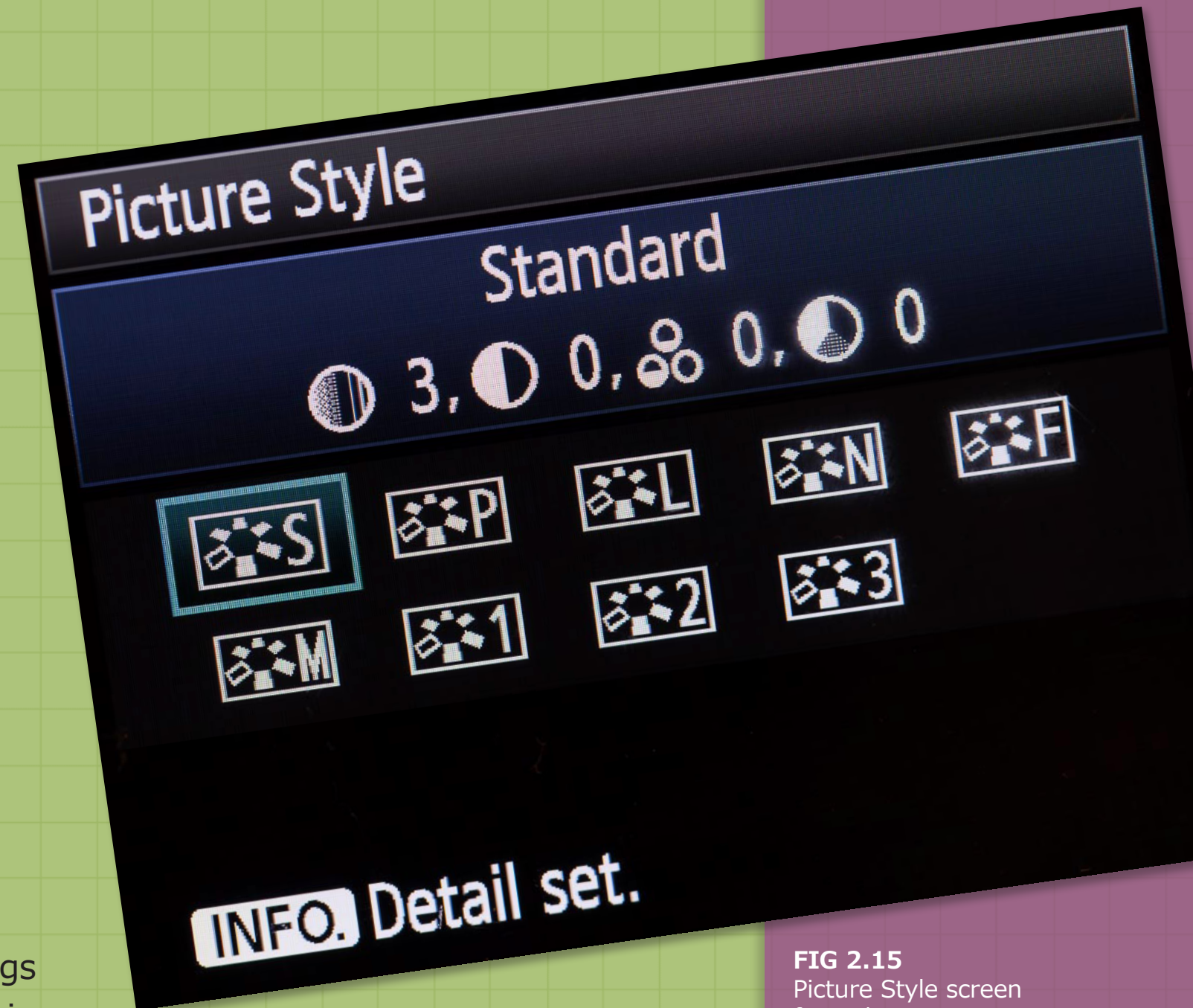
When shooting in JPEG format, the camera develops the picture for you.

Developing an image consists of processing the pixels to create the image and applying degrees of contrast, sharpening, saturation, brightness, hue, and color tone. Canon and Nikon systems have different combinations of these settings. Some advanced and most DSLR Cameras allow you to adjust these settings in the Picture Style or Picture Control Menus.

There are a variety of options: Landscape, Portrait, Monochrome, Vivid, Neutral, etc.

- **LANDSCAPE** tends to saturate greens and blue colors
- **PORTRAIT** emphasizes skin color tones and keeps sharpening down to soften the skin
- **MONOCHROME** takes the color out.

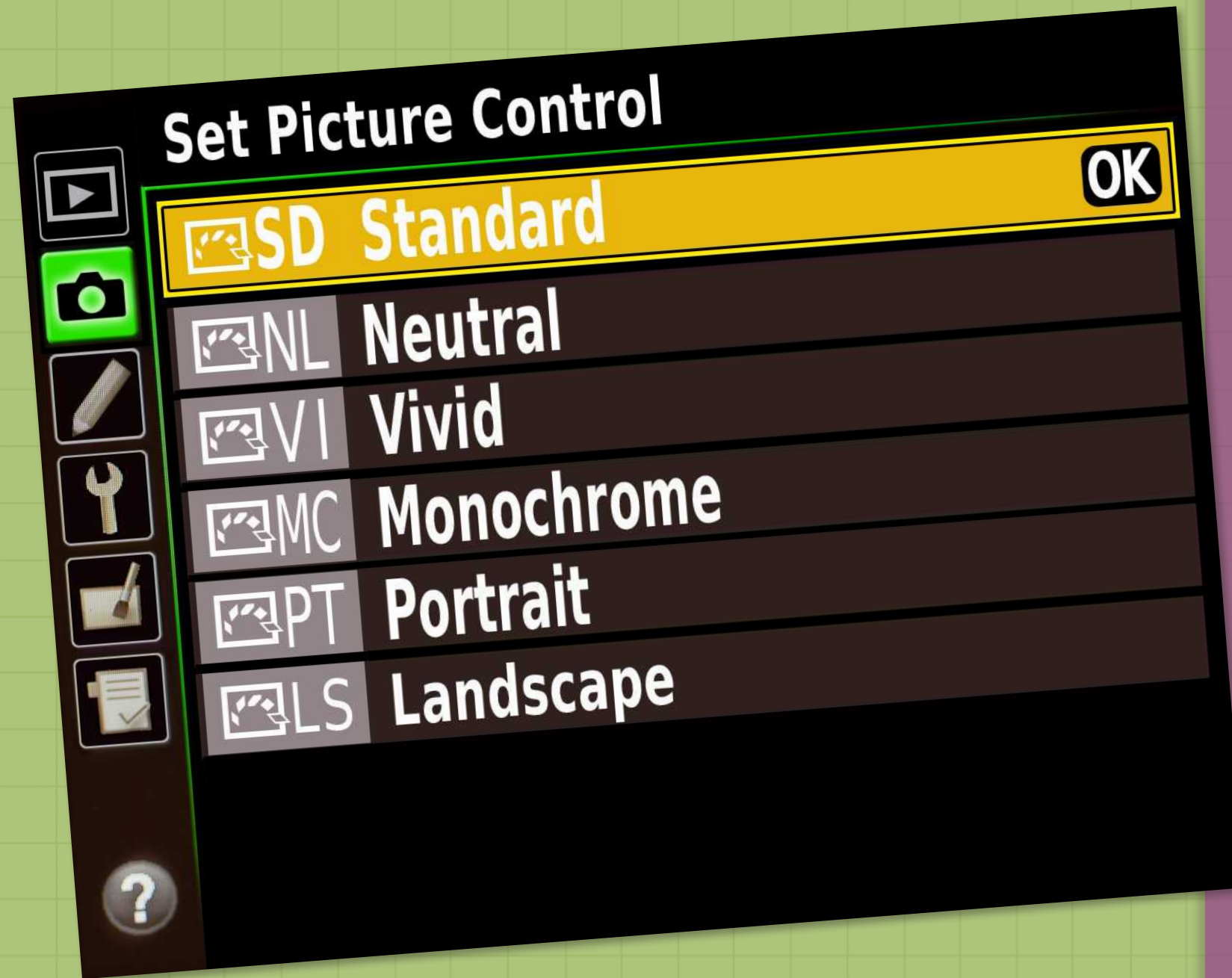
You can even set your own parameters of the various settings to create your own style. See your Owner's Manual to set this up.



**FIG 2.15**  
Picture Style screen  
from the Canon



These controls will not affect the final RAW image, but it will affect the JPEG preview on the camera screen when you review images. When first starting to shoot in RAW some photographers are puzzled that the images are flat when they download them, this is because they are used to seeing the JPEG preview on the camera screen that has developing applied.



The Review Screen image is always a JPEG preview... regardless if you are shooting RAW or JPEG.

**FIGURE 2.16**  
Picture Control Screen from Nikon

CHAPTER 3



# Basic Navigation

# BASIC NAVIGATION

## ON/OFF SWITCH / DIAL

Every camera has an On/Off Switch; locations vary. The Main Dial may control the On/Off Function or there may be a dedicated switch.

The main points to remember:

- Always turn off your camera before changing the Media Card
- Do not turn off the camera right after taking a picture, the camera needs some time to write the image to the Media Card. Most cameras have a flashing light indicating the camera is writing to the card. Some newer cameras will continue the write cycle regardless.
- Always turn off your camera before changing the batteries
- Set a power saving mode so the camera shuts off automatically. Use your camera manual to find the menu to set an interval that you like.
- Always turn off your camera before changing lenses

Check the Owner's Manual to see if your camera has the ability to set a time period for powering off.



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**FIGURE 3.1**  
LCD Panel Canon 5D Mark II

**SHUTTER BUTTON** – The button to press to take the picture. Press half way down to focus, then all the way down to take the picture. Usually located on the front right of the camera. Some Compact Cameras allow you to tap the screen to take the image like a Cell Phone.

### **LCD PANEL & QUICK CONTROL SCREEN**

The LCD Panel is generally limited to DSLR Cameras and some consumer versions do not have them. The LCD Panel is located on the top right of the camera near the shutter button. The Quick Control Screen is on the back of the camera. These screens display shooting information. The Quick Control Screen offers access to shooting options, menus and reviewing images.

There is a button that controls what is shown on the rear Quick Control screen. You can cycle through shooting information, a blank screen to just showing the image. Check the Owner's Manual for details as it varies widely from camera to camera.



**FIGURE 3.2**  
Quick Control Screen  
Canon 5D Mark II

## SHOOTING MODE DIAL OR MENU

Most cameras have a Shooting Mode Dial. The big exceptions are Compact Cameras, which access Shooting Modes from a Menu, such as

the Nikon Coolpix (see Figure 3.4 and 3.5). There is wide variation in options. The Auto Mode is one selection while the Auto Scene selector is a different selection below the Auto.



FIGURE 3.3  
Panasonic Lumix GX1

©Victoria Dye Photography



FIGURE 3.4  
Nikon Coolpix  
Shooting Mode Screen

FIGURE 3.5 Nikon Coolpix  
Scene selector

?

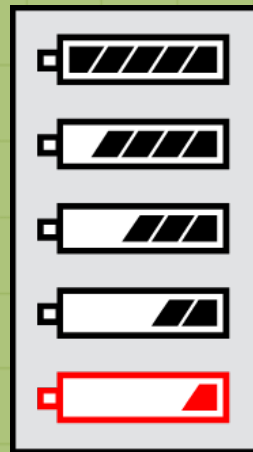
**VIEWFINDER** – On DSLR, some Mirrorless and Compact Cameras. Use the Viewfinder to compose the image and take the picture. If the camera does not have a Viewfinder, a live view will display on the rear screen.

To the right of the viewfinder is a small Diopter Control. This adjusts for your eyesight, move one direction for + Diopter and the other for - Diopter. If the image in the Viewfinder is not clear, use the Diopter Control to adjust for your vision.

**HOT SHOE** – DSLR and high-end Point and Shoot Cameras. Where the external flash attaches to the camera.

**BATTERY AND MEDIA CARD** – Check the Owner's Manual to locate where to change the Battery and Media Card. Make note of the battery life symbol on the LCD screen. Always check it before and after each shooting

session. If the camera is not fully charged, recharge it now, that way it is always ready to go! Check the Owner's Manual to see what the symbols mean. Most cameras show: full, not full and blinking—often red—which means it is about to die.



**FIGURE 3.7**  
Battery level symbols will vary with camera

**FIGURE 3.6** Canon 5D Mark II





**FIGURE 3.8**  
Media Cards

Some high-end DSLR Cameras accept two different Media Card sizes.

**CAUTION:** Make sure to insert the Battery and Media Card properly. Never force the Media Card into the slot; with Compact Flash Cards you can break the pins in the camera.



**CHANGING LENSES** – non Point and Shoot Cameras. The camera has a button that releases the lens to change the lens. To align the lens properly, match up the dot on the lens to the dot on the camera.

**MEDIA CARDS** (see Figure 3.8) In general there are two main types: Compact Flash (CF) on the left and Secure Digital (SD) on the right. Sony has their own proprietary stick. SD Cards have a locking switch; see left side of card (in Figure 3.8). When locked you cannot add or delete images to the card.

### **GENERAL LIGHTS AND SYMBOLS**

Take a moment with the Owner's Manual to get familiar with the different lights and symbols on your camera. You do not need to understand every detail; just have a general idea of your camera functions, so when I reference them in the next section, it will jog your memory.

**Lens Release Button**

**FIGURE 3.9**

## REVIEW MODE

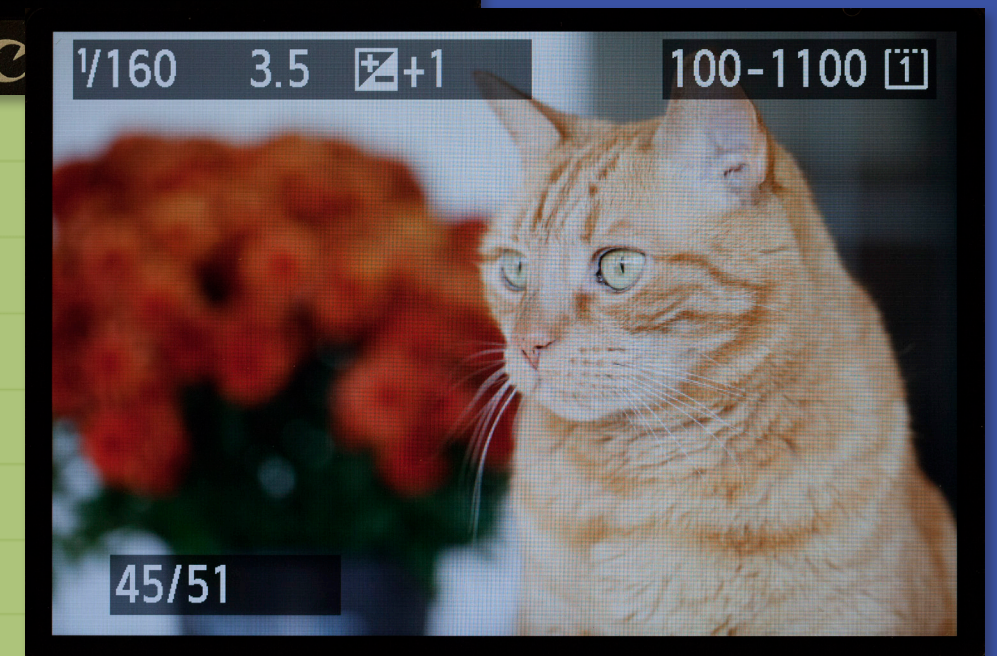
The Review mode will allow you to review your image and the settings used to make the image. This is a valuable learning tool as not only can you see how the image looks, but you can see what settings you used. As you learn what all the settings do, you can make adjustments if something doesn't come out right.

Activate the Review Mode by finding the button or switch that activates this mode. In most cases, the symbol is an arrow that looks like a play button; oftentimes it's in a different color – often blue or green. In Figure 3.13 the review function buttons are all in blue. Use a Dial or Control Pad Buttons to scroll through the images to review each one.

Now find the button that allows you to cycle through seeing the image with and without shooting information. This button may be labeled INFO or DISP depending on your camera. See Figures 3.10-12, view will vary with the camera you have.



**FIGURE 3.10**  
Review mode showing the cat with no information—good to determine composition—note INFO button in upper left



**FIGURE 3.11**  
Review mode showing the cat with shooting information – 1/160, aperture 3.5, Exposure Compensation of +1



Referring to figure 3.12–In addition to the information previously mentioned, look for the following:

**SHOOTING MODE** – under the image see the P for Program mode

**WHITE BALANCE** – sun icon indicating the sunlight setting

**ISO** – set to 800

**PICTURE STYLE** – set to S or Standard

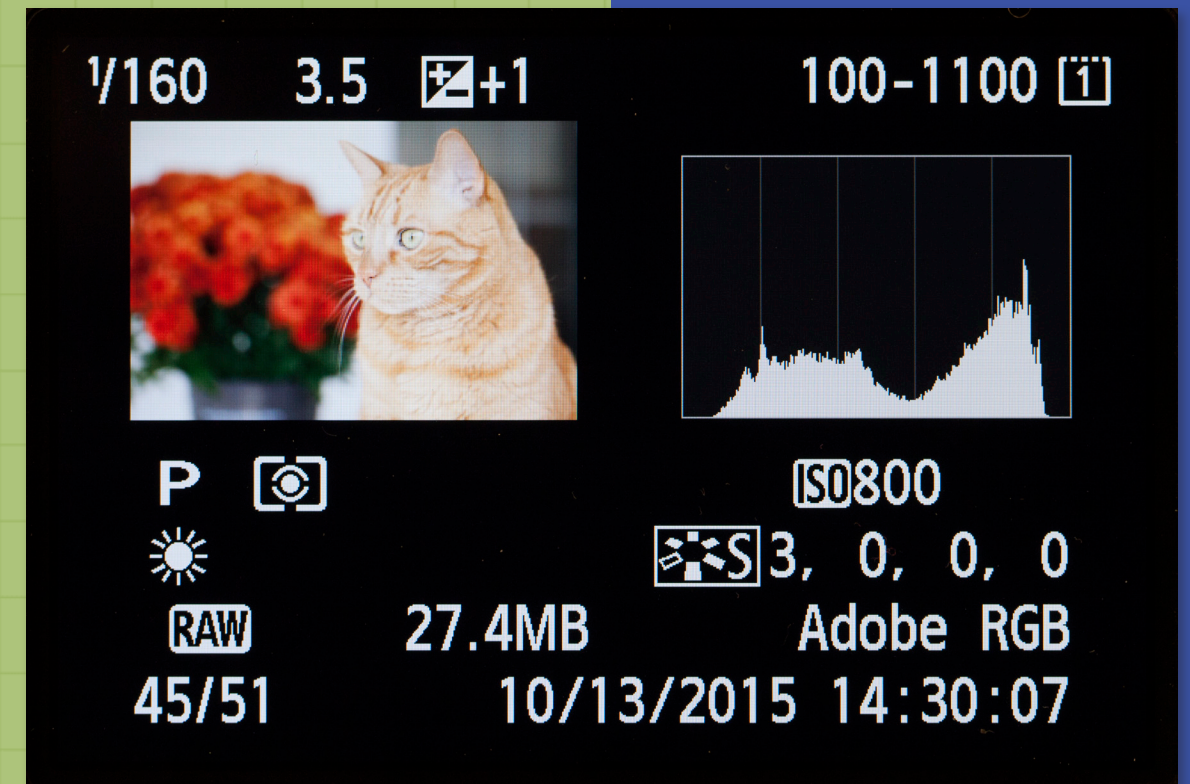
**FILE FORMAT** – set to RAW

The other information displayed is explained in more detail in my Intermediate book.

**REVIEW IMAGES** – When you take a picture, the image flashes up on the LCD screen for a few seconds for you to review. Some cameras allow you to adjust the time the images stays on the screen. Check the Owner’s Manual or Camera Menu for this option.

Look for a button or switch that allows you to access the Review Image function. In most cases, the symbol is an arrow that looks like a play button. Then use a Dial or Button to scroll through the images to review.

**ZOOM** – On Compact Cameras, use the same button/toggle you would use to zoom the lens in a shooting mode. DSLR Cameras have separate buttons (see Figure 3.13) indicated by a magnifying glass with a “+” and another with a “-”.



**FIGURE 3.12**  
Review mode with  
more information

The + allows you to zoom in to see if something is in focus. You can scroll around the image using a control pad that allows you to move up and down and side to side.

You can also zoom out with the "-" to show several images in a grid pattern. This allows you to move through images more quickly to find the one you want. On some cameras if you scroll out enough you will get a calendar that shows the number of images taken on each day. I find this feature a little silly, but some people may find value in it.

**DIRECT PRINTING** Some cameras allow you to print directly from the camera. Direct Printing is indicated by a button with a wavy arrow in a box. I do not recommend this function. I prefer viewing images full size on a monitor prior to printing.



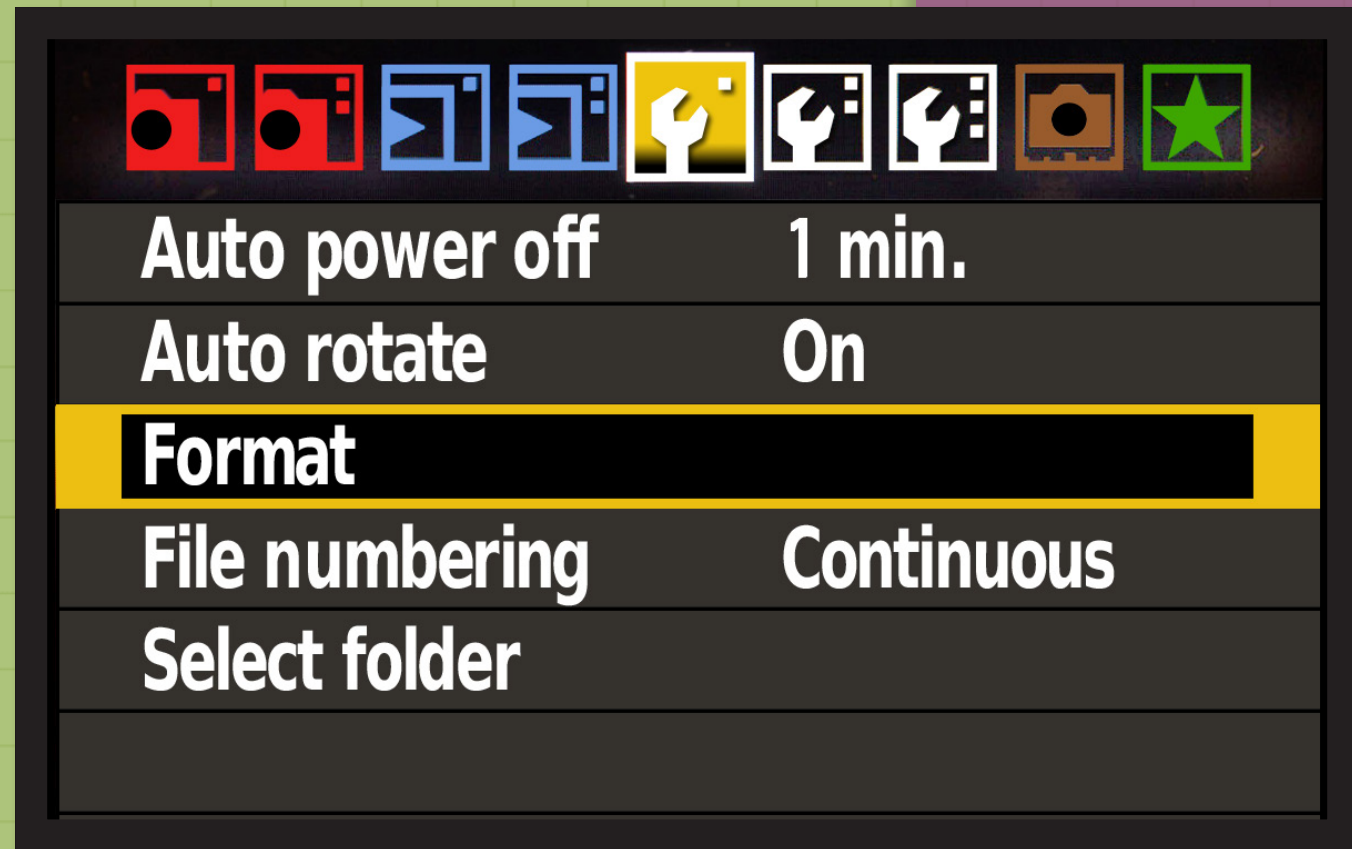
**FIGURE 3.13**  
Canon 5D Mark II

**DELETE BUTTON** – Every camera has a Delete Button symbolized by a trashcan symbol. As you review images you immediately have the option to delete them. A window will pop up and ask if you really want to delete the image with a yes/no prompt.

**WARNING:** Some cameras allow you to delete all images on the Media Card. Avoid this option unless you are clearing the Media Card after fully downloading.

After downloading images from the Media Card onto the computer (and backing them up) it is best to clear the Media Card. Use the 'Format' feature to clear the images. Check your owners manual to find the menu location for Format.

If an image or Media Card is accidentally deleted, all may not be lost. Immediately remove the Media Card out of the camera to insure that it will not be overwritten with new images. Then use recovery software to "unerase" the images. Some images may be corrupted, but you will be surprised at the number you can recover intact, even ones from previous shooting sessions.



**FORMAT 3.14** Format option on Canon 5D Mark II

Images can be recovered from Deleted or Formatted Cards - though some may be corrupted.

## CHAPTER 4

# How the Camera Works

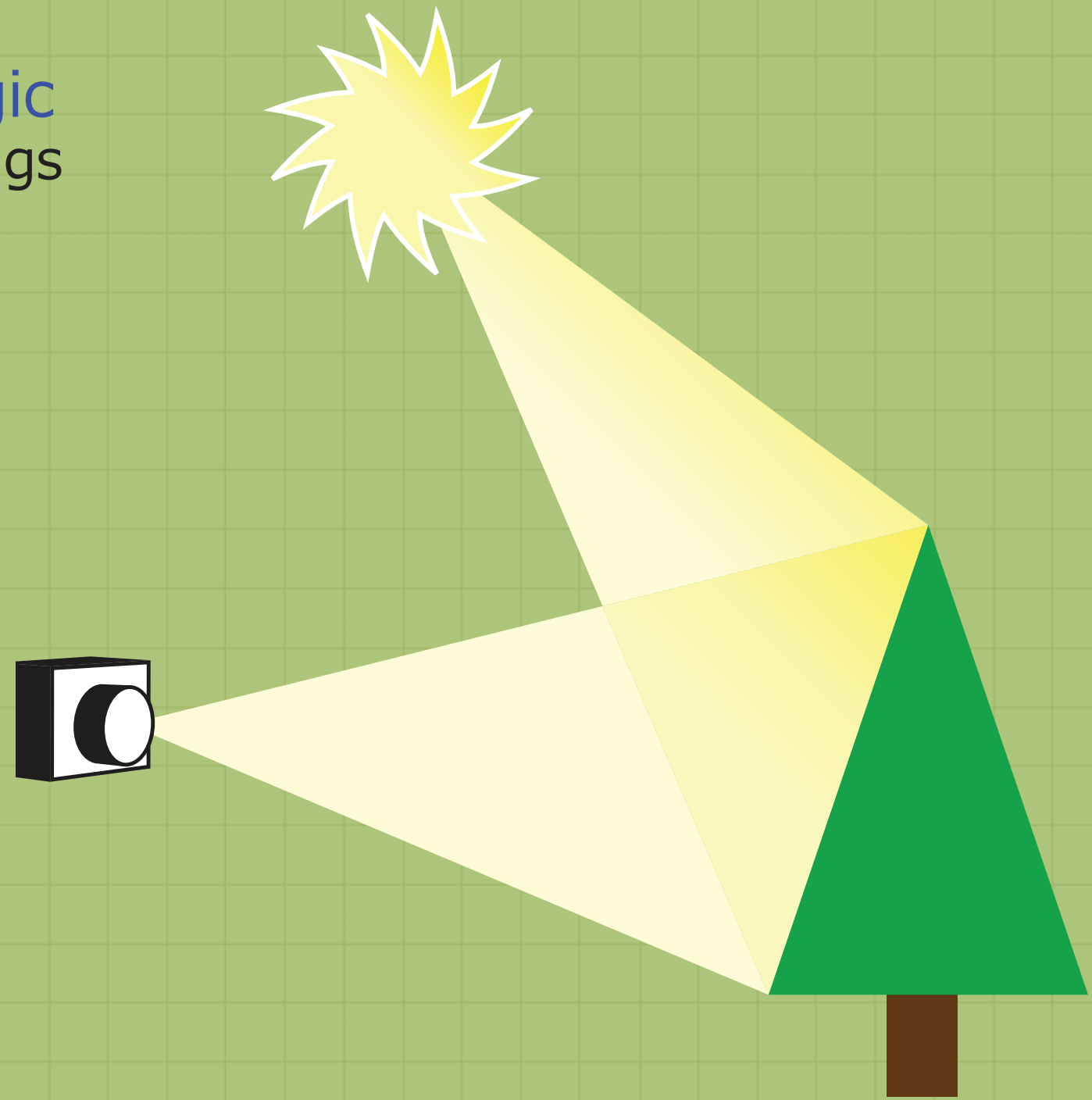
**It's Magic!**

The Northern Lights are like Magic and to many people, the inner workings of the camera is like magic too.

However there is solid science behind both.

I will not bore you with all the details, but understanding how the camera works will help you choose which settings are best for various shooting situations.

Let's start with framing the picture in the Viewfinder or rear screen. When the Shutter Button is pressed the camera evaluates the reflected ambient light coming off of everything framed within the scene. The camera then adjusts the Aperture, Shutter Speed and ISO to let a select amount of light strike the sensor. In camera talk; this exposes your picture.



Ambient Light + Shutter Speed + ISO + Aperture = Exposure or final picture

©Gisiner Design

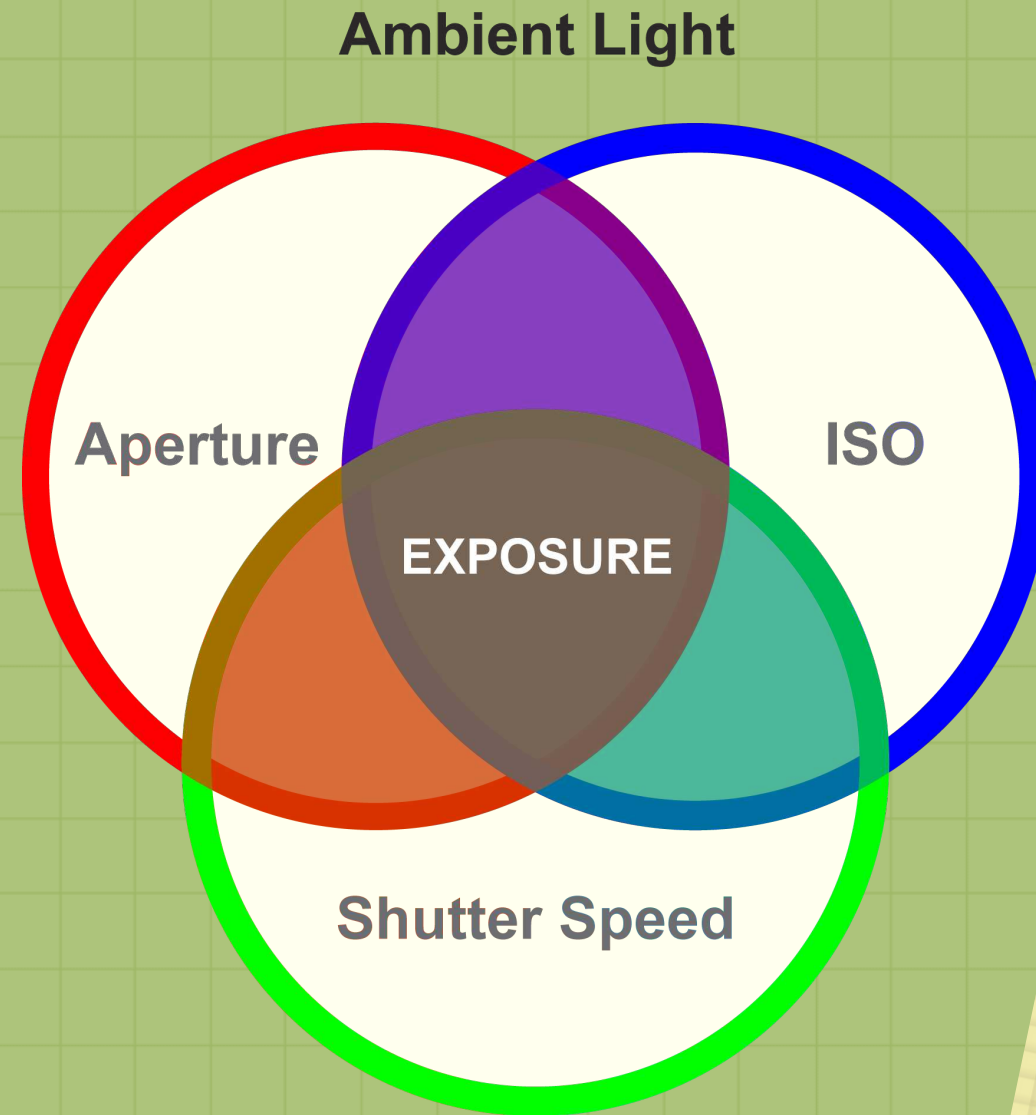
**SHUTTER SPEED** is the amount of time the camera opens the shutter to let light strike the digital sensor. Expressed in seconds.

**APERTURE SIZE** is how wide the diaphragm on the lens opens to allow light to strike the Digital Sensor. The size of the aperture determines how much light comes through. Expressed in f-stops (not discussed here).

**ISO** adjusts the light sensitivity of the sensor, more on this later.

The camera needs a certain amount of light in order to create an image. Shutter Speed is expressed in seconds or fractions of seconds. This is a very important number to pay attention to regardless of your experience level. One of the top reasons for blurry pictures is that the Shutter Speed is too slow to hand-hold the camera or the subject is moving faster than the Shutter Speed.

**For example,** if the shutter is open too long, it will capture movement of the subject in the image and cause motion blur.



**FIGURE 4.1** Relationship of Ambient light, aperture, shutter speed, ISO and exposure

©Gisiner Design

Blurry images are often the result of too slow a Shutter Speed

Having trouble hand-holding your camera? Try using a tripod!



©Victoria Dye Photography

**FIGURE 4.2**  
Viewfinder display of  
Canon 5D Mark II



**FIGURE 4.3**  
Panasonic Lumix  
GX1 display

©Victoria Dye Photography

## Where is the Shutter Speed displayed?

**DSLR Cameras** - at the bottom of the viewfinder it will be the first number on the bottom left (see Figure 4.2)

**For example**, it may show a 60, which is 1/60th second or 500, which is 1/500th second or 1", which is 1 full second. Figure 4.2 reads, 125 which is 1/125th second.

**No Viewfinder?** - use the rear screen to compose the image and see shooting information. If information is not displayed, use your Owner's Manual to display the numbers and symbols over the image.

**Display Button / Info Button** - allows you to cycle through Display Options:

- display information over the image
- no information showing
- blank screen

Figure 4.3 shows a Shutter Speed of 30 or 1/30th second, which is a tad slow to hand-hold.

As a general rule you need at least 1/60th of a second or faster to hand-hold the camera and get consistently sharp images, assuming the subject is holding still. If motion is present, you need faster Shutter Speeds such as 1/125th for walking or 1/500th for a running adult.

The amount of Shutter Speed is dependent on how much ambient light is present. If it is a bright sunny day you will get fast Shutter Speeds. Indoors on a bright sunny day is much darker than outdoors, so the Shutter Speeds will be slower. Indoors with only artificial light is usually quite dark and often results in Shutter Speeds that are too slow for hand-holding. Shooting after sunset or at night is too dark to hand-hold and too slow for a moving subject.

**How do you tell if the Shutter Speed is too slow?** Frame the image in your Viewfinder, press the Shutter Button part way, and see what information is displayed on the screen.

**If below 60 or 1/60th** you need more light.

Move the subject:

- go outside
- turn on more lights
- move toward window
- wait for a day with better outdoor light

As you move through the book, we will explore other ways to get faster Shutter Speeds: using the flash and adjusting the ISO.

|                         |  |
|-------------------------|--|
| <b>1/4000 second</b>    | Extremely fast – hummingbird wings   |
| <b>1/1500 second</b>    | Very fast – flying birds   |
| <b>1/500 second</b>     | Fast – animals running   |
| <b>1/250 second</b>     | Active sports or kids  |
| <b>1/125 second</b>     | Walking, kid portraits   |
| <b>1/60 second</b>      | Benchmark for hand-holding, portraits                                      |
| <b>1/15-1/30 second</b> | If you have Image Stabilization or Vibration Reduction and a still subject |
| <b>&gt;1/15 second</b>  | Tripod and still subject or intentional motion blur                        |

**FIGURE 4.4** Shutter Speed Breakdown

Ambient Light greatly affects how fast a shutter speed you can get.

You can use flash, adjust ISO or find more light to get faster shutter speeds. We'll discuss these options later.



Can't find  
a Setting  
or Menu?

Change from  
Auto Mode to  
Program Mode.

Some Cameras  
disable menus  
and options  
when in  
Auto Mode.

## SHOOTING MODES - Part 1

Most cameras have a variety of Shooting Modes. Shooting Modes try to optimize camera settings for various shooting situations. Shooting inside, outside, at the beach, or close up all require different settings. The camera has Modes pre-programmed to assist you in these conditions.

Modes are often divided into two zones; automatic and creative. Part 1, will highlight two Automatic Modes. Once we have discussed White Balance, Lenses, ISO, Exposure, and Continuous Shooting we will address the other Shooting Modes.

Shooting Modes are accessed from the Mode Dial on most cameras. Cameras without a Mode Dial, such as Compact Cameras, have a Menu to access Shooting Modes.

**AUTOMATIC MODE** is where the camera makes all the decisions for every setting. You simply point and shoot. This is often denoted as a green box, red box or Auto on the Mode Dial. (The A or Av on the Mode Dial is something else.)



©Victoria Dye Photography

**FIGURE 4.5**

Canon 5D Mark II mode dial – there are no automatic shooting modes other than Program and Auto – designated by the green box.



Shutter Button

Shooting Mode Dial

**FIGURE 4.6** Panasonic Lumix Mode Dial – this camera has a SCN option for auto shooting modes discussed later

The equivalent of Program Mode may be Manual on a Compact Camera.

**PROGRAM MODE** is the recommended mode for general shooting; giving you the ease of automatic, but the ability to make adjustments, such as; flash, color cast, exposure and ISO, which we will discuss a bit later.

**The P on the Mode Dial denotes Program Mode.** If you have a Compact Camera it is sometimes called Manual Mode. Consult your Owner's Manual.

Do not use Manual Mode on a DSLR, Bridge or Mirrorless Camera systems, as this eliminates all automatic variables and forces you to manually choose all settings. These features will be covered in detail in my Intermediate book.



**BOTTOM LINE**

For the remainder of this book, use the Program Mode (DSLR, Mirrorless, Advanced/ Bridge Cameras) or Manual Mode (Compact Cameras) to access the settings we're going to cover next.

CHAPTER 5

# Basic Camera Settings



# WHITE BALANCE

White Balance is about the color of light, which varies with the light source. A white piece of paper acquires a different color depending on the light source. Our eyes send information to our brain, which interpret the piece of paper to be "white" in all lighting situations. The camera, however, is literal and will display the colorcast. For example, sunlight is fairly neutral, shade or dark cloudy is cooler, incandescent lighting is yellow and so on.

Film photography has different film types for indoor light vs outdoor light. The flash supplies a white light similar to the sun, which overpowers the color-cast of indoor light on your subject.

To eliminate color casts in your images set the white balance to coincide with the light source.

In the case of the cat images in Figure 5.1, the light source is tungsten. The image with the tungsten setting renders the truest color of the subject. The other settings result in a color-cast.

**Science Geek Alert**  
Color of light is expressed in degrees Kelvin. Each camera preset option is a different Kelvin number, set to offset various colorcast.

- Sunlight is set to 5500 Kelvin
- Cloudy is set to 6500 Kelvin
- Tungsten is set to 2850 Kelvin
- lower numbers cool off a warm light source
- higher numbers warm up a very cool light source

**FIGURE 5.1**  
Comparison of White Balance settings, indoor white balance - no flash



Auto White Balance



Daylight Setting



Tungsten Setting



Fluorescent Setting

The images of the waterfall show Auto White Balance (Fig 5.2) vs. Cloudy White Balance (Figure 5.3) settings. Note the difference in warmth. I prefer shooting fall colors in the cloudy setting as it warms up the image and brings out the colors.



**FIGURE 5.2**

White Balance is set to Auto, note cool light comes through

©Victoria Dye Photography



Sometimes a warmer colorcast is favorable and results in a more pleasing image.

**FIGURE 5.3**

White Balance set to Cloudy to warm up the cool light source.

©Victoria Dye Photography

When photographing people, it's very important to pay attention to White Balance. A cool image is not as appealing as a warm image as seen in the picture of the boy.

Figure 5.4, was set to Auto White Balance while Figure 5.5, was set to cloudy.



**FIGURE 5.4**  
White Balance set to Auto, note cool light comes through.

©Victoria Dye Photography



**FIGURE 5.5**  
White Balance set to Cloudy to warm up the cool light source

©Victoria Dye Photography

There are a variety of preset White Balance options to choose from, varying from camera to camera:

**AWB** **AUTO WHITE BALANCE** is the default setting. The camera is trying to give true color without a colorcast. Most cameras do a good job on this setting when shooting outdoors and indoors with flash. However, indoors without a flash poses more of a problem. When you detect a colorcast on the image, try the preset that best matches the light source. If that doesn't work, never fear, we'll talk about creating a custom setting in the next section.

Options vary between cameras, but usually include the following shown in Figure 5.6. In order they are:

### **AUTO WHITE BALANCE**

**Sunlight** – fairly neutral white

**Shade** – cool light so camera warms it up

**Cloudy** – cool light so camera warms it up

**Incandescent** – very yellow light so camera cools it down

**Fluorescent** – varies widely - some Nikon cameras have several sub options

**Flash/Speedlight** – when using the flash

**Custom** - If these presets don't work, then set a custom white balance. See next section.

**Kelvin** – if you have a white balance meter, you can measure the degrees Kelvin and set it. This option mostly appears on DSLR Cameras.

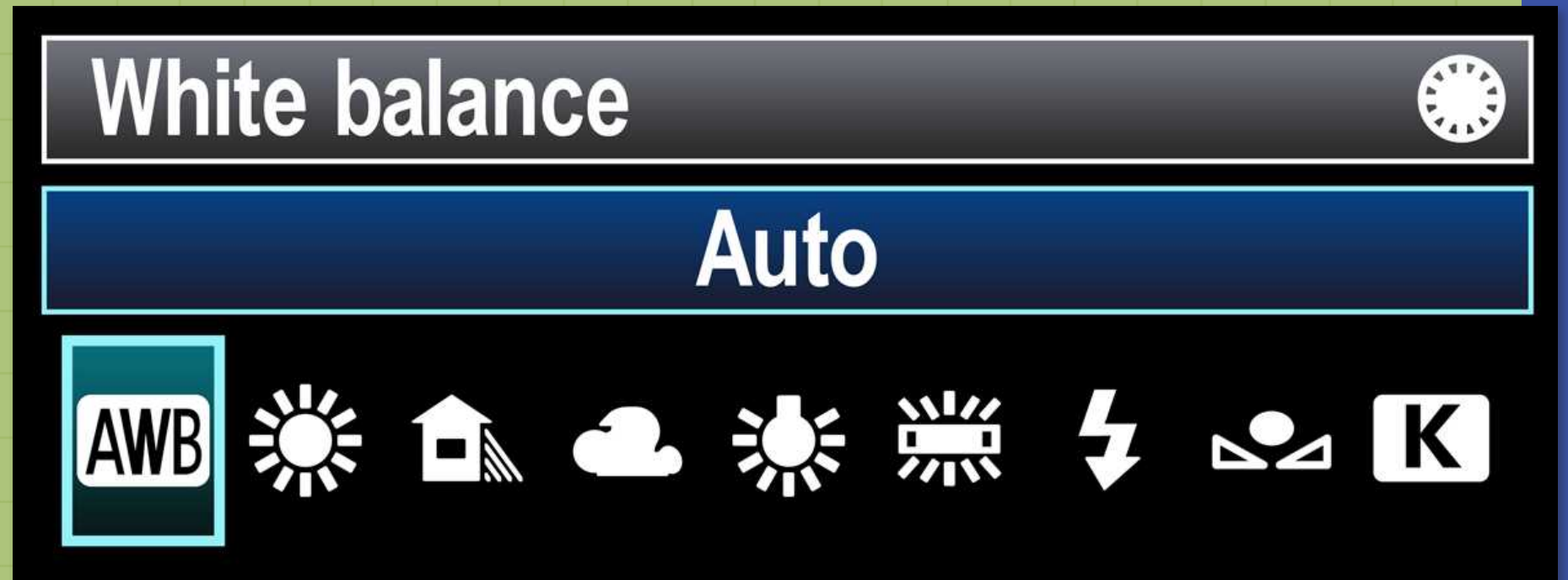


FIGURE 5.6 Canon 5D Mark II White Balance Options



**SETTING A CUSTOM WHITE BALANCE** – get out your Owner's Manual.

This is easy to do and involves calibrating the camera by using a white piece of paper under the lighting conditions you are shooting. Your Owner's Manual will walk you through the procedure as it varies from camera to camera.

The camera needs a white piece of paper to calibrate from. Some tips when setting a Custom White Balance:

- Looking on the lens, switch from Autofocus (AF) to Manual Focus (MF). Interchangeable lens cameras only.
- Place the paper in the lighting where your subject will be.
- Fill the viewfinder with the white paper – no other colors in the image!
- Avoid casting a shadow on the paper

This custom setting is good as long as you are shooting in the lighting you made it under. If you go to another room or light source, you have to do it again. Some advanced cameras allow you to store multiple Custom White Balance settings.

To calibrate your Custom White Balance, keep a piece of white paper in your camera bag.



**BOTTOM LINE**

**W**hite Balance is all about the color of light. When your image has a colorcast, adjust White Balance. Start with Auto White Balance and take a few test shots. If there is a colorcast, try a preset, if that doesn't work then set a Custom White Balance.



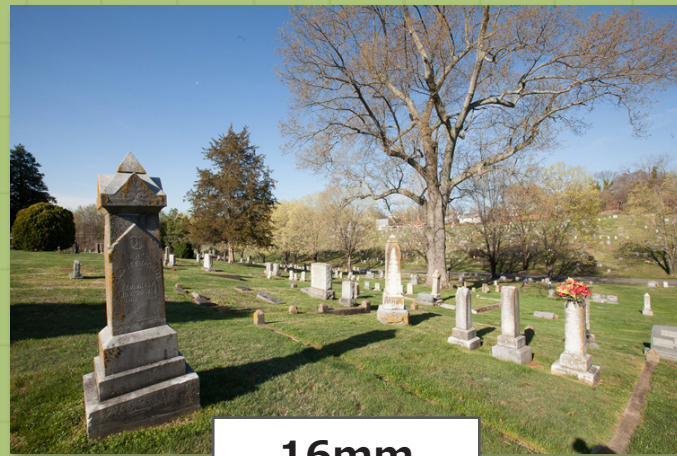
## Practice Exercises

- 1** Place an object on a white background. Now photograph the object on each White Balance setting, do not change the light source. Review the images to see the color change and see which one you like best.
- 2** Photograph a person in the shade or on a cloudy day. Compare the AWB, Cloudy and Shade settings. Which do you like best? Do you notice the warmer and cooler tones?
- 3** Using your Owner's Manual and the tips above, practice setting a Custom White Balance.
- 4** Photograph a person indoors under incandescent/tungsten lighting without the flash. Compare using AWB, incandescent/tungsten and a custom setting. Which do you like best?
- 5** Photograph fall color on a sunny day. Compare shooting in Auto, Sunlight and Cloudy White Balance settings. Which do you like best? I find the Cloudy setting helps bring out the fall color.

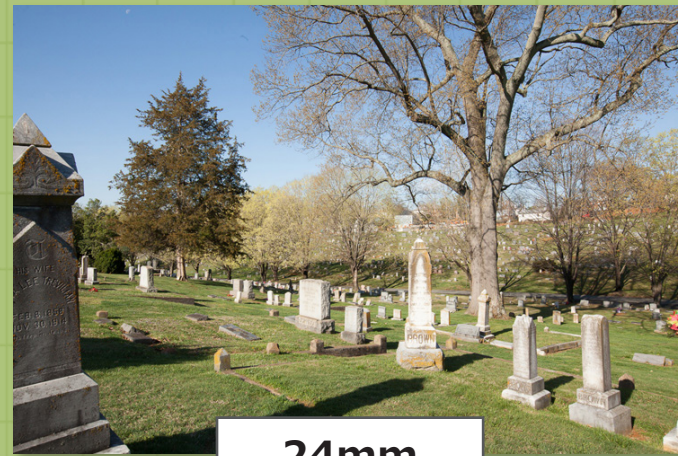
# LENS

**FOCAL LENGTH** – focal length is determined by the angle of view. An 18mm lens has a wide angle of view and a 300mm has a narrow angle of view. Zoom Lenses have a range of focal lengths.

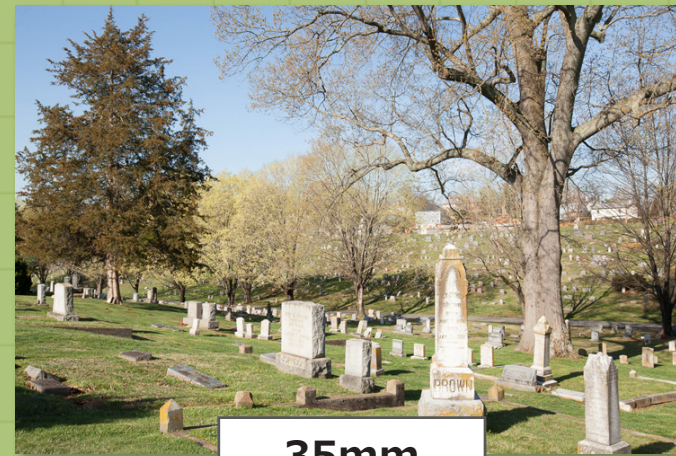
For example, the Canon Kit Lens Zoom Lens is 18mm-55mm. A Fixed Lens has only one number, ie. 50mm Point and Shoot Cameras always have a Zoom Lens.



16mm



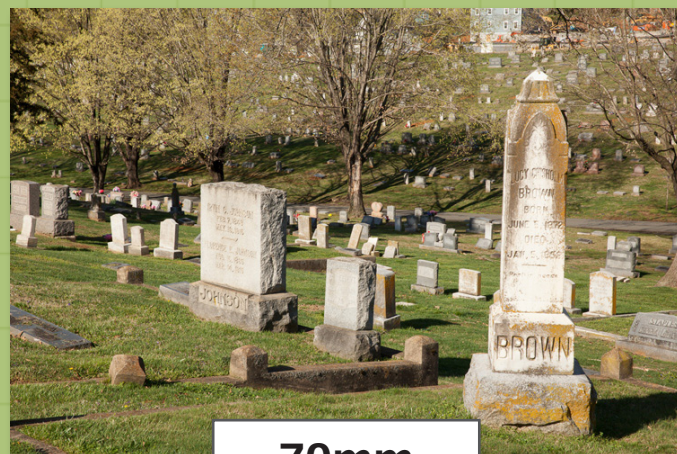
24mm



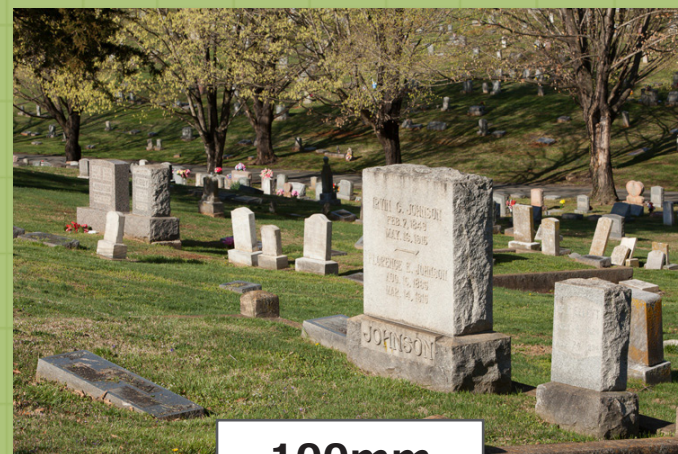
35mm



50mm



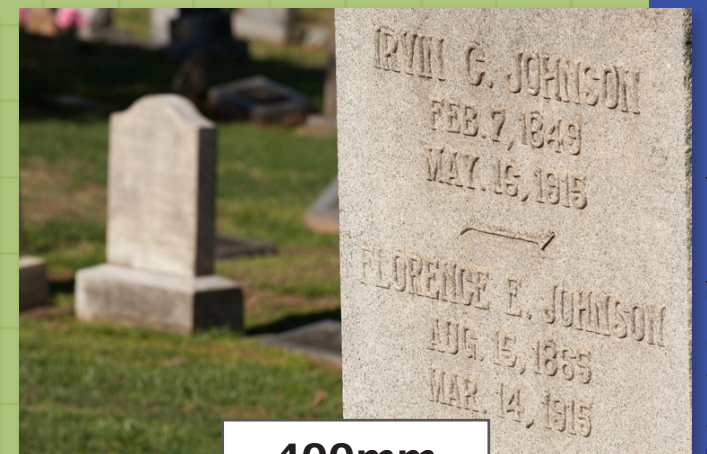
70mm



100mm



200mm



400mm

FIGURE 5.7 Focal Length Variations

|                  |                        |
|------------------|------------------------|
| <b>Human eye</b> | 140° x 180° vert x hor |
| <b>16mm</b>      | 74° x 95°              |
| <b>24mm</b>      | 53° x 74°              |
| <b>50mm</b>      | 27° x 39.6°            |
| <b>105mm</b>     | 13° x 19.5°            |
| <b>200mm</b>     | 6.87° x 10.3°          |
| <b>400mm</b>     | 3.44° x 5.15°          |

FIGURE 5.8 Angle of view diagram

### OPTICAL VS DIGITAL ZOOM

Many Point and Shoot Cameras offer Digital Zoom, which allows you to zoom closer to a subject. However, Digital Zoom is not actual optics, but rather the camera digitally enlarging the subject in the screen. Unfortunately, the camera is not as good as an optical lens, and quality suffers. I recommend avoiding it. Optical Zoom is based on actual optics of the lens itself and produce much better results.



FIGURE 5.9

## Compact Cameras...

avoid using Digital Zoom due to loss of quality.

When Hand Holding the camera turn on Image Stabilization or Vibration Reduction

**FOCUSING RANGE** - Distance the Lens can focus on a subject. All cameras can focus to infinity, the only difference is how close it will get and still have the subject be in-focus. Interchangeable Lenses display the Minimum Focus or Macro Distance on the lens barrel.

## IMAGE STABILIZATION/ VIBRATION REDUCTION

Image Stabilization (Canon) or Vibration Reduction (Nikon), was originally a feature on Professional Lenses. Now most Point and Shoot Cameras have this feature built in, while most DSLR Camera users must purchase a Lens with the feature. Image Stabilization allows you to hand-hold at slower Shutter Speeds for a sharp picture. This is a great feature to look for in a camera or lens purchase.

Image Stabilization can be turned on/off on the Lens itself or when the feature is built into the camera, in a menu. For Compact Cameras, look for the Hand Symbol.



**AUTOFOCUS** - Most cameras and lenses today have Autofocus. To tell what object is being focused on look for:

- Rear Screen viewfinder - focusing boxes
  - green = in focus
  - yellow / red = not in focus.
- Viewfinder - points or boxes
  - when the Shutter Button is pressed, points/boxes light up to indicate object being focused on

Some high-end Bridge and DSLR Cameras allow control over which Focus Point is active, forcing the camera to focus in a particular area.

I recommend leaving Autofocus on, however there are times when you may want to Manually Focus. In those cases change to Manual Focus (MF) using the MF/AF switch on the lens of DSLR or Mirrorless cameras and use the Focusing Ring to focus. P&S Cameras have a menu option that disables autofocus. I find this feature very cumbersome.

## FOCUSING

Your camera should beep or give you a light—usually green—when it has acquired focus. If the camera's lights are flashing or it will not take the picture, it may be because it has not acquired focus or perhaps it is too dark to take a picture without the flash.

Check your Owner's Manual to learn what all the lights and symbols mean.

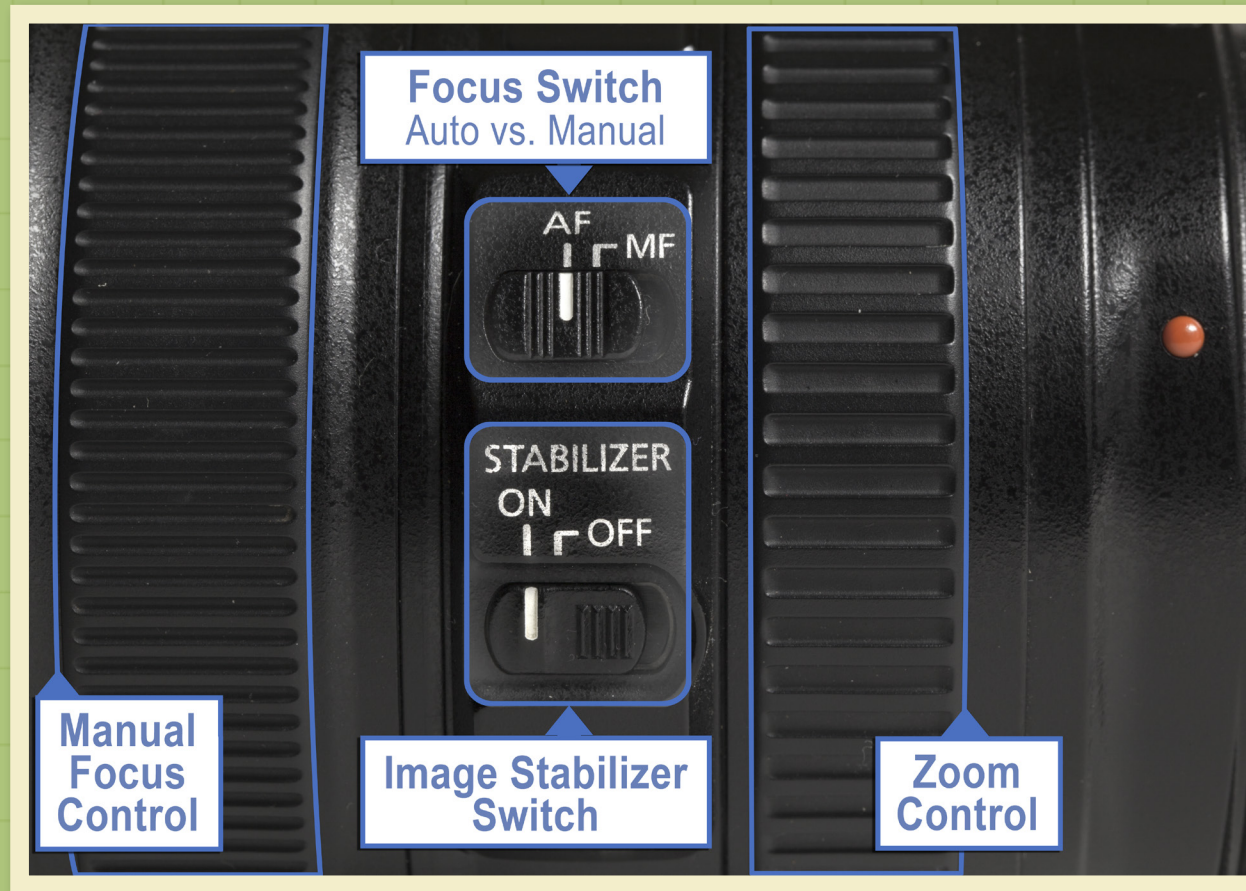


FIGURE 5.10 – DSLR lens controls



FIGURE 5.11  
P&S zoom controls

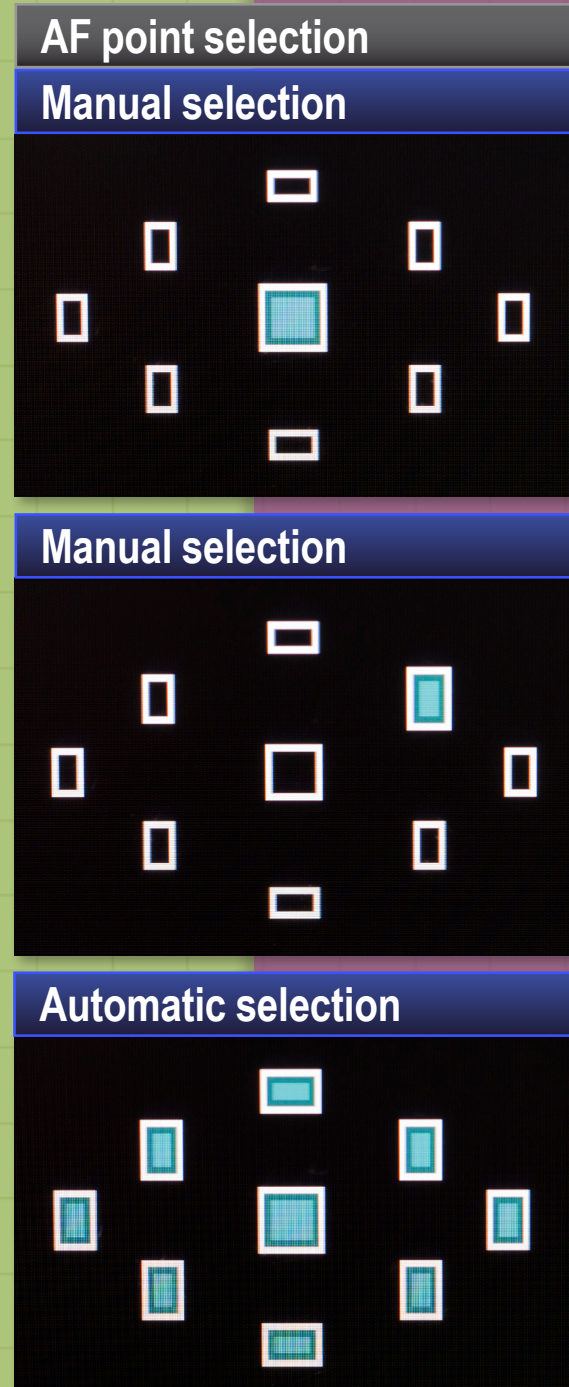


FIGURE 5.12  
Canon focus point option

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©Victoria Dye Photography

Make sure  
the camera is  
focusing on  
the subject  
and **not the  
background.**

## Practice Exercise

- 1 Locate the Features/Buttons previously described.
- 2 Photograph a scene at the widest angle, then zoom and photograph again - note the angle of view change
- 3 If you have the option, turn off Autofocus and try focusing manually.
- 4 If you have Digital Zoom:
  - Choose a subject you can both get close to and far away from
  - Get close to the subject; filling the frame. Photograph *without* using the Digital Zoom - Optical Zoom is fine.
  - Further away from the subject; use Digital Zoom, again filling the frame
  - On the computer, compare the two images looking for quality.



**BOTTOM LINE**

- Turn off Digital Zoom if you have it.
- Make sure the camera acquires focus before taking the picture. Trouble focusing? Move backwards or move the camera around and re-focus.
- Keep Image Stabilization/Vibration Reduction on.

## FLASH

The flash is useful in low light situations and when you need to fill light into dark shadow areas on your image. When used well, the flash is great.

### BUILT-IN FLASH

The built-in flash on cameras is poorly placed and is too small to produce much light. However, it is very ergonomic and does not add weight to the camera.

The flash is situated on top of the camera over the lens. When used, it strikes your subject straight on washing out all shadows. This results in a very flat looking image. Finally, this type of flash is not good for illuminating subjects beyond 10 feet.

### OFF-CAMERA FLASH UNITS

A professional portrait photographer places lighting units at an angle to create soft shadows. This helps maintain a three-dimensional look to the subject in a two-dimension medium.



**FIGURE 5.13** Flash Straight On – Washed out and light reflected on glasses



**FIGURE 5.14** Flash bounced Off Wall – Depth added by sidelight and no eye reflections


When the flash is at eye level the light reflects off the back of the subjects eye. In people the reflection is red or commonly known as "red eye". However, in animals it reflects a yellow/green color. Referring back to Figures 5.13 and 5.14, placing lights at an angle to the subject will eliminate red eye, since light is not directly entering the subject's eye.

Off-camera flash units often have ranges up to 100' or more.

## FLASH MODES

Most Compact Cameras offer various Flash Modes to determine if the flash fires or not. DSLR Cameras are a little different. In the Automatic Modes the camera controls the flash, ie Automatic, Portrait, Night Scene, etc. In the Creative Modes, Program included, the flash must be raised for use.

**Compact Cameras** - These cameras normally have the flash positioned on the front face of the camera. The flash does not need to be raised or lowered; it just needs to be activated through a menu.

 Look for the flash symbol on a button or menu. It is usually located on the back of the camera. Press this button to activate the Flash Menu options. The options will vary depending on what Shooting Mode you are in.

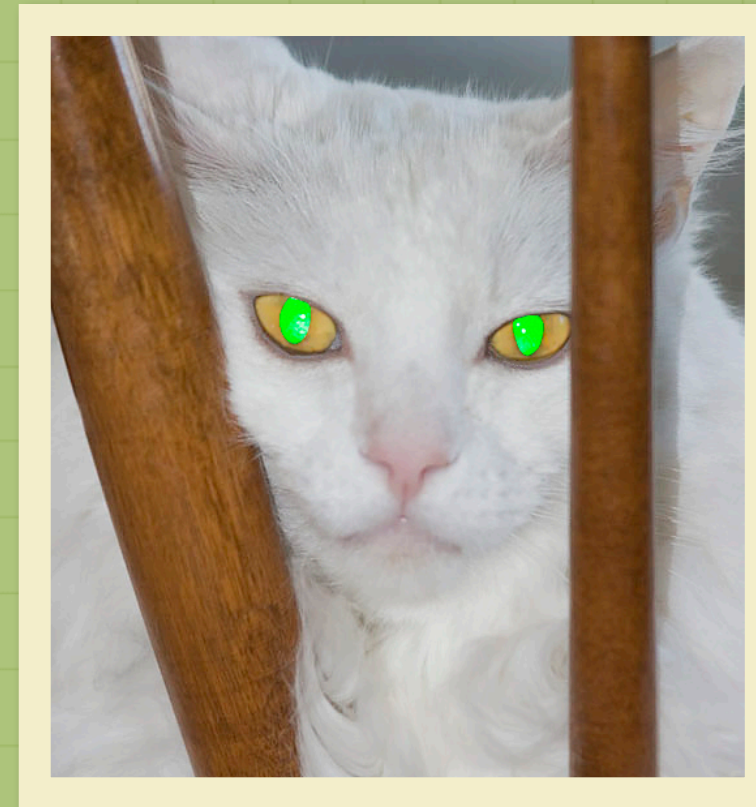


FIGURE 5.15 - Green eye shine from flash

For example, (Compact Cameras only), Full Auto Mode only shows on or off flash options. For more options, switch to Program/Manual Mode.

## On-Camera Flash

### PROS

ergonomic,  
no extra weight

### CONS

flat images,  
red eye,  
poor range.

Break out your Owner's Manual to find out where your camera controls the flash and what options you have.



Typical flash options are:



**FLASH ON** - the flash will fire every time, regardless of the situation.



### **AUTO FLASH**

the camera chooses when the flash is

needed. The default mode for Compact Cameras.



### **SLOW SYNC SHUTTER**

Use in low light situations.

This mode requires a tripod for good quality or the background will be blurry. Many cameras have a Night Portrait Shooting Mode (discussed in the Shooting Mode section).



### **RED-EYE REDUCTION AND SLOW SYNC WITH RED-EYE REDUCTION**

Red-eye in an image is created when the flash reflects off the back of the eye. Light reflected off the back of an animal's eye is usually yellow or green.

Red-Eye Reduction makes the camera fire a series of pulse flashes to make the subjects pupils constrict; then there is less chance for red eye.

**TIP:** Warn your subjects that you are using this function or they will think the picture has been taken at the first flash pulse.

Due to the flash pulse, pets and small children do not like Red-Eye Reduction. To avoid unhappiness, turn off the feature in either a menu or by using a setting that does not include the feature.



**FLASH OFF** - the flash will not fire, regardless of the shooting situation. Use this

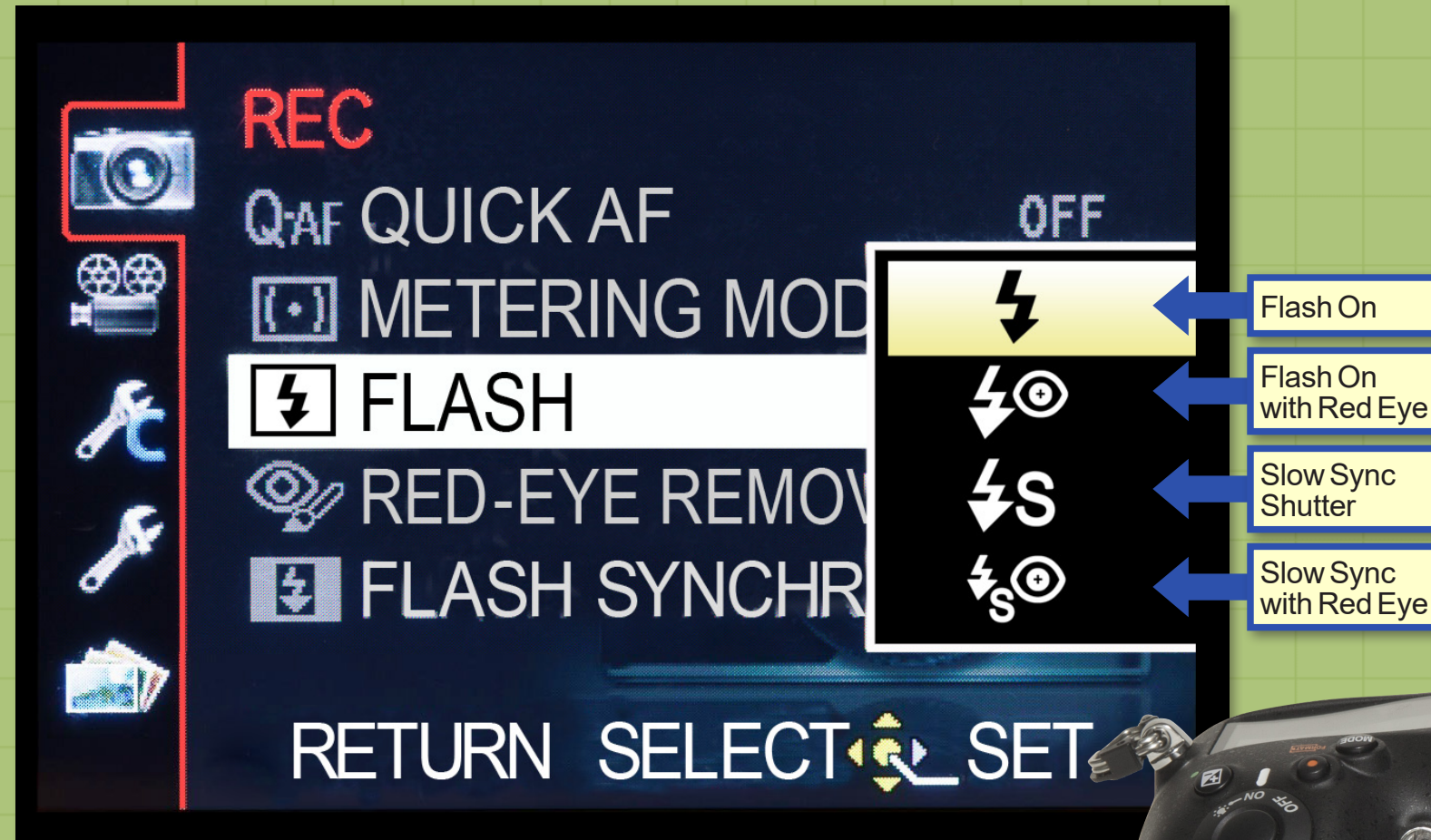
function to utilize ambient light or where the flash is not allowed, such as in museums.

Depending on your camera, it may have all or only some of these Flash Options. Consult your Owner's Manual for all Flash Options and ideas of when to use them.

**USELESS FACTOID**  
A Siamese cat's eyes reflect red, like a human!

**All DSLR Cameras** have a hot shoe to attach an off camera flash, but some don't have an on camera flash, ie: 5D Mark III. For a DSLR with an on-camera flash, it works a little differently than a P&S. In an Automatic Shooting Mode, such as, Automatic, Portrait, Landscape, Sports Action, Night Scene, etc. the camera controls the flash. In Program Mode, you control the flash.

- To Access the DSLR's on-camera Flash switch to Program Mode.
- Raise the flash using the flash button or manually – see your manual – this turns it on.
- Manually lower flash in Program Mode
- There is no Auto Flash in Program Mode.



**FIGURE 5.16** Panasonic Lumix GX 1 Flash Options

To utilize Auto Flash, you need to be in one of the Full Automatic Shooting Modes. Some compact cameras also require you to pop up the flash for it to fire.

**FIGURE 5.17** - Nikon DSLR with both on camera flash popped up and a hot shoe.



To Flash or not to flash, that is the question  
**Need more light? Yes**

and situations where the shutter speed will be too slow (see How the Camera Works). Use the flash to add light. In Program Mode when the flash is active the default Shutter Speed automatically goes to 1/60th. The camera instructs the flash to provide enough light to increase shutter speed to avoid a burry image. TIP: This is good for portrait and still life photography, but not for action, such as, running toddlers, wild pets, sports, etc.

**Subject backlit? Yes**

behind your subject. The flash must fire or the subject will be in silhouette (see Figure 5.18). When the camera is facing the light source, Auto Mode thinks there is enough light, and will not fire the flash. The camera does not know how the light strikes a subject unless you tell it.

**Action? No**

Action photography is best with Continuous Shooting Mode. The flash takes time to recycle, making it impossible to use Continuous Shooting Mode. Even if you are not in CS Mode, you are usually too far away for the flash to be practical. Sports/Action Mode disables the flash (see Chapter 6, Shooting Modes, part 2).  
Note: High-speed flash units can be purchased for Action Photography (see my Intermediate book).

Consider using the flash in low light

Backlighting is when the light source is



**FIGURE 5.18** Backlight with no flash, subject is a silhouette



**FIGURE 5.19** Backlight with flash, subject is properly lit

## Practice Exercise

**1** Place a subject in front of a window during the day – creating a backlit situation. Take a picture with, and without the flash. Do you see a difference?

**2** Use the flash to photograph a person in low light. Try to reduce red-eye in the subject by not pointing the flash straight at their face. Try altering your position: slightly up, slightly down and at an angle.

**3** On a bright sunny day, photograph a person with a hat. Shoot with, and without the flash. Try to get light on their shadowed face.

TIP: Make sure you are close enough for the flash to be effective.



**BOTTOM LINE**

Don't assume the camera knows when to fire the flash.

When your subject is backlit use the flash – whether you are indoors or outdoors. Remember the range of your flash is limited.

## ADVANCED TIP

**If** you do a lot of Indoor Shooting or Portraits, I highly recommend an Off-camera flash unit. To use this the camera must have a hot shoe (see the Navigation Section). This type of flash has many benefits:

- The angle of light is superior
- The range is extended up to 100' or more depending on the flash unit
- You are able to redirect the light, by bouncing it off the ceiling or a wall instead of aiming it straight at your subject
  - subtle shadows
  - 3-D effect

- spot light effect
- Reduces red eye

When shopping for an Off-camera flash, make sure it is compatible with your camera and has a rotating flash head (a fixed flash head negates many of benefits).

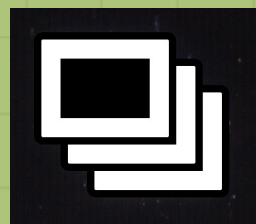
Price range: \$200-500.



FIGURE 5.20

# DRIVE MODES

## SINGLE SHOT VS. CONTINUOUS SHOOTING



Single Shot Mode is the camera default, which means one picture is taken when you press the Shutter Button. Continuous Shooting allows you to take several images in a row while holding the shutter button down.

In Continuous Mode, Compact Cameras do 1-3 frames/second (not very fast). Other cameras boast higher speeds, but the image size and quality are lower – Check your Owner's Manual.

For example, you get 10 frames per second, but the image size is now medium instead of large and the quality is normal instead of fine (see Digital Primer chapter).

For action photography, I recommend a DSLR or Mirrorless Camera system. Both Continuous Shooting Mode and Focusing are faster than with a Compact Camera system.

Some DSLR Cameras have a Continuous High Mode and a Low Mode Option. Use Low Mode for Portraits and High Mode for Action.

**TIP:** When taking a portrait, always take at least 3 images. People move their eyes and facial expressions very quickly.

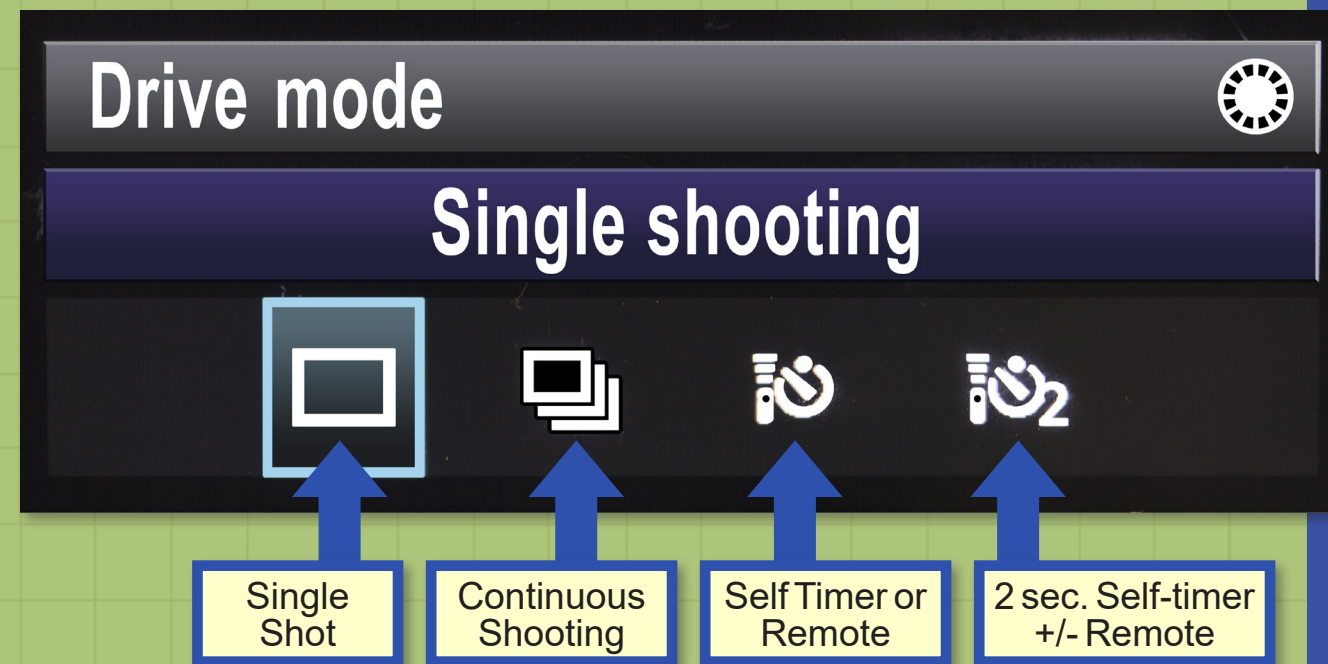


FIGURE 5.21 Canon 5D Mark II Drive mode options

So make sure you take several so one comes out!

DSLR Cameras will take a certain number of images quickly and then stop. This number will be flashing in the far lower right of the Viewfinder. An internal buffer stores images while writing to the Media Card. A fast shooting camera may buffer quicker than it can write, therefore functions will stop. At this point, the buffer number will show 0 in the Viewfinder. As space becomes available, shooting will continue. Buffer size varies with the camera.

## Practice Exercise

- 1 Set the camera to Single Shot, press and hold down the Shutter Button - only one image is taken.
- 2 Next, set the camera to Continuous Shooting, press and hold down the Shutter Button - multiple images are taken quickly.
- 3 Set up subjects in action and set the camera to Continuous Shooting. Take a sequence of images.

Note that some images are better than others. Action is hard to capture, so take lots and trim down to just 1 or 2 good ones.



### BOTTOM LINE

Action Shooting requires lots of Light and a fast Shutter Speed to Stop Action. Bright sunny or cloudy days are the best. Continuous Shooting is also useful for Portraits, especially for babies and groups. Do not use with the flash.



**FIGURE 5.22**  
Continuous Shooting Sequence,  
Coastal Brown Bear, Alaska

## SELF-TIMER & REMOTE CONTROLS



Traditionally the Self-timer feature has been used to take self-portraits. Now, many camera systems have Remote Controls, so you may not need this 10-second feature.



To activate the Remote Control set the Drive Mode to the Remote Control Symbol.

**TIPS:** Most cameras also have a 2 second Self-timer option. Use in low light situations (shutter speed is too slow to hand-hold) on a tripod when not using the flash. The 2 second Self-timer feature prevents you from shaking the camera as you press the Shutter Button.

Practice using the remote control, some have to be synched to the camera – read the manual. Also practice using the 2 and 10 second self-timers. Note the light flashing on the front of the camera as it counts down. You don't need to smile the entire 10 seconds, wait until the light flashes rapidly near the end.

## FACTOID

Shooting at noon on a cloudy day produces a diffused light source. Clouds cover the direct light source – the sun – and therefore creates a soft even light that flatters most subjects. Your images will have good shadow details and nice colored highlights.



**BOTTOM LINE**

Planning to take a lot of Self-Portraits?  
...get a remote control.

For Tripod work, use the 2 second self-timer or remote control.



# EXPOSURE

We discussed Exposure briefly in the section on How the Camera Works. So let's review; exposure is the result of several variables:

**REFLECTED LIGHT RAYS STRIKING THE DIGITAL SENSOR** determines Exposure based on the intensity of the light. Then the camera sets an Aperture and Shutter Speed to let in a specific amount of light.

**SHUTTER SPEED** is the amount of time the camera lets light strike the digital sensor.

**APERTURE SIZE** is how wide open the diaphragm on the lens opens. The size of the Aperture determines how much light comes through the lens to strike the digital sensor.

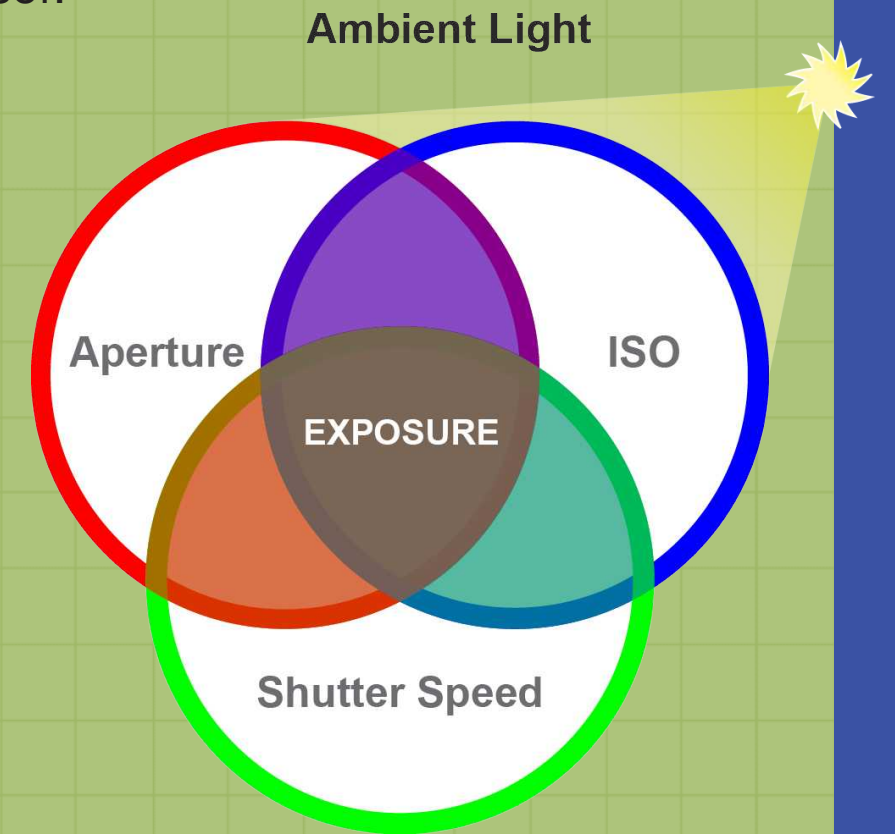
Cameras use a Reflective Light Meter to determine Exposure. The meter works by measuring the light reflecting off the scene and through the camera's lens. It takes a light reading, calibrates the average and determines the medium tone. What is a medium tone?

**tone** is the quality of brightness of a color. Forest green is dark in tone, grass green is medium in tone, and sea foam green is light in tone.

For example, a black bear is dark in tone, a white tailed deer is medium in tone and a polar bear is light in tone.

Tone is the brightness of a color, not the color itself. Add black to a color and the tone becomes darker. Add white to a color and the tone becomes lighter. So every color has dark, medium and light tones.

Regardless of the scene, the camera is calibrated to average the reflected light to be medium in tone.



**FIGURE 5.23** - Aperture + Shutter Speed + ISO setting + Ambient Light = Exposure

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**LIGHT SCENE:** The image of a snowy scene looks darker than you remember. The camera re-calibrated the light toned scene to medium tone.

**DARK SCENE:** The image of a dark room will look lighter than you remember as the camera calibrated it to a medium tone instead of dark toned.

**MEDIUM SCENE:** The image of a forest scene will most likely look exactly like you remember, since it is a medium tone scene.

The point being, regardless of how bright or dark a scene is the camera will strive to make the scene medium in tone.

Many people are happy to let the camera do what it wants, but if you want your snowy scenes to be light or your dark scenes to stay dark you must tell the camera to compensate. Do this by using Exposure Compensation explained next.



**FIGURE 5.24** Green Variations - Trees are dark in tone; field grass is medium to light in tone

# EXPOSURE COMPENSATION



Exposure Compensation is indicated by a plus/minus symbol on most cameras, however some Canon DSLR Cameras use the Command Dial to control Exposure and will not have a symbol.

Exposure Compensation is controlled with the Exposure Meter Scale / List. The scale looks similar to Figure 5.25.

The Exposure Compensation Scale either appears in the Viewfinder, on LCD Panel or on the back Command Screen. Some cameras also show a list of numbers when you activate the control.

The camera default is zero (indicating medium tone), which is in the middle of the graph or a 0 from the list. To adjust exposure, move the control to the positive for a lighter toned picture or to the negative for a darker toned picture.

The increments are 1/3 or 0.3 and range anywhere from 2 to 5 depending on the camera. Do not bother with the 1/3 increment, as the changes are too subtle.

- lighter - move to +1 or +2.
- darker - move to -1 or -2.

(I rarely use anything beyond +/- 2.)

Exposure Compensation is used to adjust away from zero/medium tone.

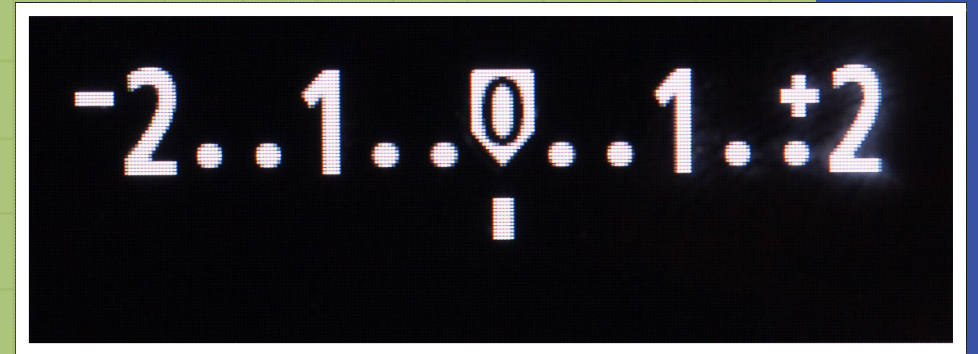


FIGURE 5.25 Exposure meter scale

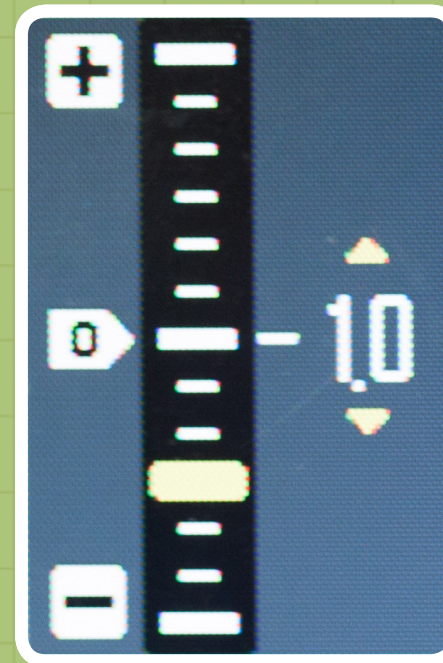


FIGURE 5.26 Exposure reads -1.0, image will be darker

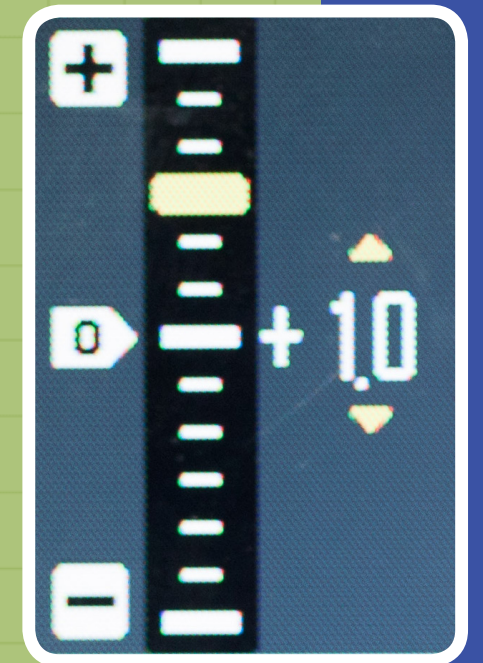


FIGURE 5.27 Exposure reads +1, image will be lighter

## SCENE VS. SUBJECT

Most situations do not require you to adjust Exposure.

A picture is taken by aiming the camera at a subject and composing the scene through the Viewfinder / Rear Screen. The camera evaluates light within this rectangular area.

When you look at the entire scene ask yourself - is it light, medium or dark in tone?

Don't agonize; just go with what comes to your mind first.

Take the image at that exposure:

- 0 for a medium scene
- +1 for a light scene
- -1 for a dark scene

**Don't know which one to choose?** Then take the same image at 2-3 different exposures. This technique is called Bracketing. Oftentimes you won't see a difference until you take several different exposures of the same image. Then upon visual comparison, one will stand out above the others.

**Don't confuse the tone of your subject with that of the entire scene.**

For example, a white cat on a multi-toned comforter may be mistaken as a light tone scene. However, the overall scene may average out to medium. On the other hand, if you fill the Viewfinder with the white cat, it becomes a light tone scene.

Therefore, pay attention to what you are framing in the Viewfinder, the entire scene, rather than just the subject.

The camera changes the exposure by adjusting the aperture or shutter speed. Learn how to do this manually in my Intermediate book.

Situations where Exposure Compensation may help:

- Snowy Landscape
- White sand beach landscape—little to no water
- Black Labrador on the grass
- Black Labrador in front of the fireplace

## AMOUNT OF AMBIENT LIGHT VS TONE OF SCENE

Do not confuse the amount of ambient light with the tone of the scene. In other words you can have a light in tone scene but it can be dark and cloudy outside. You can have a dark in tone scene with bright light on a sunny day.

Judge the scene you are seeing through the viewfinder, not the amount of ambient light. Exception, night scenes should be dark in tone.

Don't Fret  
if you're not sure  
which exposure  
setting to  
choose.

Pick one!

Upon review,  
the choice will  
be obvious.

### Exercise Practice

- 1 Photograph a scene with the meter set to 0, +1, +2, -1 and -2. See how the image gets brighter and darker.
- 2 Photograph a light tone subject on a light tone background at 0, +1 and +2. For example, a white cat on white sheets
- 3 Photograph a dark tone subject on a dark tone background at 0, -1, and -2. For example, a black lab on grass



**BOTTOM LINE**

Most situations do not require exposure adjustment, however, is your resulting image is:  
Too Dark—set to the plus side & shoot again  
Too Bright—set to the minus side & shoot again



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FIGURE 5.30



©Victoria Dye Photography

FIGURE 5.31

# MEDIUM IN TONE



©Victoria Dye Photography

FIGURE 5.32



©Victoria Dye Photography

FIGURE 5.33

# LIGHT IN TONE

# DARK IN TONE



FIGURE  
5.34

©Victoria Dye Photography



FIGURE  
5.35

©Victoria Dye Photography



# MEDIUM IN TONE



**FIGURE 5.36**  
Overall Medium in Tone –  
about equal amounts of dark  
and light tones in image

©Victoria Dye Photography

## ISO SPEEDS

ISO has to do with how sensitive the camera sensor or film is to light. There are a wide range of ISO options depending on the camera. Most cameras have a range of 100-3200 today, but some may go as low as 50 or as high as 100,000.

Some cameras have ISO settings of H1 or H2. I find this confusing for students. If your options read 200, 400, 800, 1600, H1, H2. Then H1 is double 1600 or 3200 while H2 is twice H1 or in this case 6400. It varies from camera to camera, just double the last number before it.

**Find the ISO menu on your camera. What is it set to?** Low ISO settings give finer grain or better quality pictures. While higher ISO settings give more grain and worse quality. There is a gradation between the lower and higher ISO settings on any one camera. The quality of each ISO setting varies with camera type, age of the camera and between camera models. One of the big drawbacks of compact cameras is poor ISO quality above the ISO 400 setting, so these cameras give a very grainy poor quality image in low light if you do not use the flash. Ambient light images will be grainier with this type of camera.

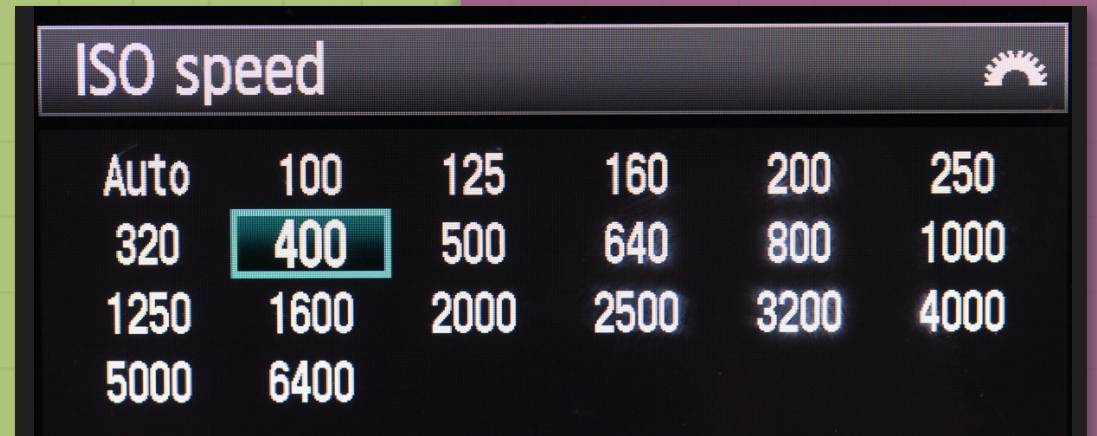


FIGURE 5.37 ISO setting options on the Canon 5D Mark II

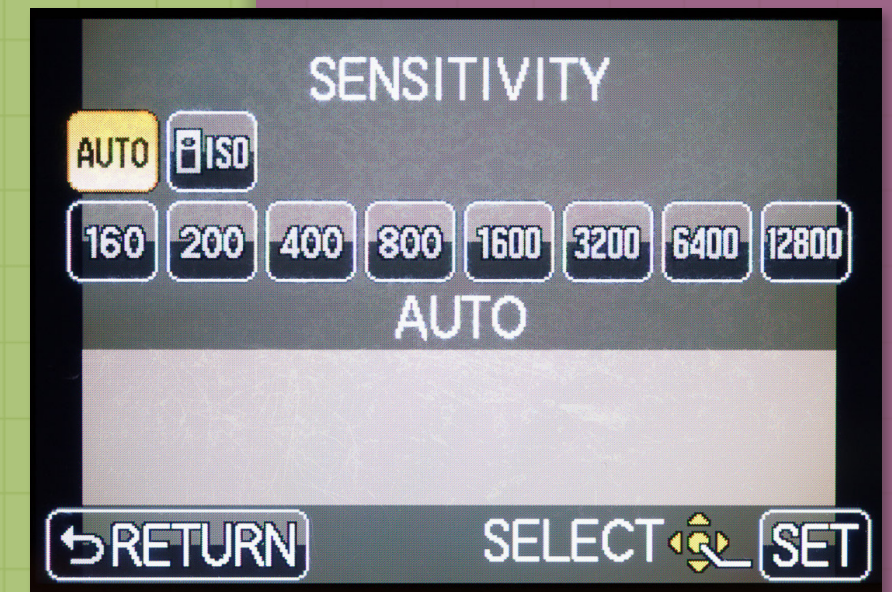


FIGURE 5.38 ISO options on the Panasonic Lumix GX1

Poor ISO  
quality  
is a major  
reason to  
upgrade  
from a  
Compact  
to DSLR  
Camera.

**What does ISO do for you?** In a nutshell it affects the shutter speed. If you remember back to the chapter on How the Camera works, I recommend a minimum shutter speed of 1/60th second for sharp images with a still subject. So if you are getting 1/15th of a second and you cannot add more light with a flash or you want to use the ambient light, then you can adjust the ISO higher to get a faster shutter speed.

Find the ISO settings on your camera accessed via the quick control screen on the back or a button or menu that says ISO. Use your manual to find where it is.

**AUTO ISO** Many cameras are set to automatically choose the ISO number. You might see the auto ISO flashing on a Nikon DSLR. However, some DSLR cameras do not have this option.

When set to auto ISO, the camera will choose an ISO setting that tries to get a shutter speed at least 1/60th of a second. However, your auto setting usually stops below the maximum option. For instance it may set it to 3200 even though you have a 6400 option. This protects you from getting images at the highest ISO setting with a lot of grain and poor quality.

**ADVANCED OPTION** You are welcome to leave the ISO set to Auto and let the camera control it for you. This will be simplest, but if you want more control over your settings, I recommend leaving the ISO set to 400 and then adjusting from there when you need a faster shutter speed. ISO 400 is a good balance of quality and shutter speeds in most decent lighting situations.

**ISO SENSITIVITY** Many DSLR cameras have an ISO sensitivity menu. If you have an Auto ISO option the camera will automatically try to set an ISO to keep the minimum shutter speed to 1/60th second. This menu allows you to set the upper limit ISO that the camera can automatically choose. You can also adjust the minimum shutter speed it is targeting. The default settings are below the maximum ISO options on the camera to decrease the chance of poor quality images from noise content. I recommend leaving the defaults.

The Canon 5D Mark II has very good quality at higher ISO values than many cameras. ISO quality is improving all the time. You can see the grain or noise in the close-up of the dancer. I had to use a high ISO in order to get a fast shutter speed in low lighting. Flash was not an option.

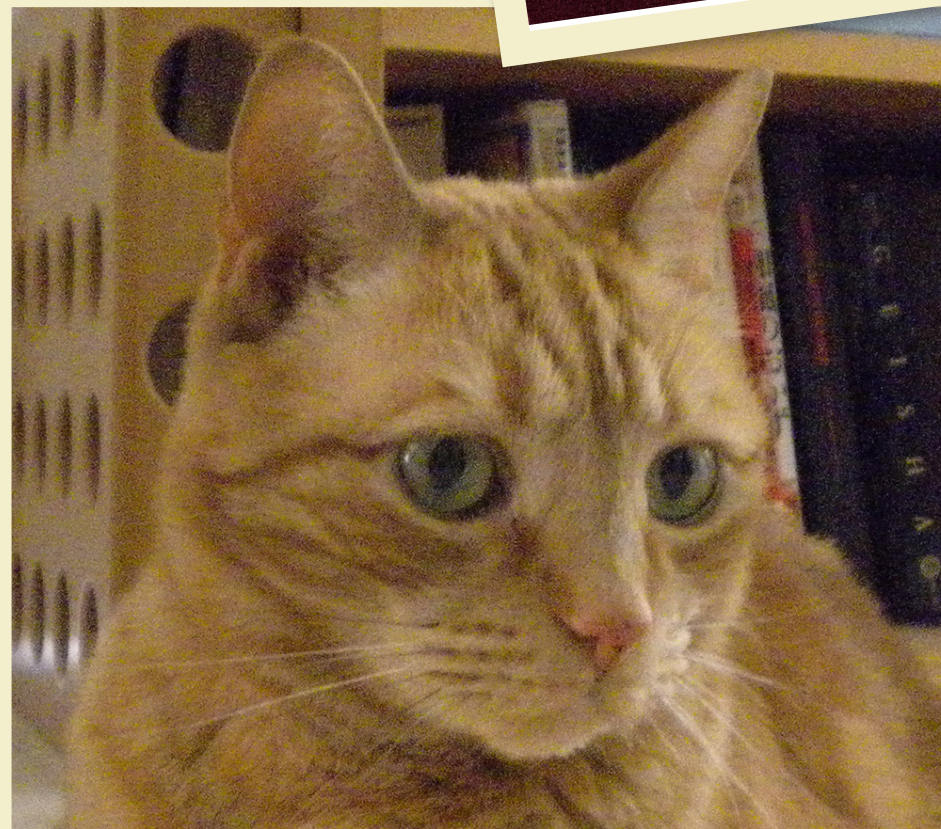
The image of the cat was shot with a Nikon Coolpix Compact Camera. Note the poor quality of the image at ISO 2000 compared with an ISO of 25600 on the DSLR.

### For Portraits:

- find good light
- high ISO settings results in grainy images
- keep ISO at 400 or below

**FIGURE 5.39**

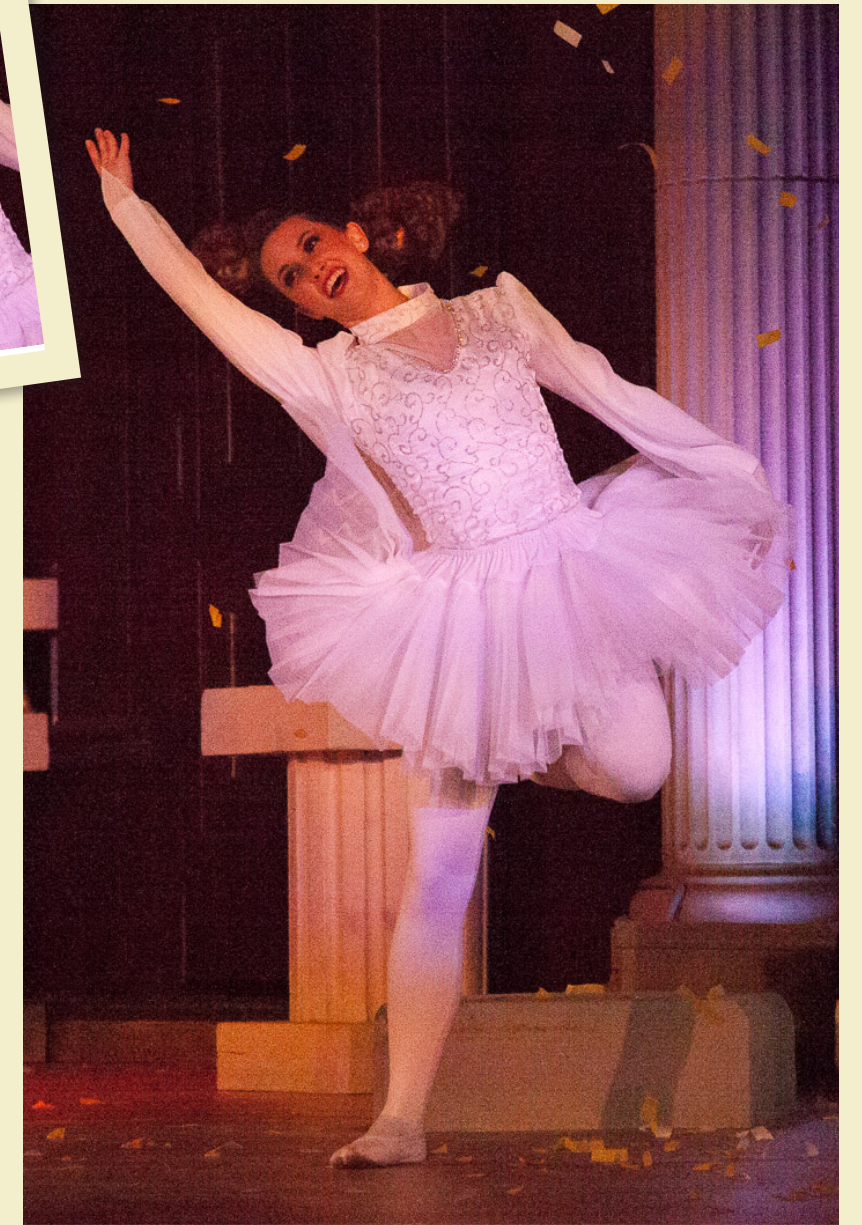
Close-up of previous image – note grain/noise



**FIGURE 5.40**  
Nikon Coolpix at ISO 2000

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**FIGURE 5.41**  
ISO 25600 on Canon 5D Mark II– shot at night



# Exercise Practice

Photograph a scene or object in the following lighting conditions with the ISO set to 400 and then the highest option you have. Now download and compare them on the computer looking for grain/noise. Note that in low light at low ISOs your shutter speed may be too slow to handhold and get a sharp image, so use a tripod if you have one or set the camera on a table so it is stable and use your 2-second self-timer.

- 1 In bright daylight
- 2 In low outdoor light (a cloudy day)
- 3 Indoors with window light
- 4 Indoors at night with artificial lights

Notice more grain in the shadow areas of the images and in low light situations.



**BOTTOM LINE**

**Keep camera set to Auto ISO.** If you need a Sharper Image select higher ISO for a faster Shutter Speed. For example, shooting indoors without a flash while hand holding or indoor sports. Grain quality is sacrificed for a sharper image.

**If using a tripod** and shooting a Still Subject in low light, do not increase the ISO. Slow shutter speeds don't matter if nothing is moving.

**No Auto ISO option?** Set to ISO 400 and adjust as needed. Make sure to watch your shutter speed!

CHAPTER 6

# Shooting Modes

PART 2



Now that you know a bit about various controls, let's look at the rest of the Automatic Shooting Modes. They can be located either on the Mode Dial, or under a Menu. The following is a list of Automatic Modes in order of usefulness.



**SPORTS ACTION MODE** optimizes the camera for shooting motion. It increases the Shutter Speed based on the ambient light, it disables the flash, elevates the ISO and sets the camera to Continuous Shooting Mode. All these settings help you capture action. However, there is only so much this Mode can do. Because you need a good amount of ambient light, the Mode cannot set a fast Shutter Speed indoors or when it is dark outside. Therefore, I recommend using this Mode outdoors with plenty of light.



**PORTRAIT MODE** optimizes the camera for shooting a person or pet in focus with a blurry background. The camera controls the Flash, ISO and White Balance. This mode does not work well when the lens is zoomed below 50mm.

**TIP:** The key to get a nice blurry background is the placement of the subject against a simple background and the distance the subject is to the background. You must be close to the subject and the background significantly further away.

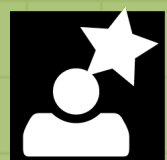


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**FIGURE 6.1**  
Action



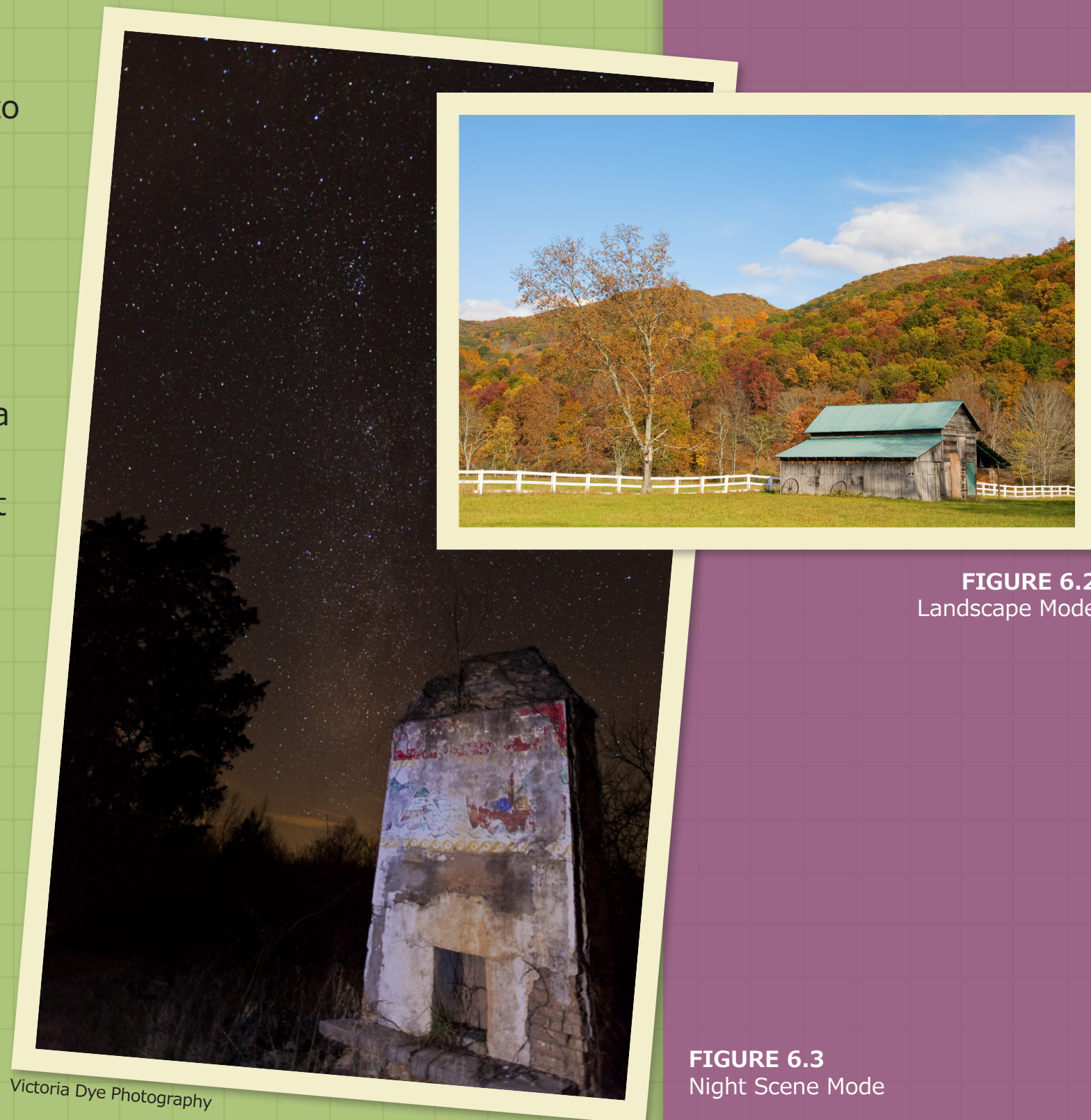
**LANDSCAPE MODE** optimizes the camera to get everything framed within the Viewfinder or Screen in focus (Figure 6.2). In contrast to Portrait Mode, get further away from the subject and frame the landscape with a wider angle zoom lens such as 18-55mm.



**NIGHT SCENE MODE** optimizes the camera to flash light on a foreground subject, while using a long shutter speed to let the ambient background lights, such as from a skyline or building also appear. Figure 6.4 shows an old chimney in the foreground and stars in the background. The image was made using a tripod as the shutter speed was 25 seconds to allow the stars to show up.



**MACRO OR CLOSE-UP MODE** is used to get up close to the subject. On DSLR Cameras, look for the symbol on the Command Dial. On a Point and Shoot Camera it could be a separate Button or Menu. Don't use the telephoto or zoom on your lens. It's best to get as



**FIGURE 6.2**  
Landscape Mode

**FIGURE 6.3**  
Night Scene Mode



close as possible without zooming. However, if your subject will not tolerate you getting too close—such as a moving butterfly—zooming to stay further away is fine (Figure 6.5).

Macro Mode doesn't make much sense on a DSLR Camera as the ability to focus close depends on the lens, not the Camera Mode, whereas, a Point and Shoot Camera can focus closer in this Mode. For a DSLR Camera you need a close-up filter or lens.

Macro Mode is useful for a Point and Shoot. Get a macro lens if using DSLR.

**FIGURE 6.4**  
Nikon P&S in  
Macro Mode  
with Flash



That sums up the most common modes. The number and types of modes vary greatly depending on the camera manufacturer. Some other examples are:

- **KIDS / PETS** – for fast moving subjects – faster shutter speed and enabled flash
- **BEACH / SNOW** – for light tone situations – sets exposure to achieve a ‘light in tone’ scene
- **INDOOR / PARTY** – for shooting indoors– enables flash and sets ISO to get faster shutter speed for low indoor light

Some cameras have modes for Fireworks and Underwater shooting. Review your Owner’s Manual for all the options. These modes can give better results than Automatic Mode. You can also achieve good results using the Program Mode and making adjustments to the settings discussed above. Experiment with them to see how they do. With a Digital Camera you can experiment as much as you like and then delete the bad ones!



**FIGURE 6.5** DSLR with Macro or Close-up Lens

## Exercise Practice

Practice shooting in each of the modes your Camera has, based on the subject matter and guidelines in this section. For instance, try shooting outside fast movement using Sports Action Mode, or use Portrait Mode to shoot a person with a far away background.

**U**se Program Mode as your default and then experiment with other Modes.

- See what effects can be achieved.
- See which Mode works best in different situations.



### BOTTOM LINE

## CREATIVE MODES

High-end cameras have Creative Modes, which allow better control of Shutter Speed and/or Aperture. They are located on the Command Dial and include Manual, Aperture Priority and Shutter Priority.

**M - MANUAL MODE** - you set both Aperture and Shutter Speed

### **A OR AV - APERTURE PRIORITY**

You set the Aperture, the camera sets the Shutter Speed

### **S OR TV - SHUTTER PRIORITY**

You set the Shutter Speed, the camera sets the Aperture

These Modes allow more control over the camera. **Interested in learning more about these Modes?** Be on the lookout for for my Intermediate e-book, coming soon!



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## PHOTO EFFECTS

Some cameras allow you to edit the images in the camera. I personally don't prefer this option, as a camera has minimum processing power and a tiny screen which does not allow for viewing details adequately. I use computer software to edit images.

## PANORAMA MODE OR STITCH SOFTWARE



Many cameras offer either a Panorama Mode to take panoramic images, or Stitch Software which attaches several images together to create a panoramic image. This feature can be found on Point and Shoot Cameras, but as of the writing of this book, not on DSLR Cameras.

## MOVIE MODE



Generally this mode produces a poor quality movie. It eats up storage space and battery life. The newer SLR Cameras have HD 1080 movie quality, which is better, but still does not have the control of a dedicated movie camera. **My suggestion,** if you want to shoot movies, buy a Digital Movie Camcorder.

CHAPTER 7

# Accessories and Camera Maintenance



## CLEANING YOUR CAMERA

*Always follow manufacturers recommendations in owner's manual.*

A basic cleaning kit should include a lens cleaning cloth or lens paper and an air blower. Do not use canned air as this contains aerosols which leave a film residue. If you have a DSLR Camera with a sensor, you may also want to purchase a Sensor Cleaning Kit.

**LENS** - Clean the lens when it gets dirty and every time you've been to the beach.

- blow off any particles
- wipe with the lens cloth/paper

**LENS CAP** - blow out the Lens Cap as dust and dirt can accumulate there

**CAMERA BODY** - wipe camera body with a damp cloth

**SCREEN** - clean screens with the lens cloth

**SENSOR** - If you see spots recurring in the same location on your images, the sensor

needs cleaning. Many new cameras have an Auto Sensor-cleaning feature (see your Owner's Manual). If this doesn't dislodge the offending spot then do the following:

- blow the sensor with the air blower
- use the Sensor Cleaning Kit to gently wipe the sensor
- **Warning:** *Be very careful, use a delicate, even motion or the sensor may become misaligned.*
- **Nervous...** see if your local camera store offers a Cleaning Service

**TO TEST FOR DUST SPOTS,** take a picture of your ceiling or other blank surface.



**FIGURE 7.1**  
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## ACCESSORIES

There are many accessories for cameras. You can spend as little or as much as your budget allows. Here are a few basic accessories I believe everyone should have.

### STORAGE MEDIA

Media Cards or Memory Cards are the removable cards that the camera writes and stores images. There are two common types, Compact Flash and SD. Common sizes are: 2 Gigabytes (GB), 4GB, 8GB, 16GB, 32GB and 64GB. The larger the card the more images it can store. Media Cards are not expensive. Make sure you buy one large enough to accommodate your shooting style.

**TIP:** You may find that a 4 or 8 GB card will fit your needs, but the 16GB cards have come down in price, so consider the upgrade.

If shooting RAW with a DSLR Camera a 16, 32 or 64 GB card is a must.

How many images fit on a Media card? That depends on the size, format and quality settings chosen (see Digital Primer chapter).

**Get two Media Cards,** if one becomes corrupted, you have a backup. Get more cards if you plan to travel.

**Pro super-fast Media Cards,** i.e. SanDisk Extreme (Figure 7.2) are engineered for Action Shooting with a DSLR Camera. Otherwise, you will not benefit from the increased performance... only suffer the increased price tag.

Some high-end DSLR Cameras have two card slots to use as back-up or in sequence with each other.

**WARNING:** When inserting the card, do not force it. Pay close attention or you may ruin your camera.



FIGURE 7.2 Media Cards

After a shooting session download and backup all images!

# POWER REQUIREMENTS AND ACCESSORIES

## Battery Packs, Regular Alkaline vs. Rechargeable NiMH Batteries

**Battery Pack** - most cameras use a Battery Pack and Charger.

**TIP:** buy a second Battery Pack from the manufacturer as a back-up.

**Alkaline Batteries** - some cameras use either AA or AAA batteries.

**TIP:** you will either buy a lot of Disposable Batteries or a few Rechargeable Batteries with a recharger. My advice... buy a recharger!.

**TIPS** on Rechargeable batteries:

- Buy name brand
- Buy batteries with a mAh of at least 2100, 2500. They last longer and perform better.
- Buy Nickel Metal Hydride (Ni-MH) batteries. Unlike the old Ni-CD batteries, they don't have to be completely empty before being recharged.

- Buy a normal recharger, rather than a fast recharger (15 min to 1 hour). Fast rechargers charge hot and decrease battery life.
- Rechargeable Batteries discharge over time. If you have not used your camera in more than a week; recharge all batteries.
- Have an emergency backup set of alkaline batteries. They don't discharge over time like the rechargeable batteries, but they don't

last very long either. Canon estimates Ni-MH batteries lasts 5x longer than comparable alkaline batteries.

- Regardless of your battery type, when they are done charging, **don't leave them in the recharger.** Leaving them in the charger for extended periods will decrease the life of the battery.



Battery Pack for Panasonic Lumix



Battery Pack for Canon 5D



Rechargeable Alkaline Batteries



Disposable Alkaline Batteries

*Digital Cameras are Energy Hungry!*

FIGURE 7.3 Battery Types



## ADDITIONAL ACCESSORIES

**CARD READER** – This allows you to download images from your camera quickly and without wasting camera battery life. I highly recommend you get one!

**STORAGE CASE** for camera. *Get one!*

**A NECK STRAP** and/or wrist strap comes with the camera. My advice... put it on and use it.

**TRIPOD** – A must for low light shots, night, product, and nature photography. Buy one suitable to handle the weight of your camera and heaviest lens.

**USB CABLE** – This cable attaches the camera to the computer to enable downloading images and to do firmware updates if needed. I recommend you use a card reader instead of a cable.

**MEDIA CARD WALLET** – a place to store and organize your extra Media/Memory/Storage Cards.

**FILTERS** – Most filter effects can be recreated on the computer. The exception is a Circular Polarizer, which removes glare and saturates colors. This is a must for Nature Photography, but is not needed for Portrait or Action Photography.

There are many, many accessories you can buy for your camera, it depends on the type of shooting you plan to do, your budget, and how much gear you want to carry. I hope this e-book will get you started on your photographic journey!

## Good Luck and Happy Shooting!

**Interested in learning more about Photography and your Camera?**

Visit [www.victoriasimages.com](http://www.victoriasimages.com) and join my mailing list for upcoming books, classes and blog posts.

**Beginning Shots** – Create Beautiful Images – Basic Composition and Lighting

**Intermediate Shots** – Getting the Most Out of Your DSLR

# GLOSSARY

**Aperture** – setting adjusting the diameter opening in the lens, allowing a certain amount of light through.

**Compact Camera** – all in one camera with no interchangeable lenses. Usually small in size.

**DSLR** – a digital single lens reflex camera. Uses a mirror to reflect the light from the lens up into the viewfinder. Has interchangeable lenses.

**Exposure** – result of the aperture, shutter speed and ISO settings on the camera and the ambient light.

**Flash** – additional light source either incorporated into the camera or sold as a separate unit and attached via the hot shoe or remotely activated.

**Hot Shoe** – where you attach an external flash unit.

**ISO** – setting to determine sensitivity of sensor or film to light. Mainly affects shutter speed and grain quality.

**JPEG** – file format used to record an image. Compresses size of image and develops it in camera.

**Megapixel** – Millions of Pixels

**Program Mode** – mode on most cameras where the camera controls the aperture and shutter speed settings, but you can adjust ISO, white balance, exposure, flash and other settings.

**RAW** – file format used to record an image. Compresses size of image and does not develop it in camera. Further processing is usually required in an external editing program.

**Review Mode** – mode used to review images already taken.

**Shutter Button** – button pressed to take the picture. Some touch screen enabled cameras allow you to press the screen to take the image.

**Shutter Speed** – camera setting to allow a certain amount of light to strike the sensor; expressed in seconds or fractions of seconds.

**White Balance** – terminology used to describe the color of light and balancing it so the image doesn't have a colorcast.

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