The Basics of Digital Photography and How to Take Better Pictures

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TYPES OF CAMERAS/GEAR

- Digital Point and Shoot Cameras (Digital Compact Cameras)-Lower budget lighter camera that allow different features with less control options
- Film Cameras (35mm)-Still used today and typically have more manual controls
- Bridge Cameras-All in one approach, single lens
- Mirrorless Cameras-(Like the Nikon 1) with interchangeable lenses. Similar to the DSLR.
- Digital Single Lens Reflex (DSLR)-Offer greater versatility with interchangeable lenses that provide different looks. Typically heavier and more expensive. Fast autofocus, greater control.
DIFERENT TYPES OF LENSES

Wide Angle Lens - Used for photographing landscapes

Prime Lenses - Fixed focal length

Zoom/Telephoto Lenses

->Specialty Lenses

Macro Lens: Used for small objects and close up shots

Fisheye Lens: Distorted images
Zoom Lenses/Prime Lenses Examples

Prime Lens: 85mm 1.4
Bokeh: The blur you see around this image

Zoom Lens: 70-200mm 2.8
MACRO LENS EXAMPLES
**SENSORS: CROP SENSORS VS FULL FRAME SENSORS**

In the film days: 24mm x 36mm

“Crop Factor” The number you use to find the 35mm equivalent of a given lens

Nikon: Two Crop Sensor Sizes
- Full Frame (FX)-Black
- 1.5x (DX)-Yellow

Canon: Three Crop Sensor Sizes
- Full Frame-Black
- 1.3x-Red
- 1.6x-Green

Full Frame means the sensor is roughly 24mm x 36mm
4 VERY IMPORTANT FACTORS FOR GREAT IMAGES!

Composition/Light
Aperture/F-Stop
Shutter Speed
ISO

You don’t need to spend thousands of dollars for great photos!

Even some of the “pros” out there with the expensive full frame DSLR cameras can take bad photos!
It is no secret that great photos are made by great composition and great lighting. QUICK SMILE!!

- Composition
  - Focus on the Eyes
  - Don’t cut off limbs
  - Find flattering positions
  - Be prepared to make them laugh
  - Photograph things that are interesting or tell a story
  - Give yourself enough space

- Lighting
  - “Great lighting isn’t found, it’s made.”
  - Find natural light that is soft
  - Avoid noon or harsh light
  - Find a window indoors, find a shady tree outdoors
  - Watch out for backlit conditions
Aperture/F-Stops is where the shutter is allowing light to pass through the lens to create an image of what the lens sees. It refers to how wide or narrow the lens opens.

Large Apertures are Small Numbers on the camera (1.4, 2.0, 2.8). Lower numbers let in more light

Small Apertures are Larger Numbers on the camera (5.6, 8, 11, 16). Higher F-Stops let in less light
Considered the “field” to be your scene. It refers to the distance within that scene you can see in focus.

- **Shallow Depth of Field:** Focus on some plane with the foreground or background blurry (more light)

- **Deep Depth of Field:** Shows all or most of the scene in focus, including the foreground and background (less light)

- **Shooting large groups:** Would require a higher F-Stop such as a f/5 or f/6.3 so that all group members are sharply in focus

*All photos shot at ISO 1000 and 1/50 shutter speed*
F-STOP AND LENSES

Kit Lens/Variable Aperture

Fixed Aperture
The Grip:

Hold the camera close to your body with your left hand supporting the body or lens

Take a deep breath and hold it as you take your shot

Even the fastest autofocus cannot correct photographer movement, tack sharp photos are not guaranteed with good equipment
Shutter Speeds

- Lower shutter speeds can mean more blurry images but more light
- Higher shutter speeds mean motion is captured, but less light is captured

![Shutter Speed Chart]

- **Slow**: 50-150 (sleeping baby), 8-60 (tripod, spinning carousel), 8-30 (tripod, building at night)
- **Moderate**: 60-500 is used most of the time, 125-200 (child or animal sitting still), 160+ (moving child), 500-1000 (action/activities)
- **Fast**: 500 (moving cars), 800-2000 (sports), 2000-4000 (hummingbird on flower)

*smaller number = shutter is open longer, larger number = shutter is open shorter. Less motion ... more motion.*
In digital photography, ISO is the sensitivity of the image sensor to light.

Lower ISO Settings are ideal such as 100/200 ISO however in low light conditions a higher ISO is required.

The higher the ISO the greater possibility that a grainy look will show in your photos.

As indicated before, fuller frame cameras excel at performing at high ISO with little to no grain.
Putting it all together!

Your digital camera has different shooting “modes”

M: Stands for Manual
S: Stands for Shutter Priority
A: Stands for Aperture Priority
P: Stands for Program

The little green rectangle: Full automatic (means the camera makes all the decisions)
MANUAL MODE

- For users that are comfortable making all the decisions and who understand the relationship between aperture, shutter speed, and ISO
- The User chooses the F-Stop, ISO, and Shutter Speed
- The camera makes no decisions
- Note: You can place DSLR cameras into manual mode and still use AUTO ISO (meaning the camera will choose the ISO based off your shutter speed and aperture choices)
S-SHUTTER PRIORITY

- Used for action/sports
- The user chooses a shutter speed (fast or slow) the camera chooses the rest of the settings based off the chosen shutter speed
- Can be used for movement shots or for capturing children
A-APERTURE PRIORITY

- Used when you need to control your Aperture, such as in low light situations
- The user chooses the aperture (such as f/2.8) and the camera chooses the shutter speed and ISO based off the aperture choice
- Typically used in low light situations and is a common mode used by professional photographers
Most DSLR cameras have select modes which you can choose including:

- Portrait Mode
- Landscape Mode
- Macro Mode (for small objects)
- Action/Sports Mode
- Night Mode
- P-Program Mode: Camera chooses the shutter and aperture settings (auto)
Recent Wedding:

Shot in a very dark church

Find a window!

Shot in Manual Mode

Lens: 24-70mm Zoom
Aperture: 2.8 (Shallow)
Shutter Speed: 1/100 (can handhold but steady) lets in more light
ISO: 1000

*Avoid backlit situations
- Shot in A-Aperture Priority Mode

- Aperture Mode enables control over the widest aperture possible (more light for the camera in this very dark church)

- Can be used in situations where there is not a lot of time to adjust settings, such as a fast moving wedding ceremony

F-Stop: f/2.8
Lens: 70-200mm zoom
ISO: 12,800
Shutter: 1/125
Cloudy Day

Low ISO: 200
(100 would have been too dark on this cloudy day)

f/stop: 2.8
(shallow is best for children)

Shutter: 1/160
(he moves fast!)

Lens: 85mm
Prime
Auto Focus: The camera utilizes technology to choose the focal point.

Manual Focus: The photographer uses the lens ring to focus on the subject (the autofocus can be turned off on the camera or the lens).

For good autofocus results:

- Make sure your subject doesn’t blend into your background.
- Avoid geometric patterns (buildings) and being far away from your subject.
- Avoid harsh light.
- Avoid shooting “through” something such as blinds, bars, or something at a different focal point.

Focus on the eyes of a person, if you can.
Typically digital cameras allow you to record your images in the following formats:

RAW (NEF): High sized images from which settings and color can be changed post shooting (in editing). Must be converted to JPEG before printing

JPEG: The format most photos are stored in. Allows you to take the memory card straight from the camera and into the store

JEPOG: Normal or Fine are acceptable for most hobby photographers
Metering is how the camera “reads” the lighting and make a proper exposure.

Matrix Metering is typically most appropriate for most shooting situations.
RECIPE: GREAT PHOTOS OF KIDS!

Outdoors:

Get close!

Don’t choose a background that will overshadow a small child

ISO: 100-250
F-Stop: f2/8-f5.6
Shutter: 1/125-1/250

Find shade to avoid squinty eyes!

Get down to their level and be ready to be a comedian

Indoors: Lower light conditions

ISO: 400-800
F-Stop: f/2.8-f/4.5
Shutter: 1/80-1/125 (Hold Camera Steady)
Use a Wide Angle Lens

Fine a Unique Angle (like laying on the ground)

Shoot with a greater depth of field (f/5.6 or higher)

F-Stop: f/5.6-f/16
ISO: 100-400 (depending upon available light)
Shutter: 1/60-1/100 (use a tripod for lower shutter speeds and steadier shots)

Get up early! Great landscape photographers know the best times to shoot their locations. Sunrise/Sunset!
-Shoot after it rains!
Only shoot a wedding when you are completely confident, if not, leave it to the pros

Have the proper equipment to handle low light situations and movement

Work as an intern with a local photographer until you are completely confident you can capture the day. Weddings are a one time only event!

F/Stop: f1/4-f-5.6 (2.8 is typical for ceremony)
ISO: 100-6400
Shutter: 1/125-120
Indoors/Outdoors?

Low light situation:
Choose low f/stop such as f/2.8 or f/4.5

A low f-stop and low light will require a lower shutter and a steady hand. Shutter 1/100-1/125

A high ISO will probably be needed in low light situations, between 400-800 or even higher

Flash may be needed

Choose higher f/stop if it's bright and sunny, choose lower if it's cloudy or overcast

Moving subject: Shutter speed higher than 1/500, stationary subject can go lower

Outdoors, a low ISO can be used. Anything from 100-400, with 100 being ideal.
Using Pop-Up Flash on Your DSLR

• The pop up flash on a DSLR can be used as:

• Fill Flash: Puts light in the face of your subject filling in any shadows near their eyes

• Red Eye Reduction: The flash fires a “pre-flash” to reduce red eye in your subject

• Automatic Mode: The camera chooses the appropriate amount of flash for your situation

• Pop-Up flash will automatically be used in full automatic mode but in P, M, S, or A mode simply pushing the flash down will disable it or pushing the flash button will enable it

Note:

Typically built in pop up flashes produce unflattering light.

It is best to avoid using the pop up flash if possible by using modes P, M, S, A, finding shade when possible and finding good natural light sources.
Equipment has limitations, your creativity does not! Understand both!

When taking photos of kids, remember, they are kids!

Practice! When you get stuck, go back to basics!

Develop a good understanding of light! Amazing photography is all about the lighting!
**ADVANCED RECIPES: TAKING GREAT PHOTOS**

- Invest in good “glass”- Consider a prime f/2.8 lens. A 50mm f2.8 is a great starter lens and does well in low light situations. It is also affordable over some of the other lenses that exist.

- Learn advanced flash photography. Learn about using external both onboard flashes and flashes “off camera”

- Intern with a local photographer—many are looking for assistants and have a wealth of information to share.

- Play around: The best way to learn is to make mistakes. Choose a stationary subject (like a stuffed animal) Place it in different areas of your house and shoot away. With each shot you will learn what looks good and what doesn’t. What settings work and which ones do not!
• Read your camera manual! It has a wealth of information, seriously!
• The Digital Photography Book by Scott Kelby
• Digital Photography School Online: www.digital-photography-school.com

More advanced reading......

Fundamentals of Photography- Tom Ang
The Moment it Clicks-Joe McNally
The Hot Shoe Diaries-Joe McNally