

# HOW TO USE YOUR DIGITAL CAMERA

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Graphics

# Photography Basics

No matter what camera you have, the principles of photography remain the same

**Photography:** The art or process of producing images on light sensitive surfaces by allowing light to pass through a focused lens onto film or digital sensor contained in an otherwise light tight box.

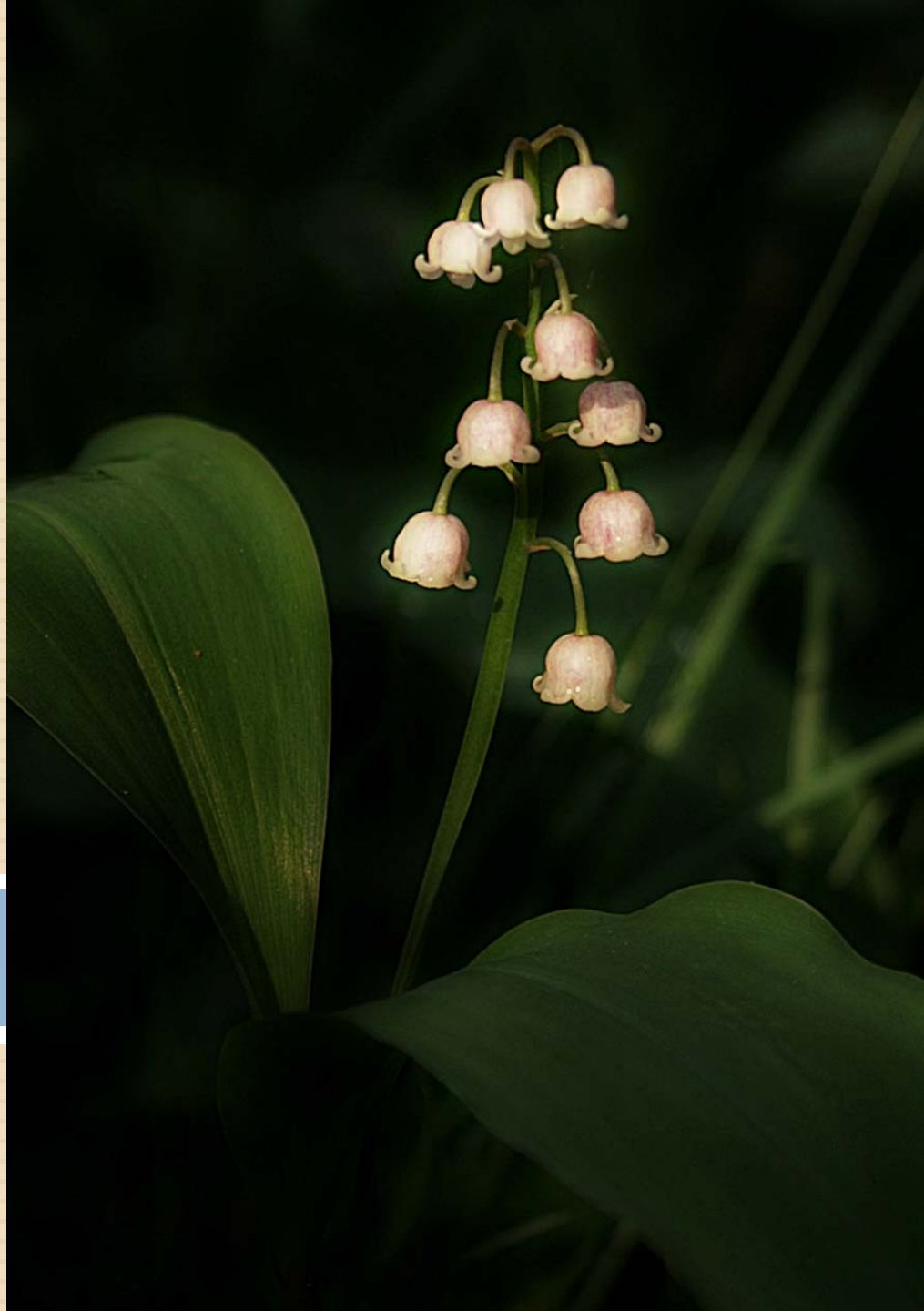
# The Photography Trinity

- Shutter Speed
- Aperture (f/stop)
- ISO (Film Speed)

When properly used the results can be Divine!

A properly exposed image requires the proper combination of the shutter speed, lens aperture and the film speed. This combination can vary in order to incorporate other desired effects such as blurred backgrounds (slow shutter) or stopped action (fast shutter).

A Divine Image



# Exposure

- Exposure is the measuring and balancing of light
- Too much light and the picture will be washed out (overexposed).
- Not enough light and the picture will be too dark (underexposed).



# The Right Exposure

- A good photograph depends on calculating the exposure settings that will give the film the "right" amount of exposure.



# Keys to Good Exposure

- Shutter Speed  
The amount of time the shutter stays open to allow light to strike the sensor. The higher the number, the faster the shutter, the less light permitted
- Aperture size (f-Stop)  
The size of the hole through which the light travels. The lower the number the bigger the hole, the more light permitted
- Film Speed (ISO)  
The level of sensitivity the film or sensor is to light received. The higher the number the less light needed for a good exposure
- Shutter Speed-Aperture Combinations  
Improves creative control of image, but can allow the same amount of light on sensor

# Controlling Exposure

- **Photographer can control** how much natural light reaches film by adjusting the camera's shutter, aperture, and ISO (film speed).
- **Realistic Exposure** A good technical exposure will produce a final image that accurately represents the original scene.
- **Artistic Exposure** Any scene can be properly exposed with varying combinations of shutter, aperture and ISO. The selected combination can alter the final image from original scene.


# Metering-Measuring Light

- All Digital Cameras are equipped with Light Meters to measure the brightness (or darkness) of a scene.
- The meter reading helps the camera determine the settings for Shutter, Aperture and ISO.
- The Camera's meter uses a baseline for measurement of 18% gray. (Will affect how the color of snow or beachsand is reproduced in image)

# Shutter Speed

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*Shutter Speed is the amount of time the shutter stays open to allow light to strike the sensor. The higher the number, the faster the shutter, the less light permitted to strike the sensor*

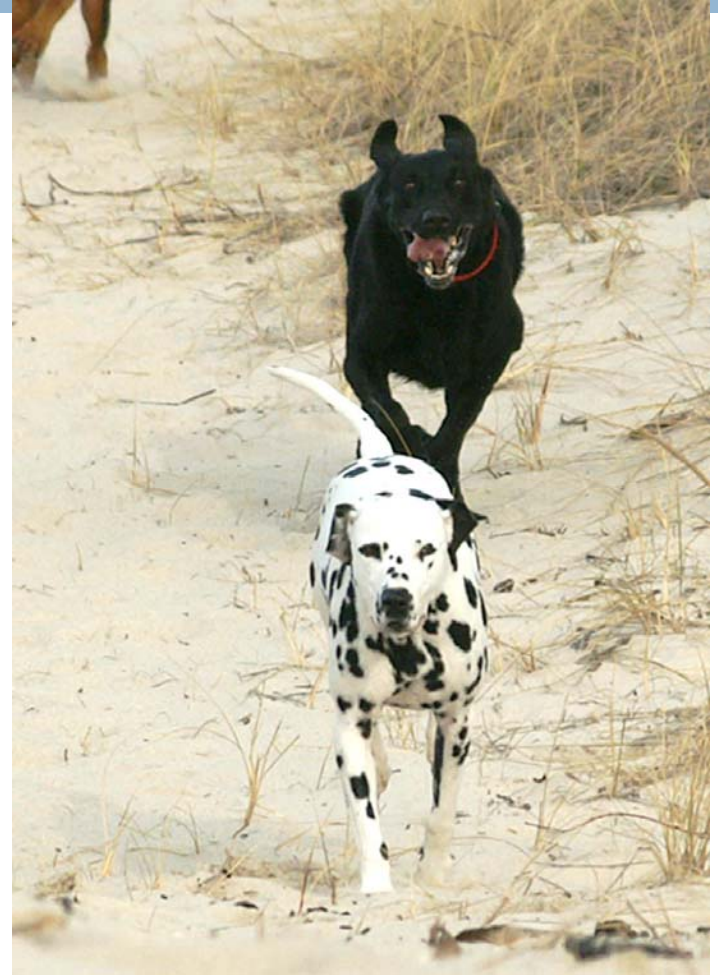


**Shutter speed is measured in seconds** - or in most cases fractions of seconds. The bigger the denominator the faster the speed (ie  $1/1000$  is much faster than  $1/30$ ).

**In most cases you'll probably be using shutter speeds of  $1/60$ th of a second or faster.** This is because anything slower than this is very difficult to use without getting camera shake. Camera shake is when your camera is moving while the shutter is open and results in blur in your photos.

- ❑ **To freeze movement in an image** you'll want to choose a faster shutter speed. (Sports)
- ❑ **To let the movement blur** you'll want to choose a slower shutter speed. (Waterfall)
- ❑ The actual speeds you should choose will vary depending upon the speed of the subject in your shot and how much you want it to be blurred.

# Fast Shutter Speed



# Slow Shutter Speed



# Shutter Speed-Typical Icons

**Tv**

Typically found on Canon and Nikon Cameras.

Think “Time Value”, because shutter speed is an adjustment to the amount of time it is open.

**S**

Typically found on Minolta, Olympus and Sony Cameras.

Think “Shutter”

# Aperture (f/stop)

Aperture is 'the size of the opening in the lens when a picture is taken.'

- Aperture is measured in 'f-stops'
- f/2.8, f/4, f/5.6, f/8, f/22 etc.
- Affects the Depth of Field (how much of the foreground and background is in focus)

# Aperture Openings

f/1.4



f/4



f/16



*Three different aperture settings*

# Typical Aperture Icons

**Av**

- Typically used by Canon and Nikon
- Think “Aperture Value”

**A**

- Typically used by Minolta, Olympus and Sony
- Think “Aperture”



## Samples of DOF Control

Wide Depth of Field on Left; Shallow Depth of Field on Right

# Film Speed or ISO

**Film** ISO indicated how sensitive a film is to light. It was measured in numbers (100, 200, 400, 800 etc). The lower the number the lower the sensitivity of the film and the finer the grain in the shots you're taking.

**Digital** ISO measures the light sensitivity of the image sensor (digital film). Same as with film - lower number/less light sensitivity and the finer the Noise (Digital grain).

# Typical Icon for ISO

# ISO

- ❑ The location of the ISO setting control will vary depending on camera model and maker.
- ❑ Some cameras have the control as a separate dial or button.
- ❑ Others will have the control in a menu
- ❑ Biggest factor in image quality

Noise



# White Balance-the Color of Light

- White balance (WB) is the process of removing unrealistic color casts, so that objects which appear white in person are rendered white in your photo.
- Proper camera white balance has to take into account the "color temperature" of a light source, which refers to the relative warmth or coolness of white light.
- The range in different temperatures ranges from the very cool light of blue sky through to the very warm light of a candle.
- Can you think of other types of light source?



Incorrect WB



Correct WB

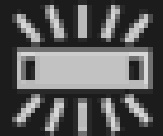
# Light Sources

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- Tungsten
- Fluorescent
- Daylight/Sunny
- Daylight/Cloudy
- Daylight/Shade
- Flash

# White Balance Presets

AWB



- **Auto** - the camera makes a best guess on a shot by shot basis. Works most of the time, but be careful in mixed lighting
- **Tungsten** - this mode is usually symbolized with a little bulb and is for shooting indoors, especially under tungsten (incandescent) lighting (such as bulb lighting). It generally cools down the colors in photos.
- **Fluorescent** - this compensates for the 'cool' light of fluorescent light and will warm up your shots.

# White Balance Presets (cont'd)



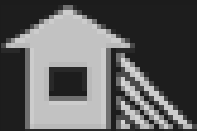
- **Daylight/Sunny** - not all cameras have this setting because it sets things as fairly 'normal' white balance settings.



- **Cloudy** - this setting generally warms things up a touch more than 'daylight' mode.



- **Flash** – Flash is balanced to daylight



- **Shade** - the light in shade is generally cooler (bluer) than shooting in direct sunlight so this mode will warm things up a little.

Take a 5 min. Break



# Camera Modes

Step away from “AUTO” pilot and make your camera work FOR you, and not the other way around!

# Camera Modes Digicams



□ Portrait Mode



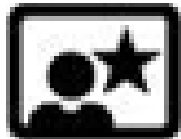
□ Macro Mode



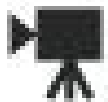
□ Landscape Mode



□ Sports Mode



□ Night Portrait Mode



□ Video Mode

# Camera Modes Advanced



Automatic Mode



Full Manual Mode



Program Mode



Aperture Priority Mode



Shutter Priority Mode



Shutter Priority Mode



Aperture Priority Mode

# Auto Mode



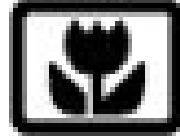
- Auto mode tells your camera to use it's best judgment to select shutter speed, aperture, ISO, white balance, focus and flash to take the best shot that it can. With some cameras auto mode lets you override flash or change it to red eye reduction.
- Even ISO is automatically set
- Isn't it time to leave "AUTO" Pilot?

# Portrait Mode



- In portrait mode your camera will automatically select a large aperture (small number) which helps to keep your background out of focus
- It sets a narrow depth of field - ensuring your subject is the only thing in focus and is therefore the centre of attention in the shot).
- Portrait mode works best when you're photographing a single subject so get in close enough to your subject
- Photograph the head and shoulders of the subject.
- Also if you're shooting into the sun you might want to trigger your flash to add a little light onto their face.

# Macro Mode



- ❑ Macro mode lets you move your closer into your subject to take a close up picture.
- ❑ It's great for shooting flowers, insects or other small objects.
- ❑ When you use macro mode you'll notice that focussing is more difficult as at short distances the depth of field is very narrow (just millimeters at times).
- ❑ Keep your camera and the object you're photographing parallel if possible or you'll find a lot of it will be out of focus.
- ❑ No Flash-too bright for close distance.

# Landscape Mode



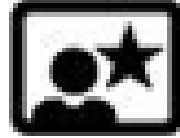
- This mode is almost the exact opposite of portrait mode in that it sets the camera up with a small aperture (large number) to make sure as much of the scene you're photographing will be in focus as possible.
- Ideal for capturing shots of wide scenes, particularly those with points of interest at different distances from the camera.
- At times your camera might also select a slower shutter speed in this mode (to compensate for the small aperture) so be careful of camera shake.

# Sports Mode



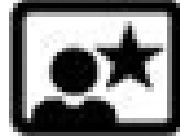
- Photographing moving objects is what sports mode (also called ‘action mode’) is designed for.
- Ideal for any moving objects including people playing sports, active kids, pets, cars, wildlife etc.
- Sports mode attempts to freeze the action by increasing the shutter speed.
- Increase your chances of capturing fast subjects by panning your camera along with the subject (this takes practice).

# Night Mode



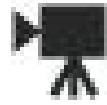
- Night mode (a technique also called 'slow shutter sync') is for shooting in low light situations.
- Sets your camera to use a longer shutter speed to help capture details of the background but it also fires off a flash to illuminate the foreground (and subject).
- If you use this mode for a 'serious' or well balanced shot you should use a tripod or your background will be blurred.

# Night Mode



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# Movie Mode



- If equipped, your camera can take short videos.
- Most new digital cameras these days come with a movie mode that records both video but also sound.
- The quality is generally not up to video camera standards
- Memory hog-will use up space on memory card very quickly.

# Other Popular Modes

- ❑ **Panoramic/Stitch Mode** - for taking shots of a panoramic scene to be joined together later as one image.
- ❑ **Snow Mode** - to help with tricky bright lighting at the snow. Good for midday beach scenes too.
- ❑ **Fireworks Mode** - for shooting firework displays
- ❑ **Kids and Pets Mode** - fast moving objects can be tricky - this mode seems to speed up shutter speed and help reduce shutter lag with some pre focussing

# More Other Popular Modes

- ❑ **Underwater Mode** - underwater photography has its own unique set of exposure requirements
- ❑ **Beach Mode** - another bright scene mode
- ❑ **Indoor Mode** - helps with setting shutter speed and white balance
- ❑ **Foliage Mode** - boosts saturation to give nice bold colors
- ❑ **Sunset Mode** – self-explanatory, but remember:  
NEVER FOCUS ON THE SUN DIRECTLY – WILL RUIN CAMERA AND YOUR EYES!!!!

# Camera Modes Advanced



Automatic Mode



Full Manual Mode



Program Mode



Aperture Priority Mode



Shutter Priority Mode



Shutter Priority Mode



Aperture Priority Mode

# Program Mode



- A semi-automatic mode.
- Usually controls shutter and aperture only
- White balance-set by photographer
- ISO-set by photographer
- Flash-set by photographer
- Good mode for changing conditions where you want to control the quality of image (ISO) and the color of the light (WB)

# Aperture Priority Mode



- Semi-automatic mode
- Photographer sets Aperture (f/stop) to control Depth of Field.
- Camera adjusts shutter speed.
- WB, ISO and Flash controls remain where photographer has set them.

# Shutter Priority Mode



- Semi-automatic mode
- Photographer sets Shutter Speed to control motion blur.
- Camera adjusts aperture (f/stop).
- WB, ISO and Flash controls remain where photographer has set them.

# Full Manual Mode

- ❑ Photographer has full control over camera and need to think about all settings including shutter speed, aperture, ISO, white balance, flash etc.
- ❑ It gives you the flexibility to set your shots up as you wish.
- ❑ Most digital camera owners, even pros, tend to stick to one of the priority modes.
- ❑ Pros usually use Aperture Priority or Shutter Priority

Take a 5 min. Break



## And the Rest....

We have just scratched the surface. When you learn to use all your camera has to offer, the possibilities are endless.

Here are a few more things to consider...

# Resolution (MegaPixels)

- ❑ Determines the amount of detail to be captured by the camera.
- ❑ Lower resolutions--3 MP and under--do not enlarge well. Best for computer or internet use only.
- ❑ Mid range resolutions 4MP to 6 MP enlarge well to 8x10 or even higher
- ❑ Resolutions greater up to 8 MP good for consumer use, but can produce noisy (grainy) images
- ❑ 10 MP and up—professional use or serious amateur

# Resolution (MegaPixels)

- ❑ With resolution, there is such a thing as too much of a good thing.
- ❑ Small camera with high megapixel counts (10 and up) often suffer from degraded quality in low-light scenes.
- ❑ The electronic interference in the higher pixel count can cause major problems with digital noise.
- ❑ Also, higher resolution uses more space on the memory card.

# File Format

- All cameras save to JPEG
- The quality of the image determines how much compression occurs—more compression less quality
- Higher end cameras also save to:  
TIFF; RAW
- TIFF and RAW both use memory capacity, but preserve image quality

# Downloading to Computer

Two ways to download photos to computer:

1. Connect to computer with USB cord  
Slower, uses camera battery power—if battery fails during download photos can be lost
2. Insert Memory card into card reader—still a USB connection, but faster and will not drain camera battery



Memory Card Reader

# Power Source

- ❑ Digital cameras use lots of battery power
- ❑ Battery power is diminished in very cold weather
- ❑ Batteries are often rechargeable and supplied by the manufacturer.
- ❑ When not supplied by manufacturer, use of rechargeables are strongly recommended
- ❑ Get at least one set of extra batteries so one set is charging when you are using the other

# Shutter Lag

- Shutter lag is the amount of time the camera takes to snap the shutter after the shutter button is depressed.
- If not properly managed Shutter Lag will be the difference between getting the photo and getting nothing.

# Managing Shutter Lag

- Shutter lag can be managed by depressing shutter button half way, and holding it until ready to take image—but uses battery power

# Flash Modes



- Auto-Flash -In most camera modes, Auto-flash is enabled by default and will automatically fire if the camera thinks it needs more light.



- Disabled Flash - no flash. There are many cases where you may not want flash at all.



- Forced Flash  
When forced, the camera will always fire the flash regardless of necessity.

# Flash Modes cont'd

- Red-eye reduction –usually indicated by a flash lightning symbol and an “eye”
- This flash mode will burst several flashes quickly before firing off the main flash for the photo capture.
- Needed in dark settings where the subject’s pupils are dilated and therefore reflecting light off the retina.

# Delete or Format

- ❑ Deleting an image from the camera removes the image file, but leaves the space open for another image to fill it.
- ❑ Deleting can result in out of sequence images, depending on where the image was deleted from
- ❑ Formatting will wipe clean the memory card, deleting all images and restoring the card to a clean slate. Preferred method.

# Wait, there's more...

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- Preparing for print
- Cropping
- LCD/Optical Viewfinder/Electronic Viewfinder
- In Camera Review