

1 **DigiPix**

A Digital Photography Primer

By

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2 **Overview**

- Definitions
- Equipment
- Doing something with photos
- Lighting
- Composition
- Improving your skills
- You be the judge!

3 **Before We Begin...**

- I am a Canon user...
 - Don't know specifics about other cameras
- Please ask questions at any time

4 **Why Digital?**

- Taking a picture costs virtually nothing
 - Can experiment with different techniques
- "I-S-O on-the-go"
 - Change ISO to suit needs
- Instant feedback
 - Did I get the picture?
- EXIF data
 - Can see what you did

5 **Definitions**

Must understand basics...

6 **Aperture**

- Size of the hole letting light in
- Measured in f-stops
- Inversely proportional
 - f1.4 - 2.8 largest f16 - 32 smallest
- Each full stop allows 2X as much light
 - f1.4 = 2X f2.8 f8 = 2X f16
- Relative to physical size of sensor
- Determines depth-of-field

7 **Depth of Field**

- How much is in focus
 - Closest to farthest
- Aperture dependent
 - Smaller aperture = greater DOF
 - Larger aperture = less DOF
- Typical applications
 - Greater DOF in scenery photos
 - Less DOF in portraits, flowers

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11 **Shutter Speed**

Being able to select shutter speed may be the most creative tool you can have...

12 **Shutter Speed**

- How long the hole stays open
- Measured in seconds/fractions of a second
- Range $> \frac{1}{2}$ second to $1/8000^{\text{th}}$ second
- Each change in setting = 2X as much light
 - Hole stays open twice as long
 - $1/200^{\text{th}} = 2X 1/400^{\text{th}}$

13 **What Shutter Speed & Why**

- Decrease/increase amount of light
- Application:
 - Stopping motion
 - Emphasizing motion
- Minimize camera shake
- Faster recovery
- Shutter speed v. shutter lag
 - Lag = time between pressing button and exposure
 - P&S have longer lag time

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18 **ISO**

- International Organization for Standardization
- Involves:
 - Sensor design
 - Amplification of signal
- Rating for the sensitivity of the sensor
 - Typical 100 - 800
- Equates digital with film
 - Same image as film at same exposure

19 **What Does it Mean?**

- Higher ISO = less light needed
 - Higher shutter speed
 - Smaller aperture
- Higher ISO = more noise
 - Radio with a weak signal
- Higher ISO = more contrast
- Lower ISO = “cleaner” image
- Lower ISO = more saturation

20 **Exposure**

- Process by which light is recorded on the sensor
- Three parts
 - Aperture
 - Shutter Speed
 - ISO
- Must be in balance
 - Underexposed - too dark
 - Overexposed - too light

21 **Proper Exposure**

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23 **Focal Length**

- The distance at which the lens focuses
 - At infinity
- Shows the type of lens

- Short FL (10 - 35mm) wide angle
- Medium (30 - 50mm) "normal"
- Long FL (50+mm) telephoto
- "Normal" lens = diagonal length of sensor
 - Full frame (35mm) = 50mm
 - "C" sensor = 30mm

24 Focal Length

25 Equipment

26 Choosing A Camera

27 Choosing a Camera

- What's a megapixel?
- Types of cameras
 - Point & Shoot
 - SLR
 - Hybrids
- Lenses
 - Wide angle
 - Telephoto
 - "Normal"

28 What's A Megapixel

- First, what's a pixel?
 - Individual unit of the image
 - Physical area on sensor
- Megapixel
 - 1,000,000 pixels
 - Sensors run from ~ 3 to 37 MP
 - Human eye ~ 125 MP
- Number of megapixels means little!

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31 How Many MPixels Do I Need?

- 1st - What do you plan to do?
- 2nd - How much do you want to spend?
- 3rd - Need or want?
- 4th - Future plans?
- 5th - Size does matter!
More MP = more space/image

32 **Which camera?**

33 **Some Guidelines**

- Maximum print size:
 - 4 MP = 8 X 10
 - 6 MP = 11 X 14
 - 8 MP = 12 X 16
 - 10 MP = 13 X 19
- Other factors impact quality

34 **Let's Talk Cameras**

- Six levels
 - Basic "point and shoot"
 - Advanced P&S
 - Basic (level) SLR
 - Prosumer SLR
 - Advanced (Pro) SLR

35 **Relative Sizes of Sensors**

36 **Basic Point & Shoot**

- Easy to use
- Built in zoom lens
- Compact - easy to carry
- Inexpensive
- Good quality to 8 X 10
- Small image file size
- 1-1/8" sensor
- \$150 - \$400

37 **Advanced P & S**

- More features
- Greater lens range
- More megapixels
 - Larger file
- Heavier
- P&S on steroids
- 1-1/8" sensor
- \$250 - \$500

38 **Entry Level SLR**

- Interchangeable lenses

- “C” size sensor
- More features - advanced control
- Generally no “live view”
- Good for 11 X 14” +
- Built-in & External flash
- \$500 - \$1,000
 - Plus lenses

39 **Prosumer SLR**

- Advanced controls and features
- Some have movie capability
- High speed sports mode
- Upper end have full-frame sensor
- 10 - 21 mp
- Built In/External flash
- Built-in IS on few
- \$1,100 - \$3,000
 - Plus lenses

40 **Pro SLR**

- Professional features
- 20+ mp, full frame sensor
- Prints 20” X 30” +
- Rugged, sealed body
- No built-in flash
- Very large files
- \$4,000 - \$8,000+
 - Plus lenses (Pro level)

41 **Lenses – P & S**

- Limited to built-in range
 - Add-on lenses?
- Consider optical range when purchasing
 - 4X to 20X
 - Digital “zoom” is useless or worse
- Aperture relative to sensor size
 - f 2.8

42 **Lenses ~ SLR**

- How much you got?
 - Unlimited range of lenses
 - What to buy?
- Try to avoid overlapping and gaps in FL
- Consider how often you will use
- Consider features

- Image stabilizing
- Auto focus

43 **Wide Angle Lens**

- Covers more area - H & W
- Easier to handhold
- Good for tight spots
- Poor for people pictures

44 **Lenses ~ Telephoto**

- Zoom lenses best choice for most
- Short telephoto good for portraits
- Expensive?
- Difficult to hold steady
 - Image stabilizing
- Visual compression

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46 **Angle of View**

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48 **Tip:**

Long lenses require good support
 $1/\text{Length} = \text{Minimum Shutter Speed}$

49 **Choosing Chips**

- Brand name v. "no name"
 - Lays v. Jays
- Speed
 - 60X - 120X - UDMA?
- Capacity
 - 1 - 8GB or 4 - 2GB?
- Caring for chips
 - Storing
 - Airport security

50 **Formatting v. Deleting**

- Deleting
 - Removes information as to how to find image
 - Image (file) still on chip
 - Can be recovered

- New file overwrites existing data
- Analogy: book without index
- Formatting
 - Clears all data from chip
 - Start with clean sheet
 - Analogy: book with all printing erased

51 ***Important!***

Always Format...

- New chips
- Chip previously formatted in another camera
- Chip used in another camera
- Chip “borrowed” from someone
- Chips used for computer data

52 **Batteries**

- NiCads
 - Inexpensive - “memory” issues
- Lilon
 - Expensive - no charging problems - better cold performance
 - Do not put spares in checked luggage!
- NiMH
 - In between - no charging issues
 - Can recharge 1,000+ times

53 **Batteries, Cont'd**

- Proprietary v. standard (AA's)
- Some DSLR's can use both
 - With battery grip
- Carry a spare - or two
- Chargers - universal voltage
 - Check ahead of time
 - Know voltage where you are going
- Protect contacts from shorting

54 **Tripods**

- Necessary for long exposures
- May not be allowed in some locations
 - Check ahead of time
- Quality v. price v. weight v. size
 - Construction: Al v. Composite
- Head type
 - Pan head
 - Ball head
- Buy best you can afford!

55 **Minipods**

- Gorillapod.
- Table-top tripod
- Beanbag

56 **Monopods**

- More acceptable
- Lighter, cheaper
- Stabilize against something
 - Use correct technique
- Get above crowd...
- Can double as a walking aid
 - Deterrent to ne'er do wells?

57 **Tip:**

Carry a beanbag for self-portraits.

58 **Filters**

- Not all cameras can use
- Add a \$20 piece of glass to \$100+ lens
 - If you buy, buy good
- Do not “protect your lens”
 - Any event that would scratch you lens...
- Basic
 - Skylight 1A/UV - useless on digital
 - Polarizing - “Circular”
- Many effects can be produced in editing

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61 **Weather Protection**

- Cold into warm
 - Plastic bag + silica gel packs
- Rain
 - Plastic bag
 - Lightweight covers
 - Medium weight covers
 - Underwater housings

62  **Lens Cleaning**

- NEVER use paper towel!
- NEVER use treated eyeglass cleaners!
- Use lens cloth - microfiber
 - With lens cleaning fluid
 - Use sparingly
 - Keep lens cloth separate
- Use lens caps
 - At both ends!

63  **Other Cleaning**

- Use soft cloth for LCD screens
- Use gentle blower for dust
 - NEVER use “canned air”
- Sensor care
 - P&S - sealed
 - Natural static charge
 - Change lenses quickly - point down

64  **Miscellaneous**

- Screen protectors
 - 'da Products
 - Flip-up
- Cable release/remote release
- Focusing aids
 - HoodLoupe
- External flash units
 - Old flash - new camera

65  **Tip:**

Get off the “green square” - explore the other modes and options

66  **Do Nots**

- Turn up brightness of screen
- Hold camera at arms length
- Be afraid to turn upside-down
- Compose on screen
- Use digital zoom
- Use video mode(?)

67  **Tip!**

Make yourself a “cheat sheet” - a business card sized list of features you do not commonly

use.

68 **Another Album?**

Displaying and sharing your travel pictures

69 **How do you plan to display?**

- Traditional album
- Photo books
- Slide shows
- Frame & Hang
- Digital picture frames
- On-Line sharing
- Greeting cards

70 **Photo Books**

- On-Line preparation
- Several producers
 - I like MyPublisher.com
- “Reverse” travel books
 - Show others where you live
 - Gifts for friends and relatives
 - Practice your travel photo skills

71 **Slide Shows**

- Entertain friends & family
- Great way to relive trip or event
- Can be shared with others
 - Special occasions
 - Trips
 - Holiday greetings

72 **On-Line Sharing**

- FaceBook & Flickr
 - No cost for basic account
 - Great for sharing with family & friends
 - Can limit access
 - Considered “publication”
 - Photos can be stolen?

73 **My Flickr Home Page**

74 **A Little Bit About Printers**

- Stand alone v. “all in one”
 - If one function fails...

- Recommended brands
 - Canon, Epson
 - Separate tank for each color
- Selecting paper
 - Manufacturer's brand
 - High end brands
 - Ilford, Moab, Legion

75  **Tip:**

Cartridge refills? May not be good value in long run.

76  **Let There Be Light**

Its all about light!

77  **Your Meter's View of the World**

78  **Metering**

- Scene with lots of black or white
 - Hard to meter accurately
 - Whites get overexposed
 - Blacks are underexposed
- P&S cameras
 - Try "snow" and/or "night" mode
- If adjustable compensate manually

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81  **Flash!**

- Can you use your flash?
 - Let's not get crazy...
 - Limited range
- Be considerate of others
- Is flash allowed?
- Reflections
 - Shoot at angle (~45°)

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83  **Fill Flash**

- Bright backgrounds

- Shadows on subject
- “Punch Up” picture
- Avoid squinting
 - Place subject in shade

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85  **Available Light**

- Turn off flash
 - Manual setting
- Use self-timer & support
 - Motion
- Inside = warm light
 - Exception: fluorescent lights


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87  **A Note About Sunrise, Sunset**

- “Magic Hour”
 - ½ hour before, after sunrise, sunset
- Look for good subjects
- Think about light
 - Direction - shadows - reflections
- Sunrise, sunset charts
 - On line link

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90  **Waiting for the Light**

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93  **Composition Basics**

There are no rules...
only recommendations.

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95  **“Rule of Thirds”**

- Split image into three vertical & horizontal
- Focal points at intersections
- Place interest along lines
- Avoid dead center, corners

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99  **Horizons**

- Keep level
- Top or bottom third line
- Avoid an even split
 - Top and bottom compete

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101  **Warm Front, Cold Rear**

- Warm colors appear to move forward
- Cooler colors move back
- More pleasing to our eye

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104  **Go For the Red!**

105  **Diagonals Are Dramatic!**

- Bottom Left to Upper Right
 - Eye moves naturally
- Way we read
 - Draws your interest across the picture

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108 So Are “S” Curves

109 Avoid Mergers

110 Shoot Vertical Subjects, Vertical

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112 Show Scale of Objects

113 One Step Closer

- If object is 20 miles away...
- Add foreground
 - Item of interest
 - Provide perspective
- Avoid foreground
 - Distractions
 - Competing elements

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116 Improving Your Photo Skills

117 1. Learn Your Camera

- Study the manual
 - A bit at a time
- Know what it can do
 - Settings and functions
- Take LOTS of pictures
 - Same subject with different settings
 - Different subjects with same setting

118 2. Learn To See

- Circle exercise:
 - 25 foot circle
 - Shoot at least 100 pictures
- Stand still exercise:
 - Pick you location
 - Shoot without moving

- Shoot at least 100 pictures

119 **3. Learn From Others**

- On-line courses
 - Many free from manufacturer's sites
- "How-To" books
- Photo collections
 - Books
 - Exhibits
- Web sites

120 **4. Analyze Your Images**

- Use the evaluation triangle
 - Back of business card
- Compare to published shots
- Ask "what could I have done better?"
- Ask others to judge
- Join a camera club
 - Salt Creek Camera Club?

121 **5. Practice, Practice, Practice**

- Shoot same location multiple times
 - Different time, lighting, atmosphere
- Pick a location and shoot it like a "pro"
 - Plan your photos
 - What do you want to accomplish?
- Start with a favorite place
 - Navy Pier, 31st Street Beach, Botanical Gardens

122 **Your Turn...**

Is there a problem?
If so, is it
artistic - environmental - or technical?

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136  **Final Thoughts**

- Carry a notebook or recorder
 - Take pictures of signs at buildings
- Don't be afraid to photograph people
- Check the weather forecast - plan for it
- Practice before you go
- Read guides
 - Know your camera - a bit at a time
 - *Reset the clock!*

137  **Final Thoughts**

- Mark your map
 - Keep a journal
- Shop at camera stores
- On-line training (free!)
- Look at other's photos

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