H Scribner
CCS-515 Computer Skills & Applications

DIGITAL PHOTOGRAPHY

Tips & Advice for Beginners

10 Beginner Mistakes & How To Fix Them!

CAMERA BASICS

These basics are common to ALL cameras:

- **F-Stop**
- **Shutter Speed**
- **Film Speed**

CAMERA BASICS

- **F-Stop** (how much light is seen, how much the aperture is open)
- **Shutter Speed** (how long the light is seen in the aperture)
- **FILM SPEED** (how fast the film itself responds to this light)

F-STOP

HOW MUCH LIGHT IS SEEN

- Sometimes known as ‘aperture’
- Ranges from about 1.8 to 32
- A higher number (i.e. 32) means less light is ‘seen’.
- A lower number (i.e. 1.8) means more light is ‘seen’.

F-STOP

HIGHER F-stop (i.e. 32)

ADVANTAGES

- Increased *depth of field*, i.e. image background is not blurry

DISADVANTAGES

- Needs more light, i.e. slower shutter speed.

F-STOP

LOWER F-STOP (i.e. F1.8)

ADVANTAGES

- Lets plenty of light in! Better to use in darker settings.
- Less blurry since faster shutter speed may be needed to compensate for more light.

DISADVANTAGES

- No depth of field, i.e. *background of image likely out of focus.*

F-STOP IMPACT

Low F-stop

High F-stop

SHUTTER SPEED

MEASURES HOW LONG LIGHT IS LET INTO THE FILM/CAMERA

- Common values include ½ sec, 1/8 second, 1/1000 second etc
- Shorter time means less time for light to get into the camera
- Shorter time reduces blurriness

SHUTTER SPEED

FASTER SPEED

ADVANTAGES

- Reduces blurriness as image is 'seen' only briefly – great for sports events.

DISADVANTAGES

- Less time for light to enter camera
- Requires bright conditions

SHUTTER SPEED

SLOWER SPEED

ADVANTAGES

- Great for darker conditions (more time for light to enter the camera)

DISADVANTAGES

- Increased chance of blurriness
- Often requires a tripod be used for steadiness.

Shutter Speed=1/15 of a Second

Shutter Speed=1/150 of a second

FILM/CHIP SPEED

- Traditional cameras use film of different sensitivities. It is measured by its ISO number, i.e. 64, 100 400
- Slower speed (i.e. 64) is good for enlarging but requires bright light and/or slow shutter speed and/or lower F-stop.
- Faster Film (i.e. 400) is poor for enlarging but needs less light and thus good for indoor photography.
- Digital Cameras do not use film per se. They use a technology called CCD (Charge Coupled Device) which senses images.

TIPS ON TAKING PHOTOS

- Be aware of 'backlighting', i.e. a bright background will make your subject appear 'dark'.
- Best to have the light on the subject from *behind you* for proper lighting.
- Take photos in early morning/late afternoon for dramatic shadows.
- Frame your subject in the viewfinder and use the 'rule of thirds' when framing your subject. See the next slide.

DIGITAL PHOTOGRAPHY

The concepts are generally the same

- **The F-stop ('Aperture')** is sometimes 'fixed' within the digital camera.
- The digital camera then adjusts the **shutter speed** (and if possible, the aperture) based on light conditions.
- The **film speed** is the same for all photos within the camera, i.e. it is not chemical based but usually uses CCD technology
- The main important concept is **PIXELs**

DIGITAL PHOTOGRAPHY

PIXELS – short for PICTURE ELEMENT.

The more PIXELS a camera has, the better the picture quality,i.e. level of resolution or details in each picture. Some typical values:

- **640x480 pixels** - This is the low end on most "real" cameras. This resolution is okay if you plan to e-mail most of your pictures to friends or post them on a Web site. This is 307,000 total pixels. But you will not be happy with this resolution if you print it.
- **1216x912 pixels** - If you are planning to print your images, this is a good resolution. This is a "megapixel" image size -- 1,109,000 total pixels.
- **1600x1200 pixels** - This is "high resolution." Images taken with this resolution can be printed in larger sizes, such as 8x10 inches, with good results. This is almost 2 million total pixels. You can find cameras today with up to 10.2 million pixels.

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How it works

- A picture is taken and the camera automatically converts the pixels from analog to digital format.
- The camera then converts the digital pixels to color images.
- Then they are stored in digital memory within the camera and/or on memory cards/sticks and so on.
- Pictures can then be subsequently transferred from the digital camera either by serial cables or more recently via a USB port.

Optical/Digital Zoom

- Digital cameras usually allow for some zooming.
- **Optical zoom** is often better; the camera makes adjustments within the lens themselves.
- **Digital zoom** is whereby the camera calculates how to adjust the pixels, adding them or removing them. Interpolation is used when adding them.
- **Macro mode** is another type of zoom and allows close-up pictures, i.e. flowers.

Advantages of Digital Cameras

- The pictures do not need to be developed at the store, saving money and time.
- The picture you took can be viewed within a few seconds of taking it.
- You can readily delete photos within the camera that are done improperly or by mistake.
- You can upload to a computer and use software to enhance the photo further.

BATTERIES

- The best batteries are known as Nickel Metal Hydride, i.e. NiMH
- They are rechargeable.
- They last about as long as alkaline batteries.
- You can buy batteries and charger at BJs, Radio Shack and so on.

A DIGITAL CAMERA

- The CANON A75 Powershot is a capable and sophisticated digital camera.
- Street price is about $40. (Others can be had for as little as $29.95).
- It connects to your computer via the standard USB interface.
- I will highlight this camera as one example of digital cameras.

Canon A75 PowerShot

Back View

Front View


Canon
AiAF
MIC
PowerShot A75
CANON ZOOM LENS 3x
3.2
MEGA PIXELS

TOP VIEW

CANON A75 Powershot

With the Canon A75 PowerShot, you get a 3.2 Megapixel CCD and a host of advanced features.

- Canon A75 Powershot delivers 10x total zoom with 3x optical and 3x digital zooms.
- The Canon digital camera sports Print/Share button for fast and easy direct printing, and is compatible with PictBridge direct print printers.
- Other key features of Canon A75 Powershot are a 1.8" High Resolution LCD Monitor, 9-point AiAF, Special Scene Modes, DIGIC & iSAPS.
- Shutter Speed: 15sec - 1/2000 sec.
- 1.8 inch low-temperature, high resolution TFT color LCD.

Specifications, continued….

- Auto flash, Red-Eye Reduction ON/ OFF, Slow-Sync.
- Sensitivity AUTO; ISO 50/100/200/400 equivalent.
- Light Metering Method Evaluative/ Center-weighted average/ Spot.
- Exposure Control Method Program AE/ Aperture or Shutter-priority AE/ Manual.
- Exposure Compensation +/- 2 EV in 1/3-step increments.
- White Balance Control Auto, Pre-set (Daylight, Cloudy, Tungsten, Fluorescent, Fluorescent H), or Custom White Balance.

Specifications, continued….

- USB Interface; Video Out NTSC or PAL; Audio Out Monaural.
- Compatible with type I CompactFlash CF card removable memory card media.
- Shooting Modes Auto, Creative (P, Tv, Av, M), Programmed Image Control Zone (Portrait, Landscape, Night scene, Fast shutter, Slow shutter, Stitch assist), Movies, Special Scene Mode (Foliage, Snow, Beach, Fireworks, Underwater, Indoor).
- Self-Timer Operates with approx. 2 sec. or approx 10 sec. count-down.
- Continuous Shooting Approx. 2.2 shots/sec.

Specifications, continued….

- Photo Effects Vivid, Neutral, Low Sharpening, Sepia and Black & White.
- Image Recording Format Exif 2.2 (JPEG).
- JPEG Compression Mode SuperFine, Fine, Normal.
- Direct connection to separately purchased Canon Card Photo Printers and select Canon Bubblejet Printers (no computer required).
- Power Sources: 4 AA Alkaline batteries included, or separately sold options: 4 rechargeable AA NiMH batteries, or Compact Power Adapter CA-PS500.
- Dimensions (W x H x D) 3.98 x 2.52 x 1.24 in./101.0 x 64.0 x 31.5mm.
- Canon A75 weighs 7.06 oz./200g.

DIGITAL CAMERAS

- I will now show you two more digital cameras.
- The 1st is just $29 and perhaps not worth it – minimal quality.
- The 2nd one is better but not as good as the Canon – only 2.1megapixel – this camera costs about $100.

Cheap Digital Camera 480x640 pixels, 29.95

Inexpensive Digital Camera 2.1megapixel, $25

- 2.1-megapixel sensor creates 1,600 x 1,200 images
- 3x optical zoom and 3x digital zoom (for 9x total)
- Compatible with Secure Digital and MMC memory cards
- Camera sensitivity: ISO 100 equivalent
- Focal length: 6.2 - 18.6mm (35mm equivalent: 38 - 114mm)
- Maximum aperture: f/2.9
- Shutter speed range: 1 - 1/1000 second
- Autofocus system: Video AF

QUESTIONS/DISCUSSION

- How to reach me via email:
  - hscribner@ccs.us
  - Please say: ”Photo Workshop” in subject line

Guidelines for better Photographic Composition

Guidelines for better Photographic Composition

Composition Definition:

"*Placing the elements of your picture within the frame and deciding what to leave out."*

- Mr. S

Photographer

Guidelines for better Photographic Composition

A few thoughts before you press the shutter release.....

"There are no rules for good photographs, there are only good photographs. - Ansel Adams

"The biggest difference between a good photograph and a mediocre one is the composition." - Geoff Lawrence

"Don't take a picture of everything, take a picture of something." - Victor Pizzolato

Guidelines for better Photographic Composition

Among the more common Guidelines

1) The Rule of Thirds
2) Balance
3) Light
4) Point of View
5) Line

Guidelines for better Photographic Composition

Among the more common Guidelines

6) Motion

7) Selective Focus (Depth of Field)

8) Contrast & Variety

9) Shape

10) Rhythm and Pattern

Guidelines for better Photographic Composition

Among the more common Guidelines

11) Texture
12) Space
13) Perspective
14) Framing
15) Scale

Guidelines for better Photographic Composition

Among the more common Guidelines

16) Simplicity

17) Lines

18) Mergers

Guidelines for better Photographic Composition

For this program however, we'll concentrate on six of the composition elements or Guidelines we listed.

Guidelines for better Photographic Composition

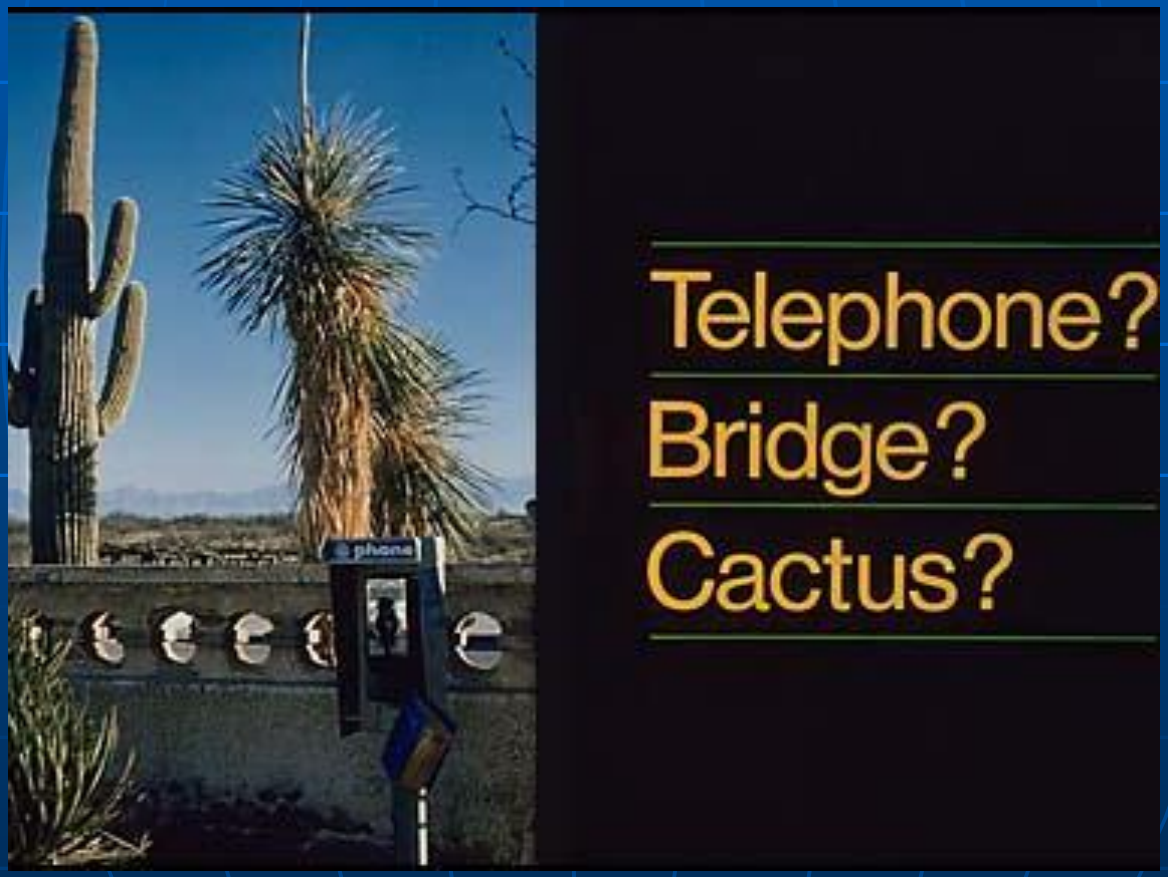
1) Simplicity
2) The Rule of Thirds
3) Lines
4) Balance
5) Framing
6) Mergers

Guidelines for better Photographic Composition

1) Simplicity

The first and perhaps the most important guideline is **simplicity**. Look for ways to give the center of interest in your pictures the most visual attention. One way is to select uncomplicated backgrounds that will not steal attention from your subjects.

Simplicity?



Simplicity!

By choosing the cactus as the subject and by moving in closer with the sky as the background, the photograph is not only simplified, its improved


phone

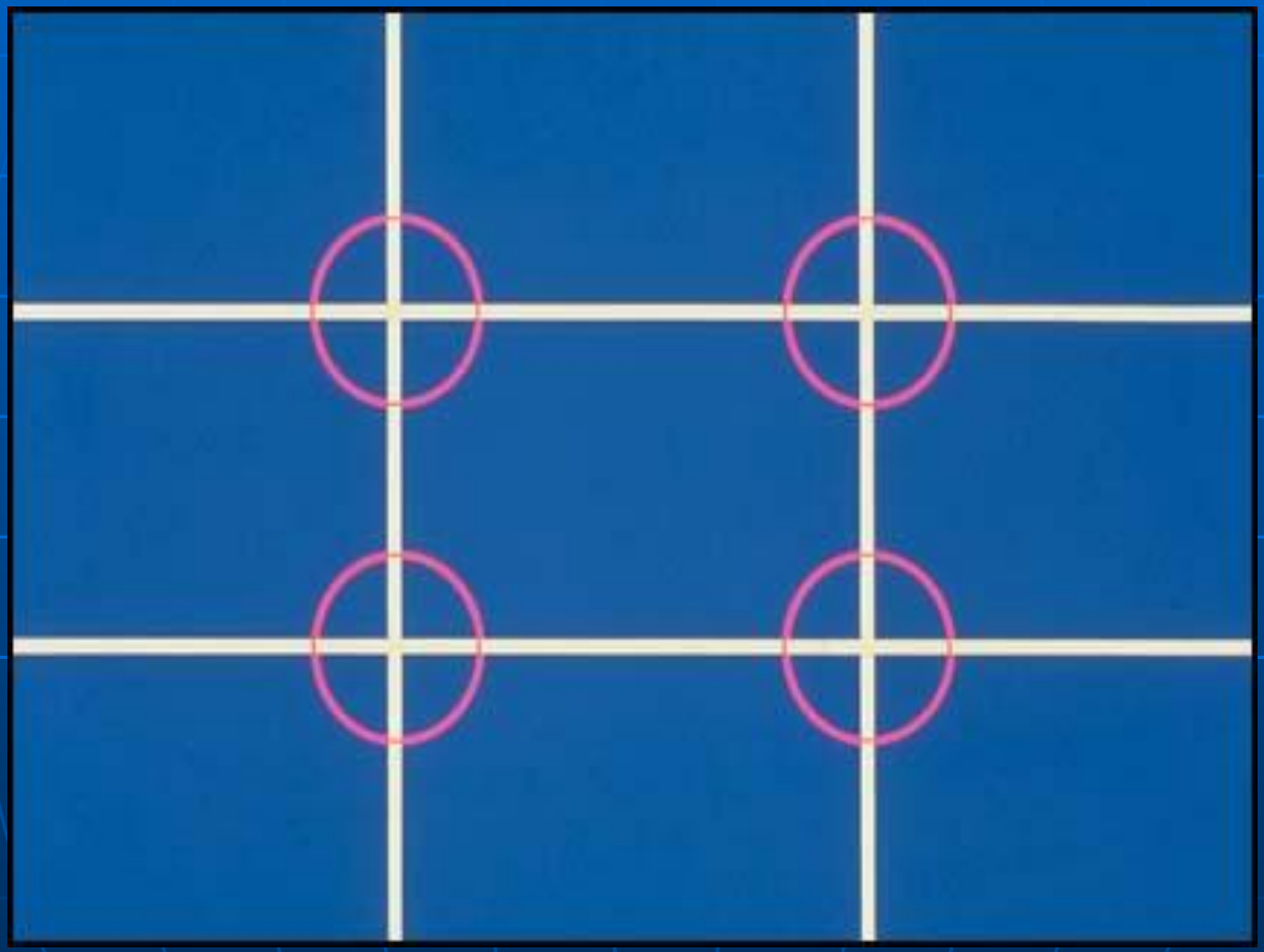
Guidelines for better Photographic Composition

2) The Rule of Thirds

You can use the **Rule of Thirds** as a guide in the off-center placement of your subjects. Here's how it works.

The Rule of Thirds

Before you snap the picture, imagine your picture area divided into thirds both horizontally and vertically. The intersections of these imaginary lines suggest four options for placing the center of interest for good composition. The option you select depends upon the subject and how you would like that subject to be presented.



Guidelines for better Photographic Composition

3)Lines

Lines also play an important role in composition. The following sculpture has some beautiful lines, but they're obscured by the busy background. Let's simplify this picture by moving our camera viewpoint in close to the base of the sculpture.

Now we can look up and see the lines against a clear blue sky. The picture on the right is much more dynamic because of the strong diagonal lines.

Guidelines for better Photographic Composition

4)Balance

Achieving good **balance** is another guideline for better picture composition. In the next slide, notice how the leaves, the window, and the couple all seem to be in the right place. The camera viewpoint and subject placement were all carefully selected to create this well-balanced photograph.

Guidelines for better Photographic Composition

5)Framing

What we mean is to frame the center of interest with objects in the foreground. This can give a picture the feeling of depth it needs to make it more than just another snapshot.

Guidelines for better Photographic Composition

6) Mergers

In the final visual, the **merger** of a tree with the subjects head is obvious, you probably think no one could miss it before snapping the shutter. But, we see in three dimensions, so it's easier than you might guess to focus your eyes on the principal subject only and not see the tree in the background at all.

So, **Avoiding Mergers** is our sixth and final guideline for this better composition review. Remember that the camera always sees mergers, so look for plain backgrounds before you pose your subject. In this case the correction was simple because the two settings were only a few feet apart.

Think of these not as rules but as simple guidelines!

BEST RULE:

HAVE FUN AND DON”T TAKE IT TOO SERIOUSLY RIGHT AWAY!!