Digital Photography as a Retirement Hobby

OLLI / PATACES
Computer Club
17 June 2017

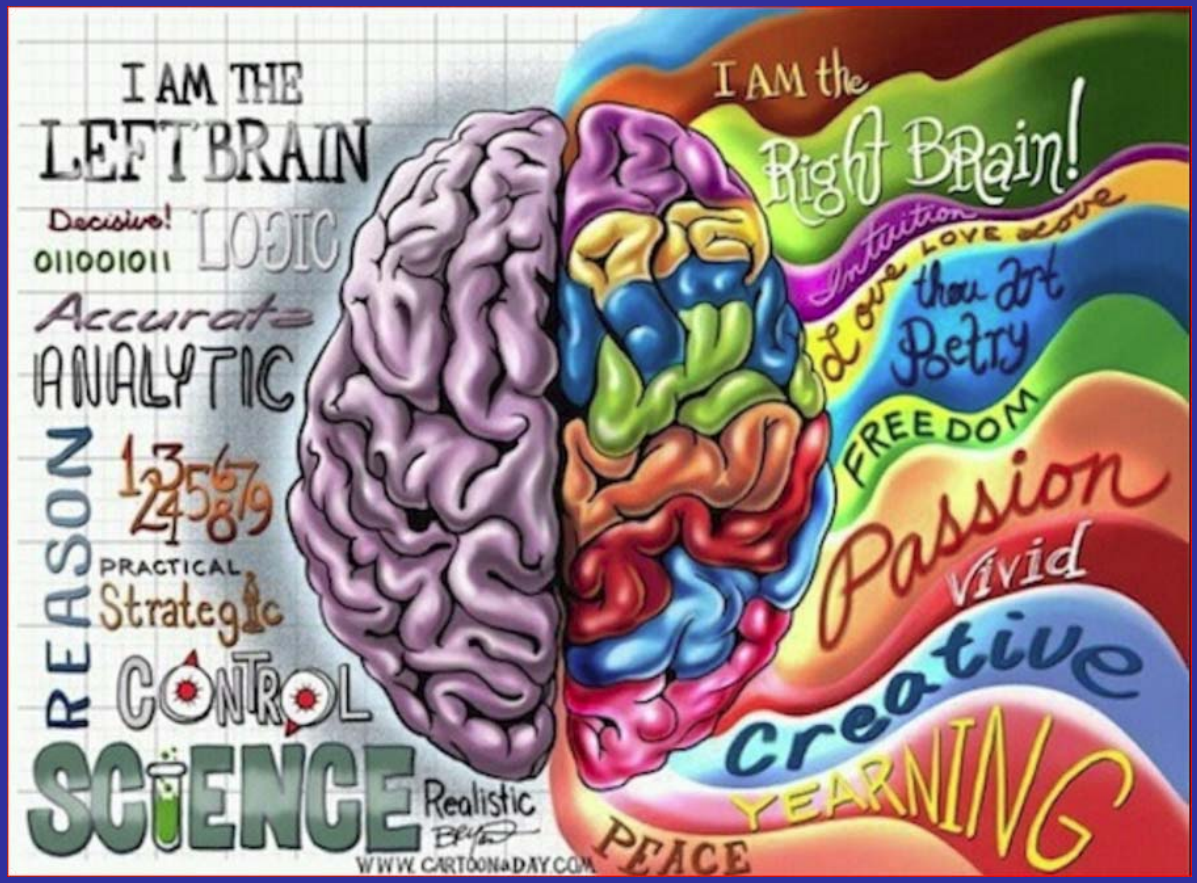
Presented By Dan Feighery

Some Retirement Considerations

- Researchers find that retired people who get involved in hobbies are happier and tend to live longer
- **Invest in your mental, emotional, physical well being**
  - Better understand and enjoy things you know and like
  - Learn new things
  - Devote more time to family relationships – grandchildren etc.
  - Take courses
  - Church, civic, social, athletic, educational groups, etc.
  - Travel
  - Volunteer
  - More time for old or new hobby
    - Stamp collecting, Fly fishing, Golf, Scrap-booking, Genealogy, Play Bridge, Music, Drama, Photography, etc., etc., etc.

Exercises the Brain

Photography: A hobby that exercises both hemispheres



https://s3-ap-southeast-2.amazonaws.com/wpportalmedia.informa.com.au/www.decordesignshow.com.au/wp-content/uploads/2016/08/Left-Brain-vs-Right-Brain.jpg

4 Parts to Presentation

1 Some general thoughts on photography

2. Some important technical things to understand

3. Seven steps to making good photographs

4 Applications to view / edit your pictures

4 Parts to Presentation

1 Some general thoughts on photography

2. Some important technical things to understand

3. Seven steps to making good photographs

4 Applications to view / edit your pictures

Today's Digital Cameras (a)

The ubiquitous camera phone

I don't have a Smart phone

F102 Smartphone Photography

Wednesdays, 11:50–1:15, July 5–July 19

Three sessions

Instructor: Stan Schretter

Today the vast majority of photographs are created using cellphone cameras. This class is aimed at the beginning cellphone photographer. No previous knowledge of either photography or your cellphone camera is required. We will explore areas such as camera apps, how to create great pictures, and sharing your photos with others. As you know, there are many types of cellphones and each operates differently. The instructor will be using the iPhone/iPad to demonstrate the techniques covered in this class, but

Today's Digital Cameras (b)

Exif Information	XMP/IPTC Information
Item	Value
File Name	Liam WEdding.jpg
File Size	5.5MB
Camera Mod...	Nexus 6P
Shooting Dat...	5/20/2017 8:10:25 ...
Tv (Shutter S...	1/68
Av (Aperture ...	2.0
Exposure Co...	0
ISO Speed	418
Image Size	4032x3024
Color Space	sRGB
GPS Data	
Date/Time(UT...	2017/05/21 0:10:24
Latitude	42 44 8.1 N
Longitude	83 10 30.9 W
Altitude	338.00m
Geographic c...	
Comment	

What you see is what you get – right away!
Smartphone advantage: I got this in Fairfax VA via email while dinner ongoing in Detroit.

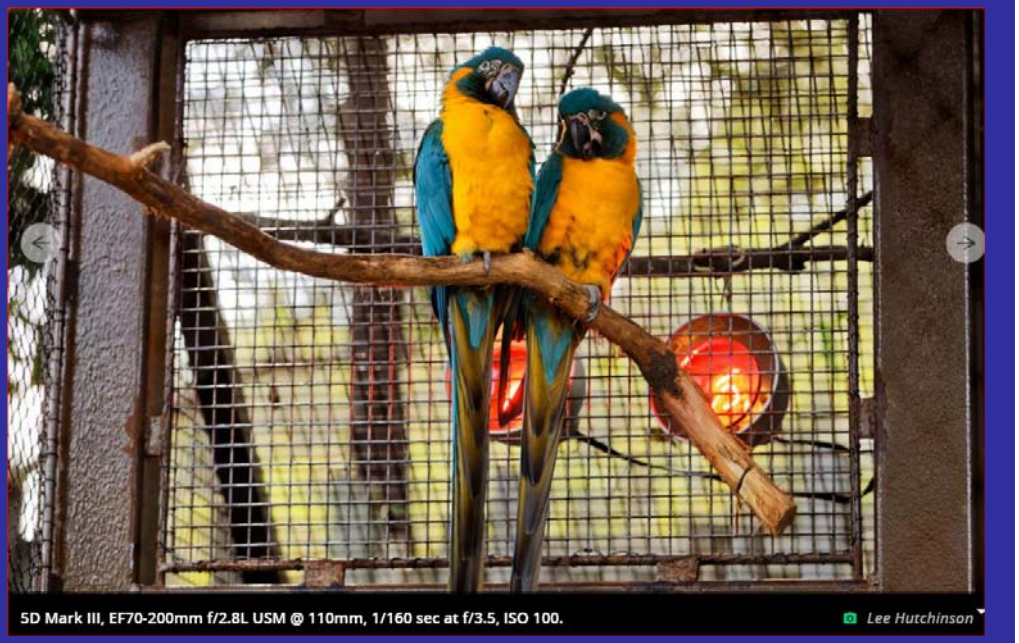
Cell Phone Camera vs DSLR

They are getting better every year

www.runtoradiance.com/camera-on-iphone-4s-vs-5s/

Cell Phone Camera vs DSLR

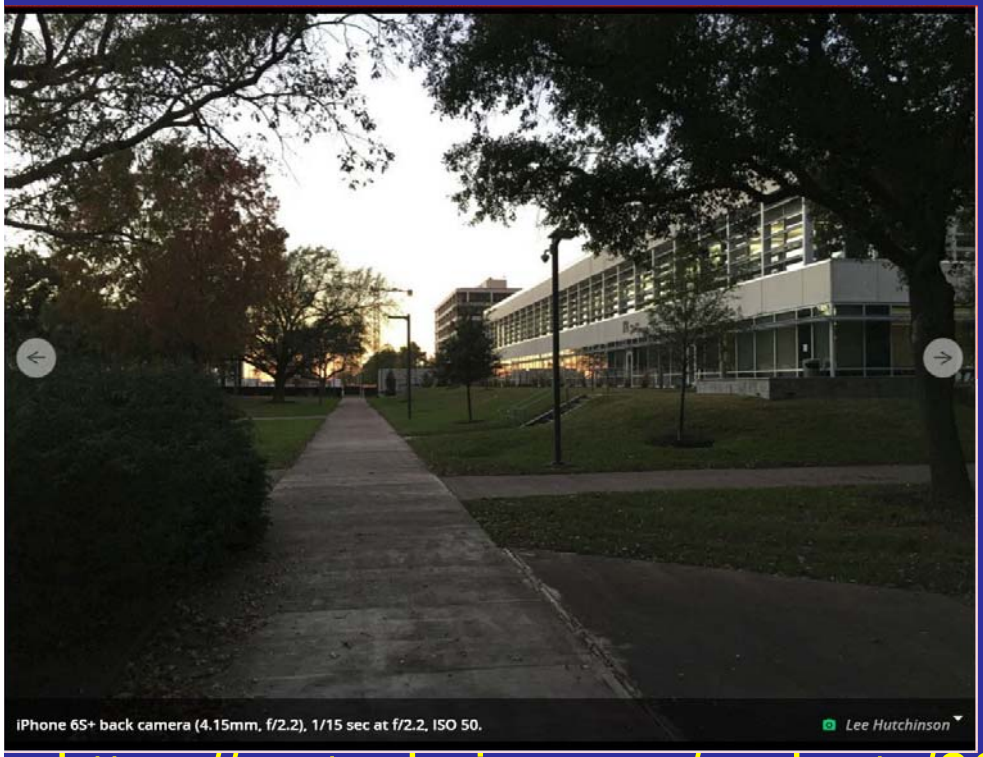
OUTDOOR DAYTIME

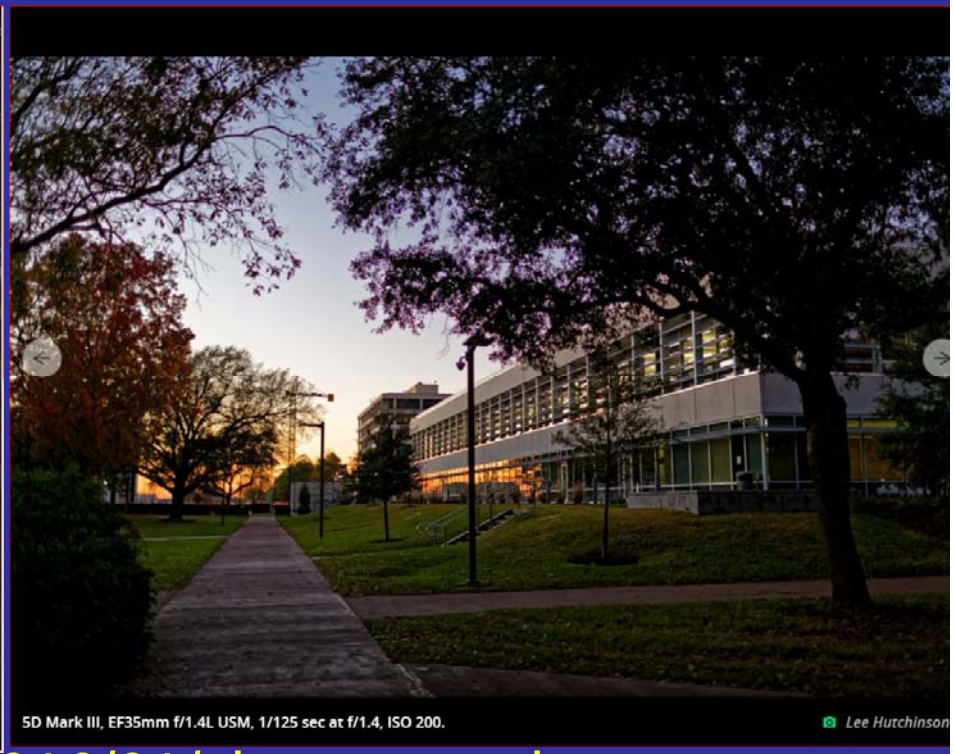


https://arstechnica.com/gadgets/2016/01/shootout-redux-smartphone-camera-vs-tricked-out-dslr-one-year-later/

Cell Phone Camera vs DSLR

OUTDOOR TWILIGHT





https://arstechnica.com/gadgets/2016/01/shootout-redux-smartphone-camera-vs-tricked-out-dslr-one-year-later/

Cell Phone Camera vs DSLR

INDOORS NORMAL LIGHT

https://arstechnica.com/gadgets/2016/01/shootout-redux-smartphone-camera-vs-tricked-out-dslr-one-year-later/

What camera you choose might depend on

What do you plan to do with your pictures

Purpose of the Photo (a)

On-Line posting / sharing

500 Pixels	Instagram
Cluster	My Photo
Dropbox	Picassa
Flickr	Photobucket
Facebook	Smugmug
Google photos	Snapfish
iCloud (Apple)	Shutterfly
Iristra	Iristra
Imgur	Zenfolio

etc.

SECTIONS DAILY NEWS | LIFESTYLE

Health Food Viva

The dangers of posting photos online

Phones or devices with GPS technology contain tags that reveal exactly where the picture was taken. (DAVID FREUND/GETTY IMAGES)

BY
KIMBERLY PALMER

U.S. NEWS & WORLD REPORT
Tuesday, August 20, 2013, 6:19 PM

Stories of people's online photos being used for nefarious purposes are easy to find: A soldier's photo was stolen off MySpace, posted by scam artists under a fake Match.com account and used to con one woman out of thousands of dollars. One blogger found her family's photo being used as an advertisement in the Czech Republic. Another mother's photo of her 4-year-old was pulled off Flickr and posted on a Brazilian social networking site where it was rated for "sexiness."

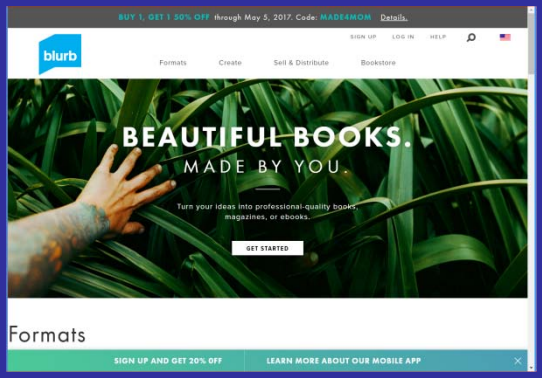
The convenience of sharing photos with friends (and non-friends) through social networking sites and blogs is undeniable. Unfortunately, so are the dangers. Not only can photos be stolen and used by strangers, but many photos, especially those taken by phones or devices with GPS technology, contain tags that reveal exactly where the photos were snapped. In other words, if a parent takes a photo of his or her child playing at home and then posts it online, it's possible for strangers to know exactly where they live.

A few simple steps can dramatically reduce your chances of falling victim, and there's no need to give up photo-sharing altogether. Here are six steps everyone should take to protect themselves and their families when posting

Purpose of the Photo (b)

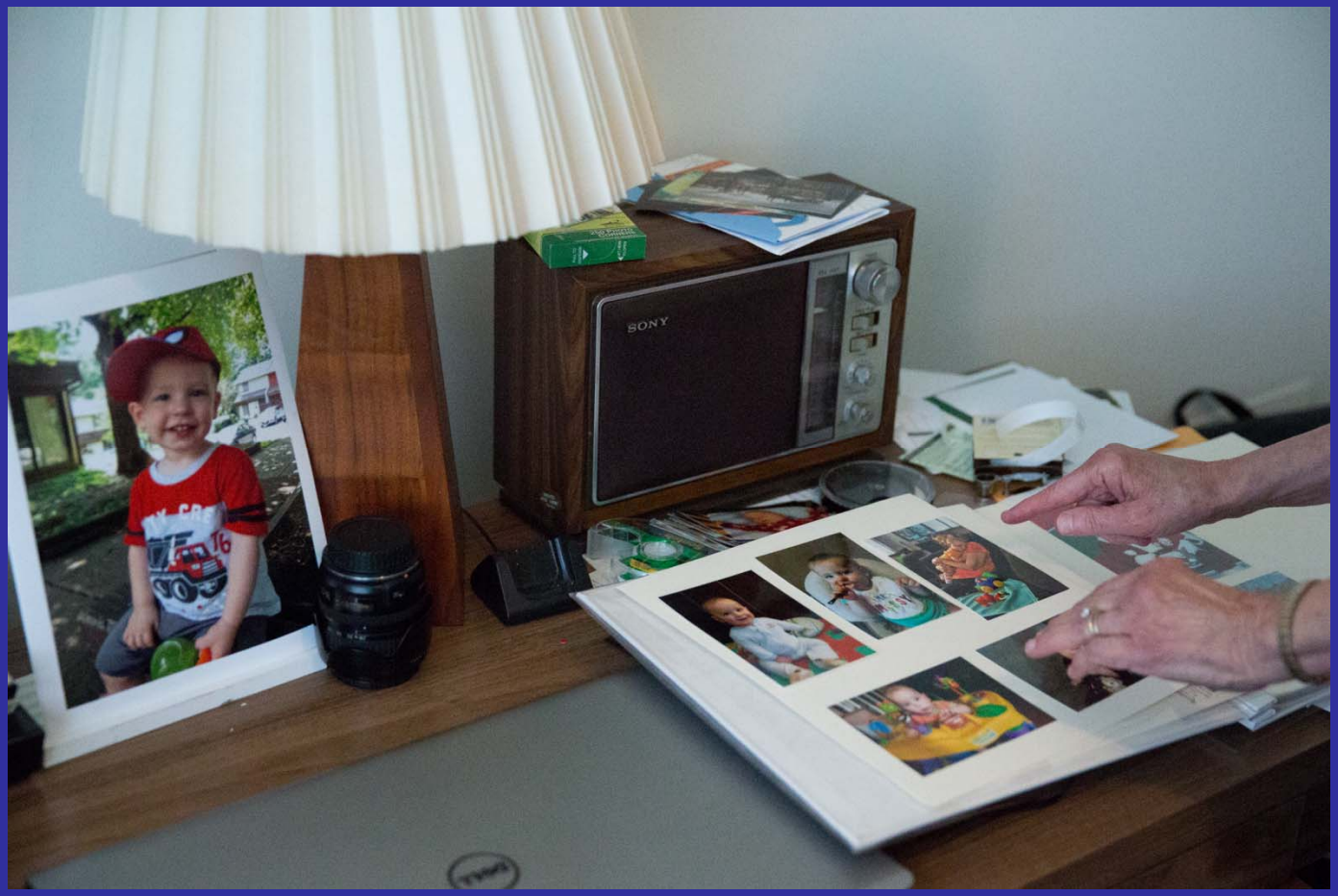
On-line - E-Book Publishing

48hrbooks
Burb
Book Creator Free
Bookemon
Bookbaby
CreateSpace
Classtools
FlipBooks
Lulu
Mixbook
MyStory
Pinterest
Thinkquest
TikaTok
ZooBurst
Etc.



Purpose of the Photo (c)

Keep in a Memory / Scrapbook



Purpose of the Photo (d)

Hang on a Wall

Purpose of the Photo (e-1)

Support a local event – (Civic Project)

Fairfax Courthouse
June 1863

Fairfax Courthouse
April 2018

The new building (left) precluded precise camera angle duplication

Purpose of the Photo (e-2)

Support a local event – (Civic Project)

Purpose of the Photo (f)

Support a local activities (Athletics)

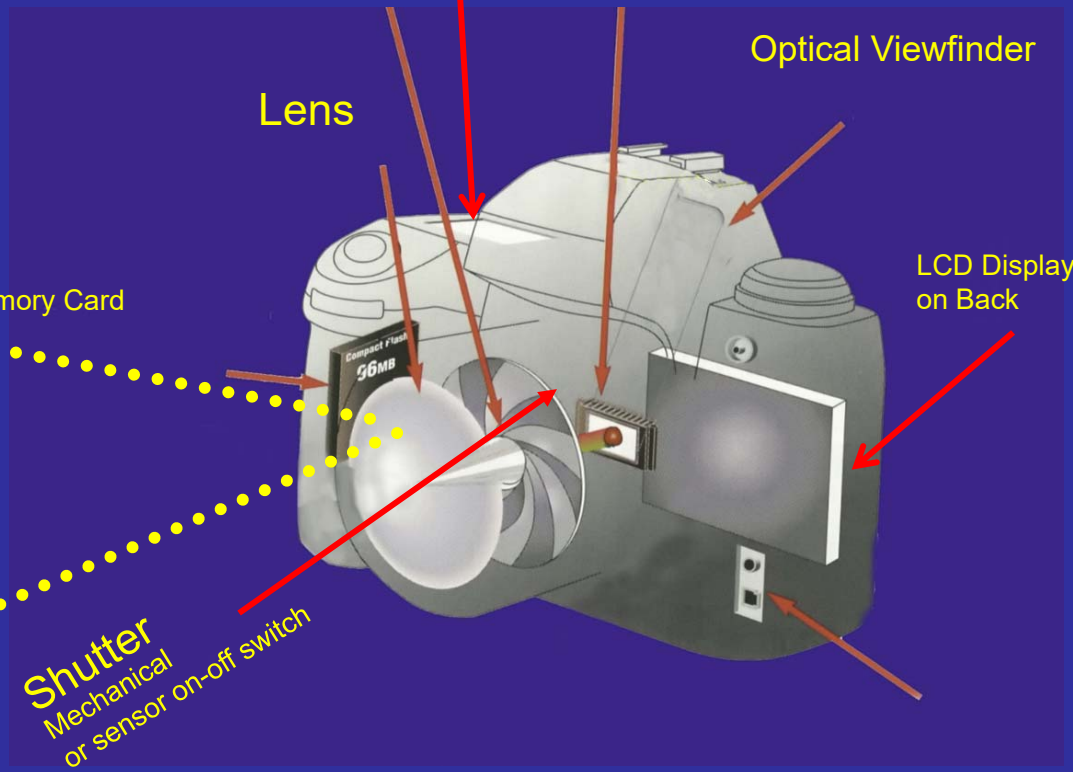
Senior Day at W.T. Woodson High School 28 Apr 2017

Basic Automatic operations

- For “Point & Shoot” Camera
  - Check chip inserted
  - Press “ON” button
  - Check battery charged
  - Select “AUTO”
  - Place focusing point on subject
  - Adjust zoom control
  - Hold camera still
  - Press shutter button half way
  - Check Focus
  - Check shutter speed at least 1/60 sec. >Faster if hand held
  - Adjust composition as needed
  - Press shutter the rest of the way
  - Check the image in LCD display
  - Post on-line or
  - Take to store for prints


Adjustable Cameras

DSLR EXAMPLE



Note: Four thirds format cameras have no mirror / optical viewfinder but do have interchangeable lens. (allows for smaller size camera)

Today's Digital Cameras (c)

Point & Shoot: May allow manual adjustments + Full Automatic

Check composition and exposure information on back of camera after taking the Picture

But you can't instantly email it like a smart phone can.

Today's Digital Cameras (d)

Digital Single Lens Reflex

Note: Be careful of camera shake hand-holding like this.

- Allows for more control over your picture-making

Note: I said "Picture Making" not "Picture Taking"

Why ~~take~~ Make Pictures

- **Family history: Who did what & when**
  - I wish I had a photo of my great grandfather
- **Factual research / documentation**
  - What actually existed or occurred. Assist in study and identification of plants / animals / etc.
- **A record of travels** (TripTales, scrapbooks, etc.)
  - This is when we went to Ireland – or wherever
- **Seeing something in a different way**
  - Freeze action / see from different vantage point
- **Wall decoration (photography as art)**
  - Something to hang on the wall (e.g., abstracts)

Family History

A montage of your memories

News / Documentary

National News

Reporter arrested after repeatedly asking HHS Secretary question

Note: words need to tell the story

Local News

Recorder group entertains at OLLI Christmas party

Note: words may not be needed

Remembering our Travels (a)

Berango Glass Studio Morano Venice

Try to note what the photo is about

Remembering our Travels (b)

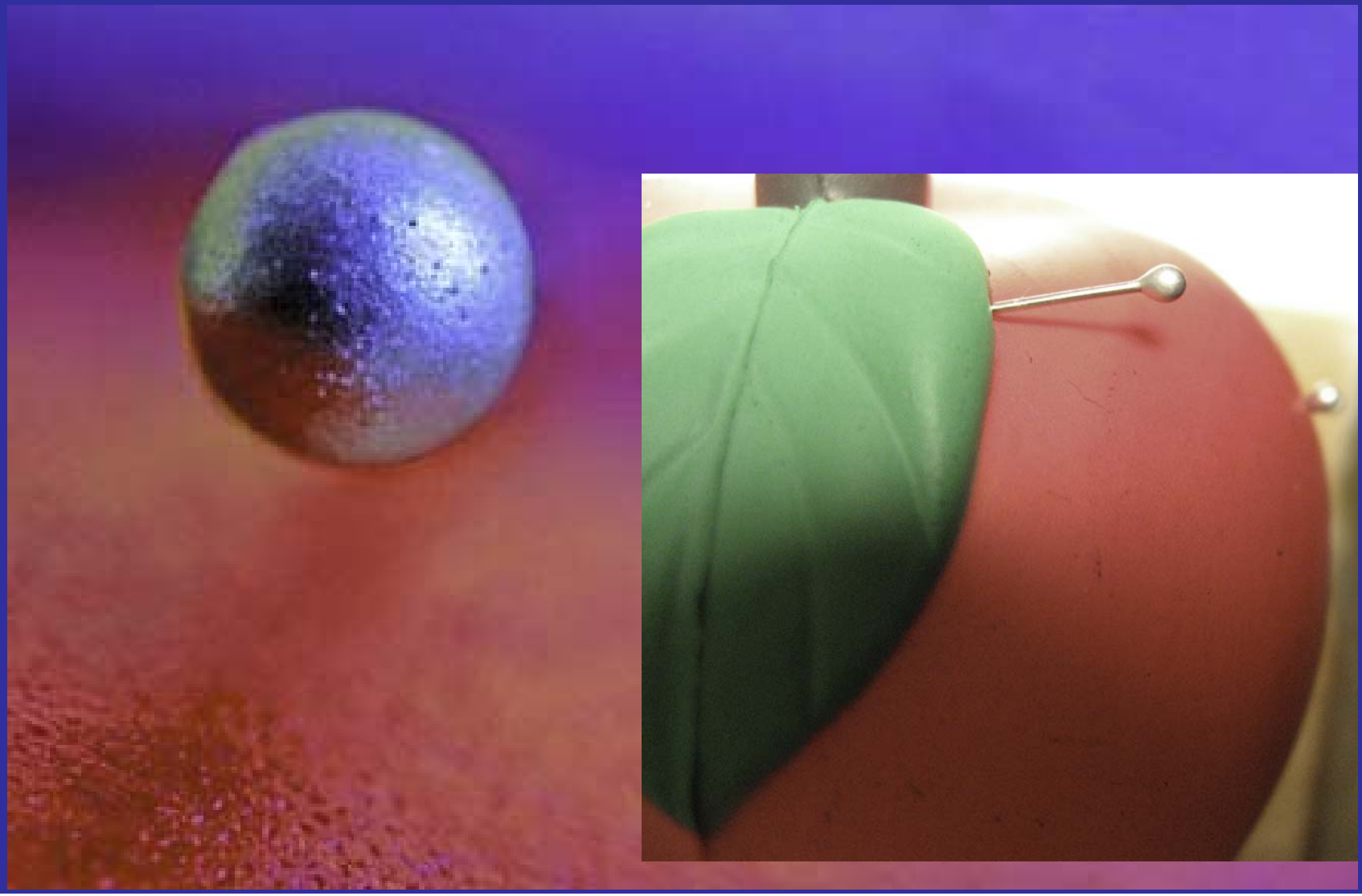
Try to keep notes about the photo

On a cold rainy, windy afternoon we visited the Berango Glass studio on Morano (Venice). We observed and photographed a collaboration between Dutch artist Clemens Briels (with the red scarf) and glass maestro Silvano Signoretto with his 3 assistants.

Together they turned a 2 dimensional drawing into a 3 dimensional one-of-a-kind glass sculpture.

Seeing something differently (a)

Taking a very close look



Seeing something differently (b)

- Extreme Case:
  Stop Hummingbird in Flight

200mm Macro lens
1/1000th sec shutter
F2.8
Flash - Fractional power.

In this shot
motion was frozen
using high speed flash
Exposure estimated at
1/20,000 – 1/30,000 sec

Another Approach

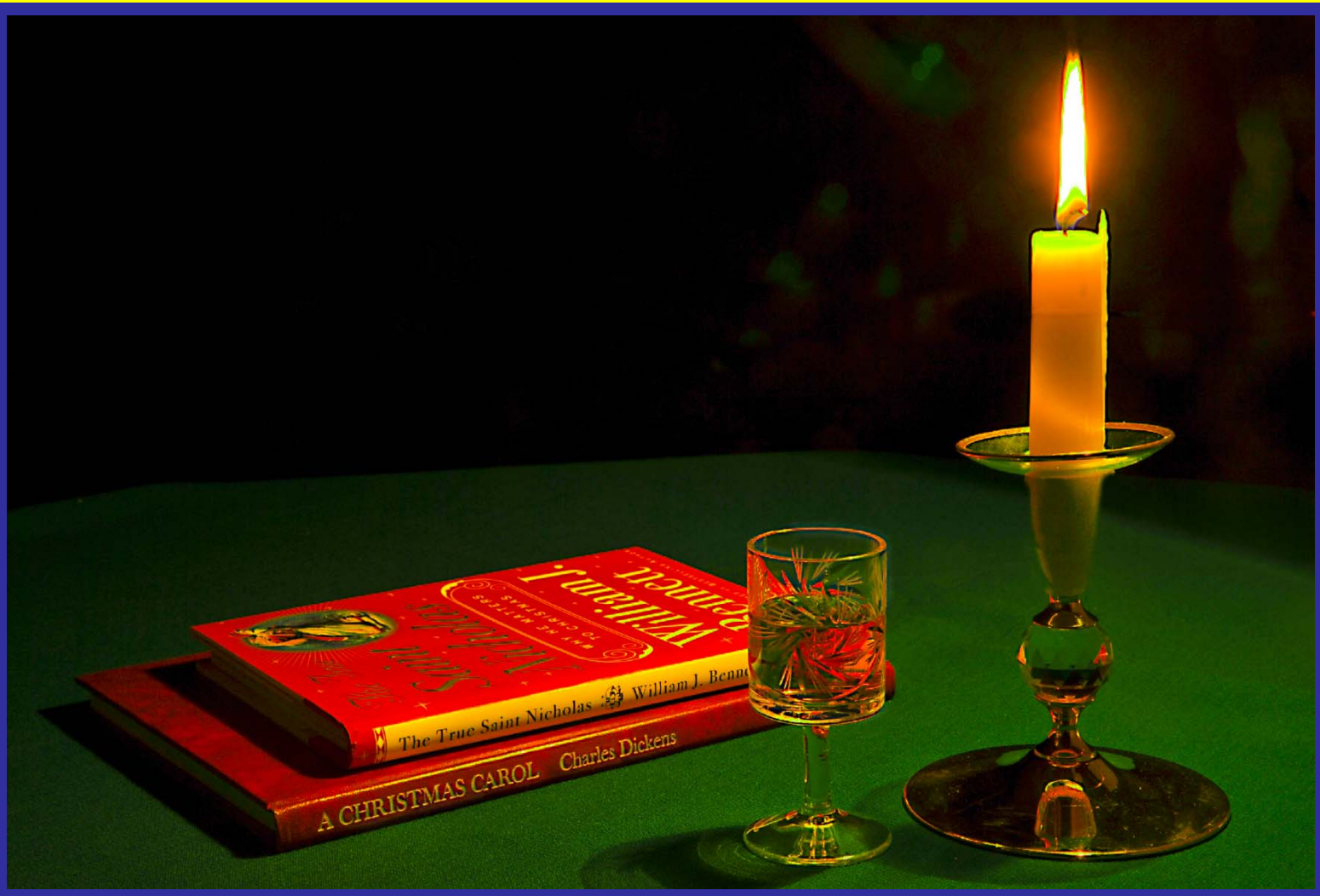
- **Photography is more than just capturing what you see with your eyes.**
- Instead, it is a way of showing others your *artistic* vision. (ref: Ian Plant)
- See: http://www.ianplant.com/index

Another Approach

- With the digital camera: perspective, focal length, exposure, and white balance are all creative variables at your disposal.
- For this photo of a surface flow of lava under stormy skies, Ian went ultra-wide & got close.
  - *Technical info: Hawai'i Volcanoes National Park, USA. Canon 5DSR, Canon 11-24mm f/4 lens, ISO 50, f/11, 5 seconds.*

- *He chose a dark exposure and selected a white balance that preserved the blue tones of twilight to convey a moody feel, and to show his artistic interpretation of the scene.*

Photography as Art (a)



Christmas Stories by Dan Feighery

Photography as Art (b)

Ripple in Time by Ed Marion

Photo juried into Abstract Photography exhibit

Photography as Art (c)

"Red Sky" by: Dan Feighery

Double exposure of ceiling light + stained glass background

Photography as Art (d)

"Rays" by: Dan Feighery

An extensively manipulated photograph of Christmas lights

Local Photo Clubs

- Loudoun www.loudounphotoclub.com
- Manassas Warrenton www.mwcc-photo.org
- McLean www.mcleanphoto.org
- Northern Virginia www.NVPS.org
- Reston www. Leagueofrestonartists.org
- Vienna www.vpsva.org
- OLLI https://olliphotoclubgmu.smugmug.com /ww.olli.gmu.edu

Ref: http://nvacc.org/home/category/resources/member-clubs/

Places to Shoot

Burke Lake Park

Great Falls

Brookside Gardens

Conowingo Dam

4 Parts to Presentation

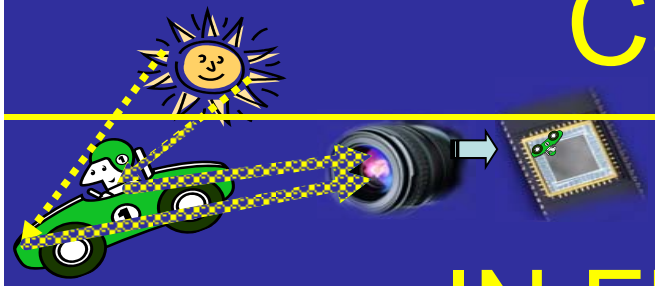
1 Some general thoughts on photography

2. **Some important technical things to understand**

3. Seven steps to making good photographs

4 Applications to view / edit your pictures

Capturing Light



IN FULLL AUTO MODE

The camera controls

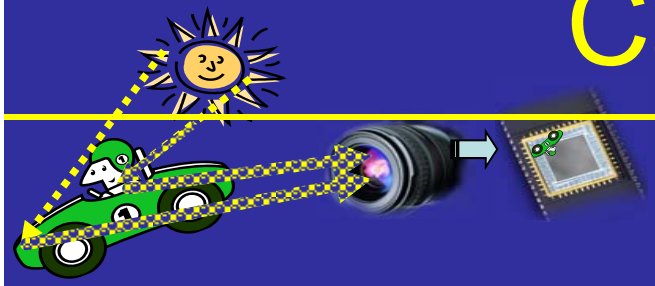
everything except:

1.Where you point it

2 Zoom in /out if available

3 When you press the button

Capturing Light



Alternative

you control

everything in the picture space

A few basic things to know

Megapixels

Crop Factor Lens

Lens Focal Length & Angle of View

Lens Opening & Shutter Duration

Raw vs .jpg

Specs: Megapixel Number

File type is .jpg

File type is .RAW

	pixel width		pixel height		width x height	Approx megapixels	aprect ratio width / height
Large	5184	x	3456	=	17,915,904	17.9	1.5
M1	4608	x	3072	=	14,155,776	14.2	1.5
M2	3456	x	2304	=	7,962,624	8	1.5
Small	2592	x	1728	=	4,478,976	4.5	1.5
RAW	5184	x	3456	=	17,915,904	17.9	1.5
M-Raw	3888	x	2592	=	10,077,696	10.1	1.5
S-Raw	2592	x	1728	=	4,478,976	4.5	1.5

→ LARGE SIZE

2 in between

→ small size

The RAW is the almost totally unprocessed data from the sensor. It's suffix is based on camera brand, e.g. cr2, nef, dng, etc.

	pixel width		pixel height	inches at 240 ppi	240
Largr	5184	x	3456	21.6	14.4
M1	4608	x	3072	19.2	12.8
M2	3456	x	2304	14.4	9.6
Small	2592	x	1728	10.8	7.2
RAW	5184	x	3456	21.6	14.4
M-Raw	3888	x	2592	16.2	10.8
S-Raw	2592	x	1728	10.8	7.2

Converting Pixels to (approximate) print size

$$\frac{\text{Width in Pixels}}{\text{Pixels per inch}} = \text{Width in Inches}$$

Full Frame & Crop Factor

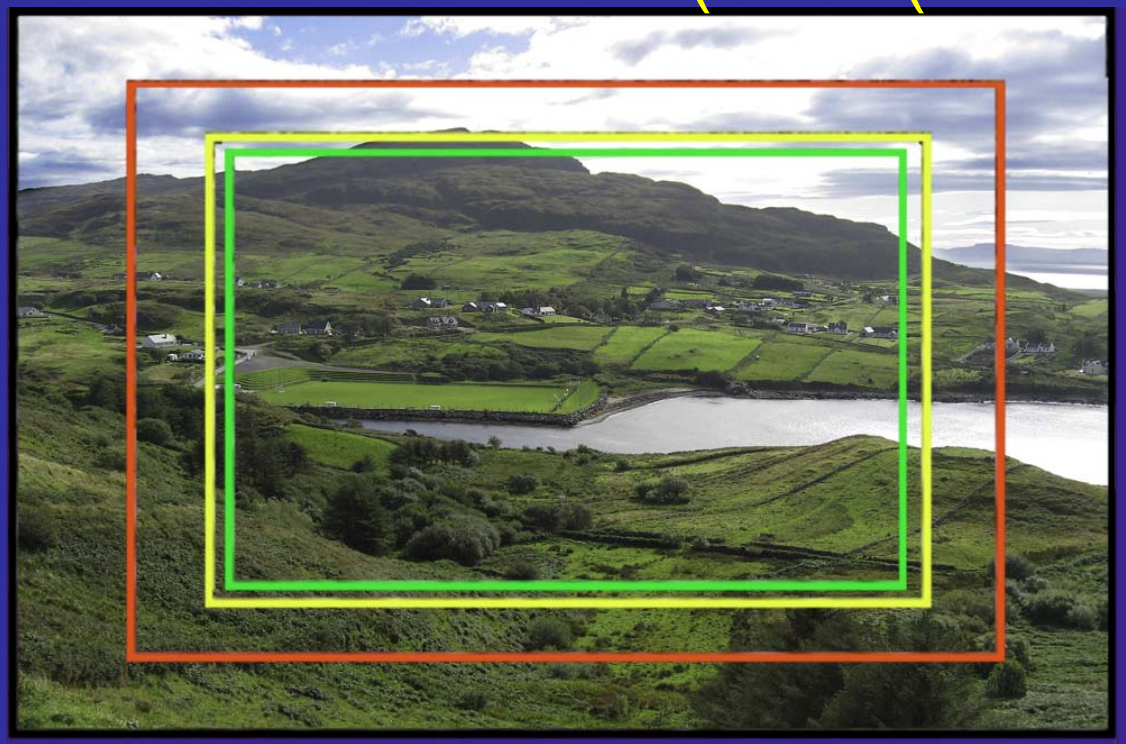
- A Digital Single Lens Reflex (DSLR) Camera with sensor the size of a 35m film frame (36x24mm) is called a full frame camera
  - In many DSLRs the size of the sensor is smaller.
    - The difference is called the camera's "Crop Factor"
    - If you take a photo with a smaller sensor and the same lens it will only show a smaller area of the scene.
  - For DSLR cameras, the ratio of the width to height of the sensor typically remains 24/36 = 4x6
    - Hence we get prints sized 4 inches x 6 inches.

Crop Factor Example (1)

Angle of View varies with sensor size

Example: A 50mm lens fitted to our 5D camera (full frame) acts like a 80 mm lens when used on our 40D camera that has a smaller chip -- resulting in a 1.6 crop factor

50mm lens acts like 80mm (50 + (.6 x 50)) = 80



Helps Some shots

Canon D1-series=1.3, Nikon DX= 1.5, Canon Consumer Series 1.6

Crop Factor Example (2)

Angle of View varies with sensor size

Example: A 50mm lens fitted to our 5D camera (full frame) acts like a 80 mm lens when used on our 40D camera that has a smaller chip -- resulting in a 1.6 crop factor

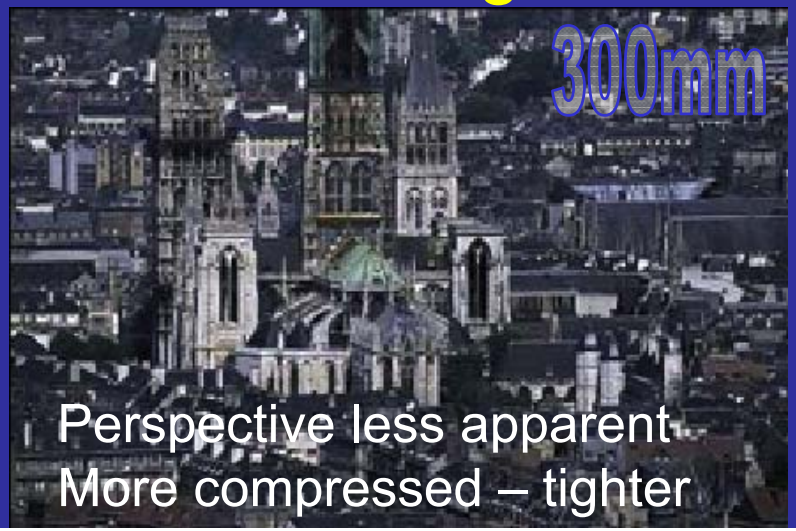
50mm lens acts like 80mm (50 + (.6 x 50)) = 80

Hurts Some Shots

Canon D1-series=1.3, Nikon DX= 1.5, Canon Consumer Series 1.6

Lens Focal Length

- Focal length -> reference point for Lens categories
  - – Single focal length lenses have one focal length
    - 50mm focal length approximates what the eye sees.
  - – Zoom lenses have a range of focal lengths
    - shorter focal length called wide-angle -- wide angle of view
    - longer focal length called telephoto -- narrow angle of view



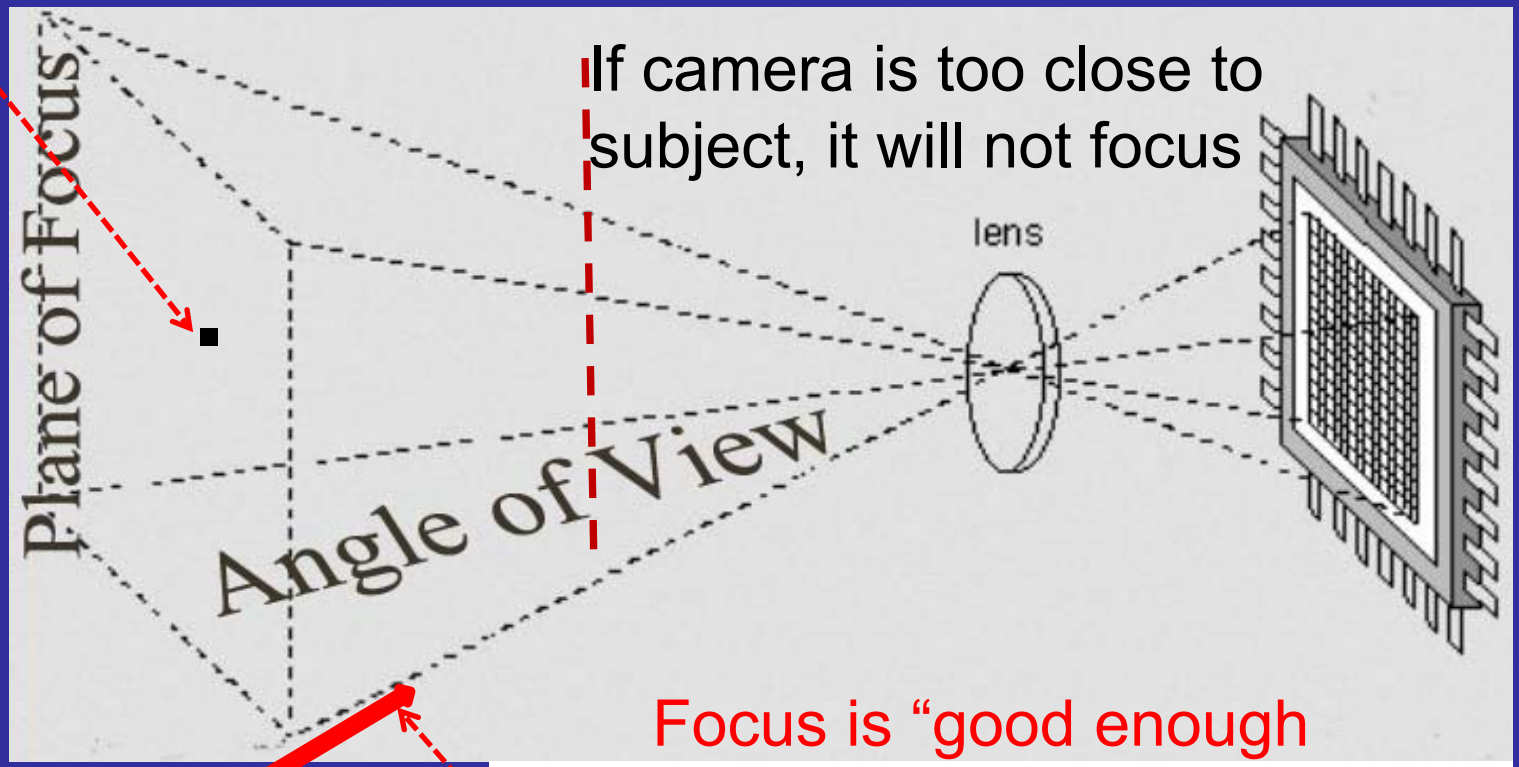
Lens Specs

Understand angle of view

- Focal Length - 50mm Aperture
- Aperture - Max F1.4 min F/22
- Camera Mount Type - Canon EF
- Format Compatibility - 35mm Full frame / APSC
- Angle of View - 46 degrees
- Minimum Focusing Distance - 1.5 ft (45 cm)
- Magnification - 0.15x

Angle of View / Plane in focus

- You focus on a point that is a specific distance from the sensor. Angle of view determines area in that plane.



At Minimum Focusing distance

- 50mm Lens at minimum focusing distance
- Focused on last line on bottle label *(just above the 15 inch mark on yardstick)*.
- 2nd ruler at ~45 degrees not many numbers are in sharp

Review 3-Definitions

- Depth of Field: The distance between the nearest and farthest point in the image which is perceived as acceptably sharp

- Aperture: Circular Hole in the front of the camera which controls the amount of light allowed to pass on to the sensor.
  - Examples: f2.8, f4.5, f5.6, f8, f11, f16, f22, f32

- Shutter Speed: The action of the shutter that controls the duration of the exposure. The faster the speed the shorter the exposure
  - Examples: 15”=15 sec., “3=0.3 sec., 60=1/60 sec.

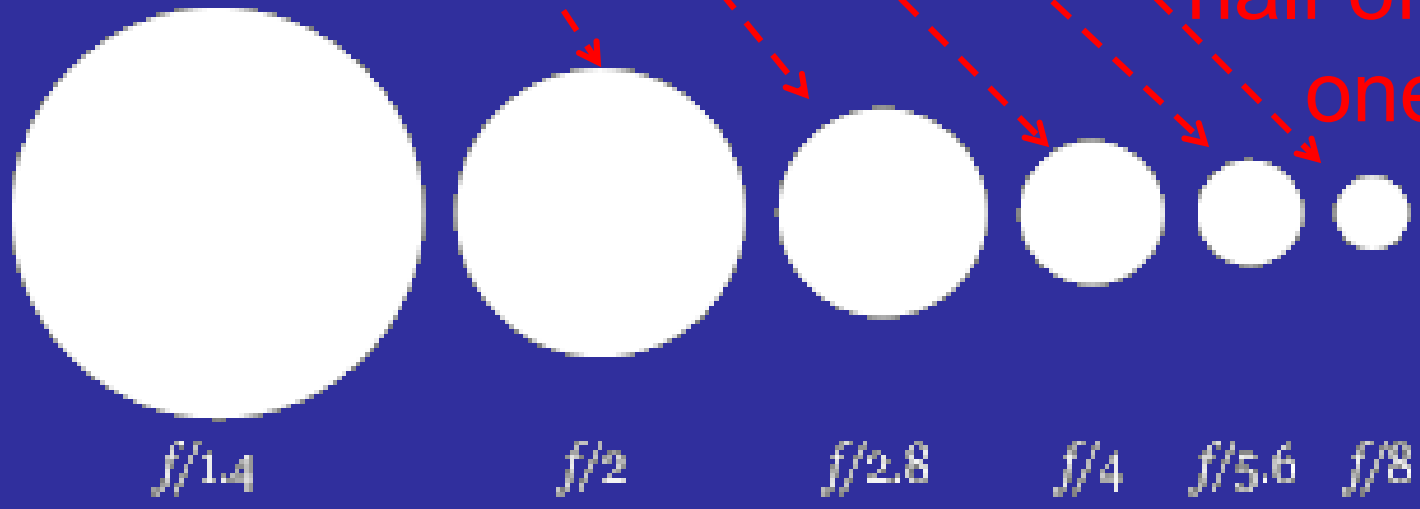
Lens Aperture

How much light (volume) passes through lens

- Determined by the size of the opening

F # 1.0, 1.4 2, 2.8, 4, 5.6, 8, 11, 16, 22, 32, 45, 64

NOTE: Area of each circle is half of the one before it



Light Gathering of Aperture

Typical Maximum Apertures	Relative Light-Gathering Ability	Typical Lens Types
f/1.0	32X	Fastest Available Prime Lenses (for Consumer Use)
f/1.4	16X	Fast Prime Lenses
f/2.0	8X	
f/2.8	4X	Fastest Zoom Lenses (for Constant Aperture)
f/4.0	2X	Light Weight Zoom Lenses or Extreme Telephoto Primes
f/5.6	1X	

Exposure Duration

Standardized speeds double or half the next

1/2000s	1/1000 s	1/500 s	1/250 s
1/125s	1/60 s	1/30 s	1/15 s
1/8 s	1/4 s	1/2 s	1 s
2 sec	4sec	8sec	16sec

etc

- **B** (*bulb*) keeps the shutter open as long as the shutter release is held.
- **T** (for *time*) keeps the shutter open until the shutter release is pressed again

RAW vs. JPG

- The camera captures “DATA” onto the camera sensor.
- The camera will typically save it in a “.jpg” format on the SD card
- OR saves the unprocessed data on the card for later interpretation – Called “RAW” data
  - Camera Raw brands differ: RAW (CR2, NEF, etc.)
- You accept engineer’s algorithms
  - » OR
- Use some application to “develop” the image

Deciding what picture you want

- Find a scene you would like to photograph
- Explore the scene to find the picture you will capture
  - Try seeing at different heights & positions
  - Consider setting closer (adjust the zoom lens / walk in, or out)
  - Isolate the subject
  - Look at the background
- Consider the lighting
  - Direction (s)
  - Quality (hard / diffuse(soft)
    - Reposition for better lighting
- Take the shot
  - Evaluate
  - Take some more shots

(You are responsible for everything in the picture space)

You decide how to fill the Pictures Space

Deciding what picture you want

- Find a scene you would like to photograph
- Explore the scene to find the picture you will capture
  - Try seeing at different heights & positions
  - Consider setting closer (adjust the zoom lens / walk in, or out)
  - Isolate the subject
  - Look at the background
- Consider the lighting
  - Direction (s)
  - Quality (hard / diffuse(soft)
    - Reposition for better lighting
- Take the shot
  - Evaluate
  - Take some more shots

(You are responsible for everything in the picture space)

4 Parts to Presentation

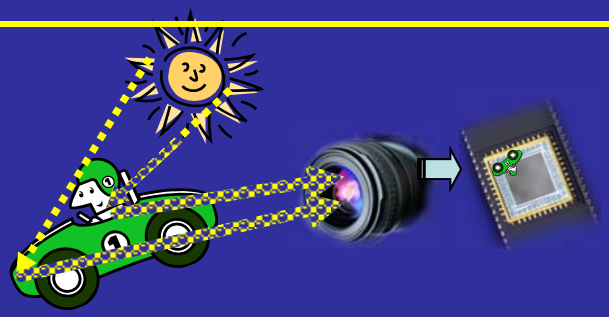
1 Some general thoughts on photography

2. Some important technical things to understand

3. Seven steps to making good photographs

4. Applications to view / edit your pictures

Capturing Light



You Control

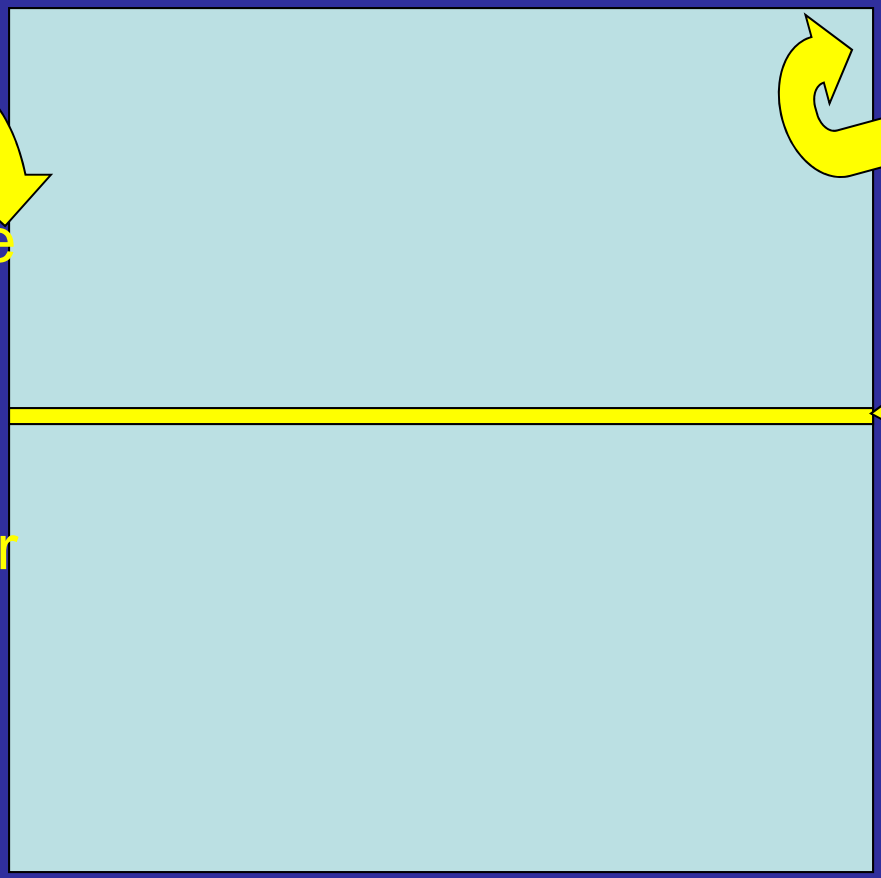
1) Where do you want the image positioned (composition)
2) Where is the plane of focus (use evaluative, spot, etc.)
3) The span of what is in focus (Depth of Field)
4) Freezing action vs. having motion blur, etc. (shutter speed)
5) Should sensitivity to light be adjusted (ISO)
6) Proper volume of light passing thru lens by balancing shutter speed, aperture and ISO (Exposure Triangle)
7) Quality (color temp) of light that affects the sensor

4 Pillars of Composition

- Simplicity: Few (≤4) well separated elements,
  1 key element, definable background
  and foreground.
- Asymmetry: Top and bottom of picture space different
  right & left of picture space different.
- Eye Lines: Anything that helps move the eye thru the space
  physical lines, perspective, tonal change etc.
- Point of View: Look for a point of view that is different
  or non-human; creating a foreground,
  middle ground and background.

https://hitchhiker2thegalaxy.wordpress.com/2015/08/09/exploring-composition-in-photography/

Elements of Visual Design (a)



Corners also have great visual power

Bright spot in corner draws eye away from subject

Things close to retaining wall have great visual power

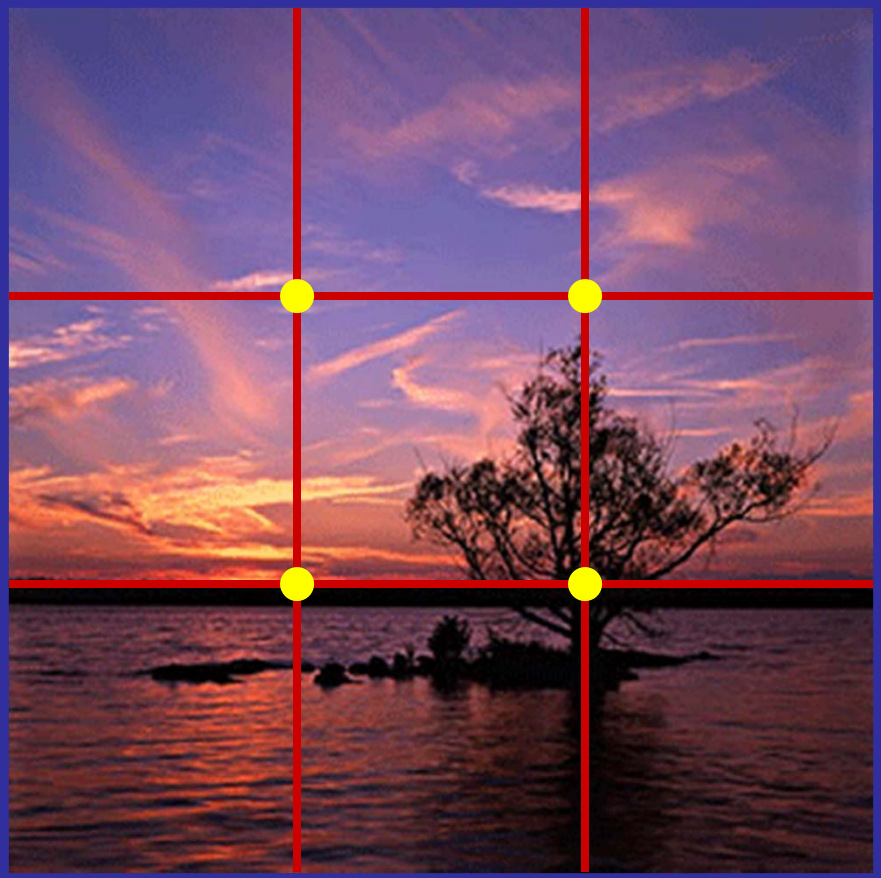
Keep horizon line level. But don't divide the frame in half with it

Elements of Visual Design (b)

What is the trouble with this image?

Elements of Visual Design (c)

- Rule of Thirds (Power Points)
  (From Wikipedia, the free encyclopedia)



Elements of Visual Design (d)

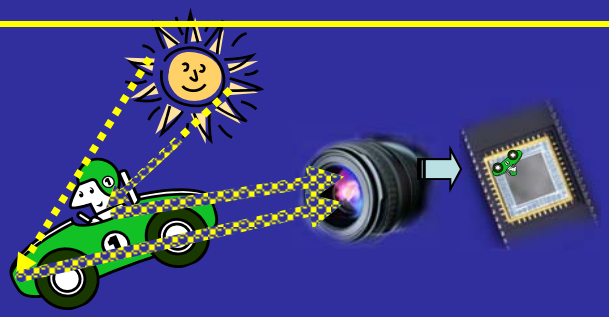
Catching the Light

Just after sunrise in Ellanor C. Lawrence park

Direct the Viewer with light

Light Foreground for Emphasis

Capturing Light



You Control

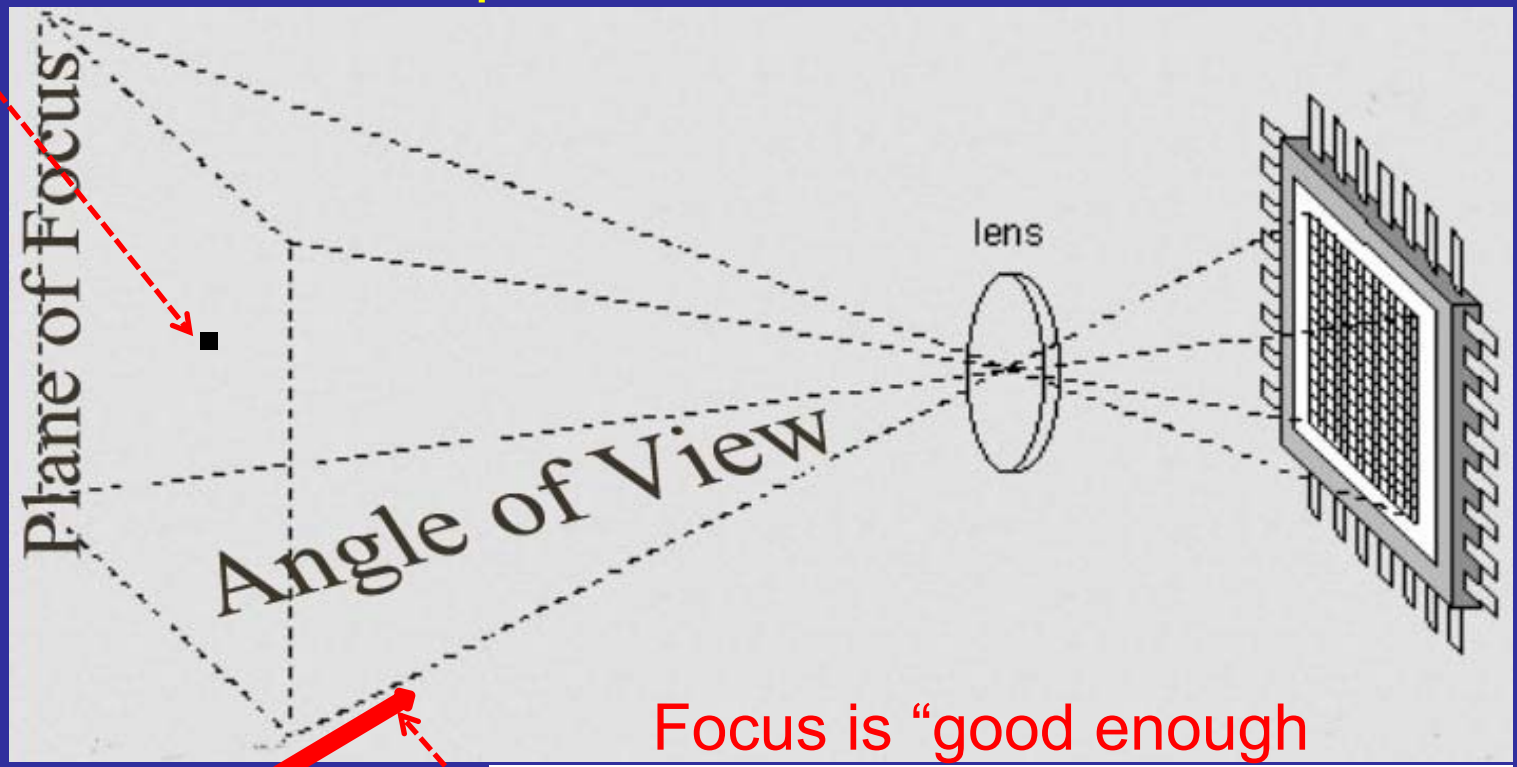
1) Where do you want the image positioned (composition)
2) ➡ Where is the plane of focus (use evaluative, spot, etc.)
3) The span of what is in focus (Depth of Field)
4) Freezing action vs. having motion blur, etc. (shutter speed)
5) Should sensitivity to light be adjusted (ISO)
6) Proper volume of light passing thru lens by balancing shutter speed, aperture and ISO (Exposure Triangle)
7) Quality (color temp) of light that affects the sensor

Camera Focusing Considerations

- Camera focuses on a single plane: (distance from lens)
  - But there are near & far points where it is good enough
    - We call this Depth of Field (DOF)
      - It is principally a function of lens focal length and aperture
- Manual and auto focus: *(details vary with camera)*
  - Autofocus points: Automatically on selected points or manually focus an anything in the frame
    - USE DEPTH OF FIELD PRIEVIEW BUTTON!
  - Focus modes: One shot or servo
- Note: Lens is usually sharper at mid-range
  - About F8

Angle of View

You focus on a point(s) on a plane a specific distance from the focal plane



Focus is “good enough

From sonme distance closer than that plane
To
Some distance past that plane

Electing Focus point

In “AUTO” camera focuses on nearest point

Manual focus you select the point or area

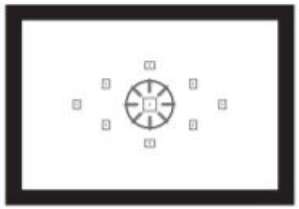
Note: Measurement of light for determining exposure may or may not be tied to the selected focus point

Selecting the AF Point ☆

In Basic Zone mo automatically. The In the <P>, <Tv point and use it to

1 Press the <⊡> button. (⏱6)

▶ The selected AF point will be displayed on the LCD monitor and in the viewfinder.



2 Select the AF point.

- Press the <✣> key to select the AF point.
- While looking at the viewfinder, you can select the AF point by turning the <◯> dial until the desired AF point lights in red.
- When all the AF points light up, automatic AF point selection will be set. The AF point will be selected automatically to focus the subject.
- Pressing <(SET)> toggles the AF point selection between the center AF point and automatic AF point selection.

3 Focus the subject.

Canon Rebel EOS T3i

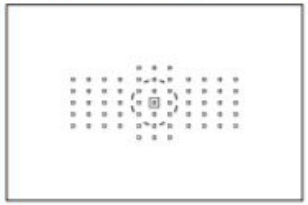
Selecting the AF Area ☆

ct the AF point(s) suiting

camera, the number of will differ. For details, see “Lenses and Usable AF Points” on page 79.

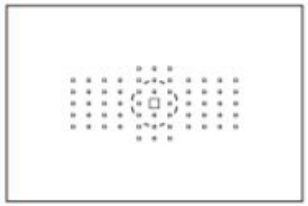
AF Area Selection Mode

You can select one of six AF area selection modes. See the next page for the selection procedure.



Single-point Spot AF (Manual selection)

For pinpoint focusing.



Single-point AF (Manual selection)

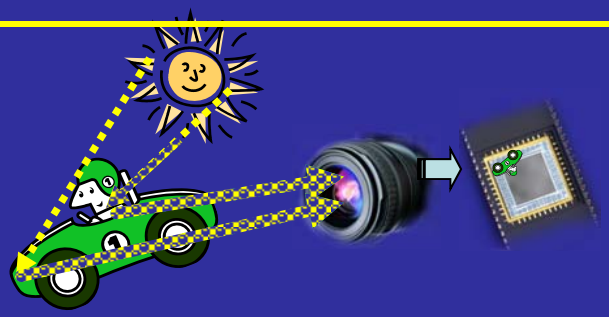
Select one AF point to focus.

AF point expansion (Manual selection ✣)

The manually-selected AF point <□>

Canon EOD 5D Mark III

Capturing Light



You Control

1) Where do you want the image positioned (composition)
2) Where is the plane of focus (use evaluative, spot, etc.)
3) ➡ The span of what is in focus (Depth of Field)
4) Freezing action vs. having motion blur, etc. (shutter speed)
5) Should sensitivity to light be adjusted (ISO)
6) Proper volume of light passing thru lens by balancing shutter speed, aperture and ISO (Exposure Triangle)
7) Quality (color temp) of light that affects the sensor

Exploring Depth of field

Camera Set to Aperture Priority (Shutter speed is automatically adjusted)

Factors Affecting Depth of Field (DoF)

- Size of Image Sensor

  - Small P&S cameras typically have large DoF
- Closeness to subject
  - Moving closer to subject provides for less DoF
- Focal Length of lens
  - Long telephoto lens provide for less DoF
  - Wide angle lens result in more DoF
- Size of the aperture
  - Higher number yields more DoF

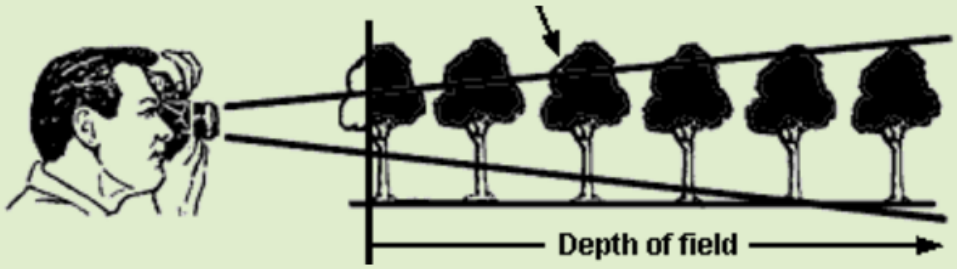
Hyperfocal Distance (1)

- When focused at the hyperfocal distance, everything in the photograph from ½ that distance to infinity will be sharp.

Camera, film format, or circle of confusion		**Subject distance**	**15.5 in**
Canon 5D (Mark II, Mark III) ▾			
Focal length (mm)	16 ▾	**Depth of field**	
Selected f-stop	f/22 ▾	**Near limit**	**7.74 in**
Subject distance	15.5 inches ▾	**Far limit**	**Infinity**
		Total	**Infinite**
Calculate		**In front of subject**	**7.8 in**
		Behind subject	**Infinite**
		Hyperfocal distance	**15.5 in**
		Circle of confusion	**0.03 mm**

Set camera (sensor size), Lens Focal length & F-stop

Focus at the hyperfocal distance, 15.5 in



Depth of field extends from 7.75 in to infinity

Hyperfocal Distance (2)

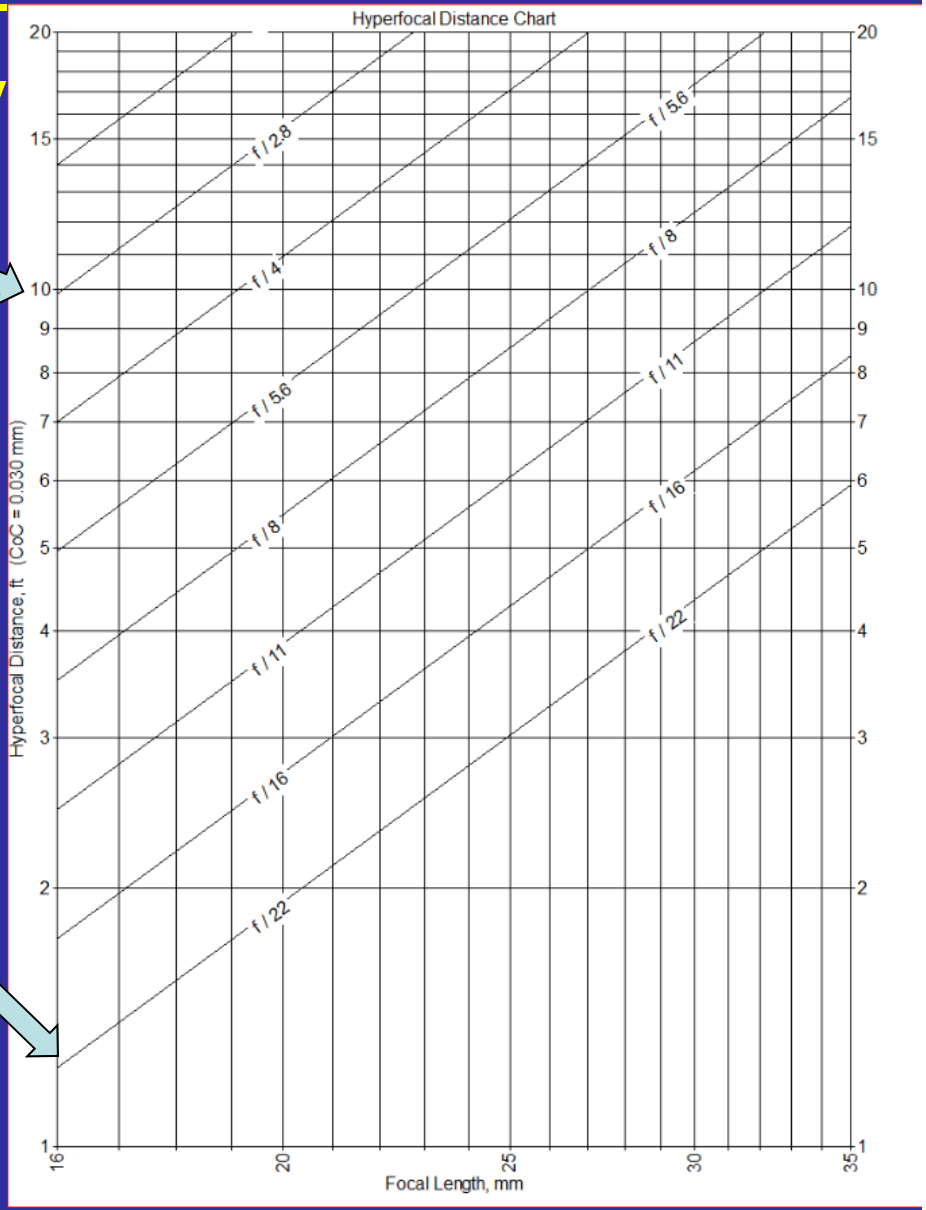
c

With a 16 to 35mm lens on my Canon 5D camera:

- If I set Aperture at F2.8, hyperfocal distance is 119.4 inches (9.95 ft) everything from 59.7 inches (4.975ft) to Infinity will be in focus

- If I set Aperture at F22, hyperfocal distance is 15.5 inches everything from 7¾ inches to Infinity will be in focus

http://www.dofmaster.com/dofjs.html



What Is The Photo About? (a)

- Fairfax Heritage Antique Auto Show 20 May 2017

It is about the street, but highlights 1933 Packard

_JFA8334.CR2

Exif Information	XMP/IPTC Information
Item	Value
File Name	_JFA8334.CR2
File Size	26.9MB
Camera Model	Canon EOS-1D X
Firmware	Firmware Version 1...
Shooting Dat...	5/20/2017 9:47:12 ...
Author	Daniel J.Feighery
Copyright Noti...	D.J.Feighery Fairfa...
Owner's Name	
Shooting Mode	Shutter-Priority AE
Tv(Shutter Sp...	1/5
Av(Aperture ...	22
Metering Mode	Evaluative Metering
Exposure Co...	0
ISO Speed	50
Auto ISO Spe...	OFF
Lens	EF24-70mm f/2.8L ...
Focal Length	24.0mm
Image Size	5184x3456
Crop/aspect r...	3:2
Image Quality	RAW
Flash	Off
FE lock	OFF
White Balanc...	Auto
AF Mode	Manual focusing
Picture Style	Faithful
Sharpness	0
Contrast	0
Saturation	0
Color tone	0
Color Space	Adobe RGB
Long exposur...	Disable
High ISO spe...	Disable
Highlight tone...	Disable
Auto Lighting ...	Disable
Peripheral illu...	Disable
Chromatic ab...	Disable
Dust Delete ...	No
Drive Mode	Single shooting
Live View Sho...	OFF
Camera Body...	072012000519
Comment	

What Is The Photo About? (b)

- Fairfax Heritage Antique Auto Show 20 May 2017

This a about that 1933 Packard Coupe Roadster

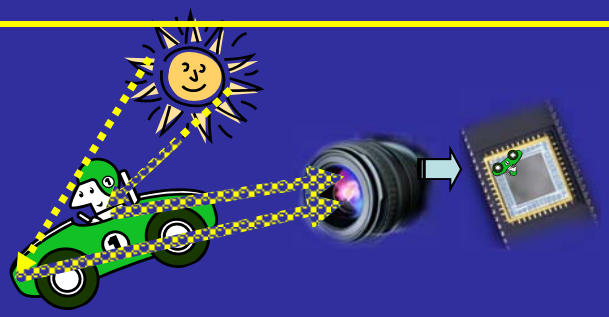
_JFA8331.CR2

Exif Information	XMP/IPTC Information
Item	Value
File Name	_JFA8331.CR2
File Size	22.3MB
Camera Model	Canon EOS-1D X
Firmware	Firmware Version 1...
Shooting Dat...	5/20/2017 9:46:36 ...
Author	Daniel J.Feighery
Copyright Noti...	D.J.Feighery Fairfa...
Owner's Name	
Shooting Mode	Shutter-Priority AE
Tv(Shutter Sp...	1/1250
Av(Aperture ...	2.8
Metering Mode	Evaluative Metering
Exposure Co...	0
ISO Speed	50
Auto ISO Spe...	OFF
Lens	EF24-70mm f/2.8L ...
Focal Length	24.0mm
Image Size	5184x3456
Crop/aspect r...	3:2
Image Quality	RAW
Flash	Off
FE lock	OFF
White Balanc...	Auto
AF Mode	Manual focusing
Picture Style	Faithful
Sharpness	0
Contrast	0
Saturation	0
Color tone	0
Color Space	Adobe RGB
Long exposur...	Disable
High ISO spe...	Disable
Highlight tone...	Disable
Auto Lighting ...	Disable
Peripheral illu...	Disable
Chromatic ab...	Disable
Dust Delete ...	No
Drive Mode	High-speed contin...
Live View Sho...	OFF
Camera Body...	072012000519
Comment	

What Is The Photo About? (c)

- Cropping sometimes help
  The blown out sky made a good spot for caption

Capturing Light



You Control

1) Where do you want the image positioned (composition)
2) Where is the plane of focus (use evaluative, spot, etc.)
3) The span of what is in focus (Depth of Field)
4) ➡ Freezing action vs. having motion blur, etc. (shutter speed)
5) Should sensitivity to light be adjusted (ISO)
6) Proper volume of light passing thru lens by balancing shutter speed, aperture and ISO (Exposure Triangle)
7) Quality (color temp) of light that affects the sensor

What shutter speed do you need?

Don't hand-hold at slower than 1/60 sec (sometimes higher).

F32
1/20th sec
ISO 50
500mm

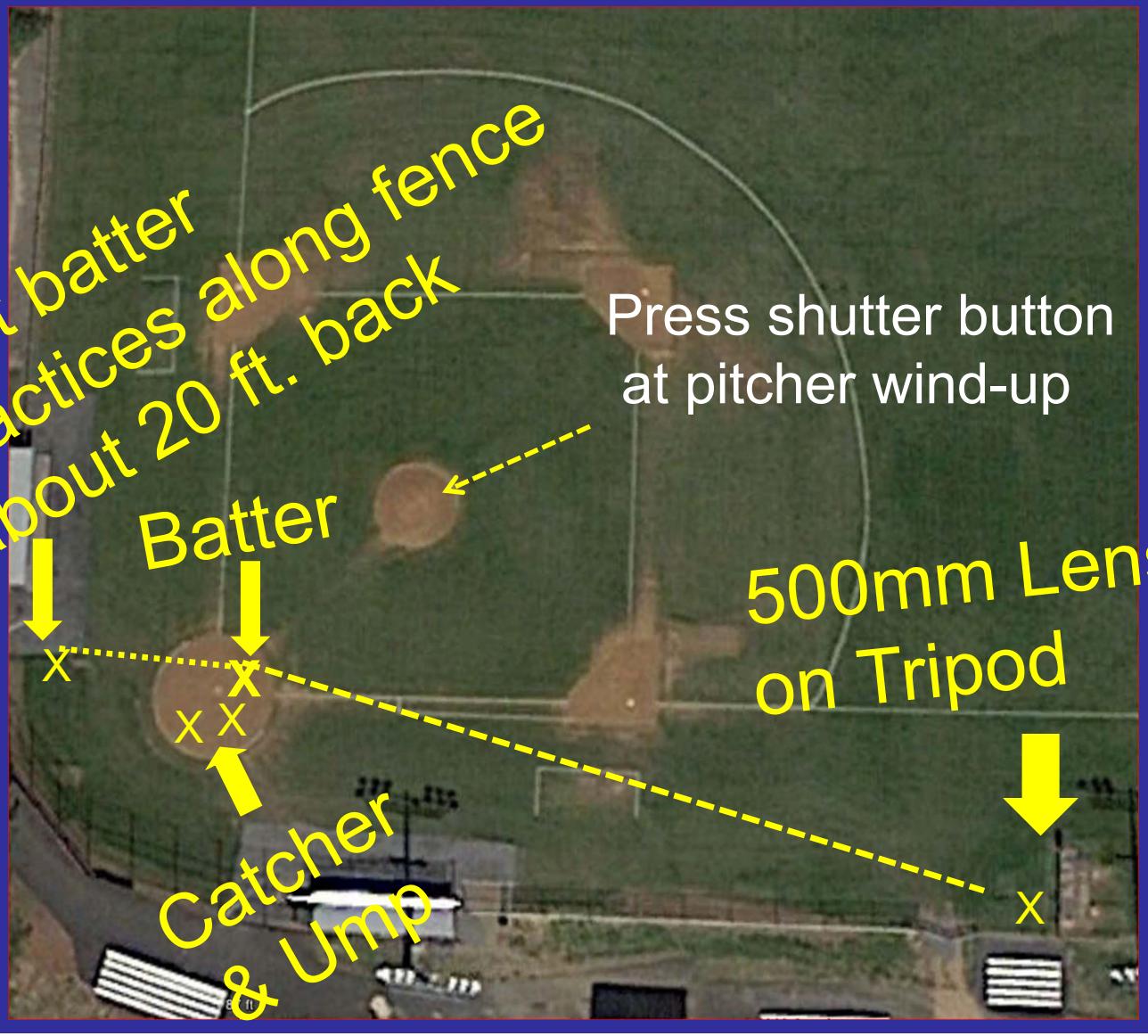
- Rule of thumb: 1/Lens focal length
  e.g., for a 500mm lens use at least 1/500th sec.
- Use slow shutter speeds (with tripod) to blur moving elements – e.g., silky flow of water

Fast shutter speed to stop action

File Name : BF9T0443.CR2
File Size : 23.5MB
Camera Model : Canon EOS-1D X
Shooting Date/Time : 6/27/2015 12:14:50 PM
Owner's Name :
Shooting Mode : Manual Exposure
Tv(Shutter Speed) : 1/1000
Av(Aperture Value) : 2.8
Metering Mode : Spot Metering
Exposure Compensation : -
ISO Speed : 4000
Lens : EF24-70mm f/2.8L II USM
Focal Length : 70.0mm
Image Size : 5184x3456

Understanding this shot

Shot Geometry



What shutter speed do you need?

Average speed of varsity Baseball pitcher
about 80 mph = 1408 inch/sec

Shutter speed vs inches ball moved
1/100 sec -> 14.08 inches
1/250 sec -> 5.63 inches
1/500 sec -> 2.81 inches
1/1000 sec -> 1.4 inches
1/2000 sec -> 0.46 inches
1/3000 sec -> 0.35 inches

Understanding this shot

Shutter Speed can be critical

Background blur can be important for separation

Shooting Information | Metadata

Item	Value
File name	_F9T8111.TIF
File Size	81.1MB
Camera Model	Canon EOS-1D X
Firmware	Firmware Version 1.2.4
Shooting Date/Time	3/6/2015 3:52:05 PM
Author	Daniel J.Feighery
Copyright Notice	D.J.Feighery Fairfax Station VA
Owner's Name	
Shooting Mode	Manual Exposure
Tv(Shutter Speed)	1/8000
Av(Aperture Value)	11
Metering Mode	Spot Metering
ISO Speed	16000
Auto ISO Speed	OFF
Lens	EF500mm f/4L IS USM +1.4x
Focal Length	700.0mm

Depth of Field Calculator

show advanced

Camera Type

35 mm (full frame)

Selected Aperture

f/11

Lens Focal Length 700 mm

Focus Distance 32 feet

CALCULATE

Nearest Acceptable Sharpness: 31.79 ft

Furthest Acceptable Sharpness: 32.21 ft

Total Depth of Field: 0.42 ft

Chromatic aberration corre...	Enable(Correction data not available)
Drive Mode	High-speed continuous shooting
Live View Shooting	OFF
Camera Body No.	072012000519
Comment	


DIERSTEIN
13
20
Senoh

Item	Value
File name	BF9T0551.CR2
File Size	26.1MB
Camera Model	Canon EOS-1D X
Firmware	Firmware Version 1.2.4
Shooting Date/Time	7/4/2015 11:47:30 AM
Author	Daniel J.Feighery
Copyright Notice	D.J.Feighery Fairfax Station Va.
Owner's Name	
Shooting Mode	Manual Exposure
Tv(Shutter Speed)	1/3200
Av(Aperture Value)	3.5
Metering Mode	Spot Metering
ISO Speed	10000
Auto ISO Speed	OFF
Lens	EF24-70mm f/2.8L II USM
Focal Length	63.0mm
Image Size	5184x3456
Aspect ratio	3:2
Image Quality	RAW
Flash	Off
FE lock	OFF
White Balance Mode	Custom
AF Mode	AI Servo AF
AF Configuration Tool	Case 1
Tracking sensitivity	0
Accel./decel. tracking	0
AF point auto switching	0
AF area select mode	Manual selection
Picture Style	Faithful
Sharpness	7
Contrast	0
Saturation	0

<-1/3200th sec. to stop a volleyball

<-ISO = 10,000

<-AI Servo tracks focus on moving object

DoF 13.7 Feet

mera, film format, or circle of confusion

anon 1D C, 1D X

cal length (mm) 63

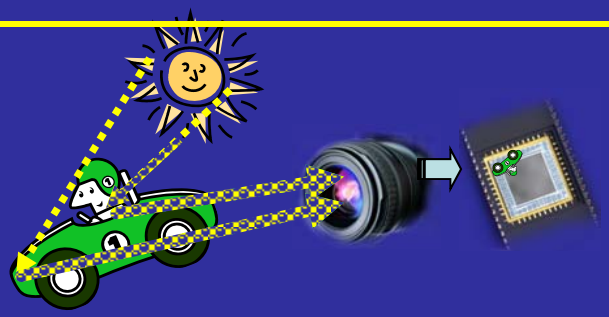
lected f-stop f/3.2

bject distance 30 feet

Calculate

Subject distance	**30 ft**
Depth of field	
Near limit	**24.6 ft**
Far limit	**38.4 ft**
Total	**13.7 ft**
In front of subject	**5.4 ft (39%)**
Behind subject	**8.4 ft (61%)**
Hyperfocal distance	**136.9 ft**
Circle of confusion	**0.03 mm**

Capturing Light



You Control

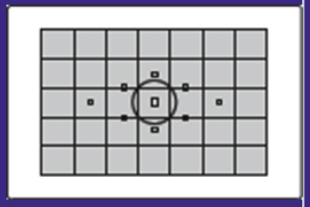
1) Where do you want the image positioned (composition)
2) Where is the plane of focus (use evaluative, spot, etc.)
3) The span of what is in focus (Depth of Field)
4) Freezing action vs. having motion blur, etc. (shutter speed)
5) ➡ Should sensitivity to light be adjusted (ISO)
6) Proper volume of light passing thru lens by balancing shutter speed, aperture and ISO (Exposure Triangle)
7) Quality (color temp) of light that affects the sensor

Metering Modes

Evaluative or Matrix

Averages entire scene

Standard for most subjects



Center Weighted

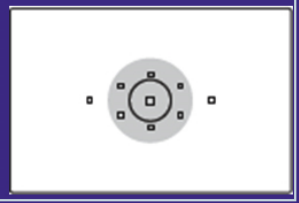
Weighted at the center then averaged

More emphasis on center of scene

Partial

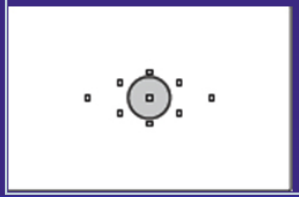
Covers about 8% of viewfinder

Effective when back-ground is much brighter



Spot

Covers about 3% of viewfinder



For metering a specific part of the scene

ISO

- "ISO refers to the level of sensitivity to the available illumination on the subject
  - At lower ISOs camera is less sensitive to light
  - At higher ISOs camera is more sensitive to light
- As the ISO number increases, the noise (grain) in the image increases

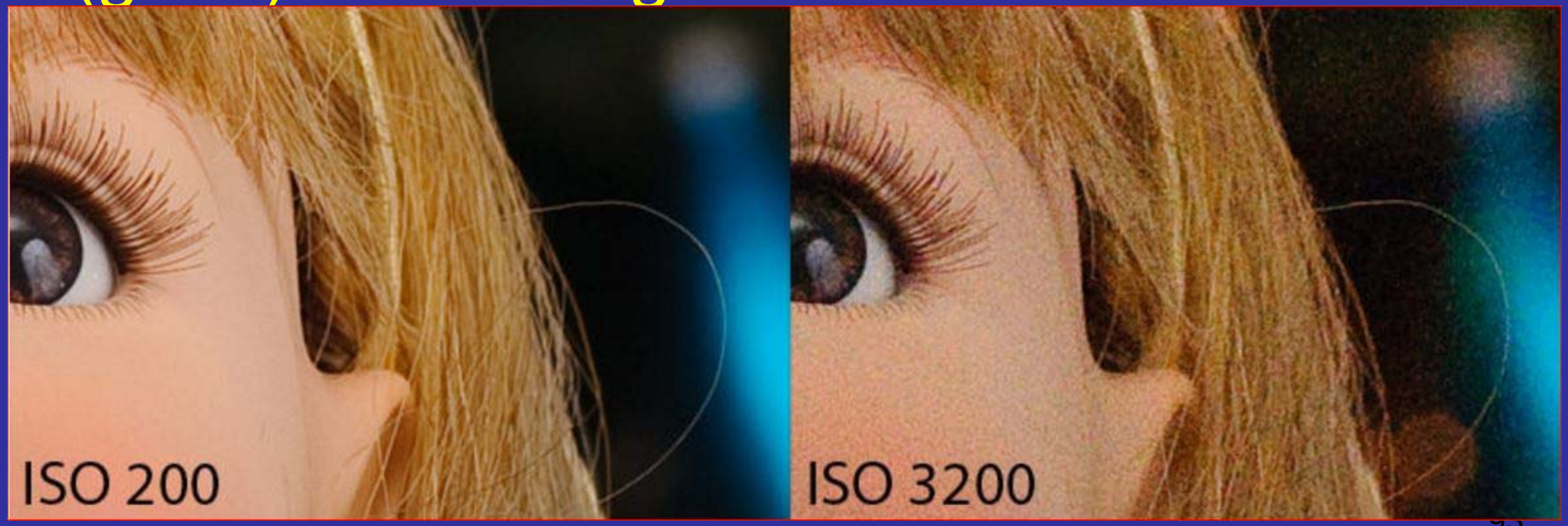
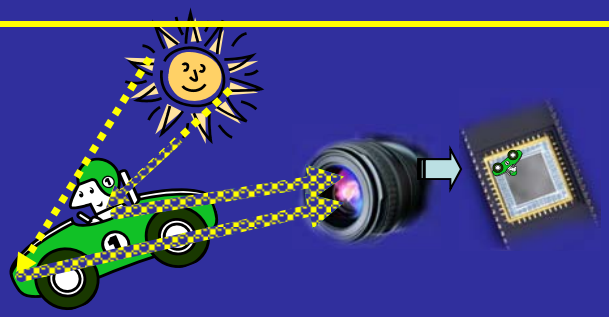


Photo ref: https://photographylife.com/what-is-iso-in-photography/

Capturing Light



You Control

1) Where do you want the image positioned (composition)
2) Where is the plane of focus (use evaluative, spot, etc.)
3) The span of what is in focus (Depth of Field)
4) Freezing action vs. having motion blur, etc. (shutter speed)
5) Should sensitivity to light be adjusted (ISO)
6) ➡ Proper volume of light passing thru lens by balancing shutter speed, aperture and ISO (Exposure Triangle)
7) Quality (color temp) of light that affects the sensor

Exposure Triangle

You Control:

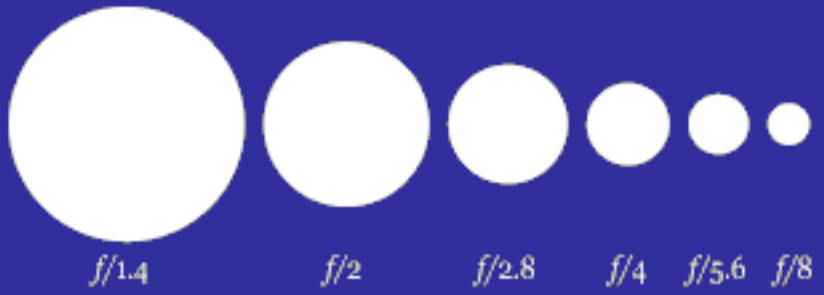
Light volume passing through lens

How long that light strikes the sensor

Sensor's sensitivity to light

Light Volume Through Lens

- Determined by the size of the opening
  - *f* stop



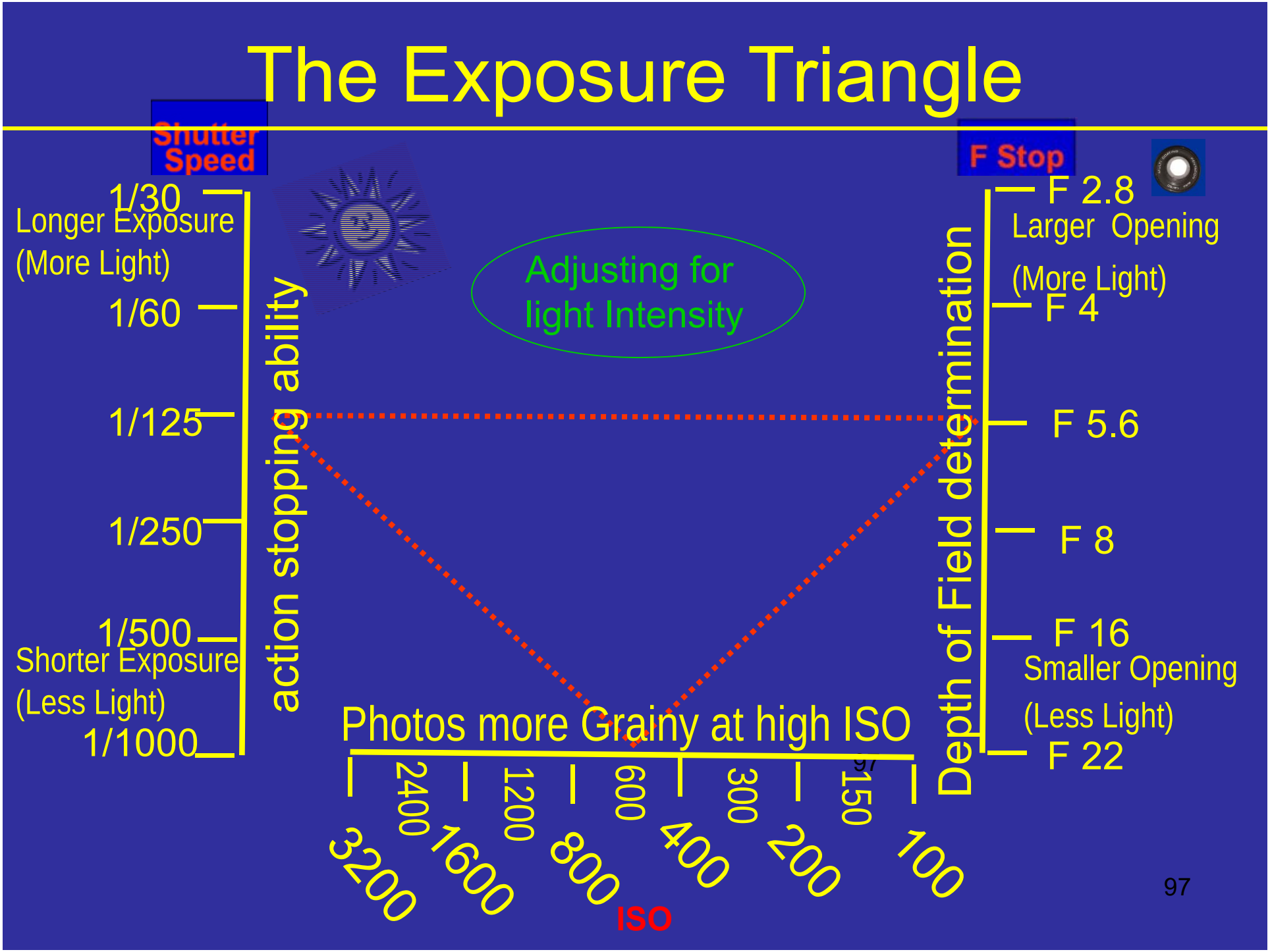
AND

How Long the Light strikes the sensor

- Determined by how long shutter is open

  - Shutter Speed (fractions or # of seconds)
    - 1/120, 1/60, 1/30, 1/15, 1, 2, 4, etc.

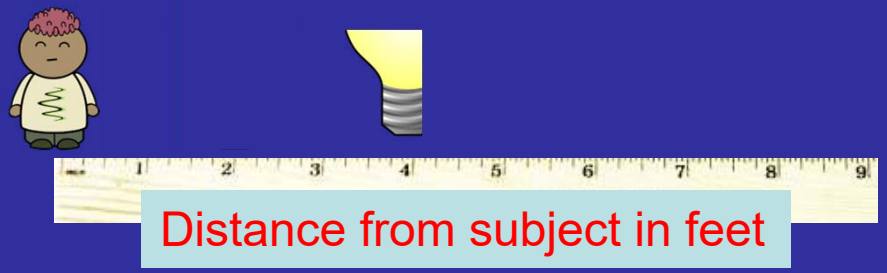
The Exposure Triangle



Intensity / Tradeoffs

- Intensity: Reviewing the exposure table

If we start with light 2 ft. from subject, then move it further away to 4 ft. from subject.



Distance from subject in feet

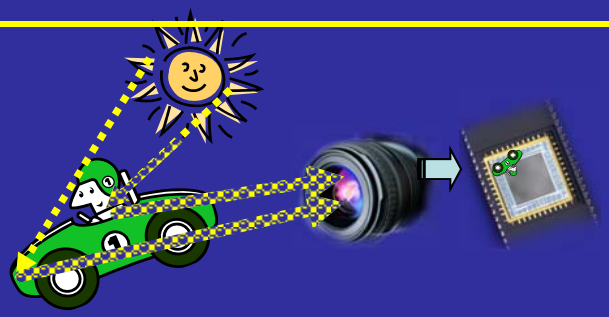
Illumination / brightness on a subject will be reduced to ¼ of what it was.

Exposure increment chart

SHUTTER SPEED (Shorter exposure = Stop action)	F-stops (Big opening = narrow DoF)			ISO Sensitivity (Less Sensitive)		Flash (Brighter)
#	HALF	WHOLE	Thirds	Half	WHOLE	Thirds	Whole	Thirds	
		1/8000			1.0		50		1/1
	1/6000		1/6400 1/5000		1.2		1.1 1.2			
1		1/4000				1.4		100		½
	1/3000		1/3200 1/2500		1.7		1.6 1.8		125 160		
2		1/2000				2.0		200		¼
	1/1500		1/1600 1/1250		2.4		2.2 2.5		250 320		
3		1/1000				2.8		400		1/8
	1/750		1/800 1/640		3.3		3.2 3.5		500 640		
4		1/500				4		800		1/16
	1/350		1/400 1/320		4.8		4.5 5		1000 1250		
5		1/250				5.6		1600		1/32
	1/180		1/200 1/160		6.7		6.3 7.1		2000 2500		
6		1/125				8		3200		1/64
	1/90		1/100 1/80		9.5		9 10		4000 5000		
7		1/60				11		6400		1/128
	1/45		1/60 1/40		13		13 14		8000 10000		
8		1/30				16		12800		
	1/20		1/25 1/20		19		18 20		16000 20000		
9		1/15				22		25600		
	1/10		1/15 1/10		27		25 29		3200 4000		
10		1/8				32		51200		
	1/6S		1/6 1/5		38		36 40				
11		1/4		Small opening = deep DoF		More Sensitive		Dimmer*	
	1/3S		1/3 ("3") ½.5 ("4")	*Illumination on a subject is reduced when distance from light source (e.g. flash) to the subject is increased. The "intensity" is inversely proportional to the square of the distance from the source. So if a flash is moved from 4 ft to 8ft from the subject (2x) (double the distance), the illumination on the subject will be 1/4th of what it was. If moved from 4ft to 16ft (4 times the distance) the illumination will be 1/16th of what it was before the move.					
12		1/2									
	1/1.5		1/.6 ("5") 1/.3								
13		1sec									
	Longer exposure = Motion blur										

Chart © Dan Feigheny

Capturing Light

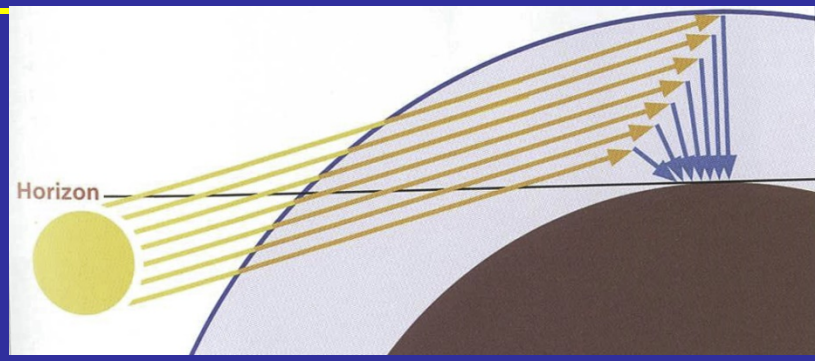


You Control

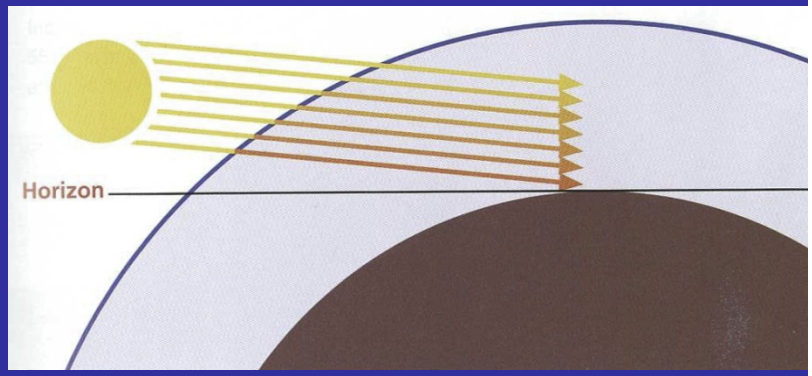
1) Where do you want the image positioned (composition)
2) Where is the plane of focus (use evaluative, spot, etc.)
3) The span of what is in focus (Depth of Field)
4) Freezing action vs. having motion blur, etc. (shutter speed)
5) Should sensitivity to light be adjusted (ISO)
6) Proper volume of light passing thru lens by balancing shutter speed, aperture and ISO (Exposure Triangle)
7) ➡ Quality (color temp) of light that affects the sensor

Daily Cycle

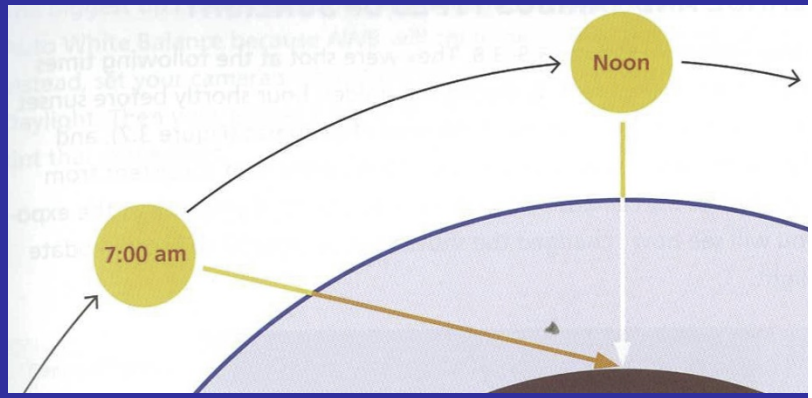
For about an hour, from below the horizon, sun bounces off the atmosphere Giving a soft light with blue tint



Sun now above the horizon, comes thru a thick area of the atmosphere. Blue rays diffracted by water vapor and particulates. leaving a warm golden color. The longer the path the warmer the color.



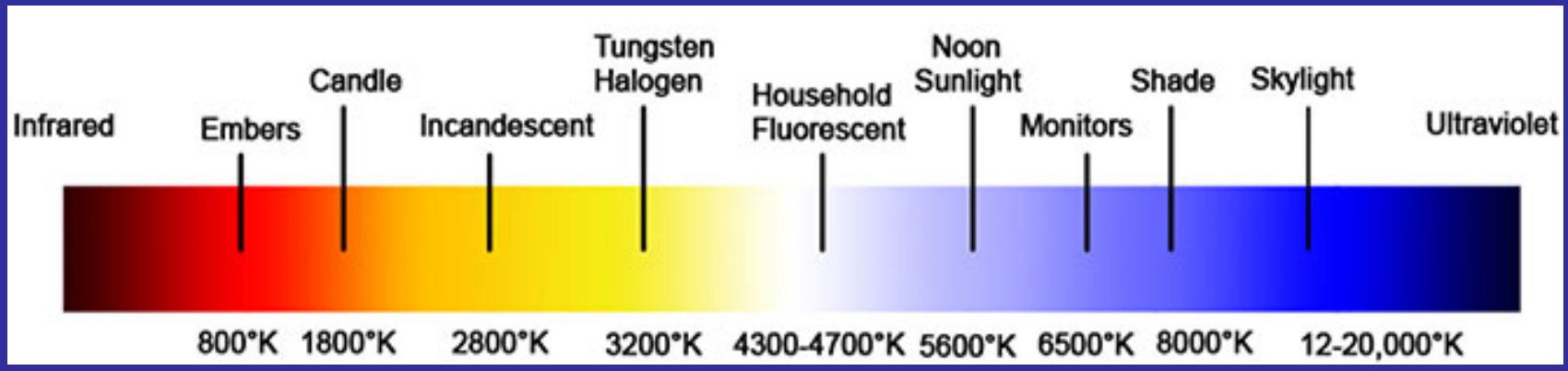
As the sun climbs toward mid-day , it passes thru a shortage segments of the atmosphere evolving from warm colors to a neutral white.



Ref: Lighting for Digital Photographs by Sly Arena page 63

Color Temp Examples

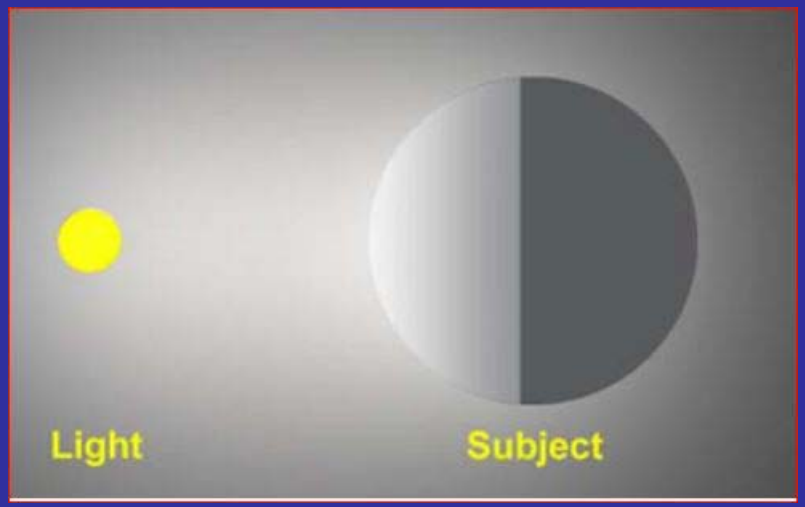
- Color Temperature: What color is the white light.
  - We see / record different colors when a subject is illuminated by different light sources
    - Recall an orange tint from a living room lamp with film cameras.
  - The differences in “white’ light from different sources borrows a scale from physics – the *Color Temperature scale*

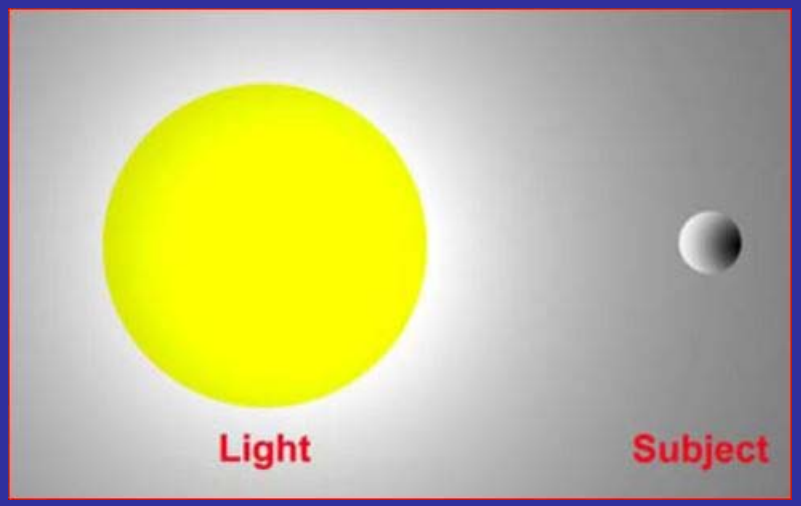


  - We must tell a digital camera what color white light we are using – or let the camera do it automatically.

Light Quality (Hard / SOFT)

Hardness: What do the edges look like





Trying to see something extra in the ordinary

These 2 shots illustrate use of Close-up and Macro photography to help us see the beauty of every day objects

Table-top close ups

Detailed close-up example 1
Setting up a stage
Using a lightbox
Minimum focusing distance
Short depth of field

Example 1 on stage (a)

There was one bloom on the Christmas cactus

I set the bloom over my “stage”

- 50mm lens
- The near edge of the bloom at Min. Focusing Distance (45mm, ~1.6ft)
- F22
- 2 second exposure

Example 1 on stage (b)

- 12 mm extension tube added between 50mm lens & camera body
- Refocused

- Replaced 12 mm with 25mm extension tube
- refocused

Note: An extension tube is hollow (no glass) it moves the lens further away from the sensor.

Additional Magnification = (Extension Tube Length)/(Lens Focal Length)

Example 1 on stage (c)

- Both 12 mm + 25 mm tubes between 50mm lens & camera body
- Refocused

LIGHTING

2 sheets of white paper above light box

Hand-held cube flashlight

Set up a stage

Finding a more than ordinary photo of something ordinary

Example 2-a

I started with these week-old flowers in styrofoam cup

Example 2-b

Decided to work with the yellow petals

Example 2-c

Setting up the stage – Shooting Through

Example 2-d

Shooting thru yellow paper toward leaf, with bouquet in background. Selected this shot

4 Parts to Presentation

1 Some general thoughts on photography

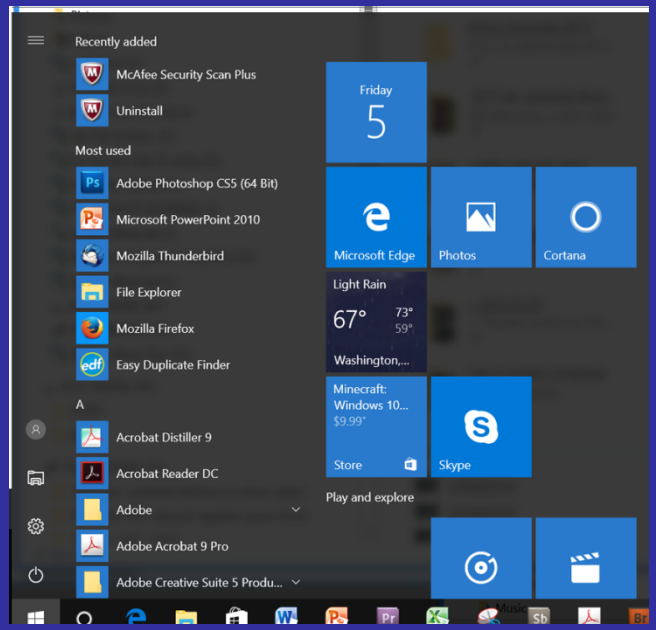
2. Some important technical things to understand

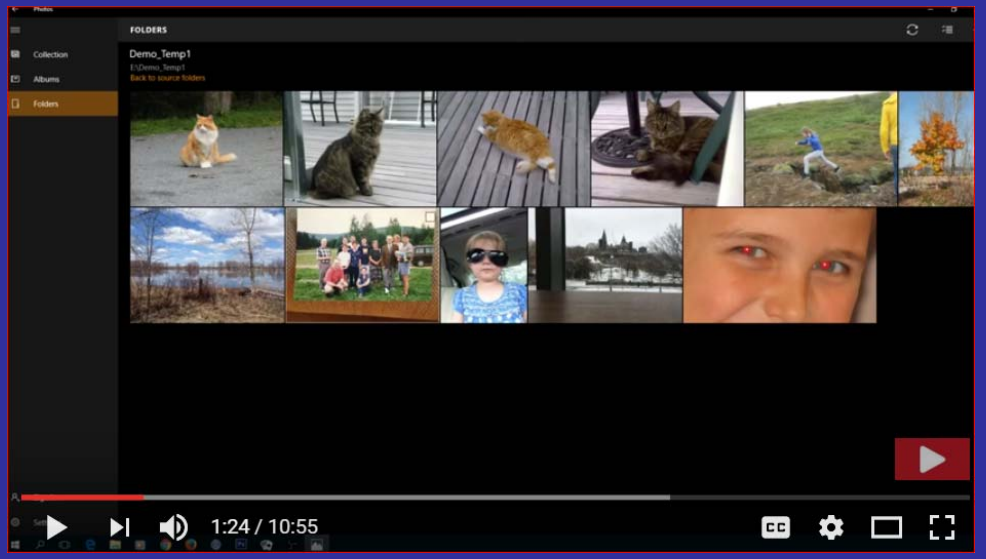
3. Seven steps to making good photographs

4. Applications to view / edit your pictures

Reviewing / Editing your photos (1)

Microsoft Photo (Windows 10)





https://www.youtube.com/watch?v=QzyTT1a6ruk

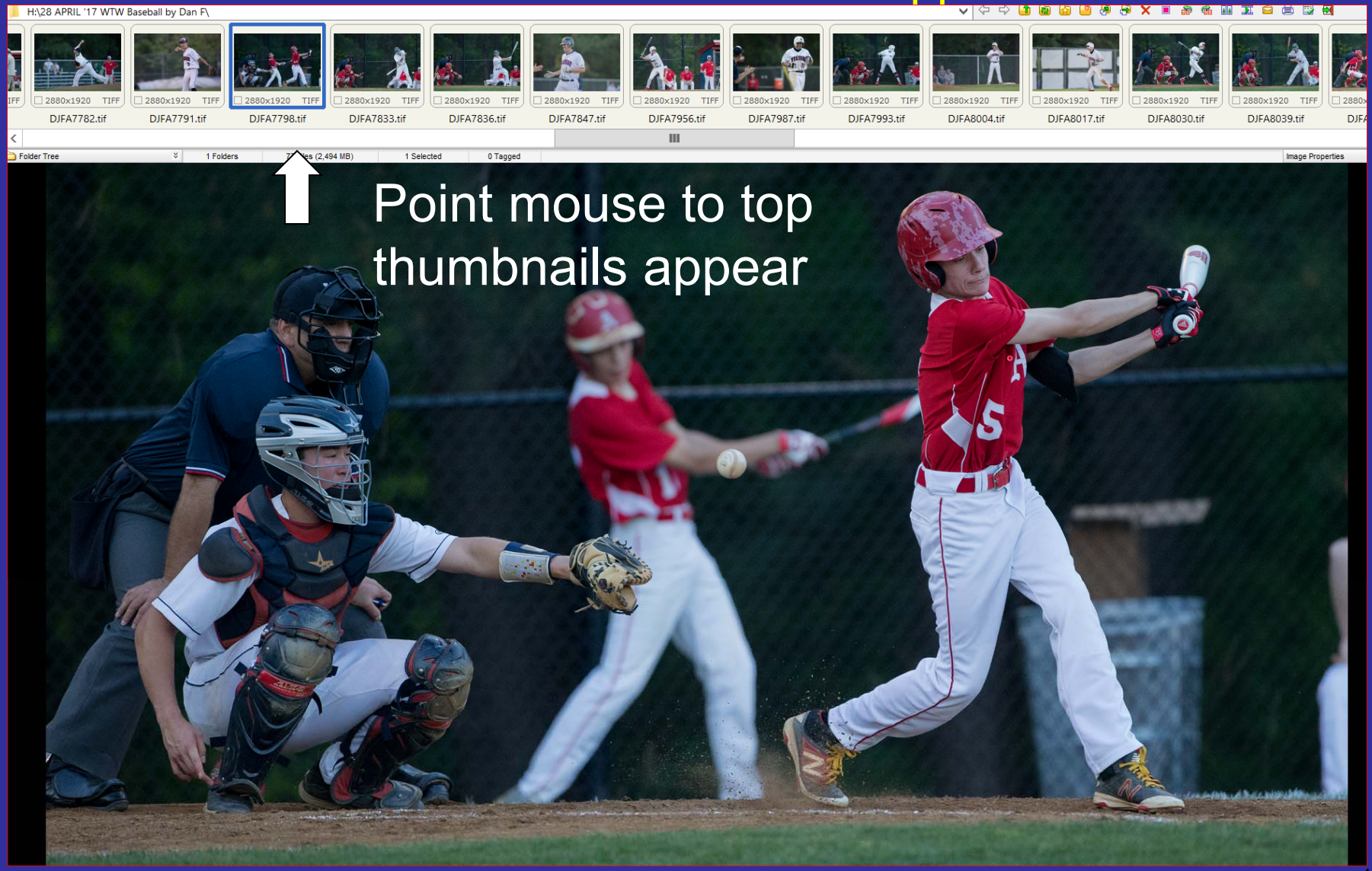
- There is a built-in photo editor in Windows 10
  - I've looked at it but prefer others

Reviewing / Editing your photos (2)

One may come with your DSLR
(Canon Digital Photo Professional)

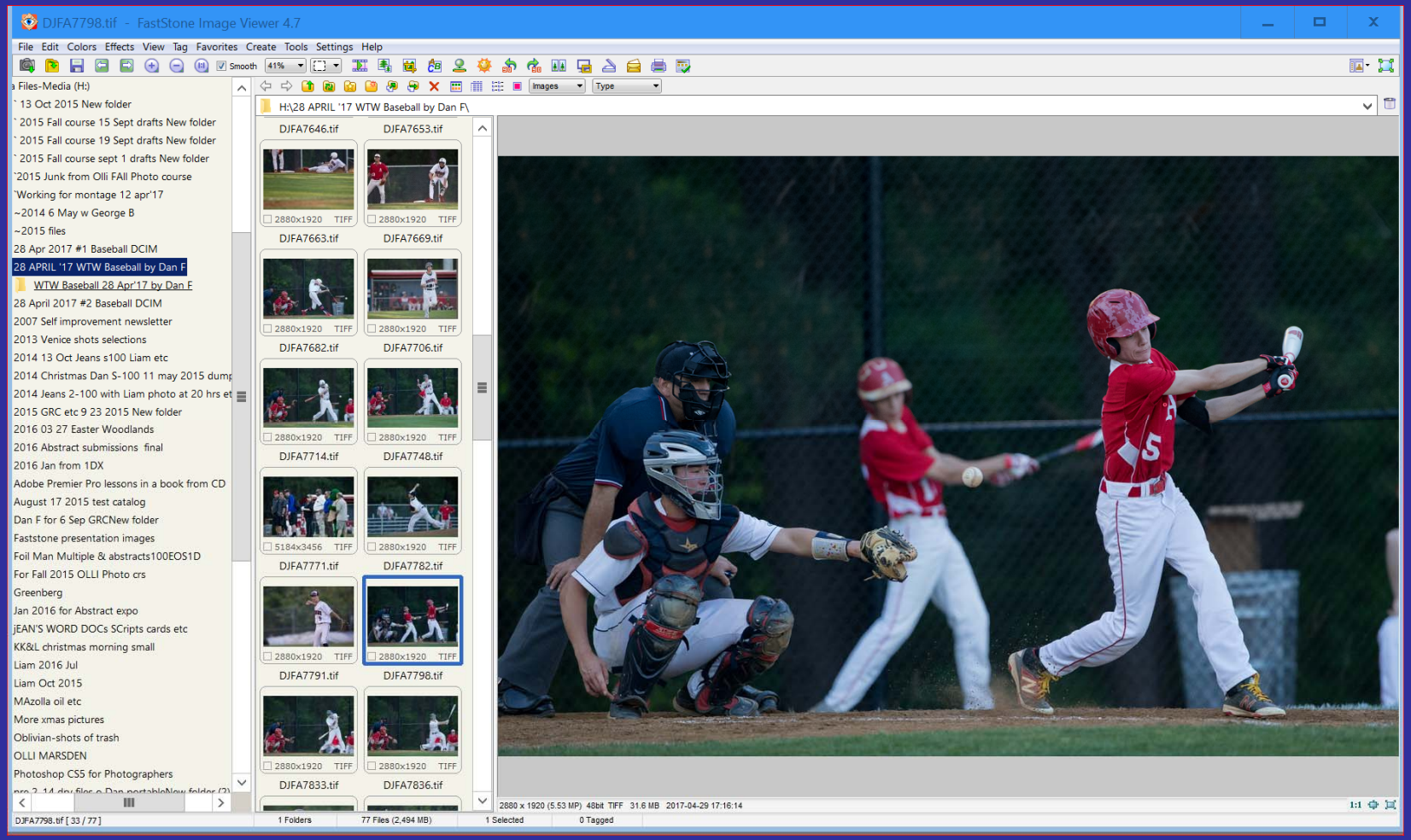
Reviewing / Editing your photos (3b)

Faststone is a free downloadable application



Reviewing / Editing your photos (3a)

Faststone is a free downloadable application



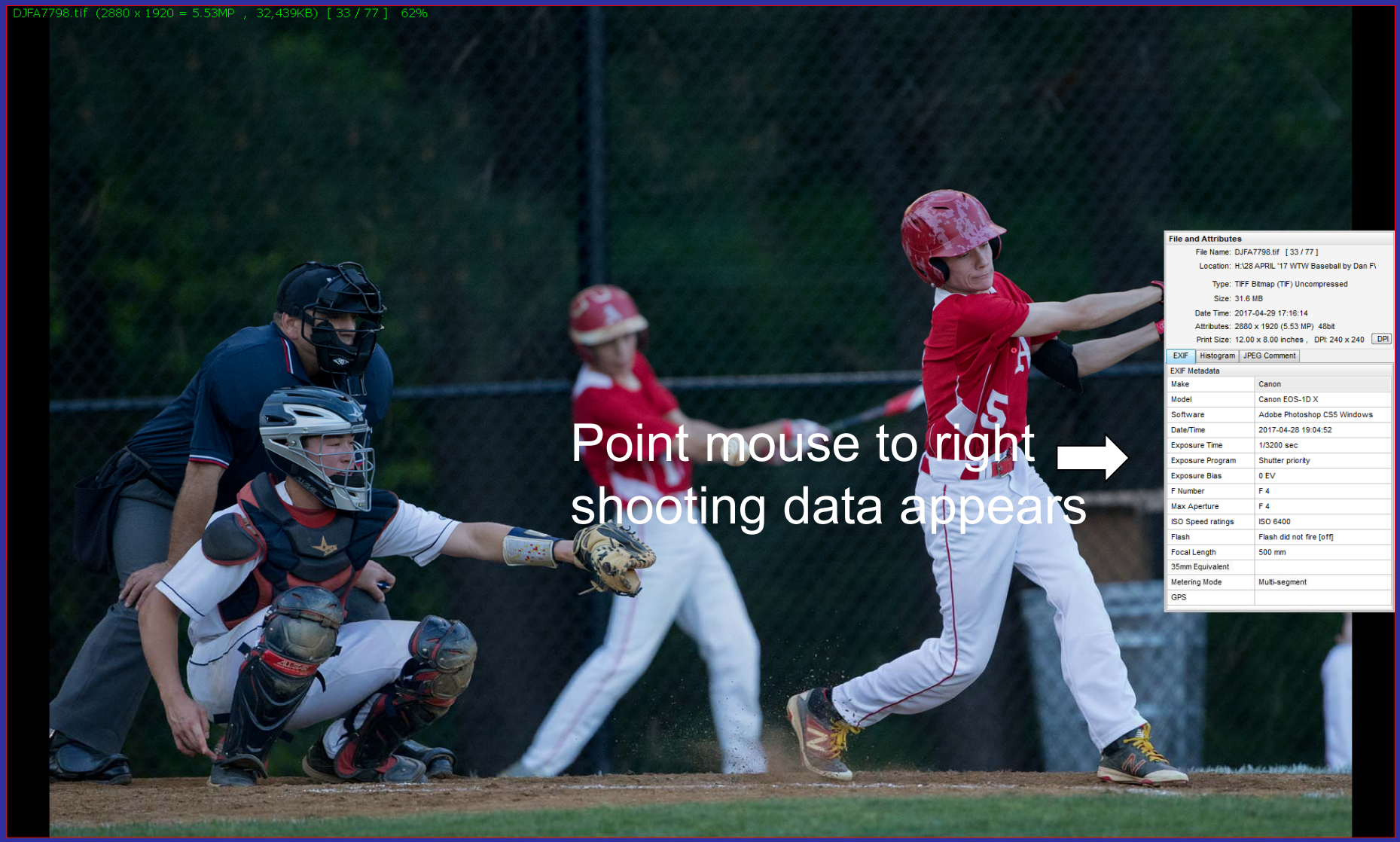
I recommend you try Faststone before buying one of the more expensive editing applications

Reviewing /editing your photos (3c)

Faststone is a free downloadable application

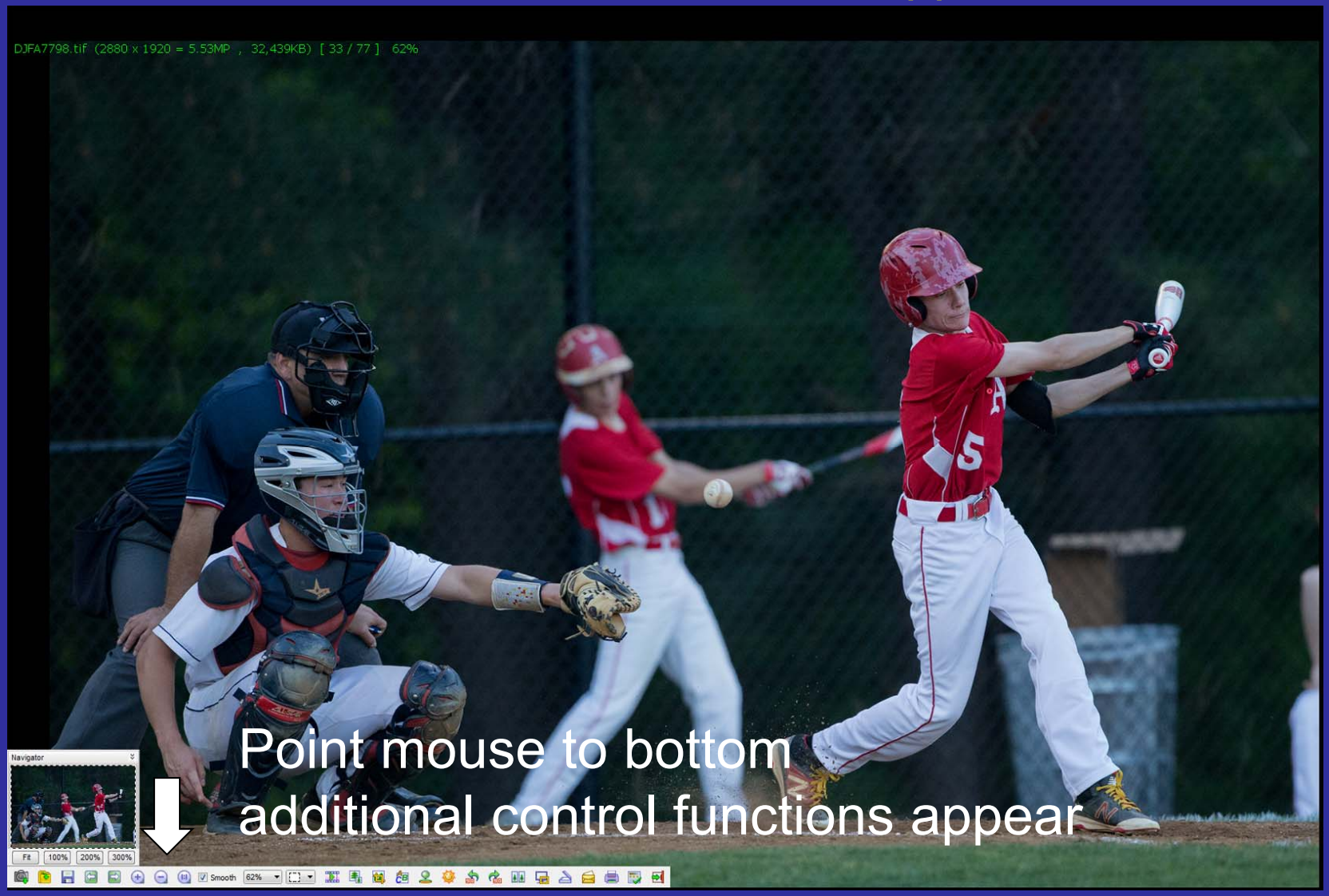
Reviewing /editing your photos (3d)

Faststone is a free downloadable application



Reviewing /editing your photos (3e)

Faststone is a free downloadable application



Adobe Photoshop Elements (4)

Buy Adobe Photoshop Elements 15 from Staples $99.00

B&H Photo Video

Download only 69.99

Adobe Lightroom (5)

Download Adobe Lightroom 6 from B&H $142.00

Your best shots. Made even better.

Your photos don't always match the scene the way you remember it. But with Lightroom, you have all the tools you need to bring out the best in your photography. Punch up colors, make dull-looking shots vibrant, remove distracting objects, and straighten skewed shots. Plus, the latest release includes new ways to showcase your photos and create incredible panoramas, edit Adobe raw DNG photos on your mobile device, and so much more.

See what's new ›

Boundary Warp stretches the edges of a merged panorama to give you the full image without losing any important details.
See how it works ›

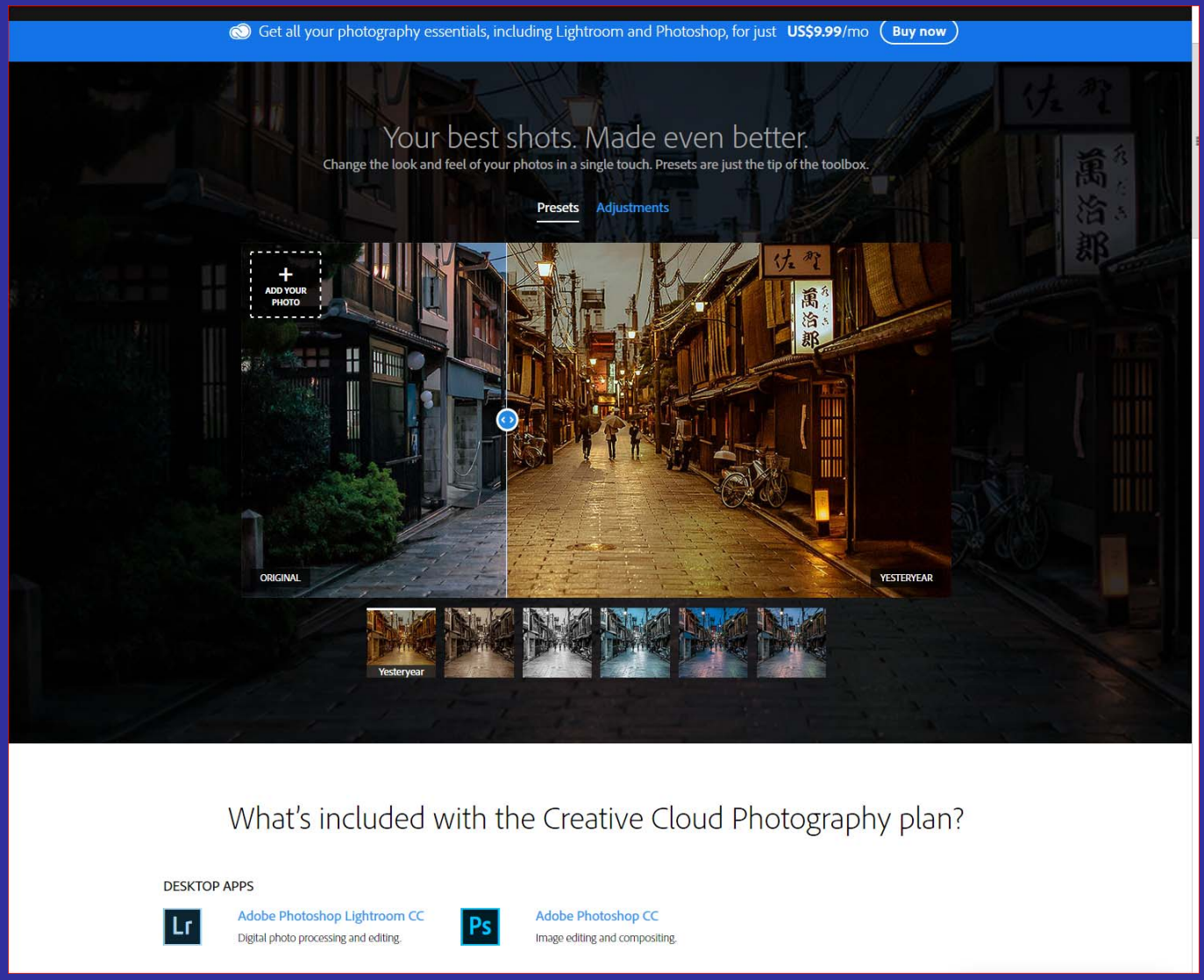
True High Dynamic Range (HDR) capture automatically optimizes the exposure using your Lightroom mobile in-app camera to re-create the scene exactly as you see it.
See how it works ›

Lightroom for mobile lets you capture, edit, and share Adobe raw DNG photos on your iOS or Android devices. Sync your photos and edits back to Lightroom on your desktop.
Get Lightroom for mobile ›

With Lightroom on the web, you can now make edits right in your browser and use auto-tagging to easily find and share your images.
Try it now ›

Adobe Photoshop Creative Cloud (6)

Creative Cloud starting at $9.99 / mo to $79.99/mo




END