Digital Photography as a hobby

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Topics for Discussion

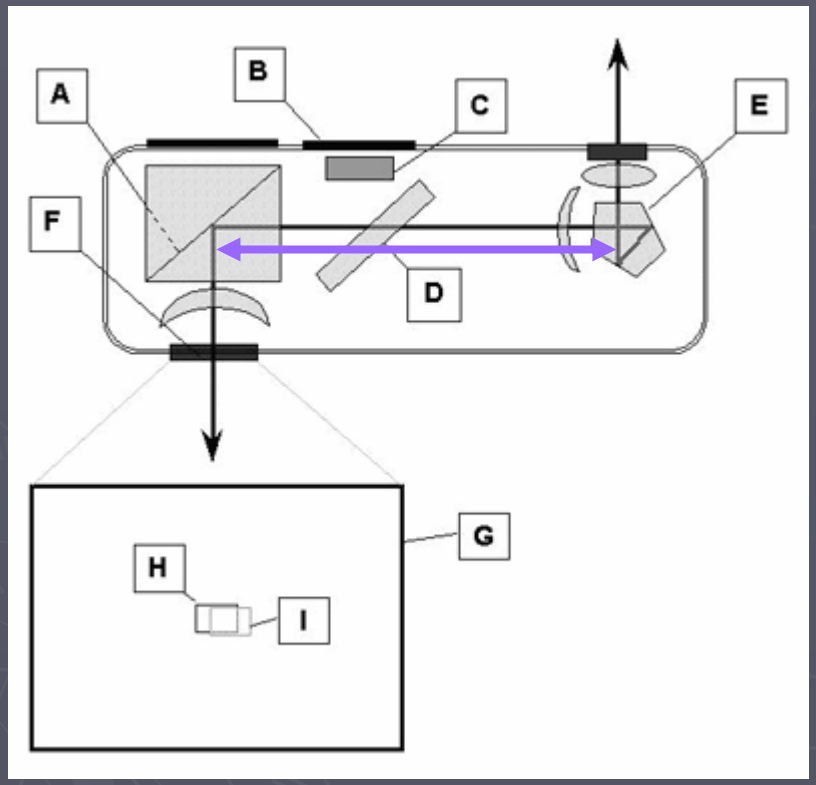
- What is the difference between taking photographs and photography as a hobby
- Some of the theoretical (technical) aspects of photography
- Introduction to some basic "kit" in digital photography
- Basic tips and tricks in photography
- Basic digital workflow
- Introduction to Adobe Lightroom
- Review of some sample images (If time permits) - Members of the audience can bring some of their photos (in print or digital format) on USB drives and if time permits, we can go over them together.

Photography

- Casual Photography
  - Friends / Family / Holiday / Activity snapshots
  - “Point and Shoot”
  - Meant for personal use / to capture memories
- Hobbyist / Amateur Photography
  - Photograph designed / planned
  - Hard work
  - Well defined message / highlight
  - “Structured Creativity”

Types of Cameras

Rangefinder Cameras



Baseline

Principle of Triangulation for focus

Out of Focus

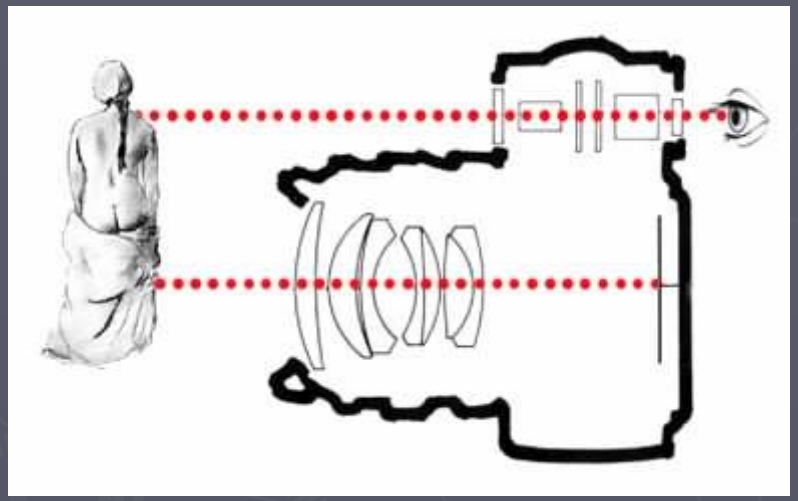
In Focus

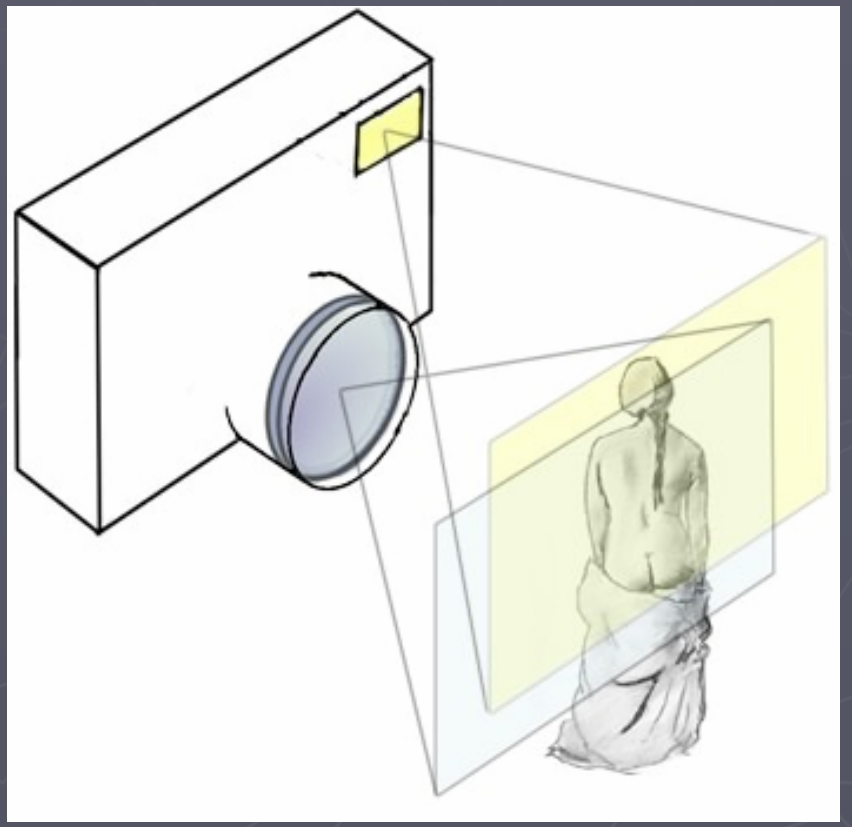
A. Beam splitter (semitransparent mirror)
B. Light-gathering window
C. Framelines projection/parallax compensation unit
D. Framelines projection semitransparent mirror
E. Rotating mirror/pentaprism
F. Viewfinder
G. Viewfinder frame
H. Static Image
I. Secondary Image

Leica A – over 75 years ago started the 35mm photography era

Types of Cameras

Viewfinder / Compact / Point-and-Shoot Cameras

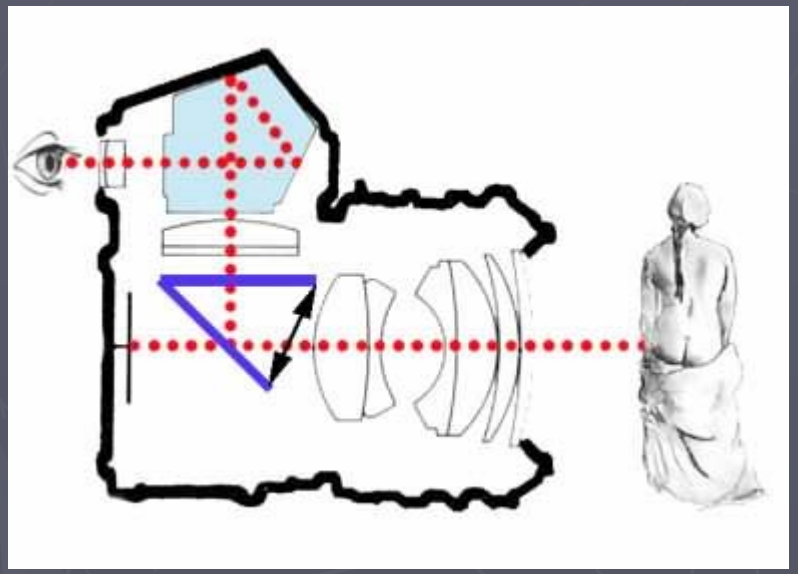


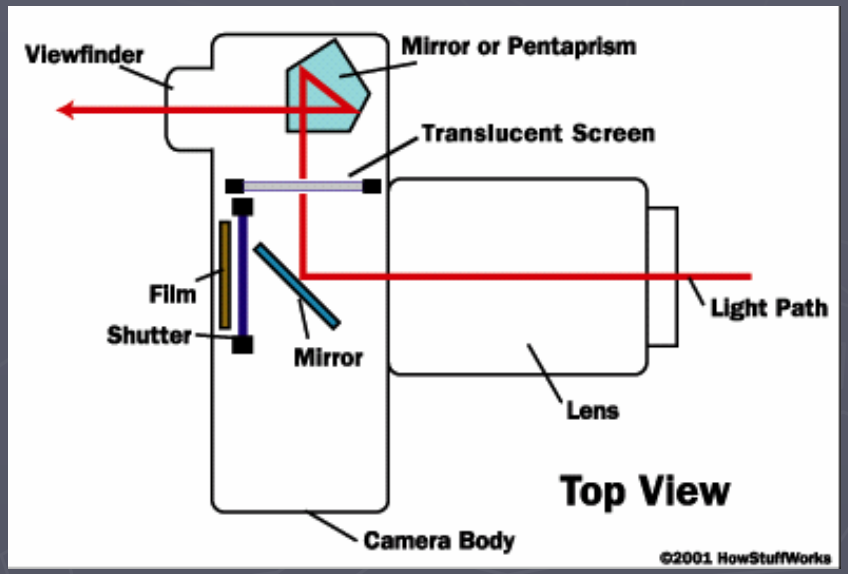


Parallax Error

Types of Cameras

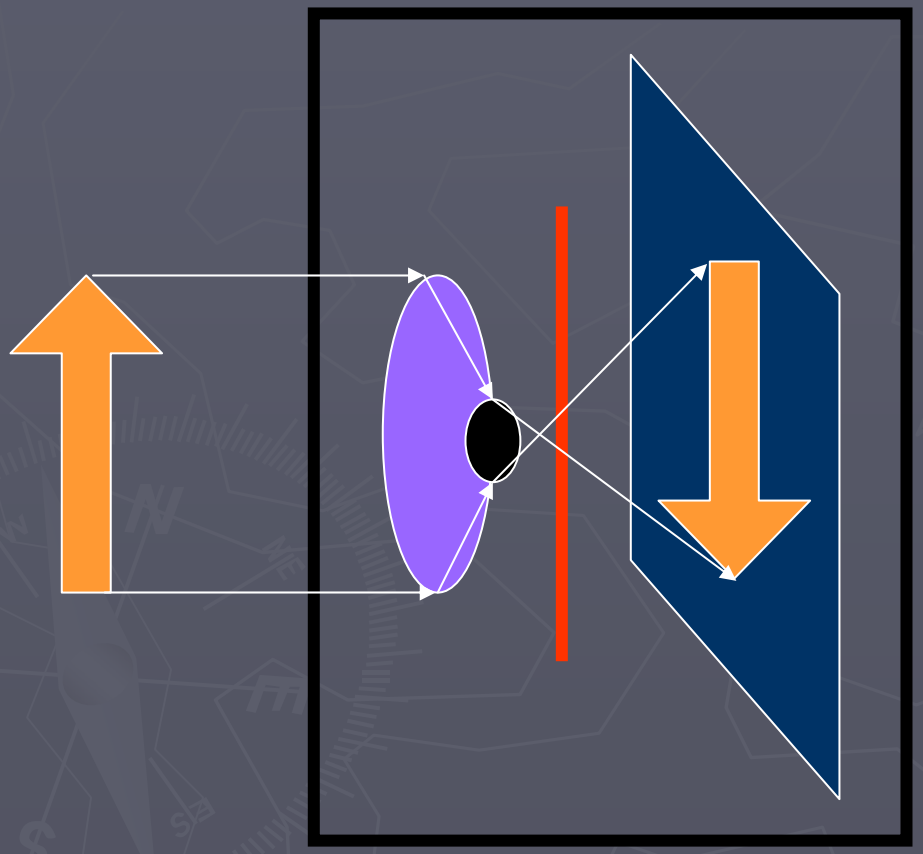
Single Lens Reflex (SLR) / Through the Lens (TTL) Cameras



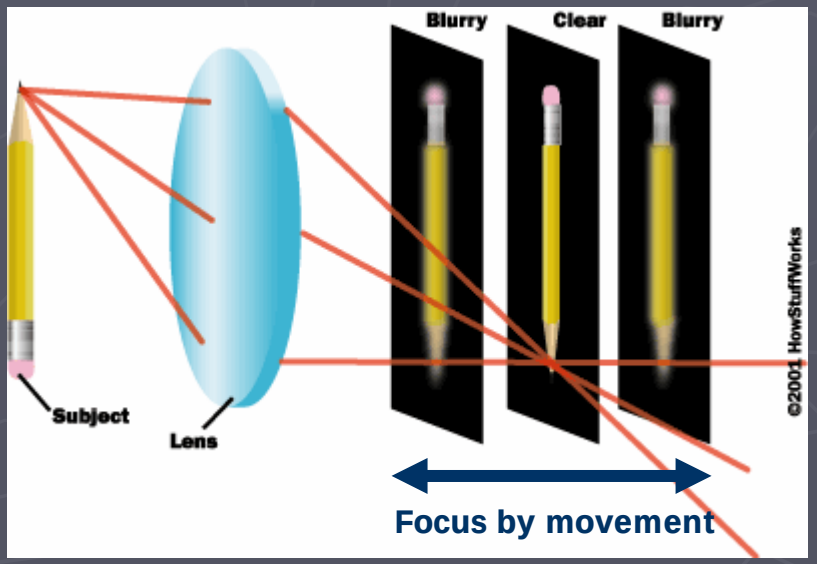


- Pros
  - No parallax errors
  - Precise framing
  - “WYSIWIG” filter/lens combinations
  - Depth-of-field control
- Cons
  - Large size / heavy weight
  - Mirror/shutter vibration and shutter lag

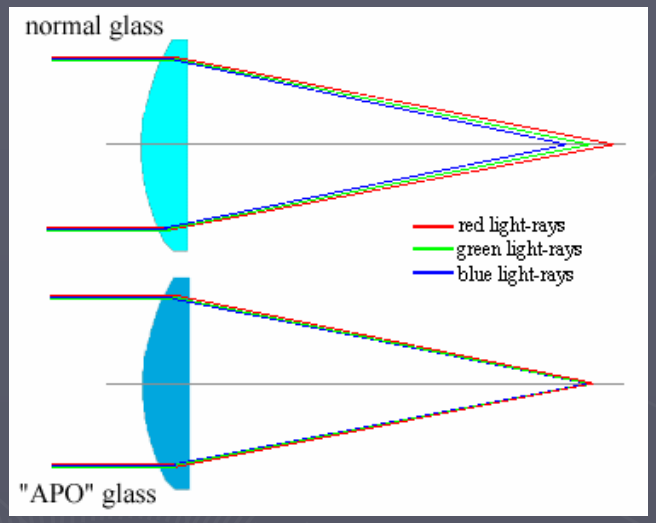
Basic Camera Parts and Focusing



- Lens
- Aperture
- Shutter
- Film (Sensor)
- Body

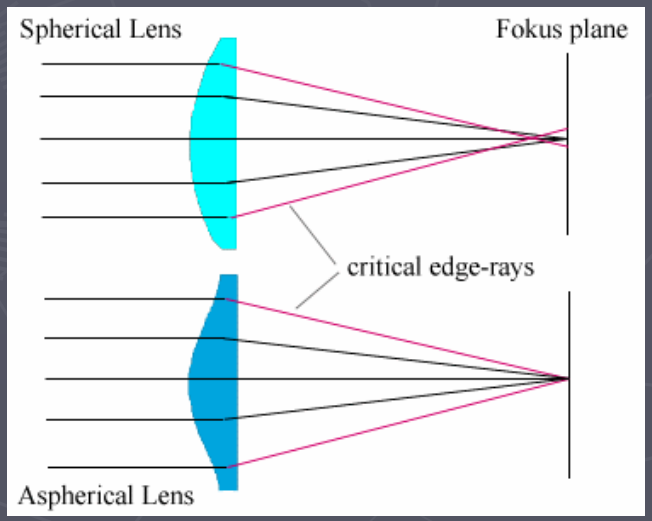


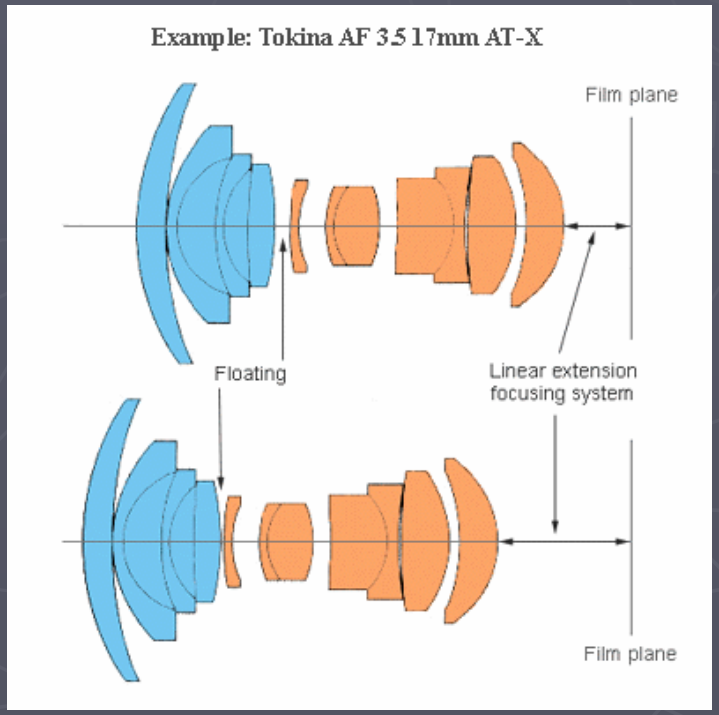
Lenses



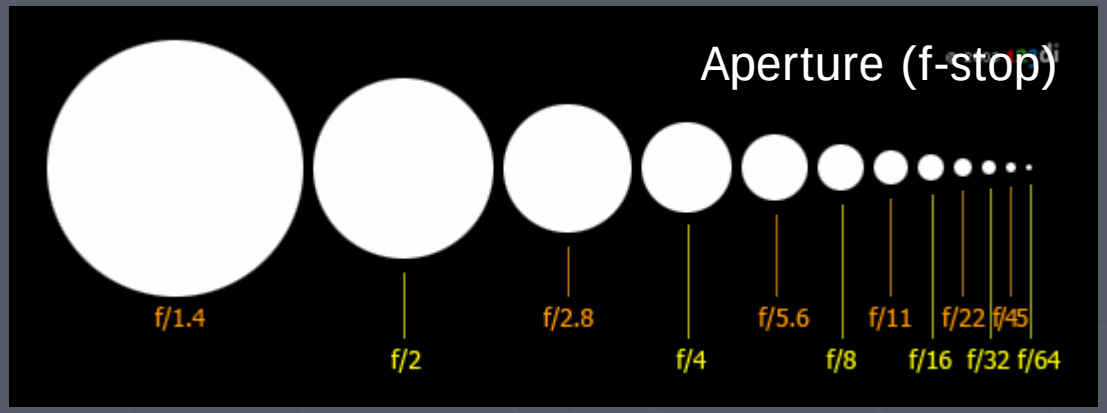
Problems caused by Lenses

- Poor resolution / contrast / focus
- Distortions
- Chromatic Aberration
- Inaccurate Colour Balance
- Vignetting
- Flaring



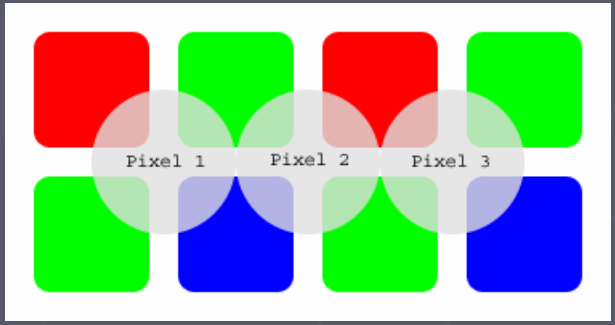


Exposure

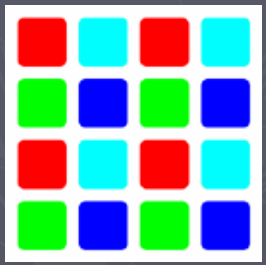


- Need enough light to “expose” the film / sensor
- To get more light (eg. at night) - “faster” Aperture (f-stop) or longer shutter speed
- Bigger Aperture numbers - “faster”, smaller “holes”, less light, darker pictures
- Shutter speed usually measured in fractions of seconds
- Good night shots need “faster” Apertures because shutter speeds become too long
- ISO setting in digital cameras function as “amplifiers” to digital sensors, like digital zoom, is not as good as optical zoom
- Zoom lenses can change maximum Aperture at different focal distances
- Larger Apertures (“faster” Lenses) bigger physical size compared to sensor/film, more expensive

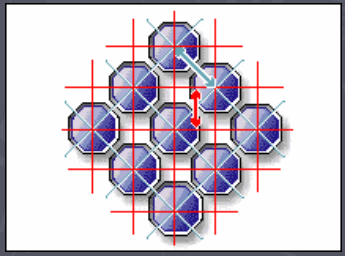
Digital Sensors



Classic RGB Bayer Sensor



Sony RGBE Bayer Sensor



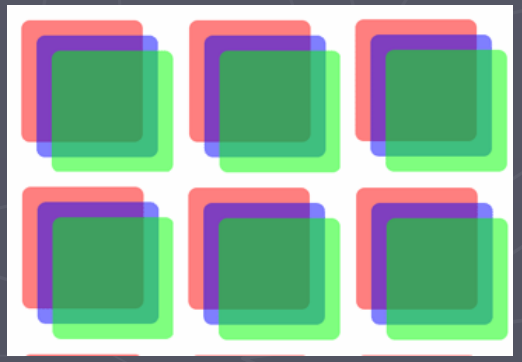
Fuji “Super-CCD” Bayer Sensor

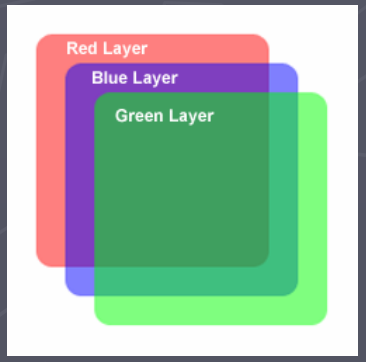
Charge-Coupled Device (CCD)

- More expensive
- High quality, low noise
- High power consumption – Hotter for LiveView
- Older technology, more pixels

Complimentary Metal-Oxide Semiconductor (CMOS)

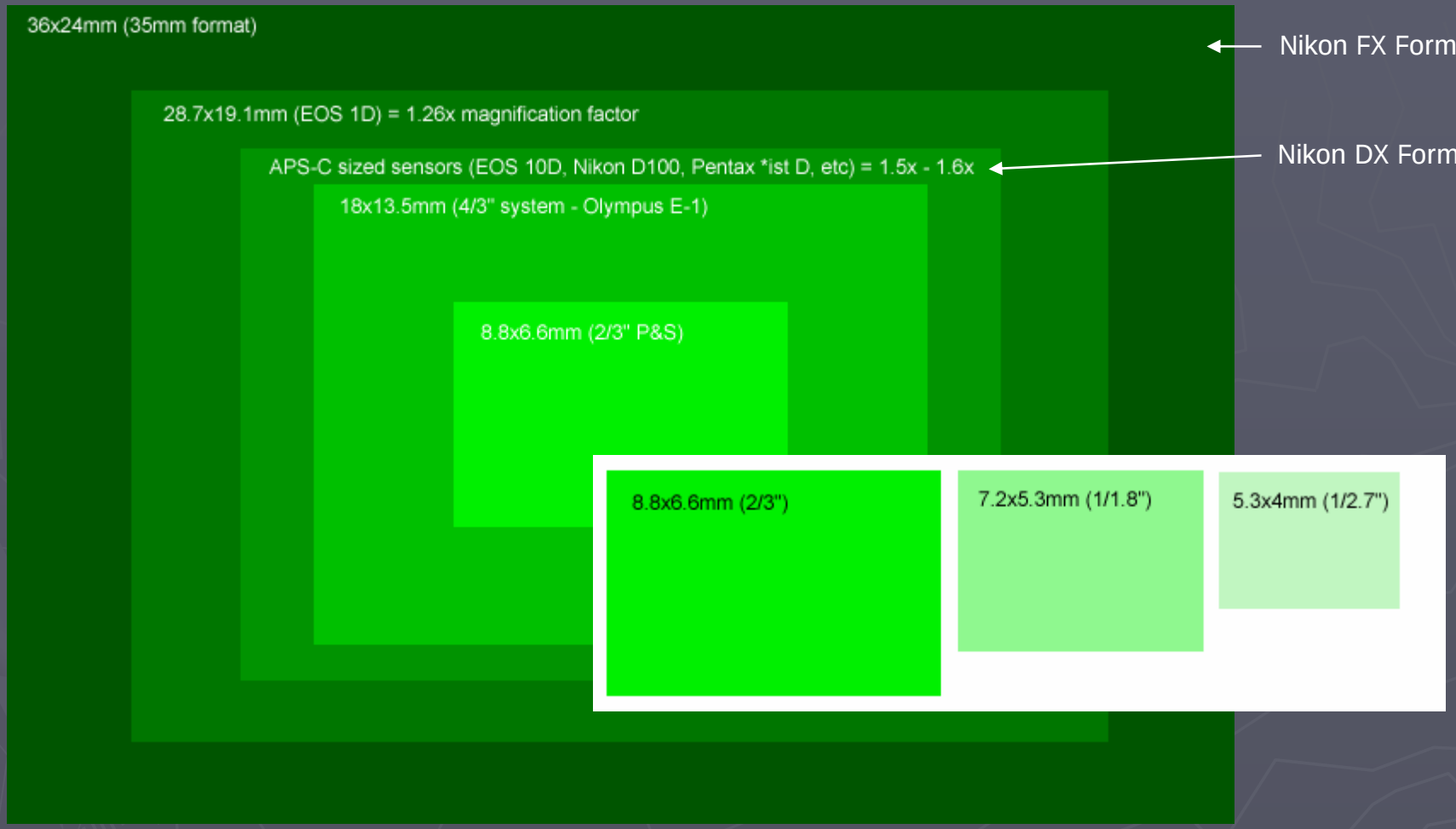
- Much cheaper
- Lower resolution, lower sensitivity
- Low power consumption – Cooler for LiveView
- Technology getting better and better





Foveon Sensor (Sigma)

Digital Sensor Size



Sony DSC F828, Minolta A2 or Canon Powershot Pro 1 – 2/3”

Casio Exilim Pro EX-P600 – 1/1.8” 6MP (or 135MP @ 35mm!)

Special Lenses for APS-C Sensors:
Nikon – DX Lenses, Canon – EF-S Lenses
Sigma – DC Lenses, Tamron – DI-II Lenses

Megapixels

- **Highly Misunderstood!**
- DPI is **NOT** PPI!

  "Pixels per inch" is the more straightforward of the two terms. It describes just that: how many pixels an image contains per inch of distance in the horizontal and vertical directions. "Dots per inch" may seem deceptively simple at first. The complication arises because a device may require multiple dots in order to create a single pixel; therefore a given number of dots per inch does not always lead to the same resolution. Using multiple dots to create each pixel is a process called "dithering". The standard for prints done in a photo lab is about 300 PPI, however inkjet printers require several times this number of DPI (depending on the number of ink colors) for photographic quality. The more you try to enlarge a given image, the lower its PPI will become (assuming the same number of pixels).

- High MP is more useful for cropping

Image Aspect Ratios

Compact Cameras, Monitors - 4:3
35mm Film, DSLRs - 3:2
DVD Widescreen - 16:9

Printing sizes (3:2 at 300ppi)

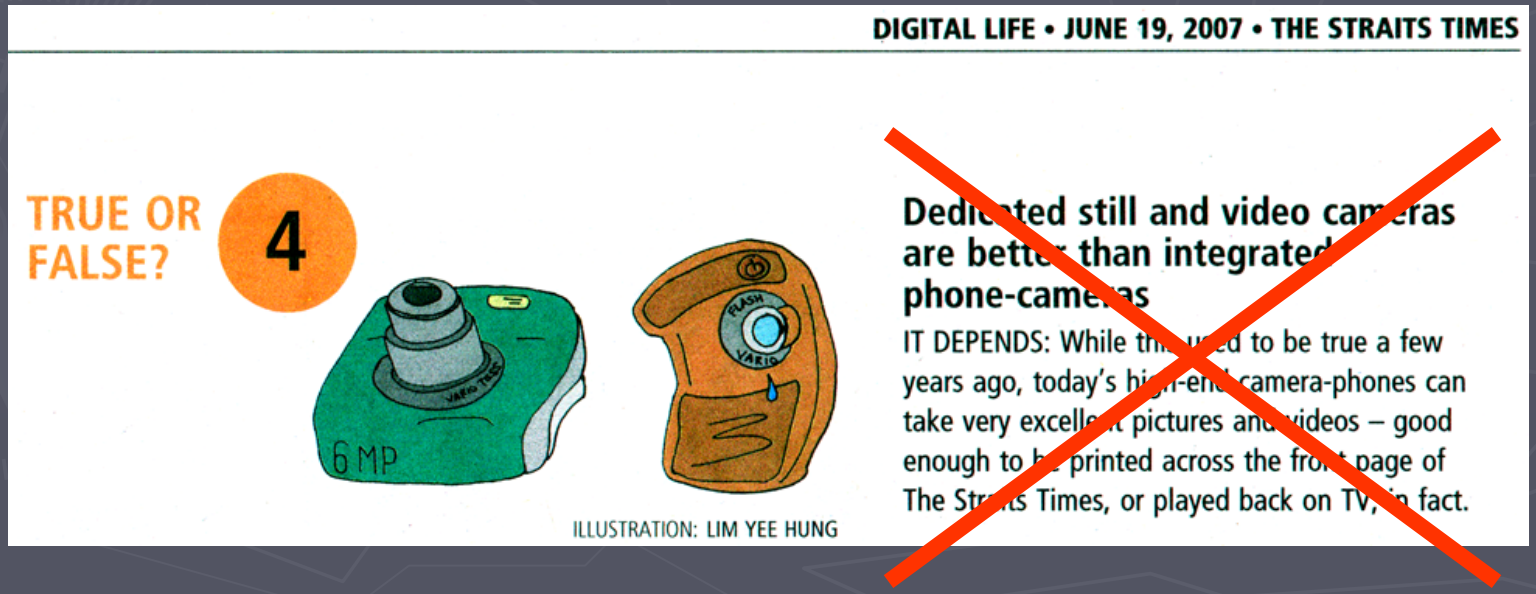
2MP - 5.8 x 3.8”
4R 35mm Film Photo - 6 x 4”
3MP - 7.1 x 4.7”
4MP - 8.2 x 5.4”
5MP - 9.1 x 6.1”
6MP - 10.0 x 6.7”
8MP - 11.5 x 7.7”
8R 35mm Film Photo - 10 x 8”
A4 Paper - 11.69 x 8.27”
12MP - 14.1 x 9.4”
16MP - 16.3 x 10.9”
22MP - 19.1 x 12.8”

Choosing a Camera

- Lenses
  - Focal distances, glass quality (eg. Aspherical, Apochoromatic (APO), low dispersion), lens selections
- Exposures
  - Speed (Aperture) of lenses, shutter speeds, ISO sensitivity
- Sensor
  - Size, ratios, speed, Megapixels
- Other factors
  - Storage medium & speed, battery life, LCD screen, viewfinder, grip, tripod, flash & other accessories

Standard Kit

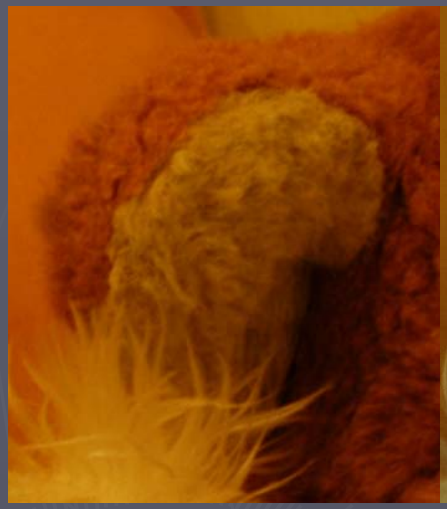
- Camera Body
- Lens(es)
- Tripod
- Flash
- Storage Media, Batteries
- Cleaning Kit
- Bag
- Software



There is a Difference . . .

Nikon D100 vs Nikon D300

ISO 200



D100

D300

ISO 640

D100

D300

ISO 800

ISO 1600

Effect of Vibration Reduction

24 – 70mm: F2.8, 1/8, ISO 200

70 – 300mm: F5.6, 1/10, ISO 800

No VR

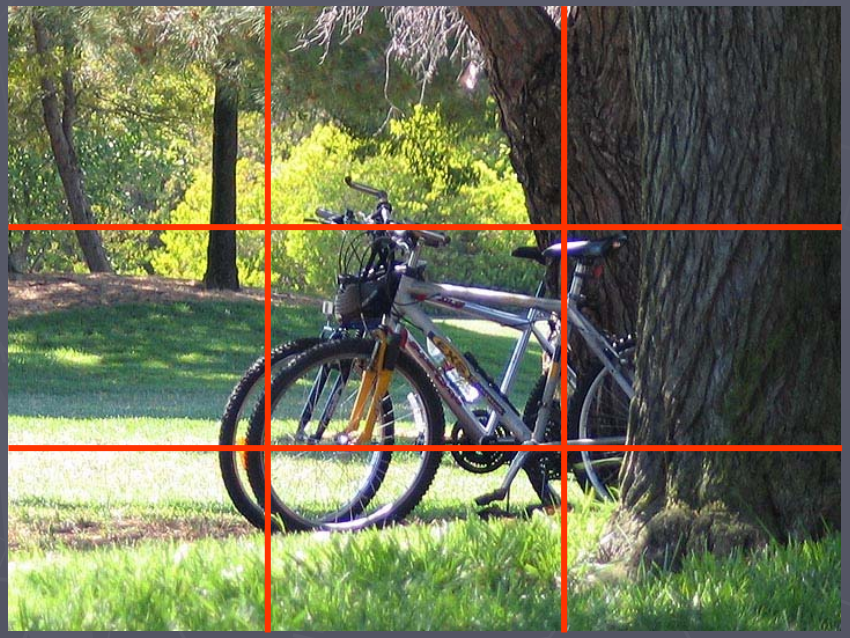
Nikon – Vibration Reduction (VR)
Canon – Image Stabilization (IS)
Sony – Super SteadyShot
Sigma – Optical Stabilization (OS)
Tamron – Vibration Compensation (VC)

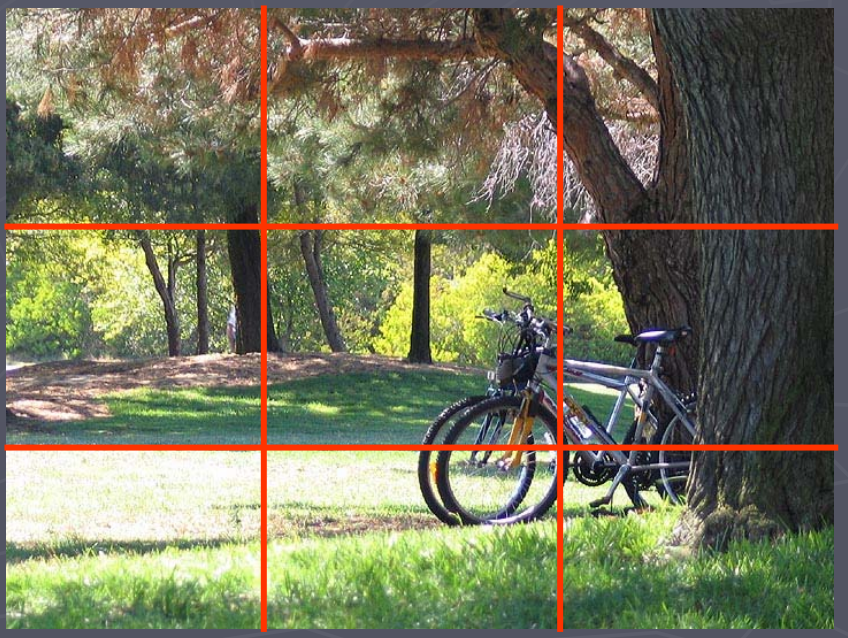
With VR

Composition Technique 1

Rule of Thirds

Whenever appropriate, place your subject at one third distance from the edges of your frame.





Composition Technique 2

BREAK the Rule of Thirds

Not all pictures and compositions need/must follow the Rule of Thirds – Think outside the box.

Composition Technique 3

Add **Depth of Field**

Highlight the effects of perspective

Composition Technique 4

Use **Light and Dark** Photography is about capturing light

Composition Technique 5

Get Close!

Let your subject fill up the entire frame and capture all its details. If you are unable to do so, consider cropping in digital workflow.

Composition Technique 6

Show Emotion

Show how people and animals react.

Composition Technique 7

Freeze Motion

Photography can make time stand still.

Composition Technique 8

Send a Message

Convey a message to the person looking at the picture. Think of a caption or title of the image before shooting.

"Loneliness"

Digital Workflow

- Make adjustments to improve/change image through the use of digital imaging software
  - Rotation, Cropping
  - HSL/Tone Curve/EV/WB/Lighting adjustments
  - Filters, special effects
  - Pixel/Image manipulation
- Output/Convert processed images to other formats (like web, email, print, etc)
- Manage and Organise digital images

Crop and Rotate

HSL/Tone/EV Adjustments

HSL/Tone/EV Adjustments

Lighting Adjustments

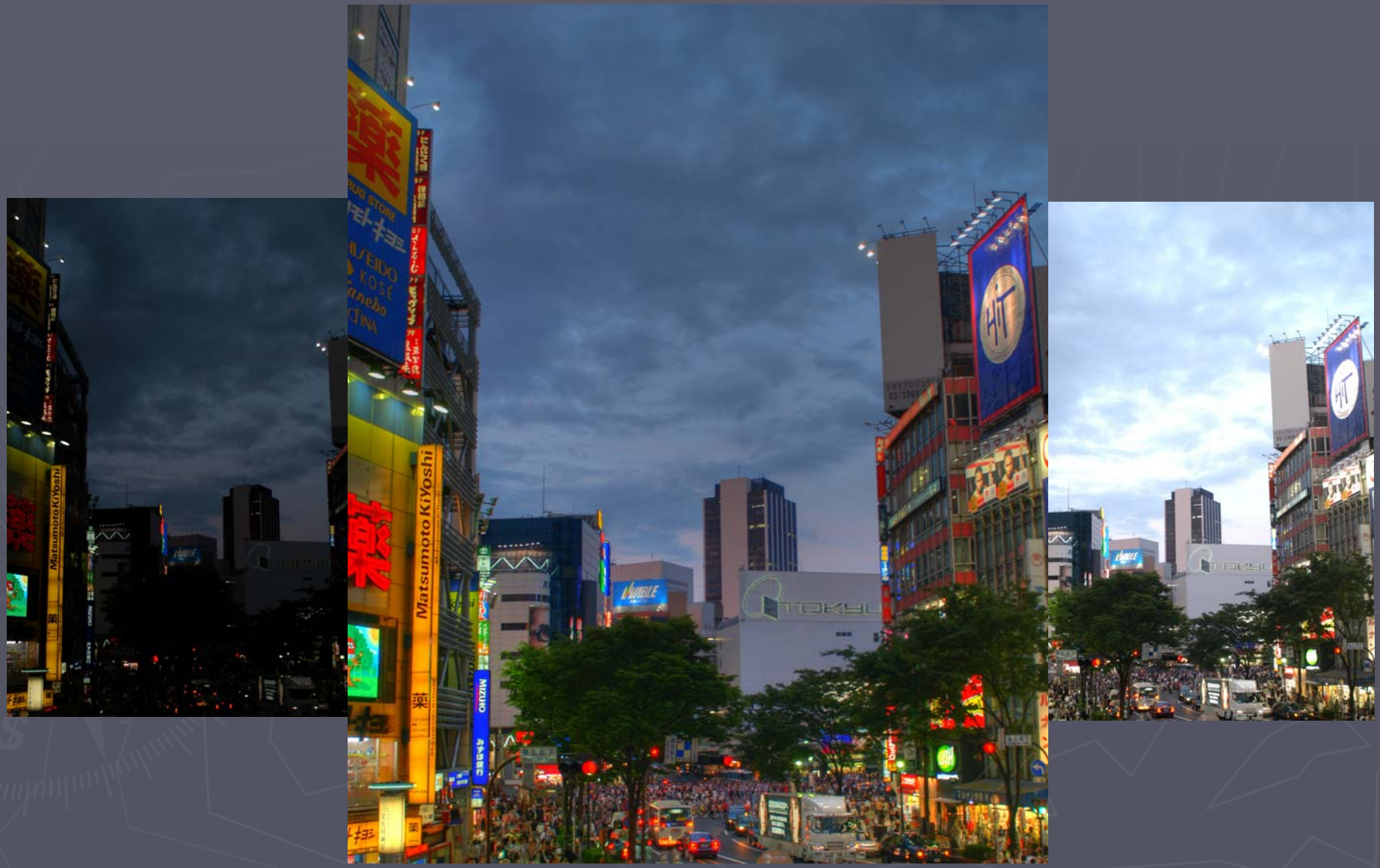
Lighting Adjustments

Filter / Special Effects

Filter / Special Effects

High Dynamic Range Image (HDRI)

High Dynamic Range Image (HDRI)



Reminder

- Photography is **NOT** about:
  - “kit” or “my lens is bigger than your lens”
  - most amount of digital manipulation possible

- Photography **IS** about:
  - creativity and art
  - expression of the photographer’s message
  - capturing a moment in time
  - hard work!

Thank you!