Intro to Photography: Session 2

5 MINUTE REVIEW

Good for portraits
and fore ground item's.
Fast shutter night photos.

Good for sports

Depth of field (DOF)

SHUTTER SPEED

SMALL (MORE LIGHT)

f/1 f/1.4 f/2 f/2.8 f/4 f/5.6 f/8 f/11 f/16 f/22 f/32

LARGE (LESS LIGHT)

LENS OPENING (Aperture)

EXPOSURE TIME (Shutter Speed)

FAST (LESS LIGHT)

1/1000 1/500 1/250 1/125 1/60 1/30 1/15 1/8 1/4 1/2 1

SHUTTER SPEED

(Motion Blur)

SLOW (MORE LIGHT)

Good for scenery

Good for long
exposures (where things
dont move)

Good for panning
Good for waterfalls
Good in low light
Good for creating
ghosts and car
light trails

LIGHT SENSITIVITY (ISO)

100   200   400   800   1600   3200   6400

LOW (LESS LIGHT)   ISO   HIGH (MORE LIGHT)

Image Noise - ISO speed - ASA

Good in bright light

Good for long exposures (Light Painting)

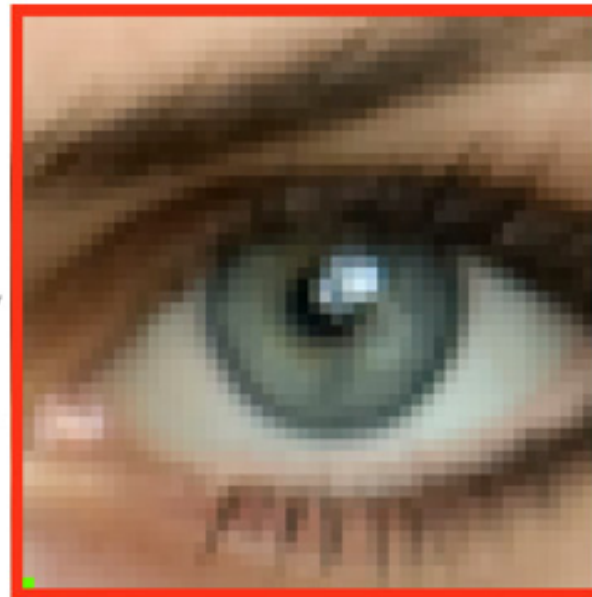Good in low light (Stars)

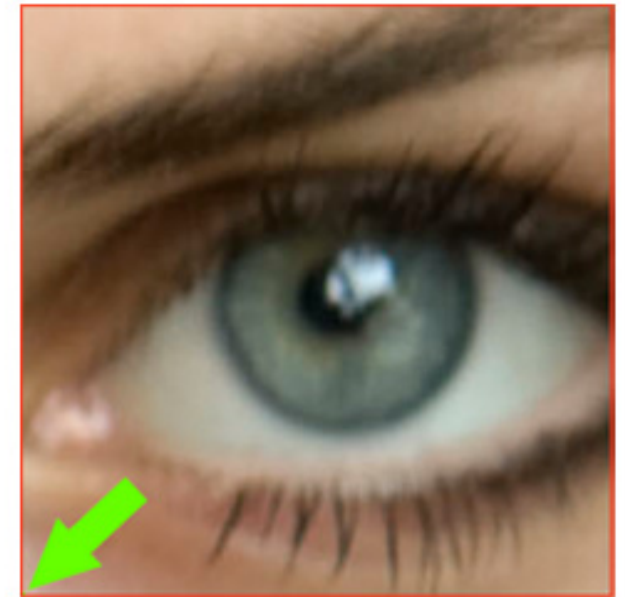# Detail from a 12x18 @ 240 PPI
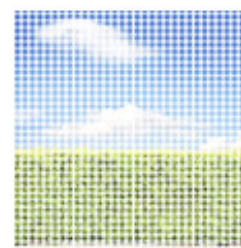
*Images not shown to scale.

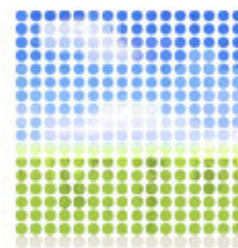1"

1"
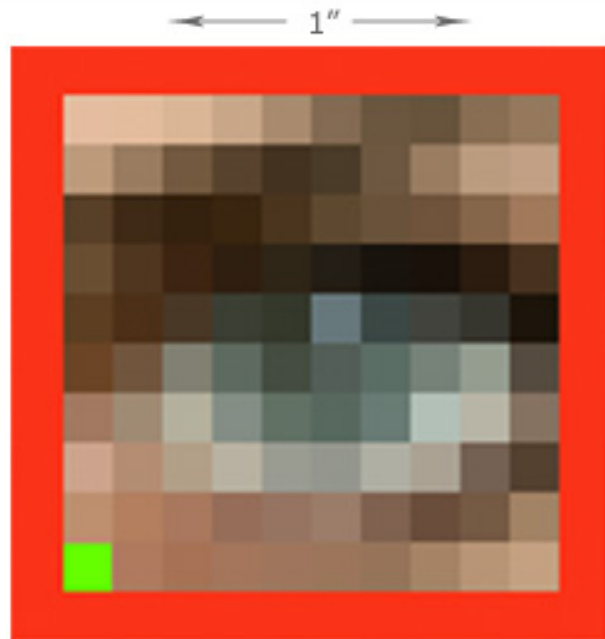
a. **10 PPI**
120px X 180px

b. **50 PPI**
600px X 900px

c. **240 PPI**
2880px X 4320px

Increasing Dots Per Inch

8 pixels

8 pixels

231	224	224	217	217	203	189	196
210	217	203	189	203	224	217	224
196	217	210	224	203	203	196	189
210	203	196	203	182	203	182	189
203	224	203	217	196	175	154	140
182	189	168	161	154	126	119	112
175	154	126	105	140	105	119	84
154	98	105	98	105	63	112	84

42	28	35	28	42	49	35	42
49	49	35	28	35	35	35	42
42	21	21	28	42	35	42	28
21	35	35	42	42	28	28	14
56	70	77	84	91	28	28	21
70	126	133	147	161	91	35	14
126	203	189	182	175	175	35	21
49	189	245	210	182	84	21	35

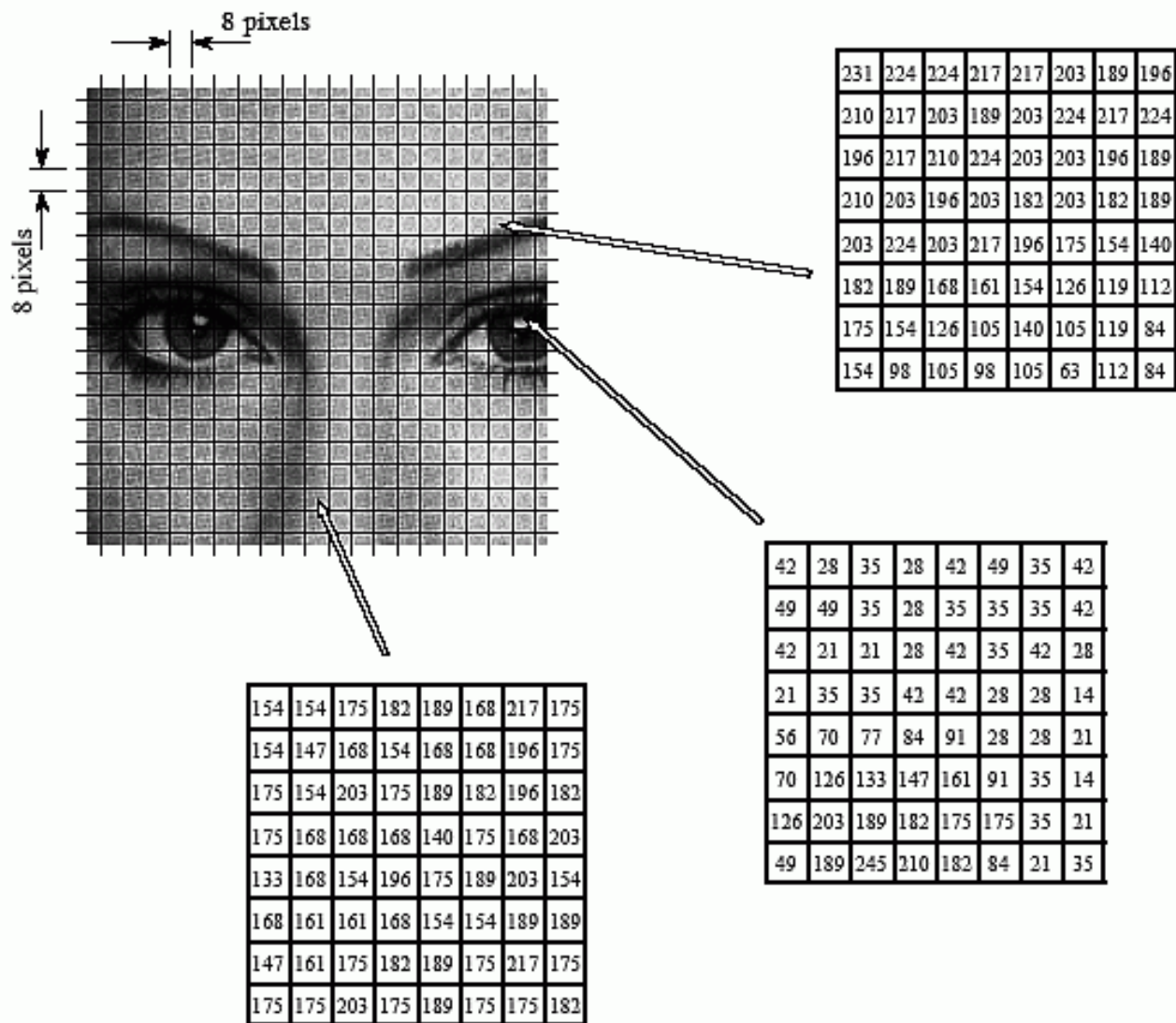|							
154	154	175	182	189	168	217	175
154	147	168	154	168	168	196	175
175	154	203	175	189	182	196	182
175	168	168	168	140	175	168	203
133	168	154	196	175	189	203	154
168	161	161	168	154	154	189	189
147	161	175	182	189	175	217	175
175	175	203	175	189	175	175	182

FIGURE 27-9
JPEG image division. JPEG transform compression starts by breaking the image into 8×8 groups, each containing 64 pixels. Three of these 8×8 groups are enlarged in this figure, showing the values of the individual pixels, a single byte value between 0 and 255.

JPG Compression

18mm

24mm

35mm

55mm

85mm

105mm

135mm

200mm

300mm
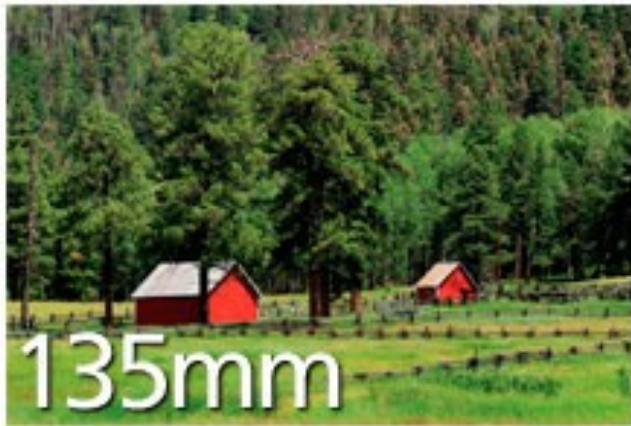
Lens Compression

16mm lens

35mm lens

70mm lens — All taken at the same aperture — 150mm lens

400mm 200mm 100mm 50mm 24mm

Depth of Field

Telling Story with Perspective

Crop Factor

Crop Factor	
0.50	Medium format (Kodak KAF 39000 sensor)
1.00	35 mm "full frame"
1.29	APS-H (Canon)
1.50	APS-C (Nikon DX, Pentax, Sony)
1.62	APS-C (Canon)
1.73	Foveon (Sigma)
2.00	Four Thirds System
2.70	CX (Nikon)
3.93	2/3"
4.55	1/1.7"
5.62	1/2.3"
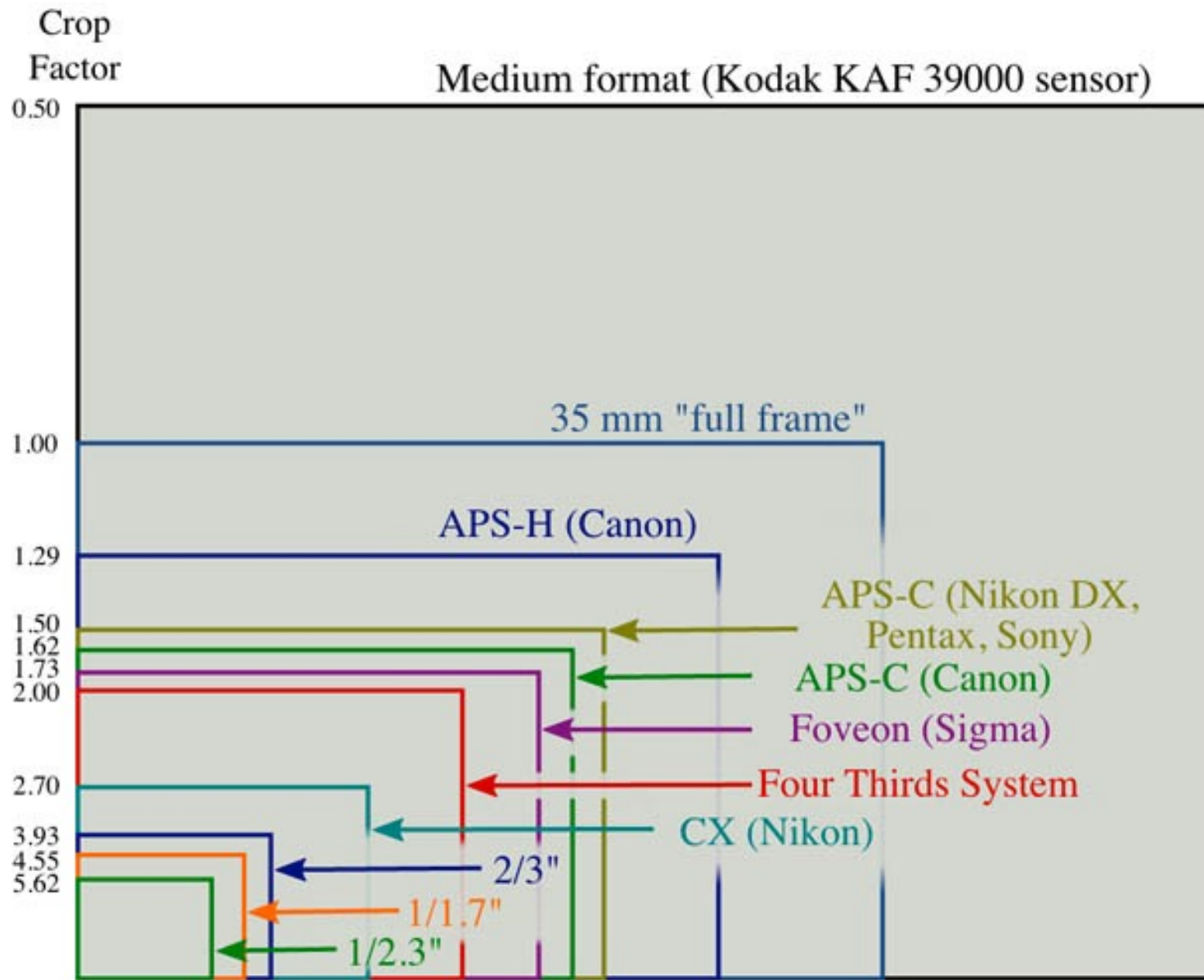
*** Normal Lens is Determined by Sensor Size

LENS FOCAL LENGTH

OBJECT DISTANCE

IMAGE DISTANCE
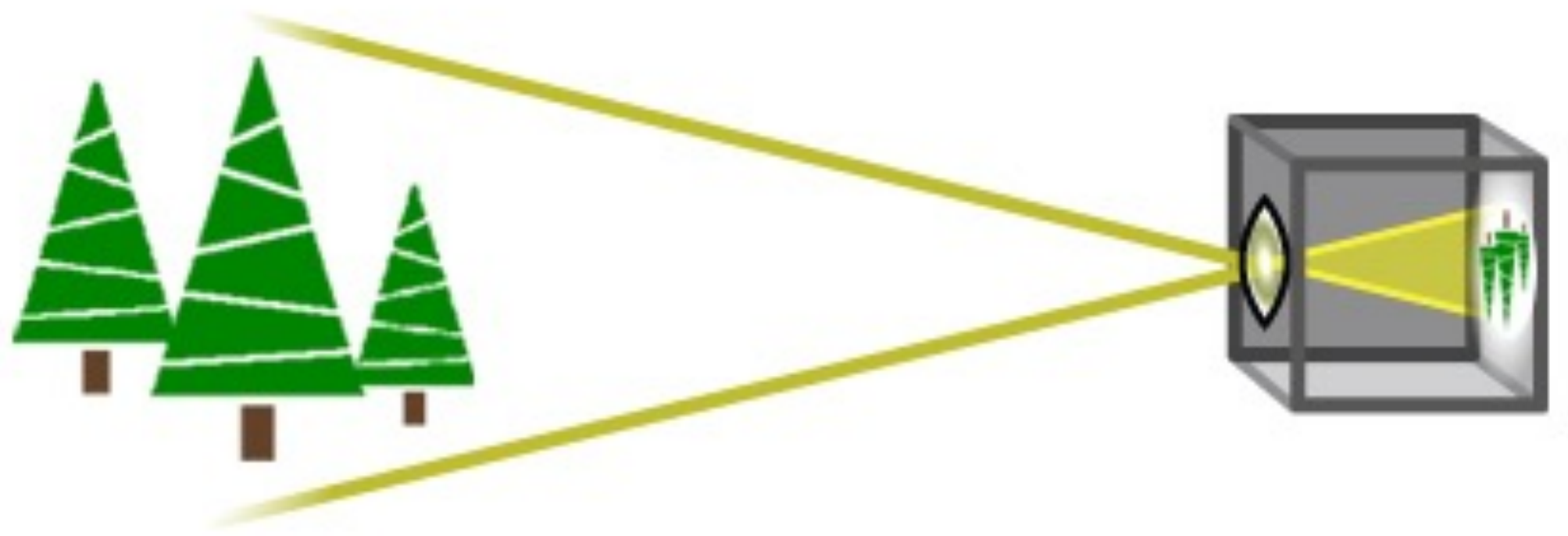
Lens Coverage

For new **digital cameras**, a bigger **sensor area** captures better quality, but requires larger diameter, bulkier lenses. To **optimize** the size of a serious **travel camera**, consider *1-inch Type sensor* or up to *APS-C sensor size*.

Full-frame sensor (Nikon FX, Canon EF, Sony FE) = **36 mm wide**

"Full-frame 35mm" sensor / film size (36 x 24 mm) is a standard for comparison, with a *diagonal field-of-view crop factor* = 1.0

In comparison, a pocket camera's 1/2.5" Type sensor crops the light gathering by 6.0x smaller diagonally (with a surface area 35 times smaller than full frame).

APS-C Nikon DX, Sony E = *1.5x crop*

APS-C Canon EF-S = *1.6x crop*

Four Thirds 4/3" = 2x crop

1" Type = 2.7x crop
Sony RX10, RX100

1/1.7": 4.6x

1/2.5":
6.0x crop

24 mm

"Medium format" size 48 x 36 mm

Compact & pocket zoom cameras have small, noisy sensors, tiny enough to extend superzoom lens reach.

APS-C sensor gathers 15 times more light (area) than a 1/2.5" Type sensor, and 2.4 times less than *Full Frame*.

Continuous vs Single vs Manual Focus

Continuous vs Single vs Manual Focus

- **In continuous focus the camera will continually focus wherever the selected focus sensor is aimed**

  - Good for action or subjects that are constantly moving

- **Single focus will activate and lock on a subject as long as the shutter release button is half pressed**

  - Best for relatively stationary subjects

- **Manual Focus - You physically set where the camera is focused.**

  - For most photographers, they should not use this setting.

  - Best for VERY stationary subjects, scientific or macro photography.

Focal Length Examples

Questions?

Homework

Break

Critique