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Saturday's Guide to Photography

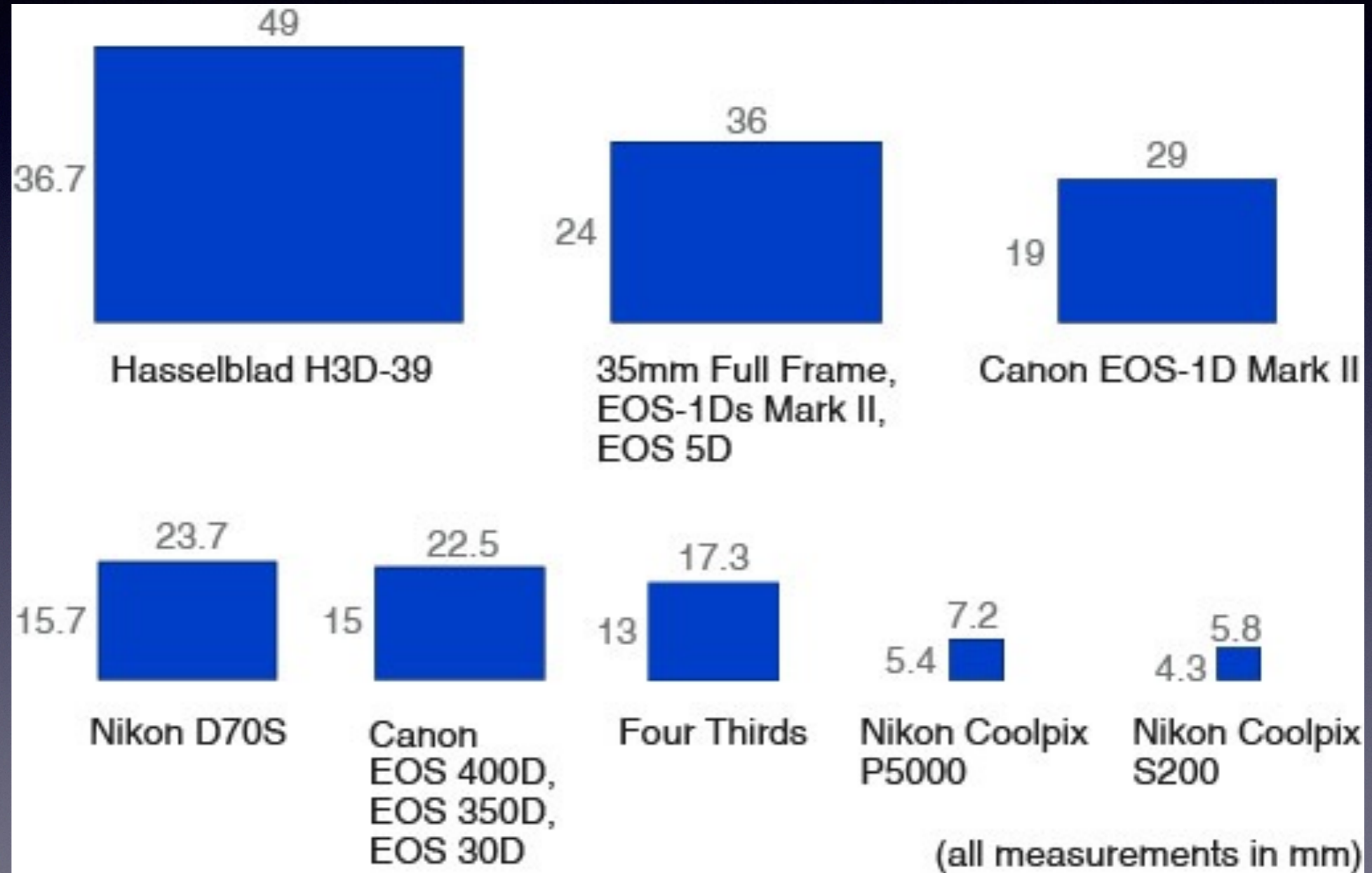
David Phillips

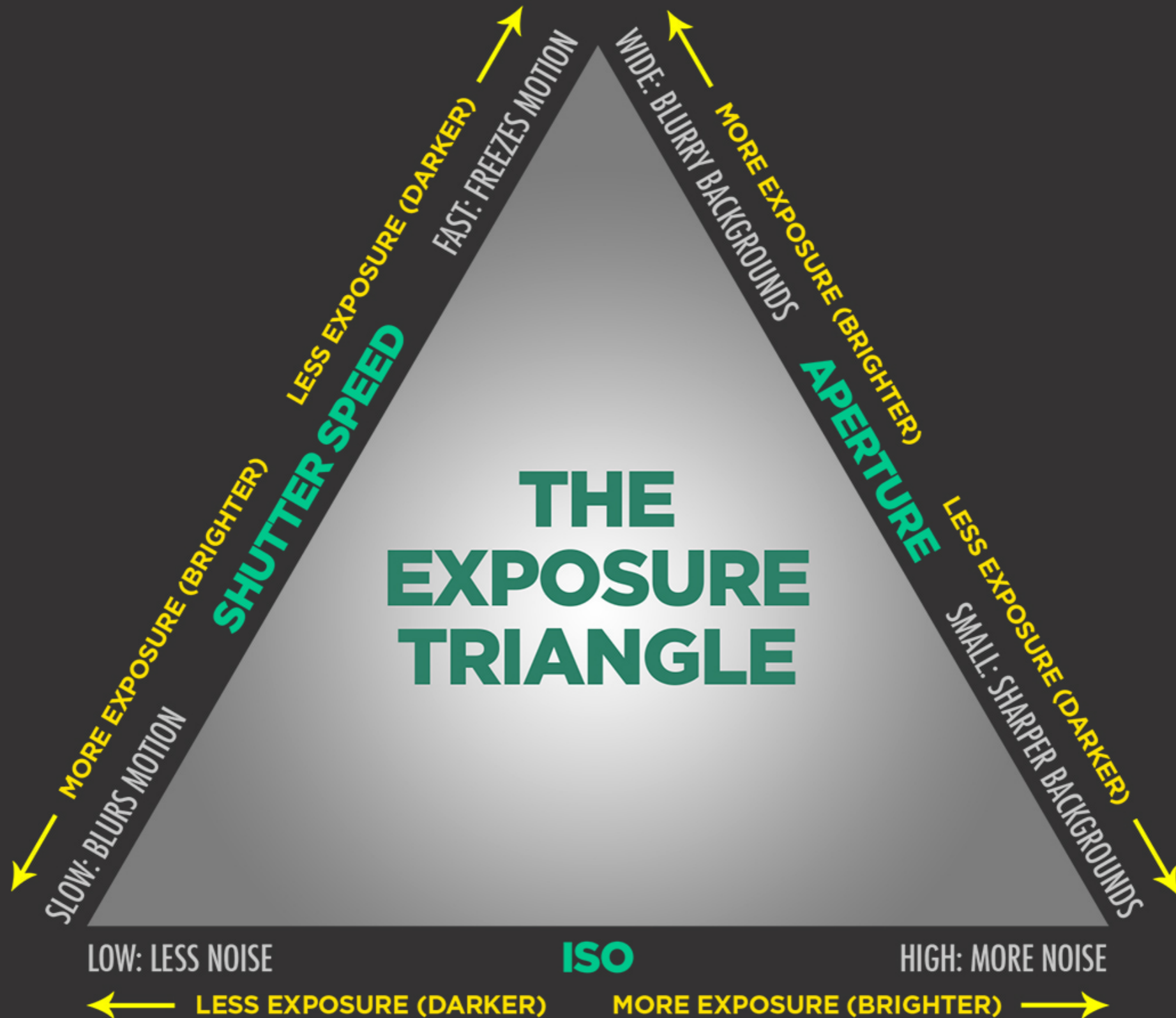
Stopping You Taking Images

- Science
- Camera Manufactures
- Cognitive Perception
- Confidence

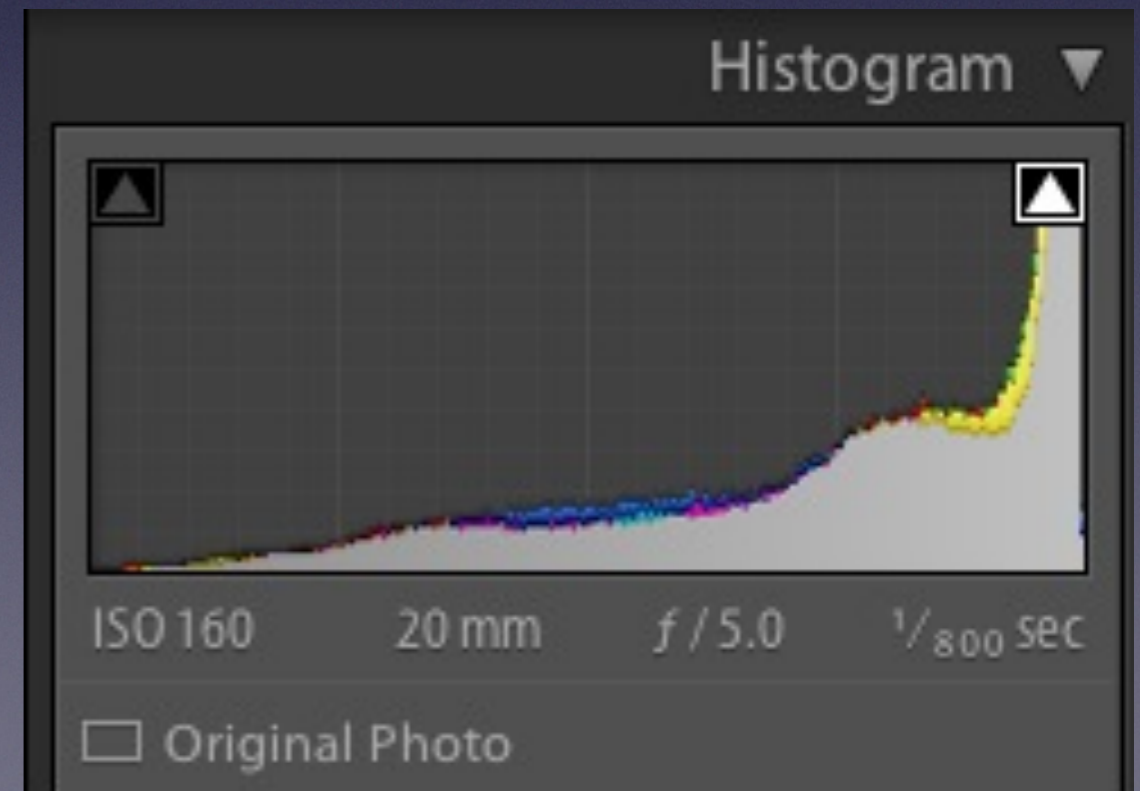
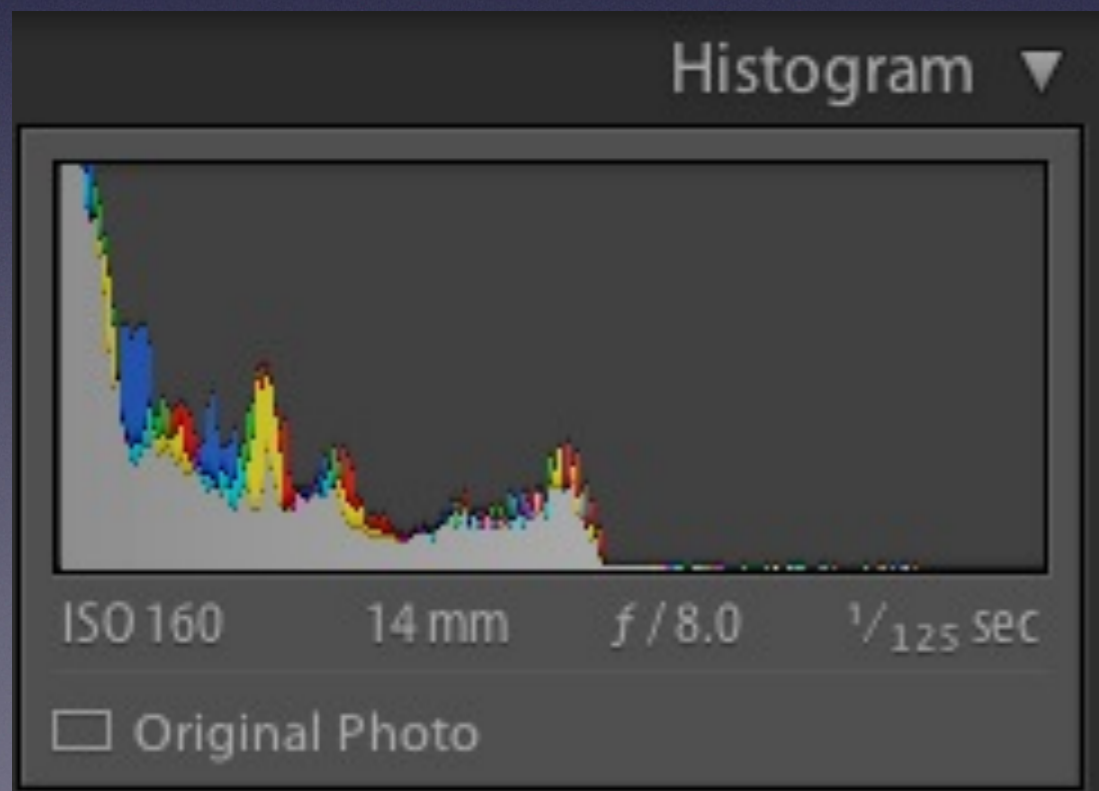
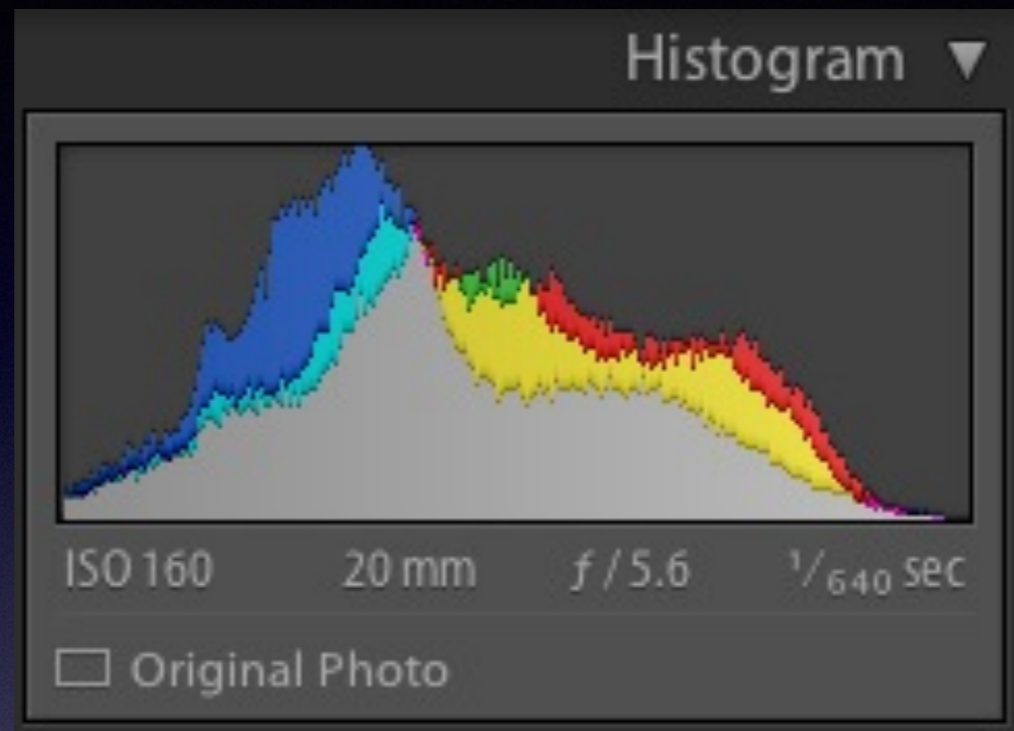
Sensor Sizes

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Histograms



Your Controls

Auto or Program – the camera sets the shutter speed and aperture based on the subject brightness using its light meter (more about the camera's light meter towards the end of this session). These programs are useful and quick to use, but they may not produce the image you want. This mode does produce good pictures if you are in a rush and if the subject matter is fairly static.

Aperture priority – the desired aperture is set by the user and the camera selects the shutter speed to suit the subject brightness. A larger aperture has a shallower depth of field and vice versa. This mode is good for setting your depth of field, but watch out you don't end up with a shutter speed that is too slow.

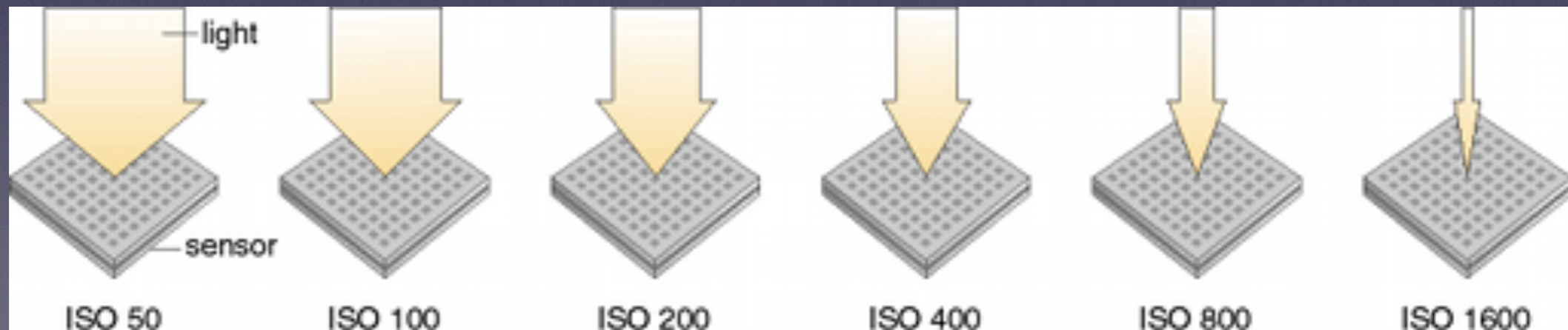
Shutter priority – the desired shutter speed is set by the user and the camera selects the aperture to suit the subject brightness. Fast shutter speed can freeze movement and a slow speed can show movement. Setting the speed first for the light conditions means you can plan for the image you need and the depth of field follows. This is a good setting for hand-held photography, and gives you time to refine your settings after the first image is taken.

Manual – the shutter speed and the aperture are selected by the user. This setting unlocks you from the camera's light meter, although there is usually an exposure indicator to suggest the correct exposure.

Exposure compensation – this is not a mode in the same sense as the others, but allows you some partial control to override the camera's computed exposure if you wish.

ISO

- Low value - ISO100 for bright light
- High Value - ISO1600 for low light
- Digital Noise increases as Iso Increases



SHUTTER SPEED

- Measured in seconds or fractions of a second
- Fast speed to freeze an image
- Slow Speed to have 'Motion Blur'

FIRST OF
A NEW SERIES
TO COLLECT

Digital CHEAT SHEET Camera

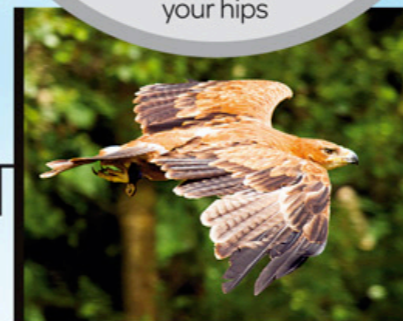
Find the right shutter speed for every situation!



Learn the lingo: Panning

Lets you add motion blur while keeping your main subject sharp. Track the subject with your camera, pivoting from your hips

SHUTTER SPEED	TYPICALLY USED FOR...
1/4000 sec	Freezing extremely fast movement
1/2000 sec	Freezing birds in flight
1/1000 sec	Freezing motorcycles, cars and other fast vehicles
1/500 sec	Freezing mountain bikes, runners and athletes
1/250 sec	Freezing slow-moving animals or people walking
1/125 sec	Panning motorcycles, cars and other fast vehicles
1/60 sec	Panning mountain bikes close to the camera
1/30 sec	Panning fast-moving cyclists at a distance
1/15 sec	Panning runners, kids or moving animals
1/8 sec	Blurring fast-flowing water close to the camera
1/4 sec	Blurring people walking
1/2 sec	Blurring slow-moving water
1 sec or slower	'Milky' water effects



HOW TO ADJUST SHUTTER SPEED

Use Shutter Priority mode

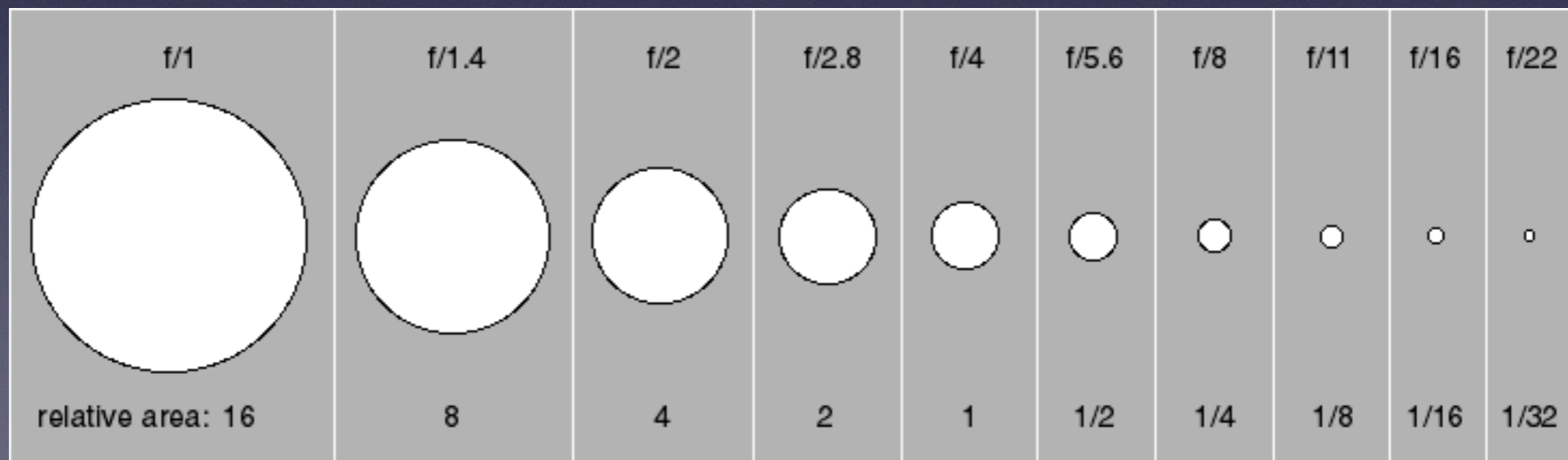
Select S or Tv on your camera's top dial or menu, then adjust shutter speed with the relevant dial (check your manual). You can go down to around 30 secs for traffic trails.

Set the right ISO

To access slower shutter speeds, use the lowest ISO setting (usually ISO100). If you need a fast shutter speed, you may need a higher ISO, such as ISO400 or above.

Aperture

- Larger the Aperture , greater amount the light enters the camera
- Larger Aperture = f2 Small Aperture f22



F-Stops

Larger = Faster

So f/2.8 is three times faster than f/8

Faster means less time for the same exposure

Beware DOF

full stops	half-stops	third-stops
f/1.4	f/1.4	f/1.4
	f/1.7	f/1.6
f/2	f/2	f/2
	f/2.4	f/2.2
f/2.8	f/2.8	f/2.5
	f/3.4	f/2.8
		f/3.2
		f/3.6
f/4	f/4	f/4
	f/4.8	f/4.5
		f/5
f/5.6	f/5.6	f/5.6
	f/6.7	f/6.3
		f/7.1
f/8	f/8	f/8
	f/9.5	f/9
		f/10
f/11	f/11	f/11
	f/13	f/12
		f/14
f/16	f/16	f/16
	f/19	f/18
		f/20
f/22	f/22	f/22

Depth Of Field

- Rule 1: Depth of field decreases as focal length increases, and increases as focal length decreases (assuming object distance and aperture are constant).

It is a feature of sports photography, for example, that often the background appears blurred. This is sometimes unavoidable as the photographer must use a long focal-length lens to capture the action and this in turn reduces the depth of field, throwing the crowd behind the action out of focus

- Rule 2: Depth of field increases as object distance increases, and decreases as object distance decreases (assuming that focal length and aperture remain unchanged).

For close-up photography, depth of field is invariably smaller (this is especially true for macro photography where it can produce some outstanding effects).

The greater the object distance, the larger the depth of field.

- Rule 3: Depth of field decreases as aperture increases, and increases as aperture decreases (assuming that focal length and object distance remain the same).

Large apertures create small depths of field.

Small apertures create large depths of field.

DEPTH OF FIELD

REMEMBER: CAMERA NEVER MOVES

APERTURE: F2.8, F8 & F22

F2.8

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Photograph

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APHER'S [EYE]

MICHAEL FREEM

POSURE

MICHAEL FREEM

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F2.8

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On the Same Plane

THE DOF DOES NOT APPEAR TO CHANGE

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Wildlife Photographer of the Year

Portfolio 23

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York City Art

Bill Oddie's How to Watch Wildlife

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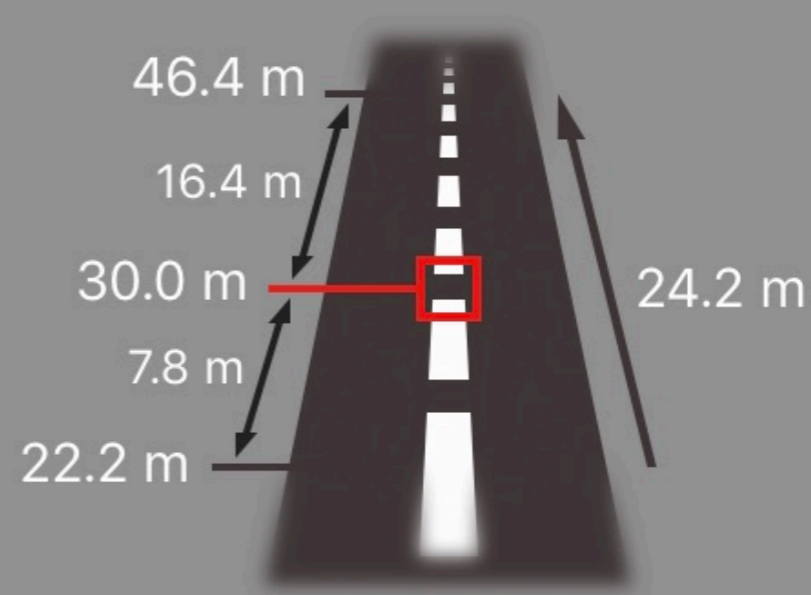
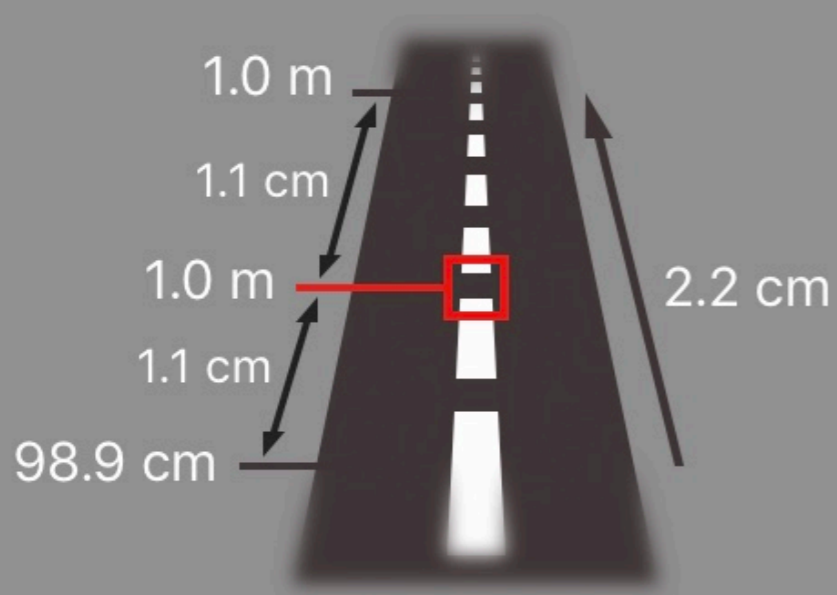
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CoC: 0.015

Hyper Focal Distance: 84.9 m

CoC: 0.015

Hyper Focal Distance: 84.9 m



f/stop

lens

focus distance

f/stop

lens

focus distance

2.4

58

0

2.4

58

28

2.5

59

0

2.5

59

29

f/ 2.8

60 mm

1 m 0 cm

f/ 2.8

60 mm

30 m 0 cm

3.2

61

2

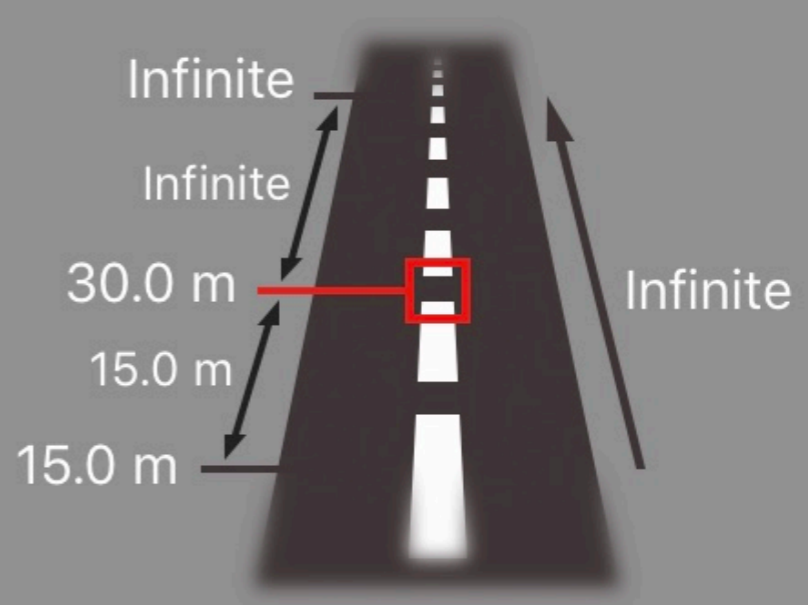
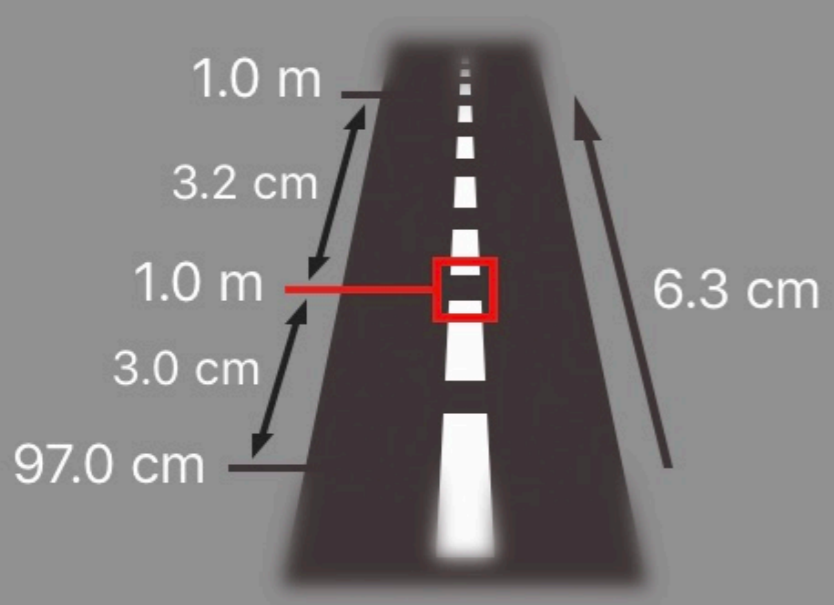
1

3.2

61

31

1



CoC: 0.015

Hyper Focal Distance: 30.1 m

CoC: 0.015

Hyper Focal Distance: 30.1 m

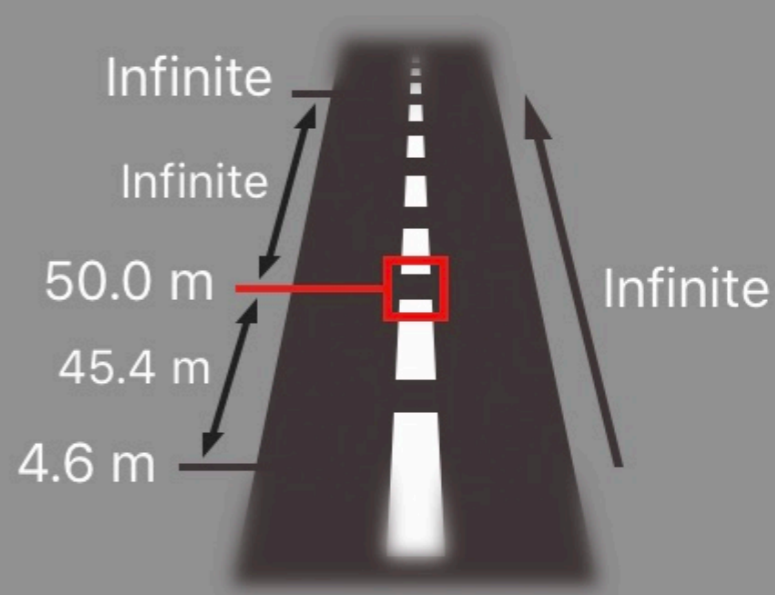
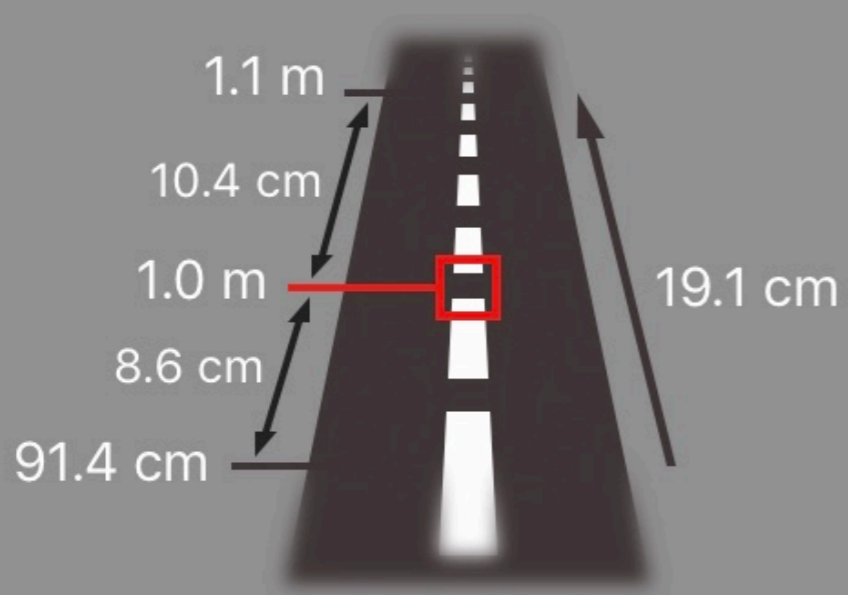


f/stop	lens	focus distance
6.7	58	
7.1	59	0
f/ 8	60 mm	1 m 0 cm
9	61	2 1

f/stop	lens	focus distance
6.7	58	28
7.1	59	29
f/ 8	60 mm	30 m 0 cm
9	61	31 1

f/stop	lens	focus distance
6.7	58	
7.1	59	0
f/ 8	60 mm	1 m 0 cm
9	61	2 1

f/stop	lens	focus distance
6.7	58	28
7.1	59	29
f/ 8	60 mm	30 m 0 cm
9	61	31 1



CoC: 0.015

Hyper Focal Distance: 10.2 m

CoC: 0.015

Hyper Focal Distance: 5.1 m



f/stop

lens

focus distance

f/stop

lens

focus distance

6.4

32

13.5

32

47

6.7

33

14

33

48

7.1

34

0

14.3

34

49

f/ 8

35 mm

1 m 0 cm

f/ 16

35 mm

50 m 0 cm

9

36

2 1

18

36

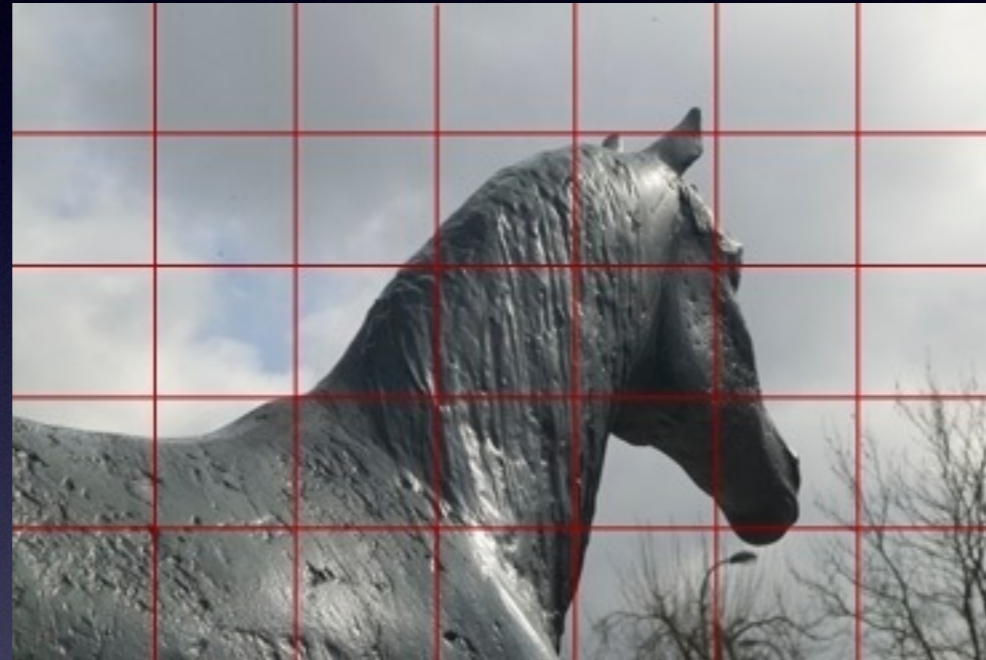
51 1

Exposure Bracketing

One way to make sure you get at least one image that has a good exposure is to use bracketing, which means that you take one exposure at the setting your camera's light meter thinks is correct (0 on the light meter) and you take at least two more exposures, one at -1 stop and one at +1 stop.

Histograms!

Camera Metering



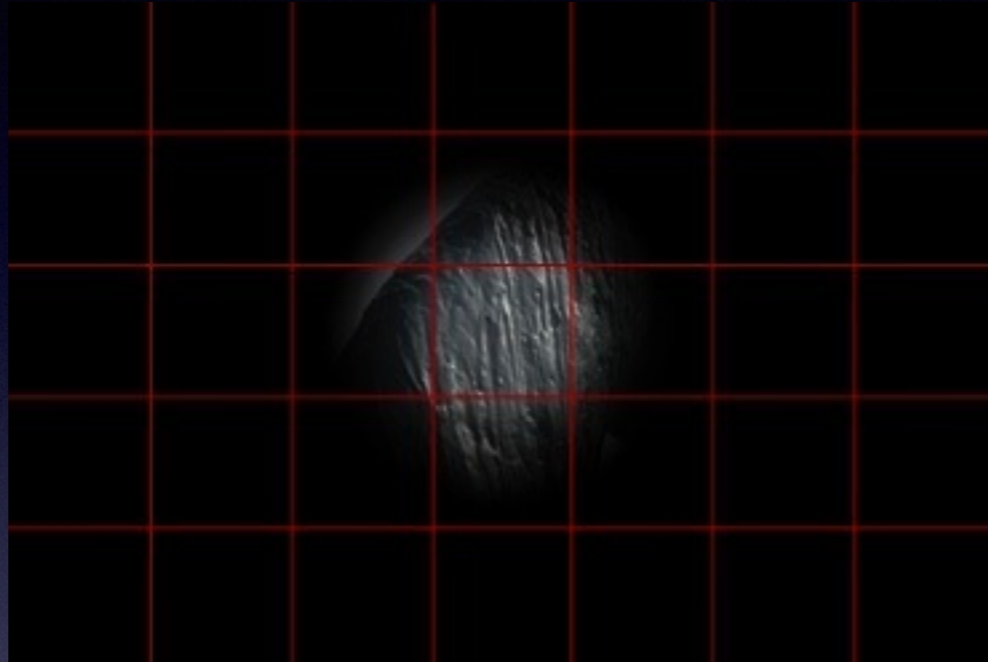
Evaluated metering – the exposure is calculated from the light over the whole picture area.

Camera Metering 2



Centre Weighted
Smaller area - important area of the image

Camera Metering 3



Spot Metering

For focusing on the centre of the image.

Specific area metering

(Point - Half Press - recompose - Full press)

Field of View

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