Exposure Triangle

And Related Things

18th January 2019

ISO

100 200 400 800 1,600 3,200 6,400

Shutter Speed

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

f/2.8 f/4 f/5.6 f/8 f/11 f/16 f/22
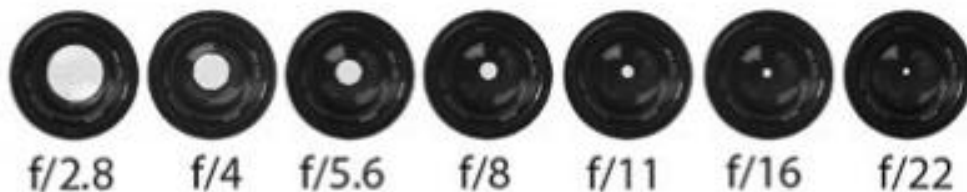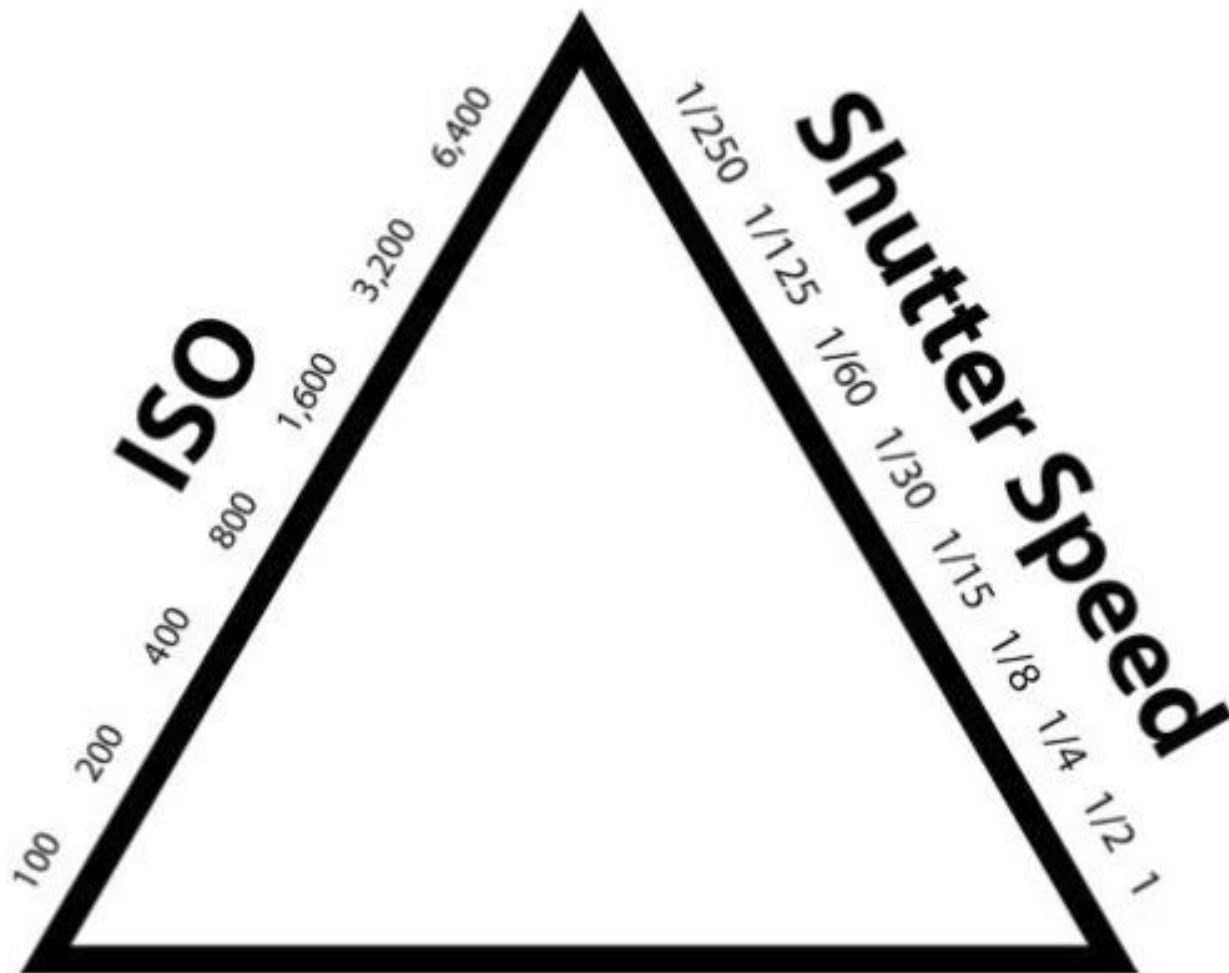
Aperture

Exposure triangle

Normal Basic Camera Settings

Manual (M) and Bulb B	ISO	set by photographer
	Shutter	set by photographer
	Aperture	set by photographer
Program Mode (P)	ISO	set by photographer
	Shutter	set by camera
	Aperture	set by camera
Aperture Priority (Av)	ISO	set by photographer
	Shutter	set by camera
	Aperture	set by photographer
Shutter Priority (Tv)	ISO	set by photographer
	Shutter	set by photographer
	Aperture	set by camera

ISO auto

Exposure triangle

Why use

Manual   Total control

Program Mode   Just for the record, part of the learning curve, pre-checking, too easy not to use and 'I can correct in Photoshop'

Av   Depth of field, subject isolation, 3 dimensional effect, Landscape interest range

Tv   Camera shake prevention, blur introduction, Panning, freeze of action

Exposure triangle

Why choose

Shutter   subject movement
deliberate blur
camera shake
studio flash

Aperture   depth of focus
blur foreground
blur background
blur foreground and background
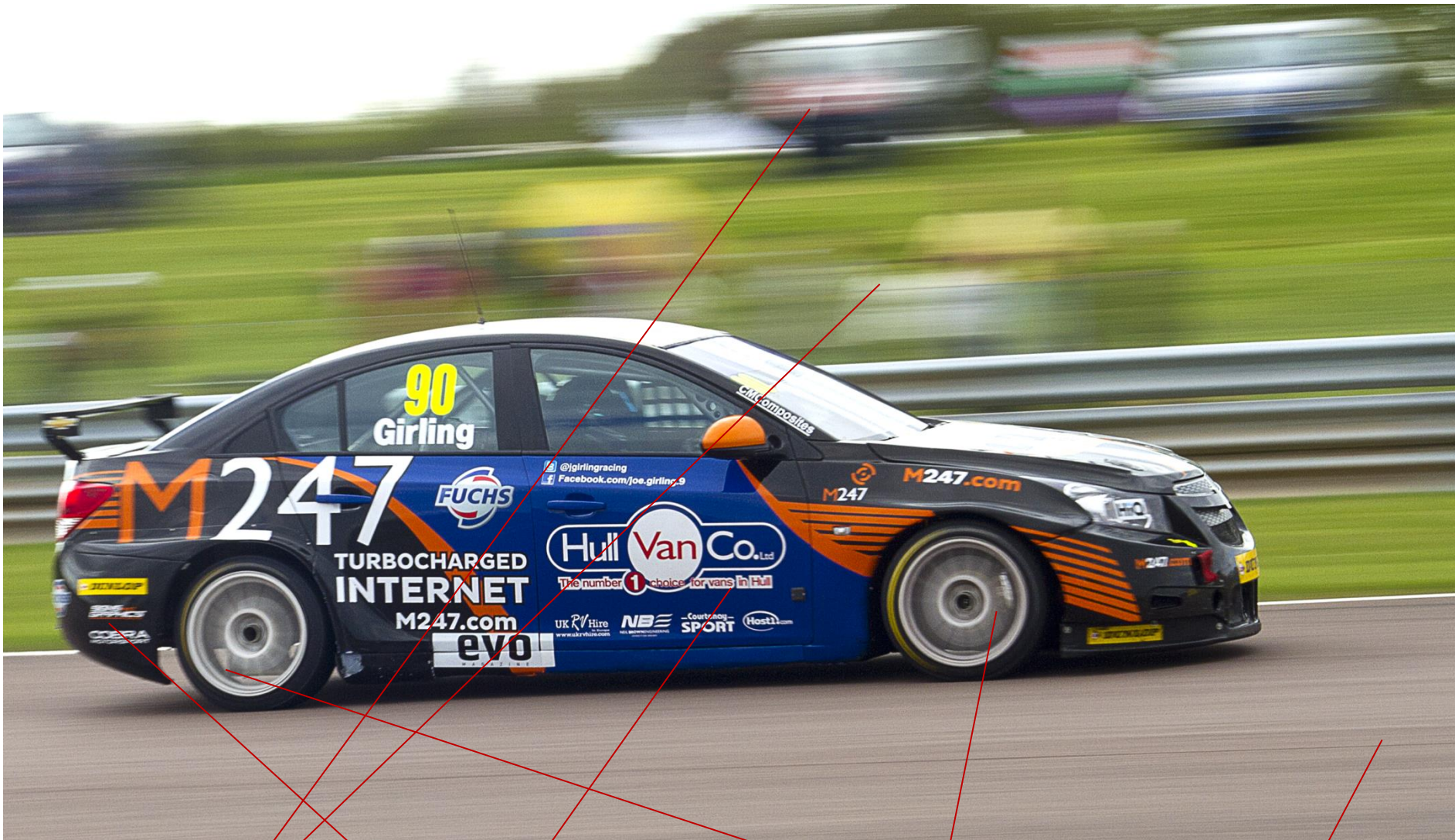studio flash

ISO   enable setting of aperture and shutter setting required
enable use of ND filters
studio flash

This photo uses the chosen shutter speed to
        -illustrate movement, -illustrate freeze
        -illustrate blur   -illustrate panning

What mode did I use?
What settings did I use

Background people and cars blurred

Car body frozen and Relatively sharp

Vertical suspension Movement blurred

Wheel rotation blurred

Road surface blurred

IMG_9080.CR2   ×

Camera Information

Make:	Canon
Model:	Canon EOS 7D; S/N: 1580814706
Owner:	Colin J Hicks
Lens:	18-50mm

Shot Information

Focal Length:	50.00 mm
Exposure:	1/100 sec; f/11; ISO 200; Shutter priority; Pattern metering
Image Size:	5184 x 3456
Orientation:	1 (Normal)
Resolution:	
Flash:	Did not fire

Basic
Camera Data
Origin
IPTC
IPTC Extension
GPS Data
Audio Data
Video Data
Photoshop
DICOM
Raw Data

Powered By
xmp

Preferences   Template... ∨   OK   Cancel

Lens wide angle zoom
18mm-50mm
f2.8 –f22 set at 50mm

Exposure: shutter priority
ISO 200
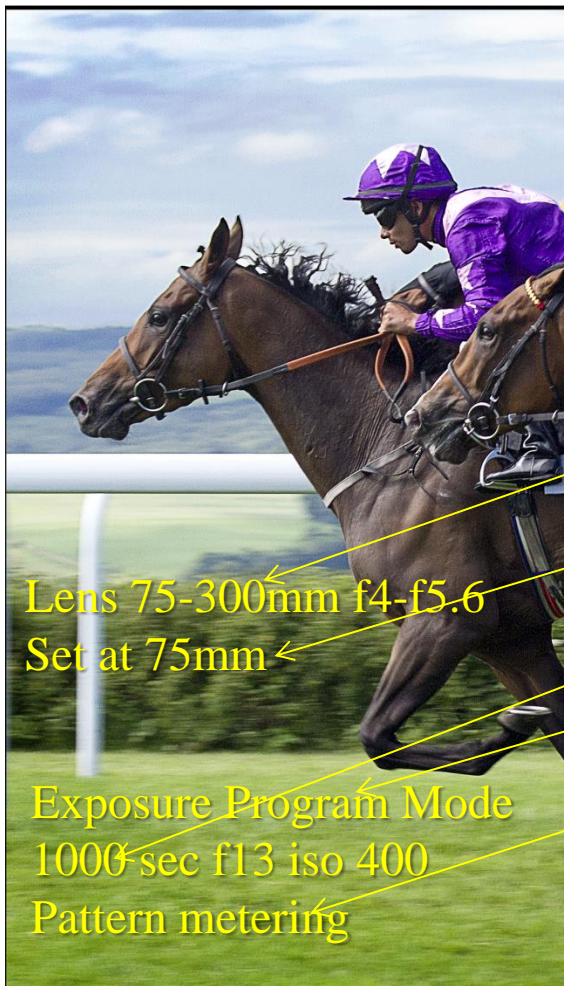Shutter 1/100th sec
Aperture f11
Pattern metering

Rail post and Grass blurred
Due to panning

Background blurred due to
panning and differential focus

Hoof and fetlock blurred
Due to shutter speed

What setting did I use?   What shutter speed is being used?

IMG_5558.CR2 ✕

Basic
Camera Data
Origin
IPTC
IPTC Extension
GPS Data
Audio Data
Video Data
Photoshop
DICOM
Raw Data

Camera Information

Make: Canon

Model: Canon EOS 7D; S/N: 1580814706

Owner: Colin J Hicks

Lens: EF75-300mm f/4-5.6 IS USM

Shot Information

Focal Length: 75.00 mm

Exposure: 1/1000 sec; f/13; ISO 400; Normal program; Pattern metering

Image Size: 5184 x 3456

Orientation: 1 (Normal)

Resolution:

Flash: Did not fire

Powered By
xmp

(Preferences)   Template... ∨   (OK)   (Cancel)

Lens 75-300mm f4-f5.6
Set at 75mm

Exposure Program Mode
1000 sec f13 iso 400
Pattern metering

I used the first two races to experiment with settings. Raised ISO to ensure fast Shutter and moderate aperture

Exposure triangle

Why choose

Shutter   subject movement
deliberate blur
camera shake
studio flash

Aperture   depth of focus
blur foreground
blur background
blur foreground and background
studio flash

ISO   enable setting of aperture and shutter setting required
enable use of ND filters
studio flash

In focus part of Subject is in the foreground

Light is coming thro the window

Face has rim lighting on the forehead and cheekbone

Internal background slightly out of focus

External background moderately out of focus but recognisable

Photographer has white shirt lifting the shadows

This image not Photoshopped (final image cropped to head and shoulders)

Aperture priority/Low ISO

Exposure triangle

Why choose

Shutter   subject movement
deliberate blur
camera shake
studio flash

Aperture   depth of focus
blur foreground
blur background
blur foreground and background
studio flash

ISO   enable setting of aperture and shutter setting required
enable use of ND filters
studio flash

Original scan from a 35mm monochrome negative
Kodak RoyalX Pan rate at ISO 3000

Taken from the pavement on Bourbon Street in
New Orleans

Hand held, No flash

Manual mode + exposure Bracketing

50mm lens F1.8 shutter 30th sec

Exposure triangle

Examples of other modes

Sports   higher shutter speed/wider aperture/high ISO

Portrait   moderate shutter speed/moderate aperture/Low ISO

Landscape   Small aperture/lower shutter speed/low ISO

Night/Lowlight merges multiple exposures large aperture/slow shutter/
                High iso

Mono   pre-view (if happy take it in colour and post process)

Why are we concerned with depth of focus

- There are 2 basic ways that depth of focus is used in photography

  - Out of focus foregrounds and backgrounds make the subject stand out
    - (Shallow depth of focus)
  - Crisp focus from foreground to infinity for landscapes
    - (maximum depth of field)

  - In addition macro photography requires extreme measures and careful consideration

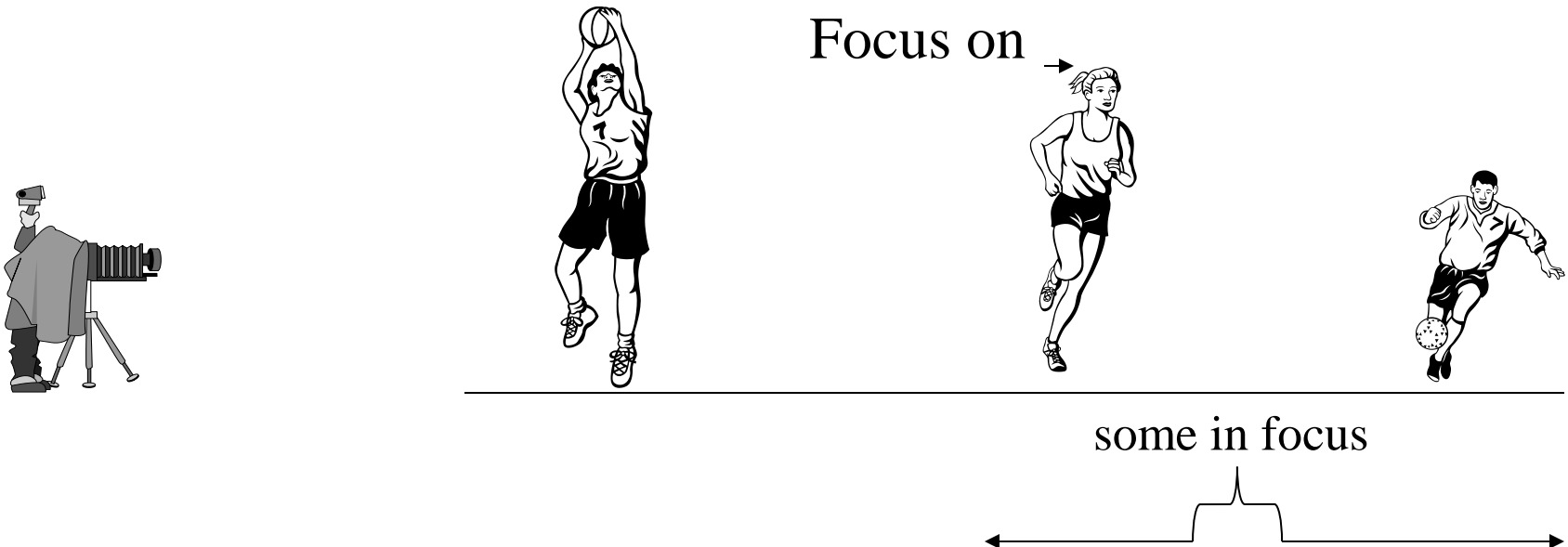- 3 examples of differing depth of focus

What is depth of focus

- Depth of focus is the distance from the closest part of the picture to the most distant part of the picture that is acceptably sharp.
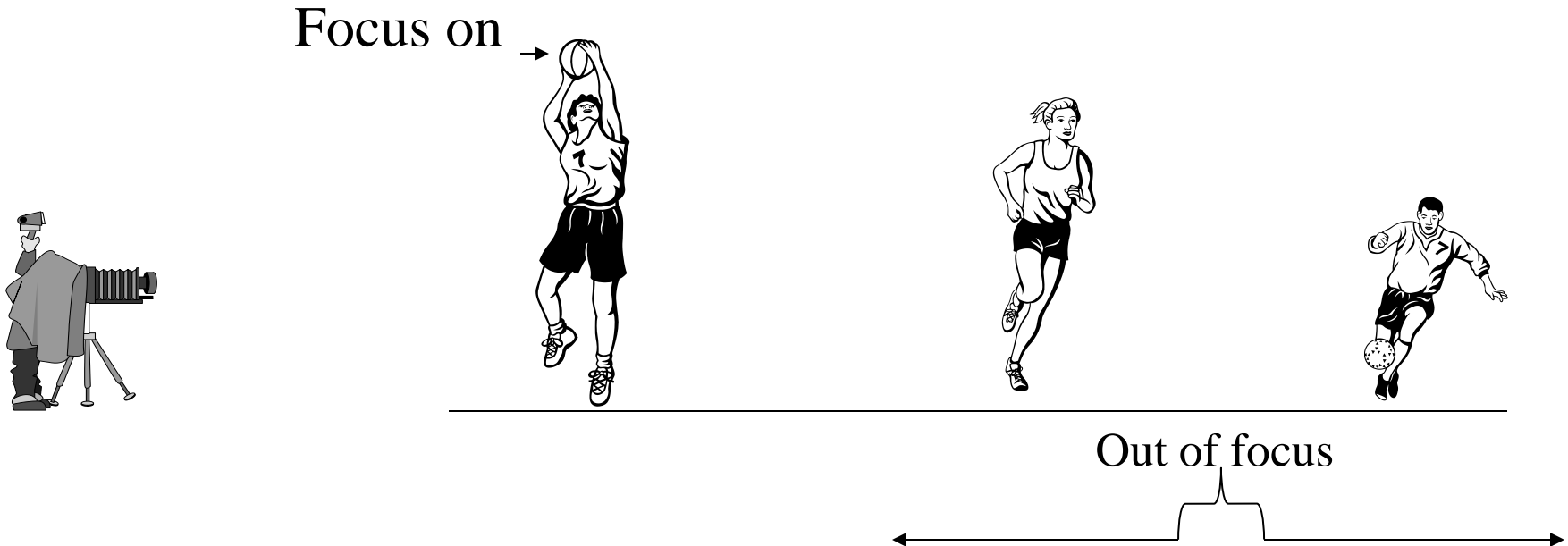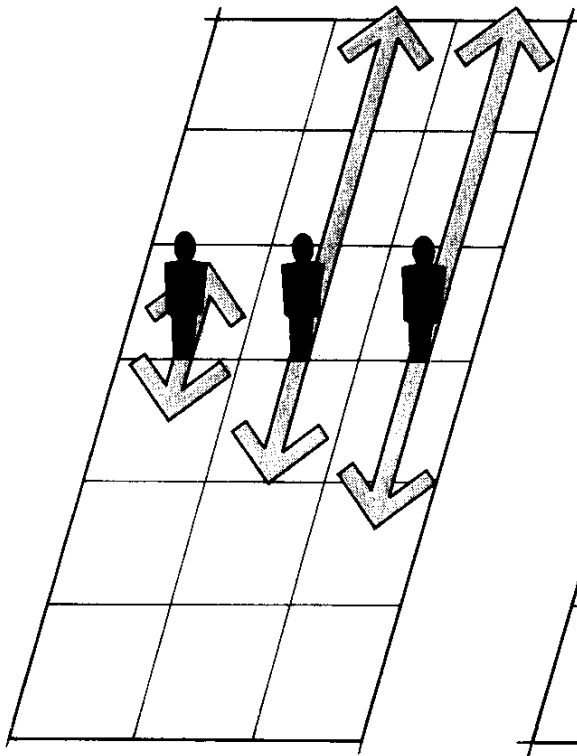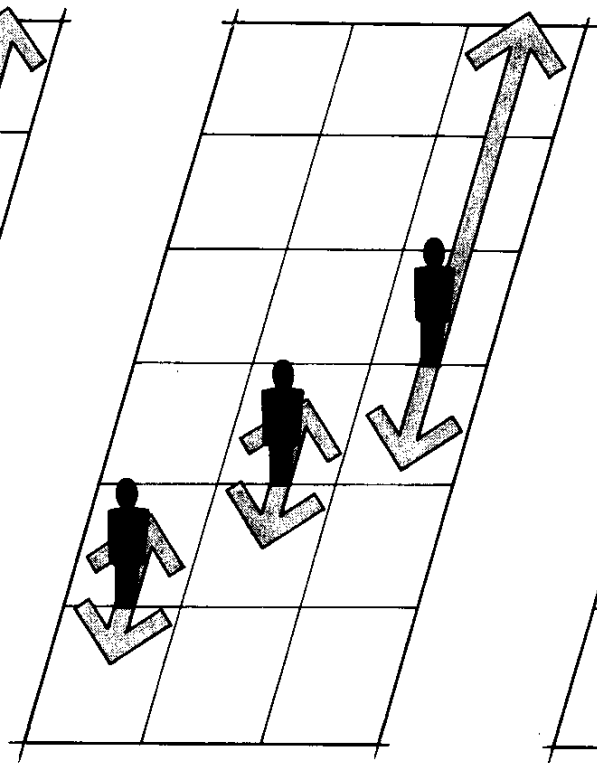
Large depth of focus

Focus on

All in focus
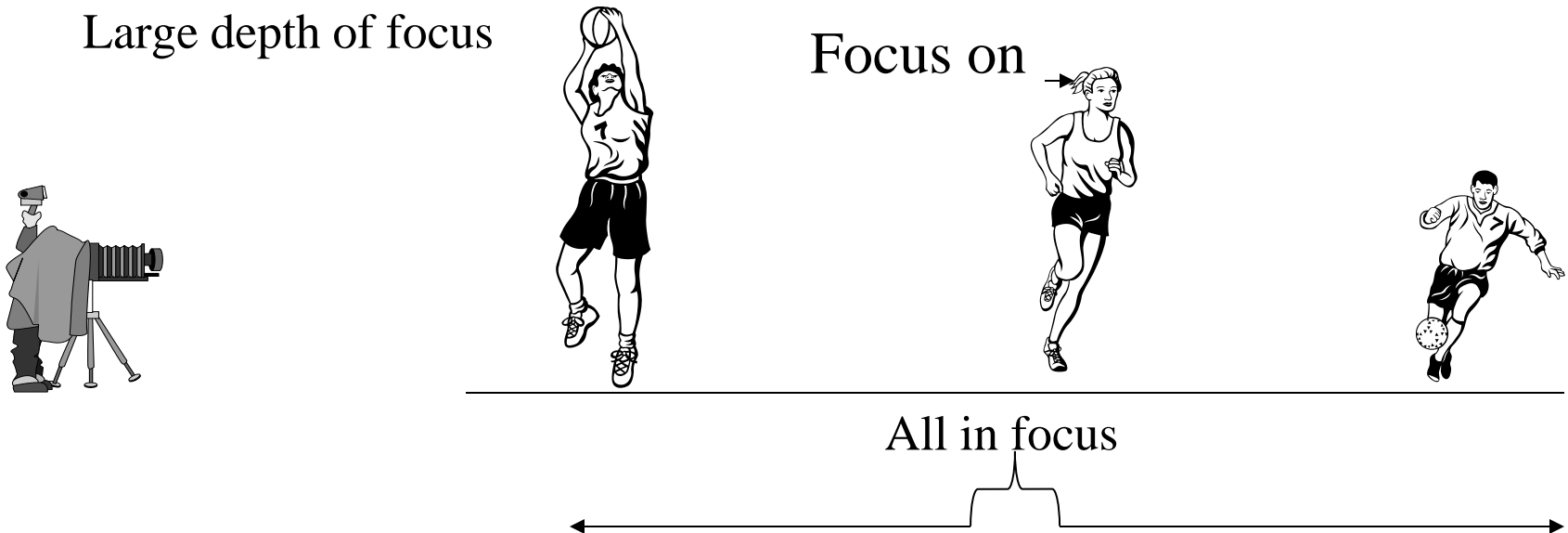
What is depth of focus

- Depth of focus is the distance from the closest part of the picture to the most distant part of the picture that is acceptably sharp.

medium depth of focus

Focus on →

some in focus

What is depth of focus

- Depth of focus is the distance from the closest part of the picture to the most distant part of the picture that is acceptably sharp.
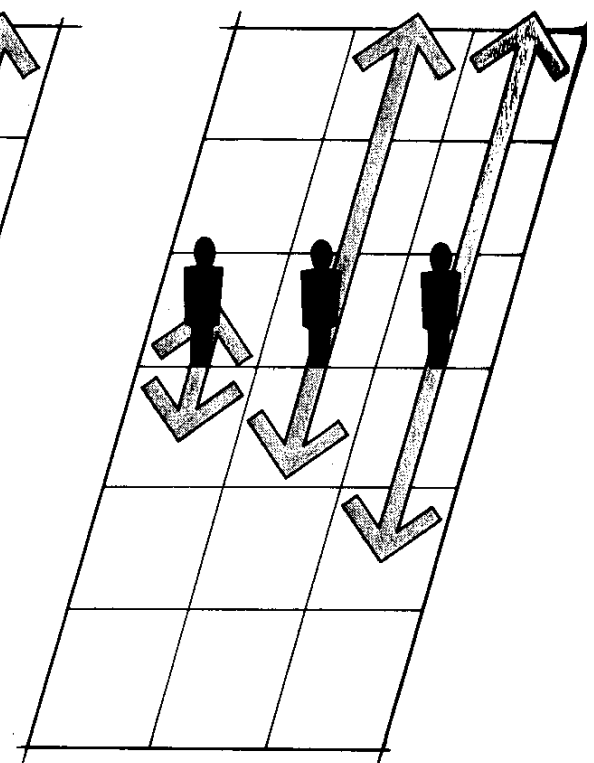
Small (shallow) depth of focus

Focus on

Out of focus

The 3 items that influence what is in focus

Lens Aperture   Point of Focus   Focal Length

Lens Aperture

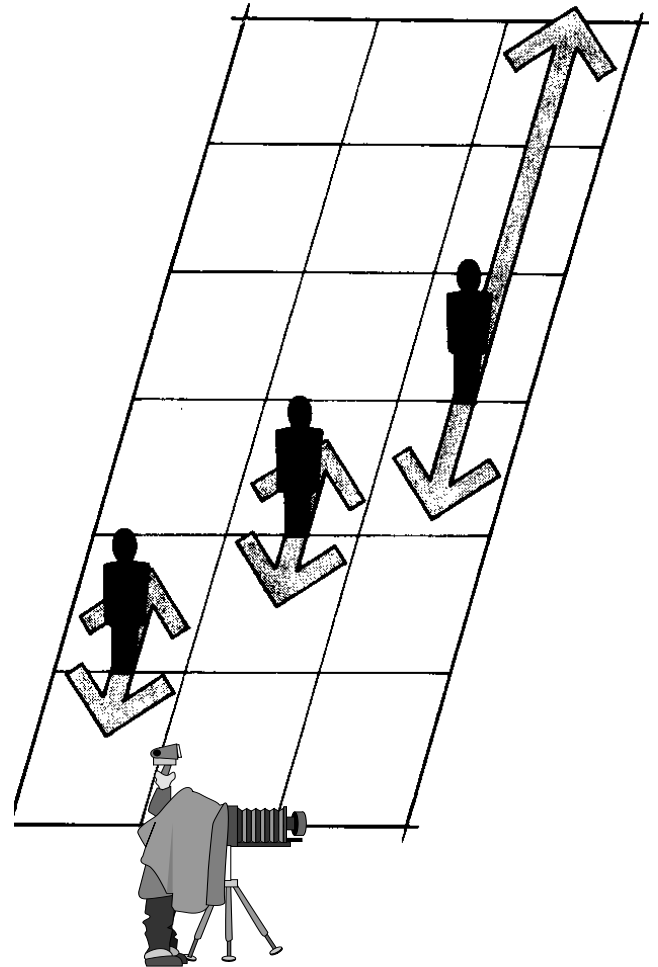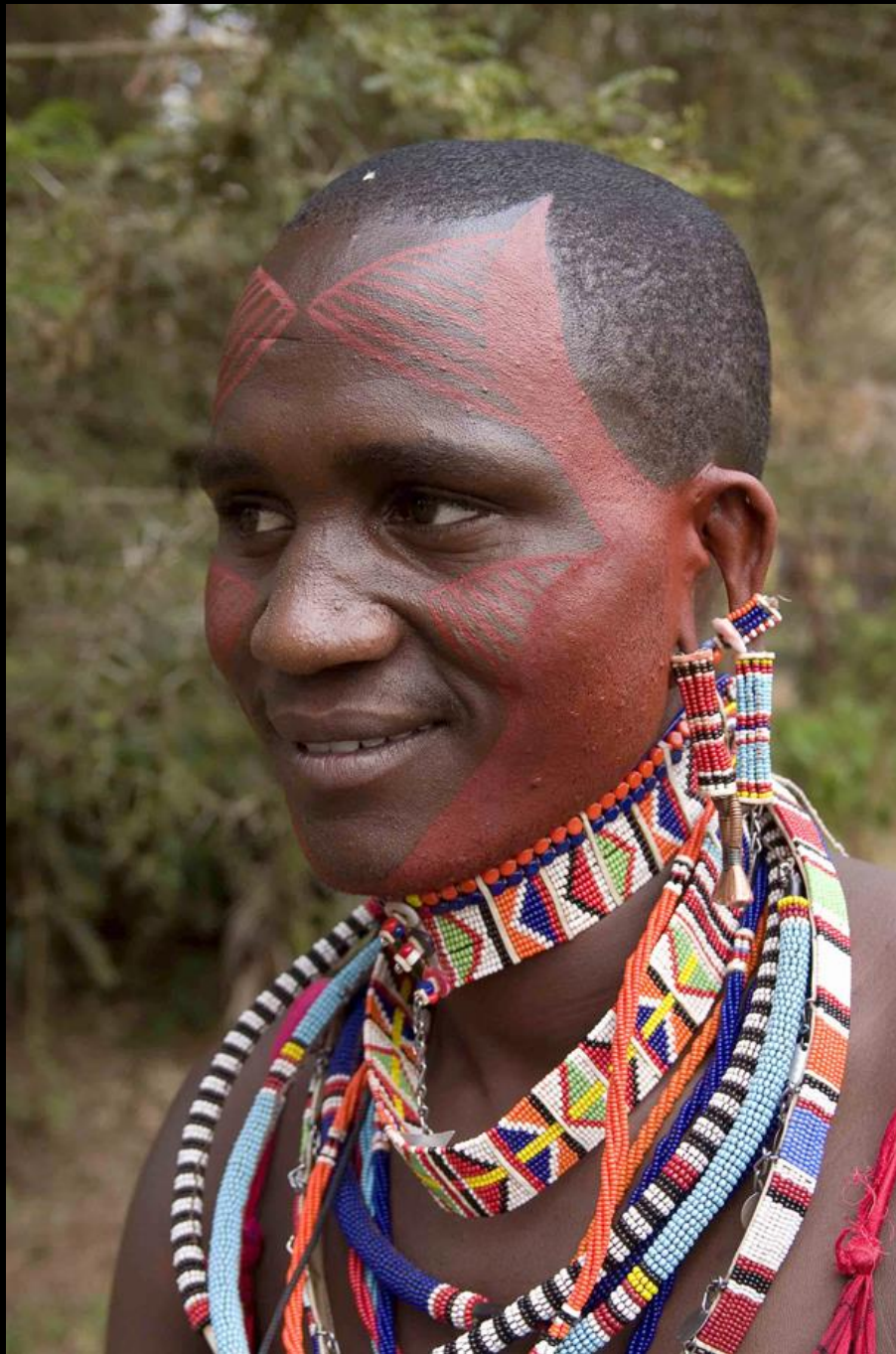The aperture is the most useful control of depth of focus

Large aperture

Medium aperture

Small aperture
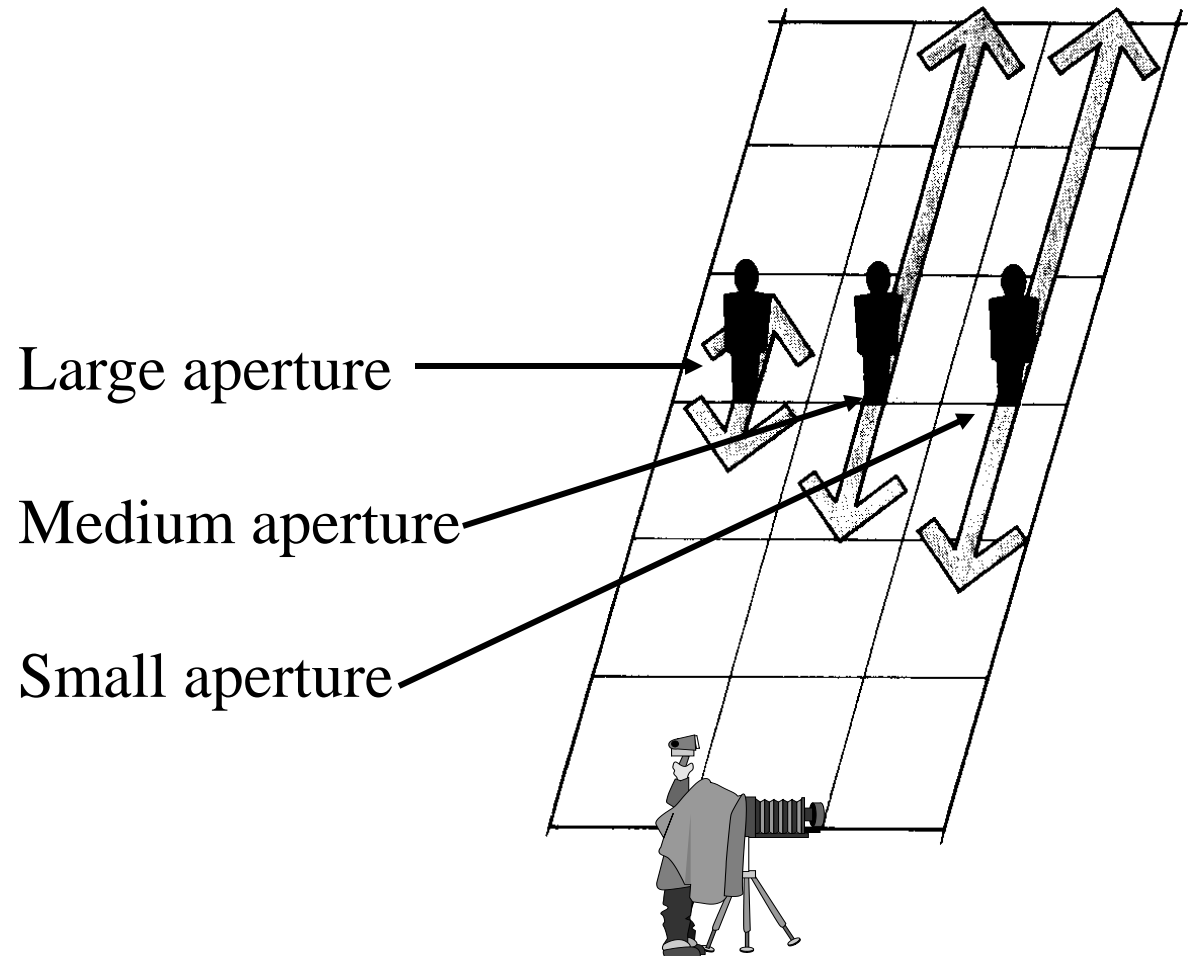
Point of Focus

The closer that you are to the subject the less depth of field there is.

Focal length

Standard lens

Telephoto lens

Wide Angle lens