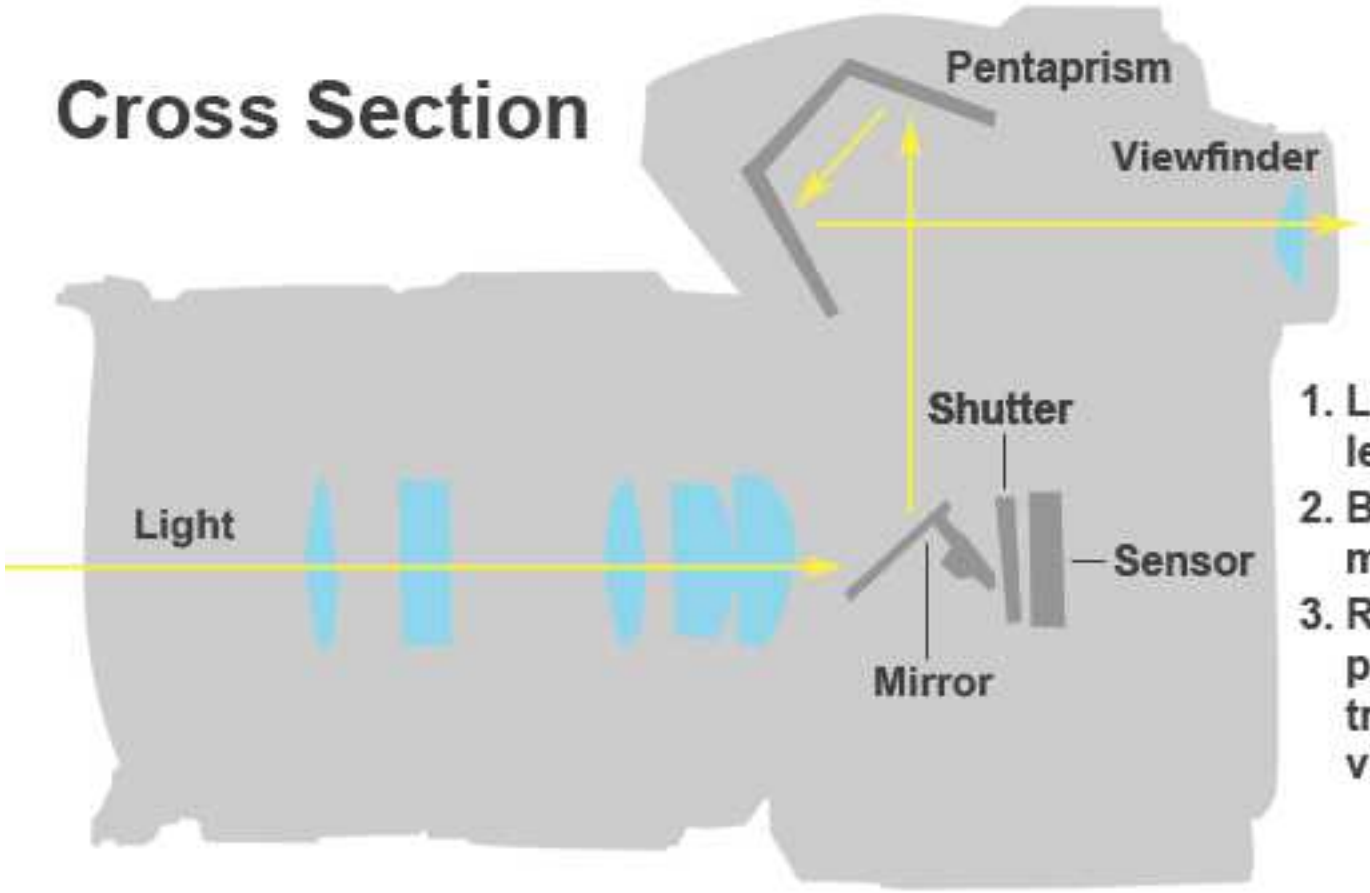
Introduction to ***Digital*** Photography

with **Nick Davison**

Photography is…

- The mastering of the technical aspects of the camera
- *combined with,*
- The artistic vision and creative know how to produce an interesting image

Cross Section



1. Light enters the lens
2. Bounces off the mirror
3. Reflects off the pentaprism and travels to the viewfinder

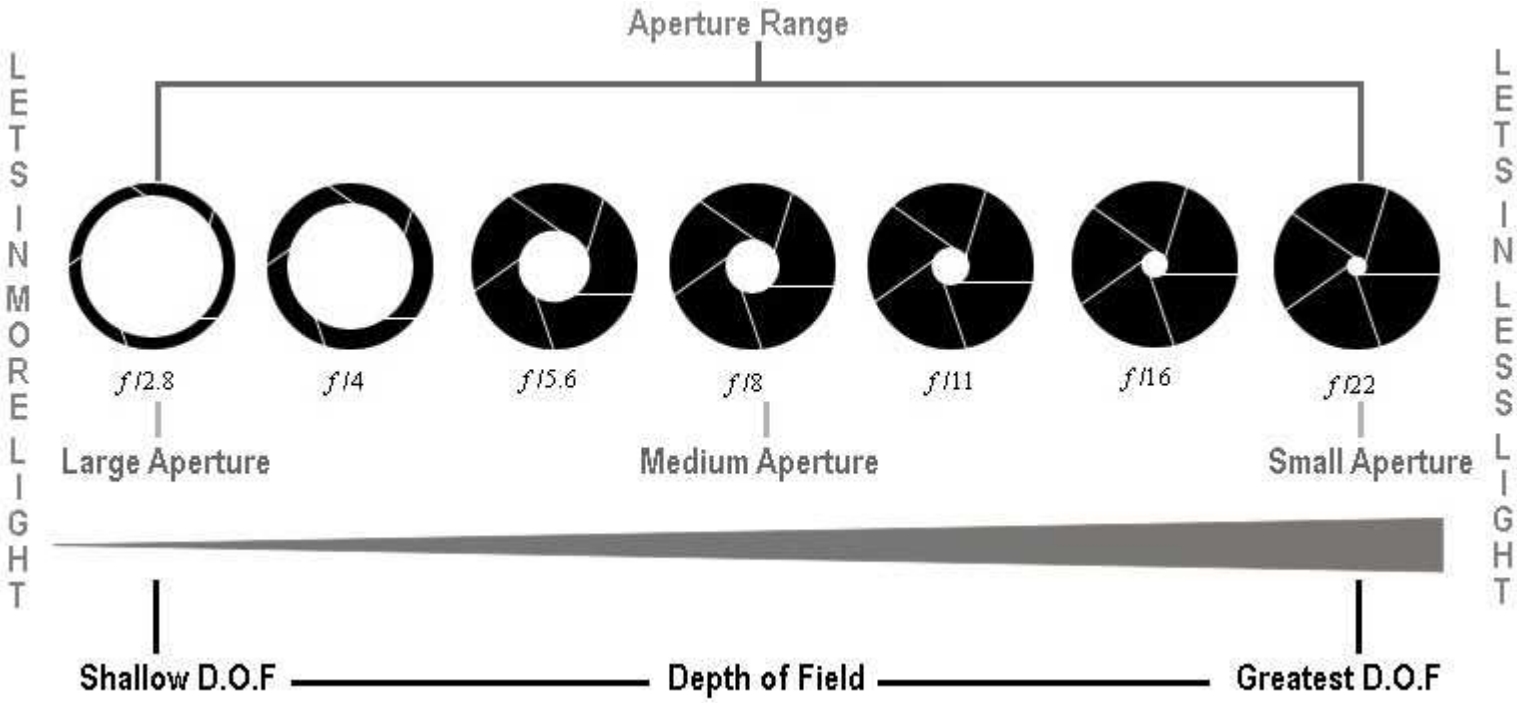
The Craft of Photography

The craft element of photography involves mastering control of all the camera settings and knowing their role in creating the desired image. They are:

- *Aperture*
- *Shutter speed*
- *Exposure*
- *Focusing*

Aperture

- This controls the amount of the image that is in focus – this is referred to as the ***depth of field*** in an image
- The wider the aperture (F2.8, F4, F5.6) the less there will be in focus in your image – *less or shallower depth of field*
- The smaller the aperture (F16, F22, F32) the more there will be in focus in your image – *greater or wider depth of field*


Aperture Range
LETS IN MORE LIGHT
LETS IN LESS LIGHT
f/2.8
f/4
f/5.6
f/8
f/11
f/16
f/22
Large Aperture
Medium Aperture
Small Aperture
Shallow D.O.F
Depth of Field
Greatest D.O.F


F2.8


F16

Depth of field

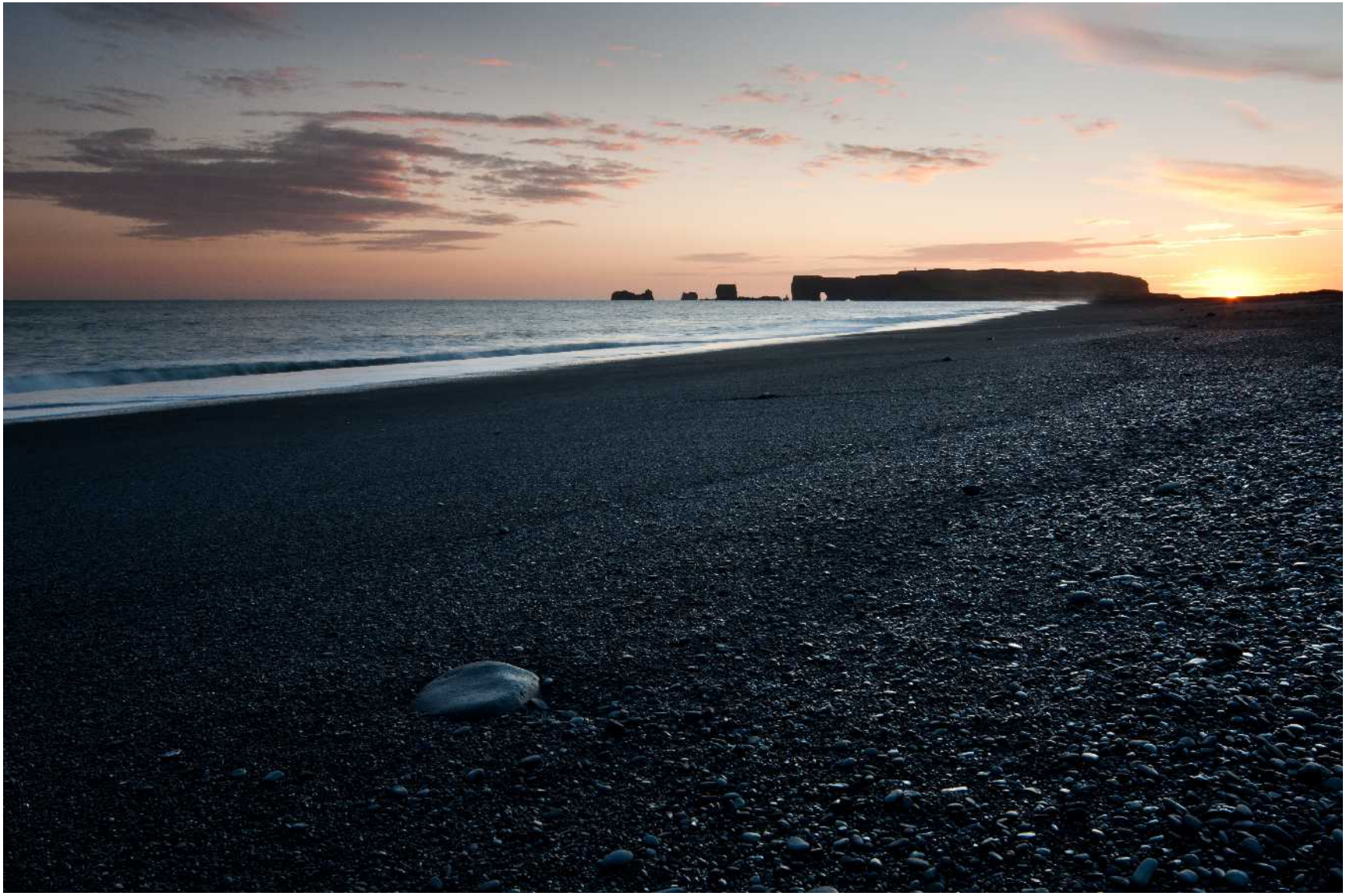
- This is the area of the image that appears to be in focus
- The depth of field changes with aperture settings, the type of lens used, how close you are to the subject and how close is the background to the subject
- The depth of field extends one third in front of your point of focus and two thirds behind it

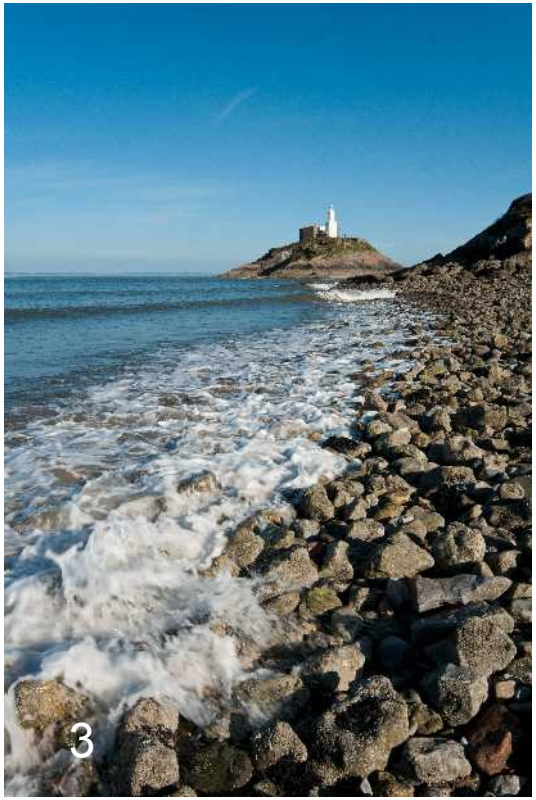

F16


F1.8

How depth of field is affected

- The closer you get to the subject the less depth of field there is
- Wide angle lenses give a greater depth of field
- Telephoto lenses give less depth of field



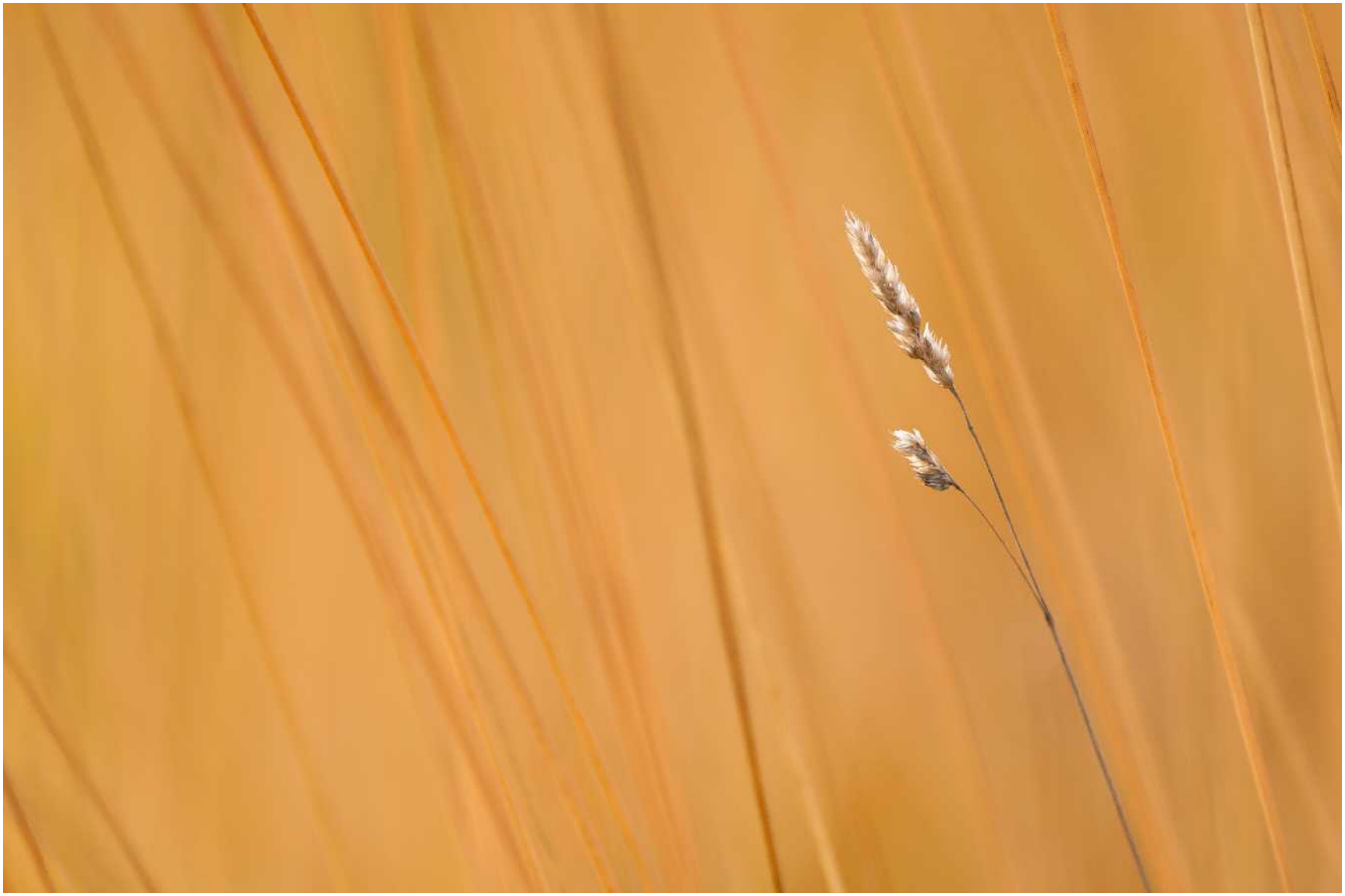


All pictures made a F16. The differences between them are:

Wide angle lens chosen for Pictures 1 & 3 (24mm)

Picture 2 taken with a slightly telephoto lens (135mm)

Picture 2 is a close up image, with the lens close to the subject



Shutter Speed

- This is responsible for freezing motion in an image
- The faster the movement in an image the faster the shutter speed needs to be
- Shutter speeds become more important if you are handholding your camera

1/640

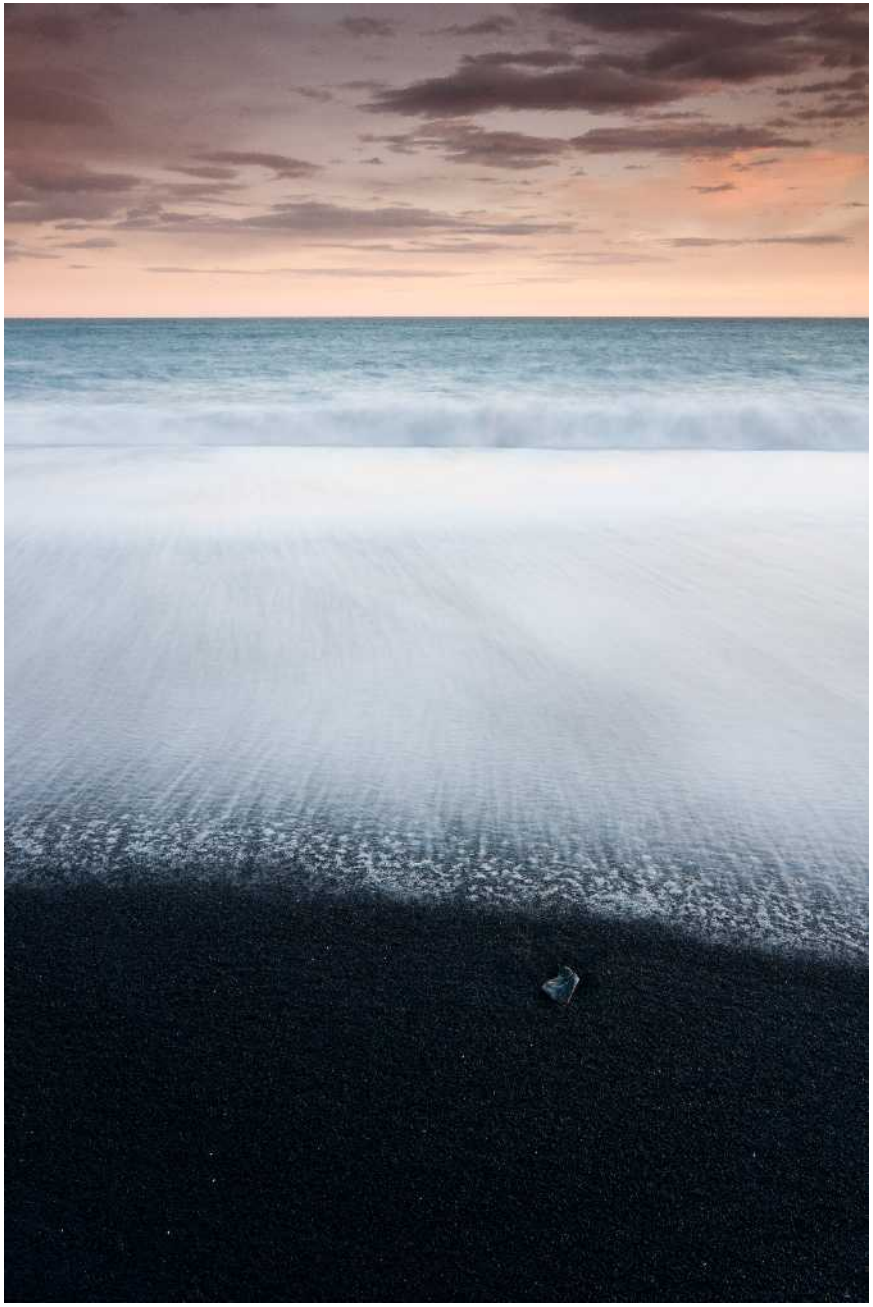
1/250

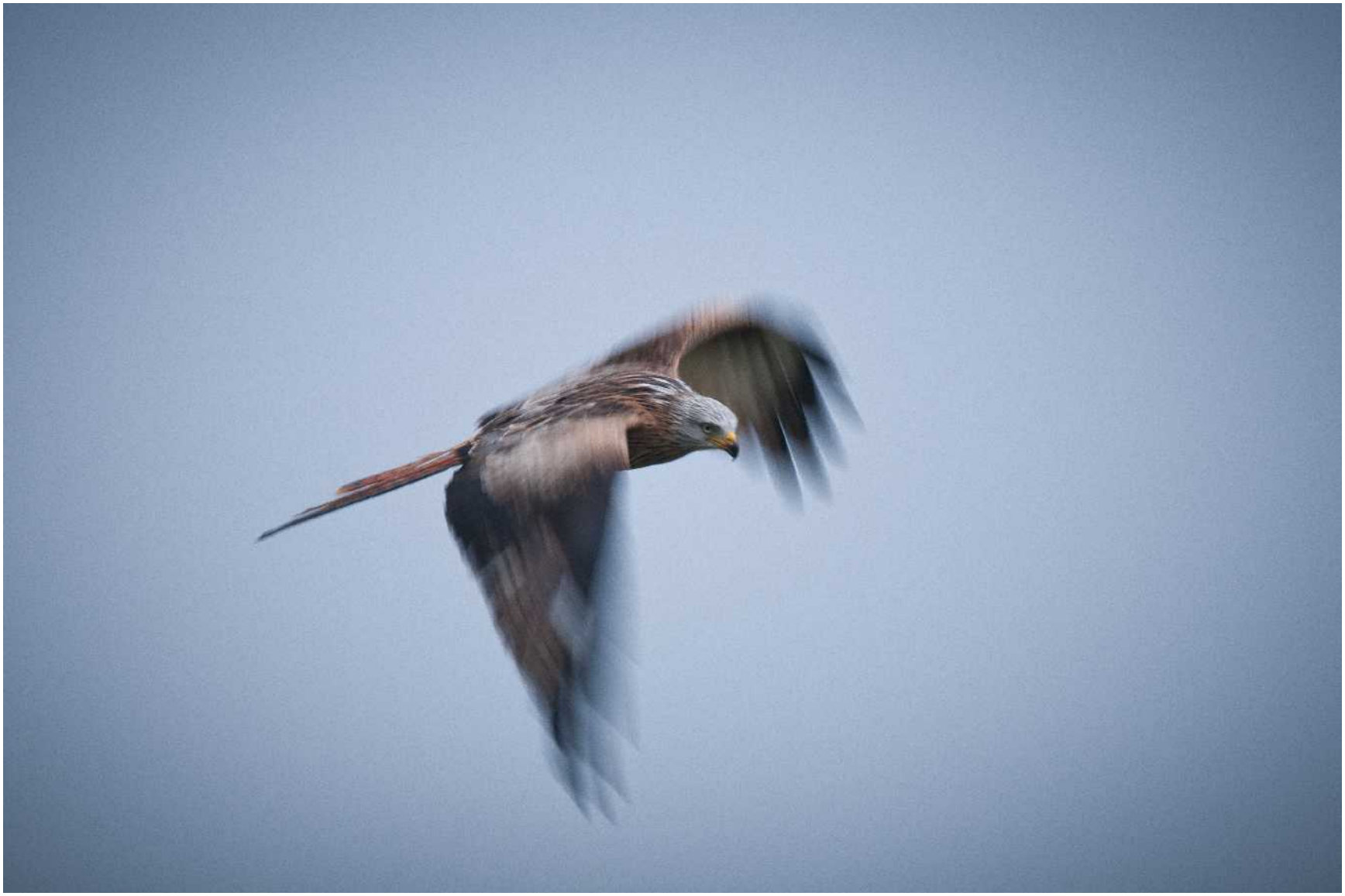
1/125

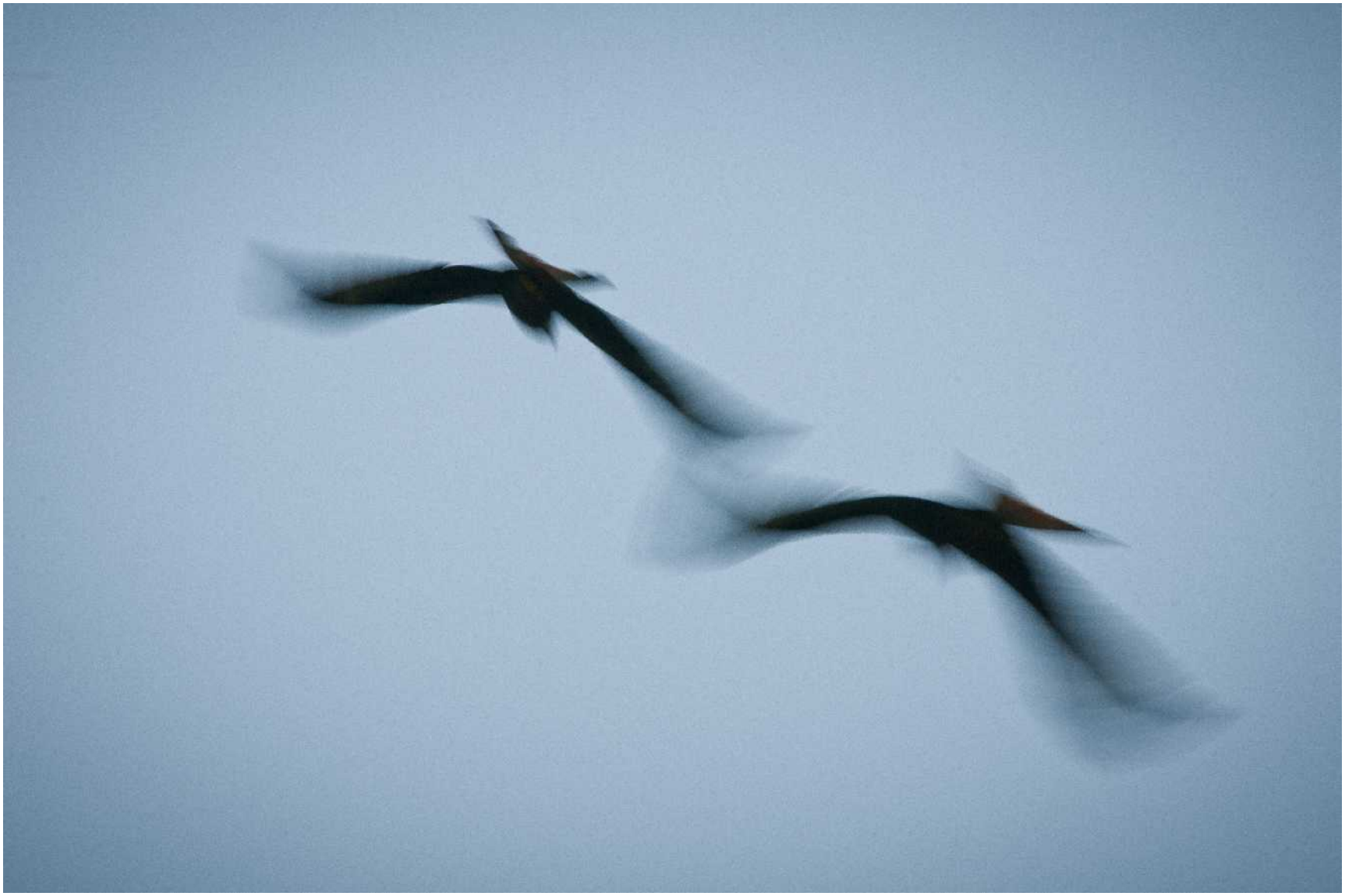
1/60

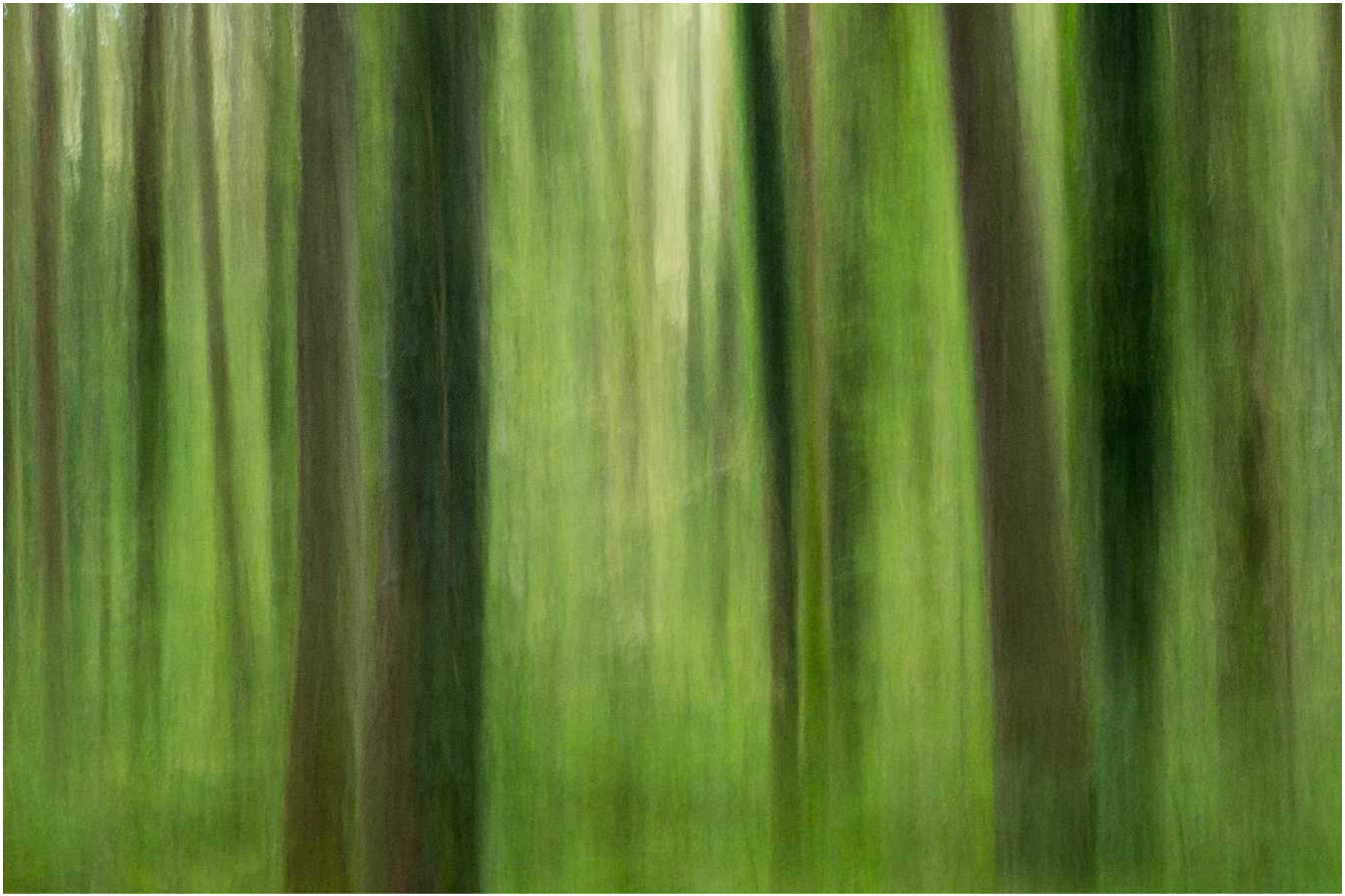
1/30

1/15

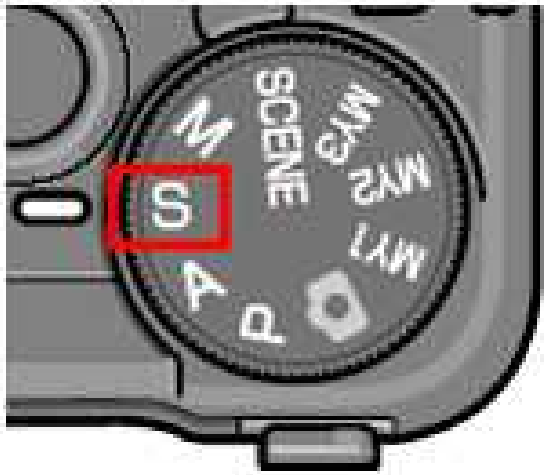




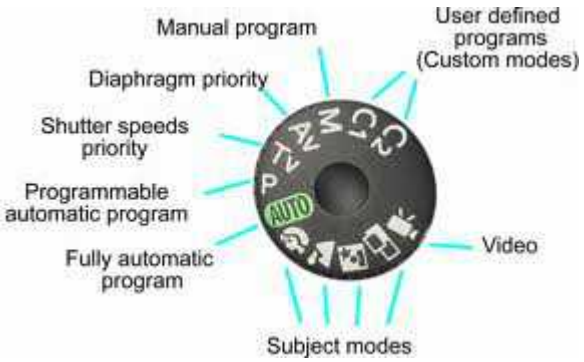




Understanding the camera settings



What do all the letters and symbols mean?



- A or Av = Aperture Priority mode
- S or Tv = Shutter Priority mode
- M = Manual settings mode
- P = Programme mode
- Auto = Automatic mode
- Scene = pre-programmed automatic settings for various situations
- C1 or User 1etc. = custom settings that you have set and saved yourself

Aperture Priority Mode

- The photographer sets the aperture they want to use
- The camera automatically works out the correct shutter speed to get a correct exposure

Shutter Priority Mode

- The photographer chooses the desired shutter speed
- The camera automatically selects the aperture to get a correct exposure

Programme Mode

- The camera selects the aperture
- The camera selects the shutter speed

for a correct exposure

Manual Mode

- The photographer has to set the aperture and shutter speed to get a correct exposure

Automatic Mode

- This is similar to programme mode, so the camera sets the aperture and shutter speed automatically
- It will also fire any built in flash if the camera has one
- It may also change the sensitivity of the camera as well

Pre-programmed Modes

Exposure

- Exposure is decided by the light available, the sensitivity setting on the camera, the chosen aperture and shutter speed required
- Apart from the available light, all the settings can be altered by the photographer to achieve the desired look to the image

Camera Metering Mode

Digital SLR cameras normally have three metering methods:

- *Multi-segment metering*
- *Centre weighted metering*
- *Spot metering*

Most of the time the camera is left on multi-segment metering

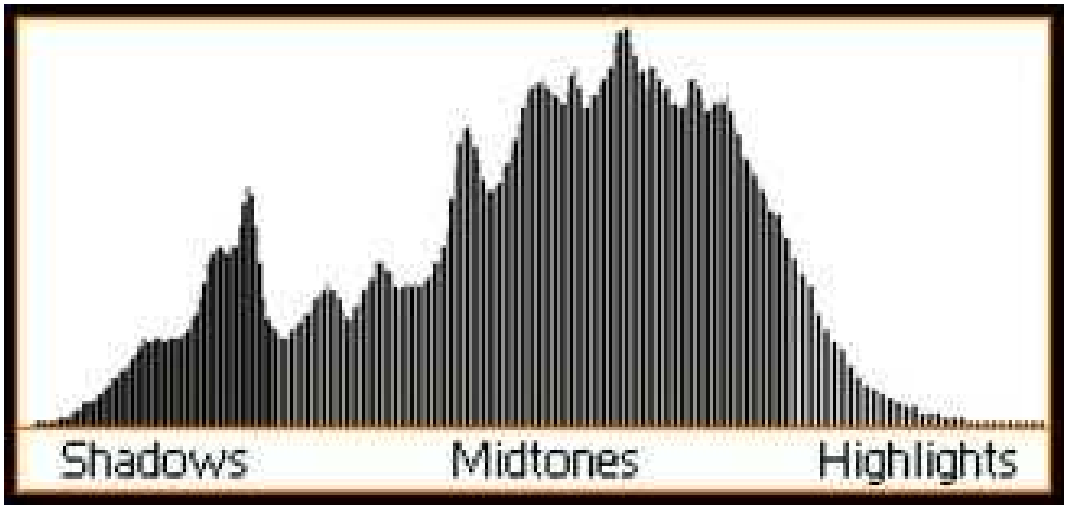
Camera Sensitivity or ISO

- This is normally broken down into settings such as 100, 200, 400, 800 etc.
- Where ever possible use the lowest number to give you better, finer detail in the image
- You can use in between settings as well
- The higher the number, the more sensitive the camera is

The Exposure Process

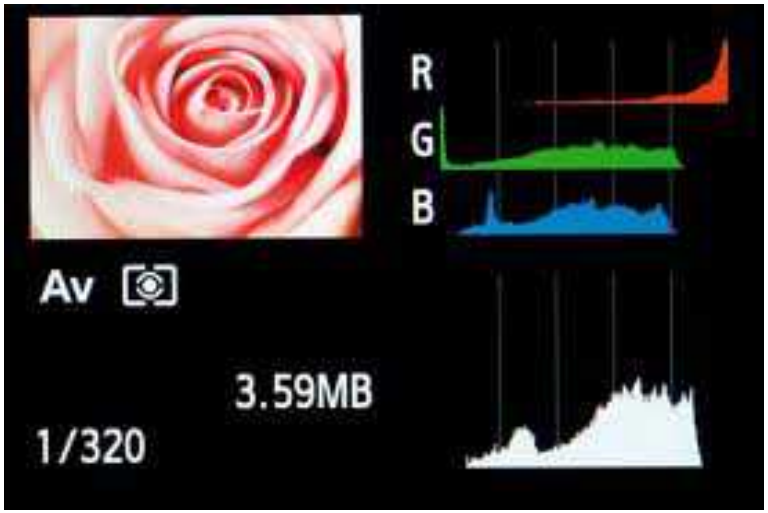
- Set the camera metering mode – *usually multi segment metering*
- Set the camera sensitivity – *how much light is there – bright or fairly dark?*
- Set your desired aperture – *how much of the image do you need in focus?*
- Check your shutter speed – *is it fast enough to freeze any motion in the image or to let you hold the camera still enough?*

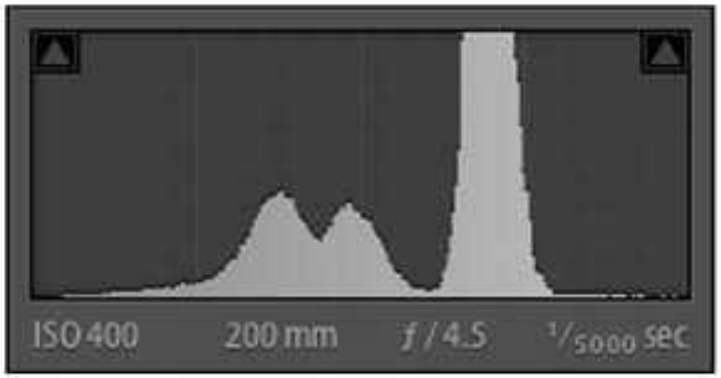
The Histogram

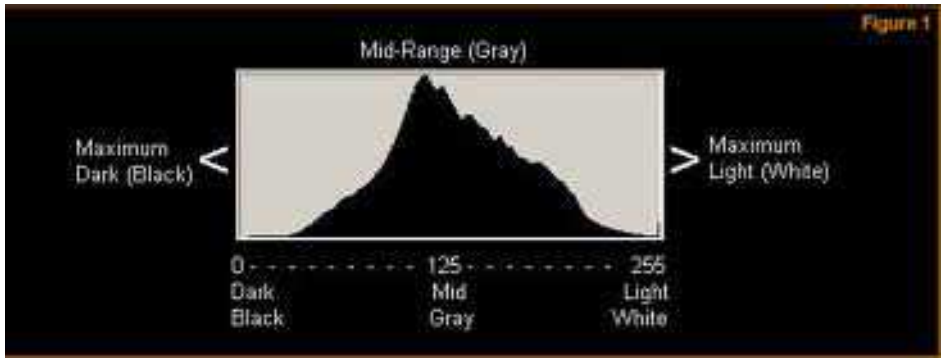


- This allows you to check your exposure immediately so you can make adjustments to it
- The shape of the histogram reflects the tones in the image
- Ignore the height of the histogram

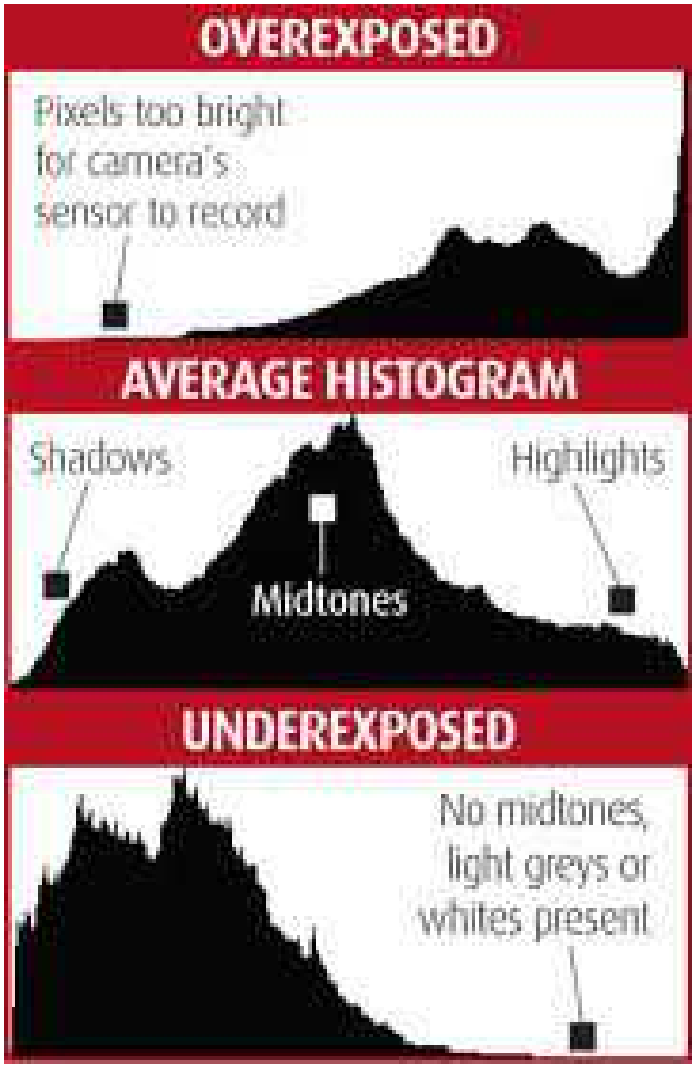
Understanding the Histogram



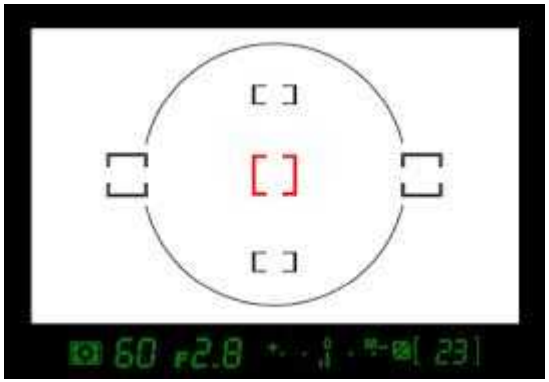


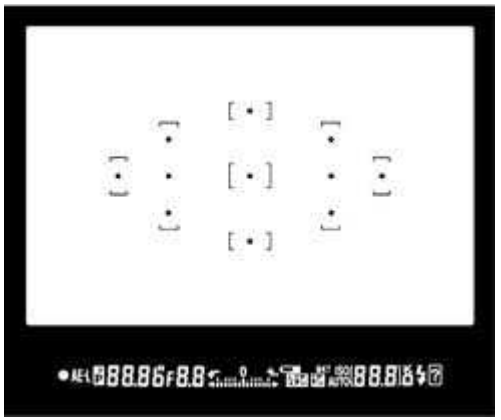


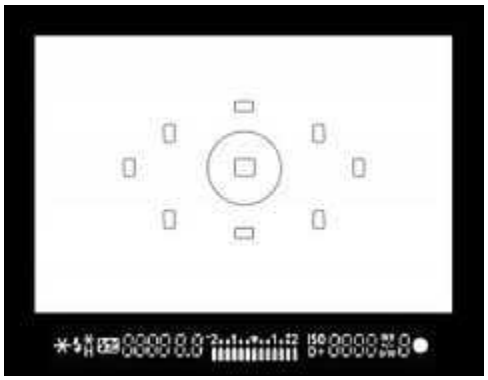
What is the correct exposure?

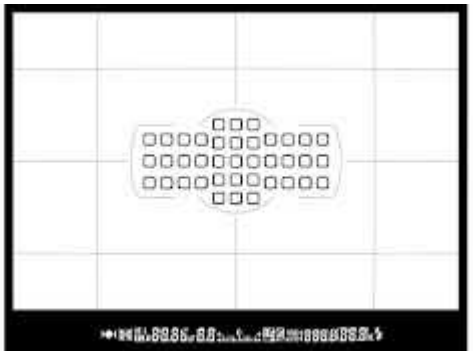


Focusing









Focusing Modes

- Single Shot AF-S (Nikon)
- One shot AF (Canon)

- Continuous AF– C (Nikon)
- AF servo (Canon)

- Auto Servo AF (Nikon)
- AI Focus AF (Canon)

One shot/Single Shot

- Designed for use with stationary subjects
- Once the camera has locked focused on the subject it will not change if the subject moves
- You can choose which focusing point you use to focus with
- If your subject moves, you will have to refocus

Continuous/Servo AF

- Designed to be used with moving subjects
- The camera tries to keep focusing on the subject as it moves
- Has various sub settings such as dynamic tracking, 3D, group points etc. which will move the focusing point to try and keep it on the subject as it moves

Auto servo/AI focus AF

- The camera tries to choose the best AF setting for you.
- It automatically switches between One shot/single shot AF and continuous/servo AF as you take pictures

AF Area Mode

- Single Point
- Dynamic Point
  - 9 point
  - 21 point
  - 37 point
- 3D tracking
- Auto-area AF

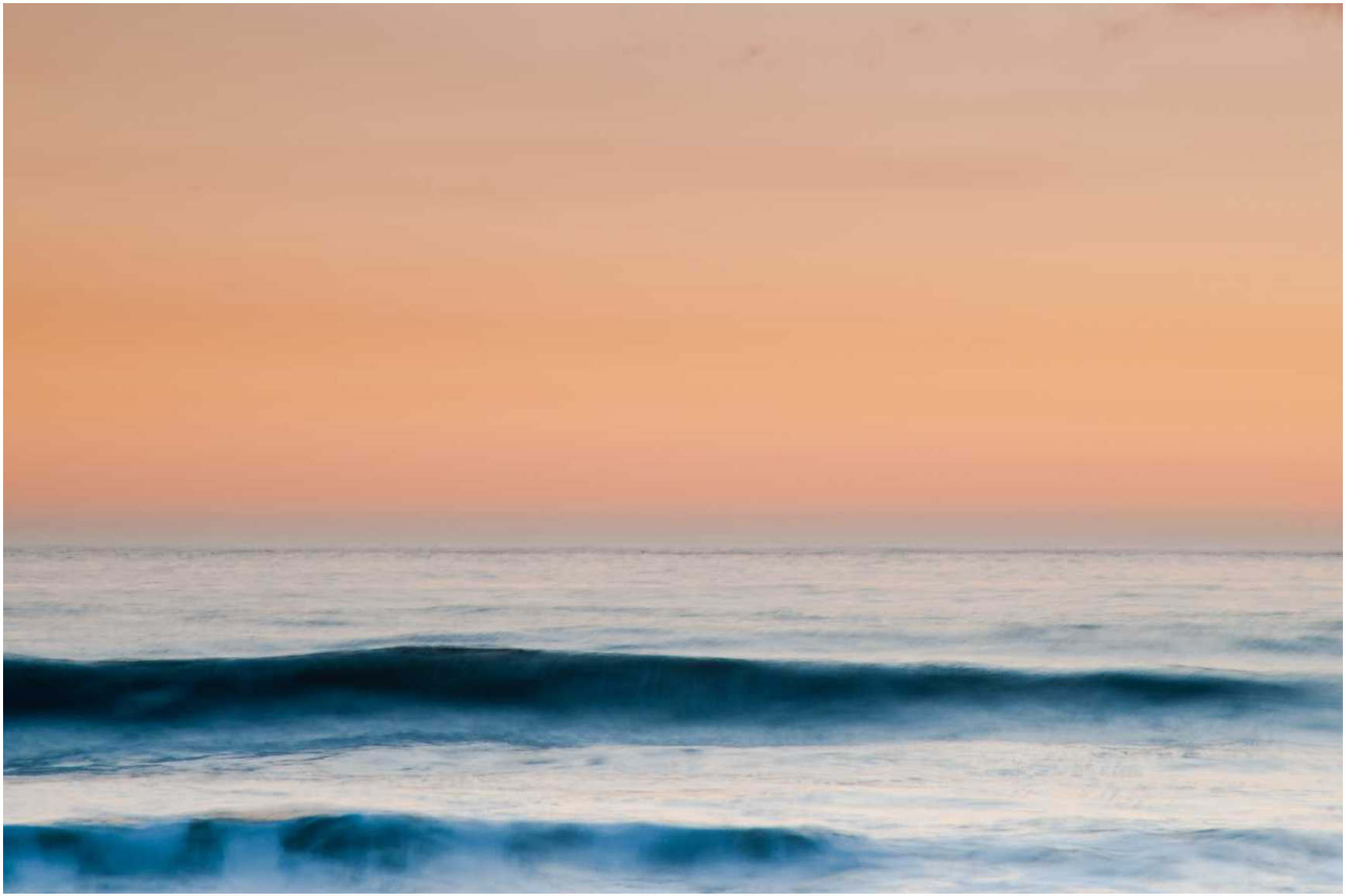
Where to focus?

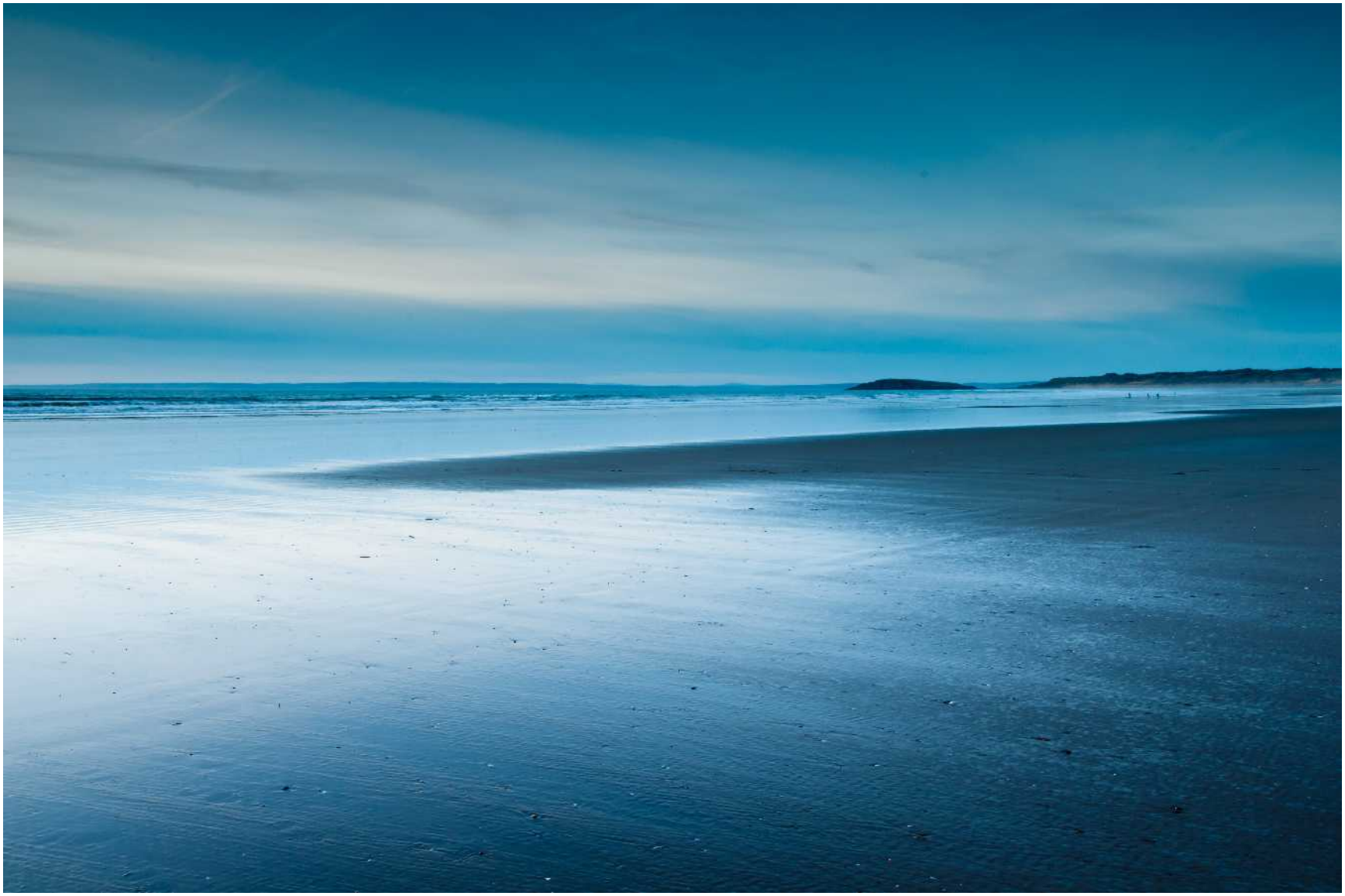
Focusing tips

- Focus on the subject that is the most important in the image
- Use manual focus when doing macro photography and using a tripod
- If handholding the camera when doing macro photography, set the camera to continuous autofocus to compensate for you moving
- On compact cameras try and set the focusing point to the central sensor only; you may have to turn off intelligent autofocus or face recognition
- If making a photograph where you want every thing in focus, focus one third of the distance into the picture
- Learn how to half press the shutter button to lock the focus on the camera, without taking a picture

White Balance

- Light has a colour to it.
- Light at sunrise and sunset is more orange/warm
- Light takes on a blue/cool tint in shaded area





Setting up the camera

- Jpeg or Raw file setting (or both)
- Colour space sRGB or AdobeRGB
- High ISO noise reduction
- Long exposure noise reduction
- Image sharpening
- Colour settings – neutral, standard, vivid etc.
- Auto ISO
- White balance
- Setting Copyright
- Sounds
- Image review time
- LCD display