PHOTOGRAPHY

BEYOND THE BASICS : PART 2

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PART 2 TOPICS

- ISO
- Exposure Part 2
- Metering Modes
- Shooting Modes
- Focussing Modes

First, some REVISION

Exposure: 1/250 @ 22

Will this give me a good DOF?	**Yes**
What aperture would I need if I wanted a shallow DOF?	**f5.6**
What would happen to my shutter speed if I changed to f5.6?	**Increase**
What would my shutter speed be at f11?	**1/1000**
What would my shutter speed be at f5.6?	**1/4000**
If I wanted to show movement, what aperture would I need?	**Small**

Onto some new stuff!

ISO

What is it?

Used to be film sensitivity, now it's sensor sensitivity

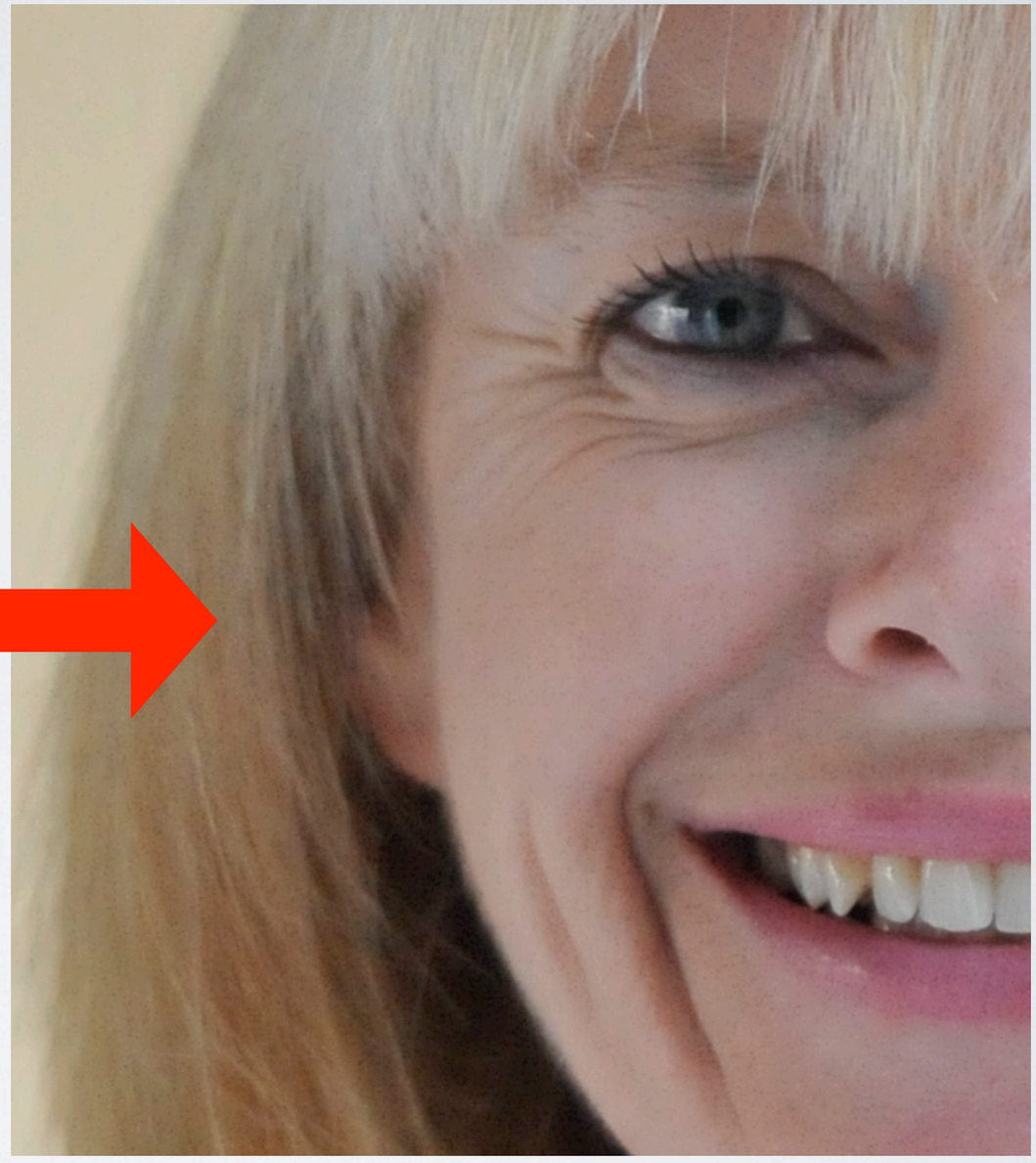
ISO

What does it affect?

Grain or noise in your photos

plus other stuff I'll get to

With older cameras and film, high ISO was an issue



ISO 4000!

ISO Values

100, 200, 400, 800, 1600, 3200, 6400...

The smaller the number, the finer the detail

Why not shoot at 100 ISO all the time?

Because - ISO also affects exposure!

The lower the ISO,
the more light needed for the exposure

An image taken at:

100 ISO - needs twice as much light as the same image taken at 200 ISO

Just as, an image taken at:

800 ISO - needs half as much light as the same image taken at 400 ISO

1 jump in ISO value is equal to 1 stop in exposure value

For low light situations, use a higher ISO

This will give you faster shutter speeds

The trade off is more ‘noise’ or ‘grain’ in your photo

In situations of bright light, use a lower ISO

This will give you less ‘noise’ or ‘grain’ in your photo

The trade off is slower shutter speeds

Let’s look at some examples bringing everything together

Plenty of light here so
we can use a low ISO,
say ISO100 or 200

With bright light your options in regard to DOF open up without the use of a tripod

Low light situations require a high ISO or a tripod

Low Light - high ISO's

Exposure - the complete story now!

is made up of shutter speed, aperture and ISO

For example:

1/500 at F8 at 400 ISO

Now we have 3 variables to ‘play’ with instead of 2

Shutter speed, aperture and ISO

Change one and you have to change one of the other two for the same exposure

Aperture
ISO
or Shutter Speed

Change one and you have to change
one of the other two for the same exposure

Let's say, you are shooting a landscape on the rocks on a cloudy day

you want a good Depth Of Field (DOF) - **F16**

It's cloudy, so we choose a low ISO for flexibility - **800 ISO**

The camera says the correct shutter speed is **1/250 sec**

NOTE: we will be handholding the camera - no tripod

Correct exposure for our landscape

1/250 at F16 at 800 ISO

Now, we want to photograph a portrait - shallow DOF

Let's say, we want F5.6

That's how many stops wider than F16?

Apertures

1/250 at F16 at 800 ISO

if we open our aperture to f5.6 without altering shutter speed or ISO
what happens to our image?

1/250 at F5.6 at 800 ISO

We will be 3 stops over exposed!

f16

f11

f8

f5.6

1 stop

2 stops

3 stops

Our photo will be 3 stops too bright

Both images are 3 stops overexposed

Questions?

To take this setting:

1/250 at F16 at 800 ISO

to this setting, and retain the correct exposure

1/250 at F5.6 at 800 ISO

we need to adjust the shutter speed or the ISO by 3 stops too

So

1/250 at F16 at 800 ISO

is the same exposure as

1/500 at F11 at 800 ISO

is the same exposure as

1/1000 at F8 at 800 ISO

is the same exposure as

1/2000 at F5.6 at 800 ISO

Just as:

1/250 at F16 at 800 ISO

is the same exposure as

1/250 at F11 at 400 ISO

is the same exposure as

1/250 at F8 at 200 ISO

is the same exposure as

1/250 at F5.6 at 100 ISO

Our aim was to open the aperture for a shallow DOF - portrait

1/250 at F16 at 800 ISO

1/2000 at F5.6 at 800 ISO

1/250 at F5.6 at 100 ISO

We achieved that in either of two ways.

1. Increase the shutter speed
2. Lower the ISO

1/250 at F16 at 800 ISO

1/2000 at F5.6 at 800 ISO

1/250 at F5.6 at 100 ISO

These three settings are all the same exposure.

What differences do we get between the three?

Questions?

Then a short break

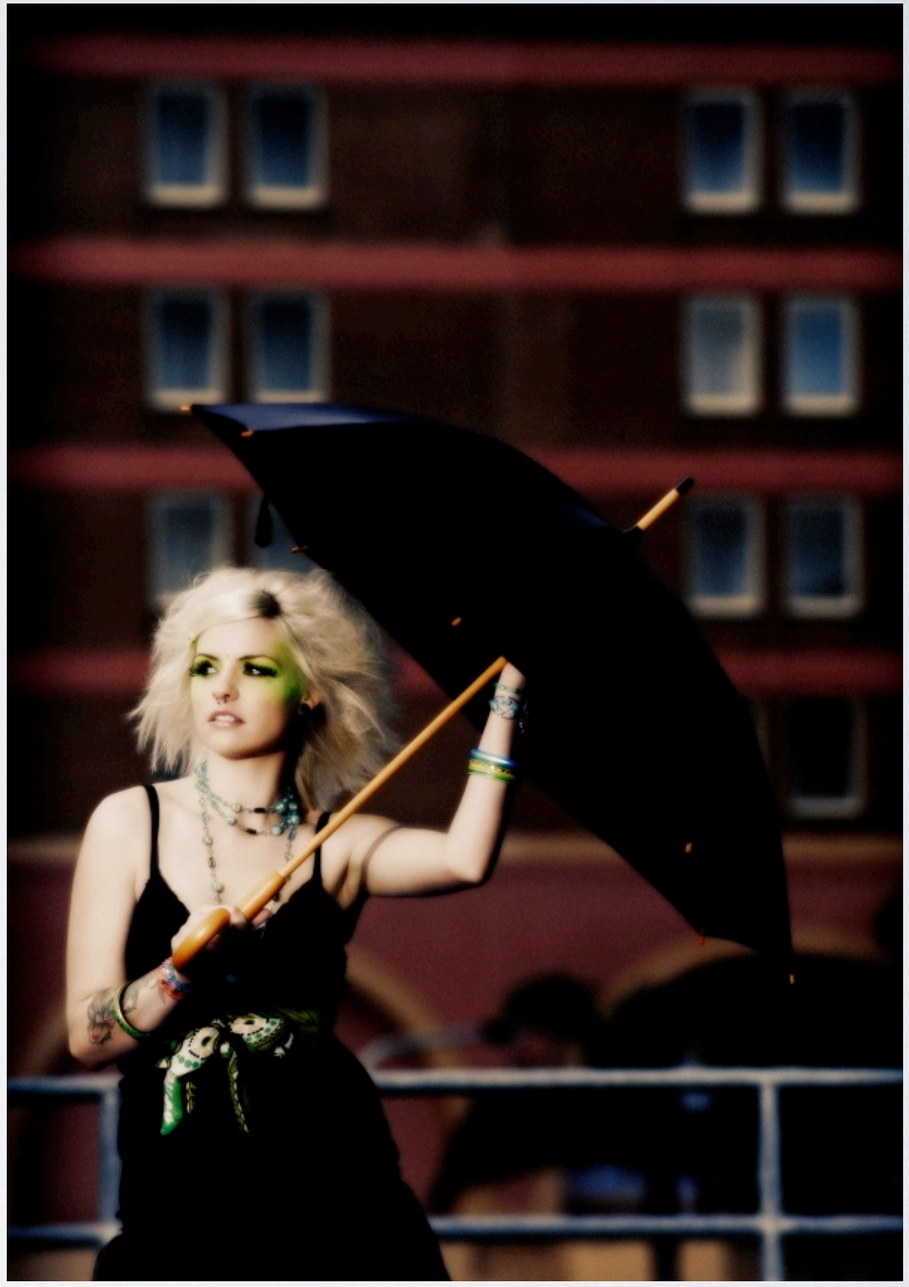
What am "I" thinking when it comes to exposure and my photos?

Explain these points

Firstly - aperture and DOF

2 and 3 are a trade off between shutter speed and ISO

Once I've decided on an aperture for the image in my head I work out the rest depending on the amount of light



Shutter speed will affect movement in my image and camera shake

Camera shake = bad photos!

ISO affects image noise or clarity in my image

aperture

shutter speed

ISO

Every image is a Trade Off

Camera Shake and the Reciprocity Rule

To reduce your chance of camera shake
the minimum shutter speed is your lens focal length
as a fraction

So with a 200mm tele lens
you will need a minimum shutter speed of

1/200th of a second

With a 50mm standard lens
you will need a minimum shutter speed of

1/60th of a second

Do you see the issues here of shooting with a 200mm lens indoors or in low light?

Shooting with a 200mm lens

What is the problem if the correct exposure is:

1/60 at f5.6 at 400 ISO?

Camera Shake

Camera Shake

Image Stabiliser Lenses will help prevent camera shake

Info

Date: 12/03/12
Time: 5:19:35 PM
Model: NIKON D3
Serial #: 2063615
Firmware: Ver.2.02
Frame #: 2552
Lens (mm): 105
ISO: 1000
Aperture: 5
Shutter: 1/40
Exp. Comp.: 0.0
Flash Comp.:
Program: Manual
Focus Mode: AF-S
White Bal.: AUTO
ICC Profile: Adobe RGB (1998)
Contrast:
Sharpening:
Quality: FINE

Solution?

I need a faster shutter speed so I must:

Use a wider/larger aperture if possible

or

Increase my ISO

Either option will give me an increased shutter speed

Questions?

Overexposure: the worst thing you can do in when shooting digital

How to confirm you have the correct exposure

1. Using your LCD display on the back of your camera

2. Use the 'overexposure warning' on your LCD

3. Use the histogram on your LCD display

explain how to get this info on camera

1. Using your LCD display on the back of your camera

Good if you really know your camera but can be tricky in bright conditions

Easy to get it wrong

Rear LCD Display

2. Use the ‘overexposure warning’ on your LCD

Works well in all lighting conditions but won’t show underexposure

I use this a lot - especially for portraits and weddings

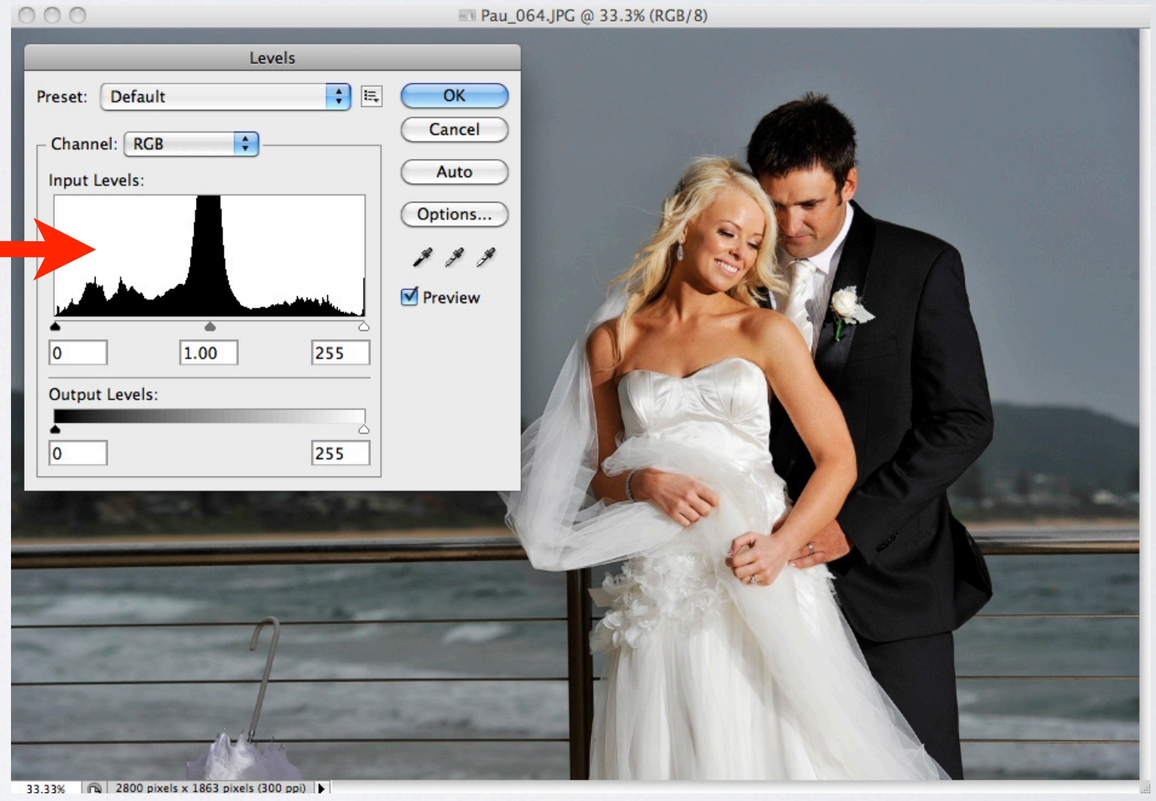
The "red" areas will be blinking on your LCD. This indicates overexposure in those areas.

IE: no detail!

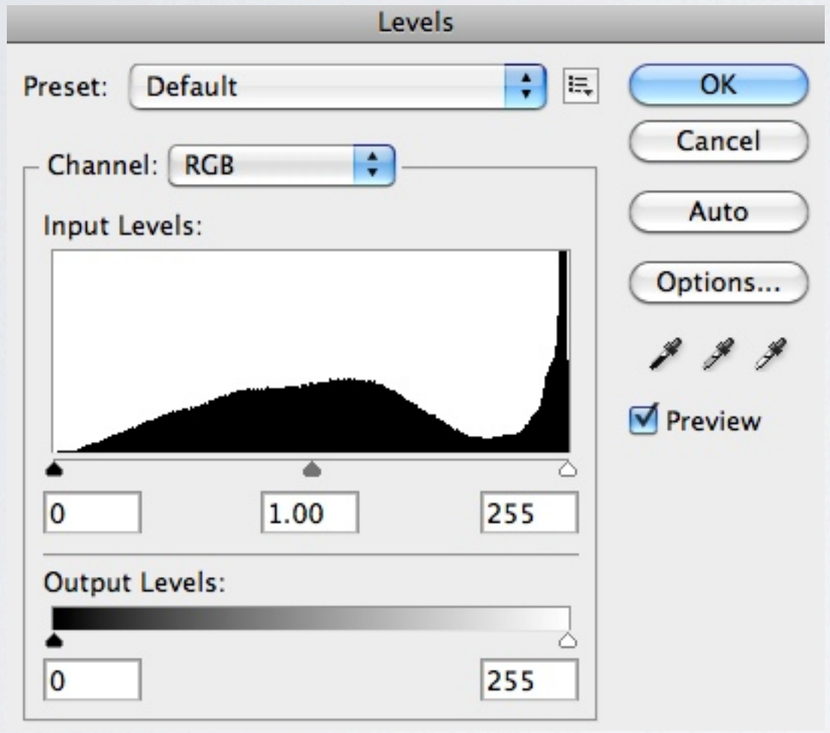
3. Use the histogram on your LCD display

A great way to confirm exposure

histogram

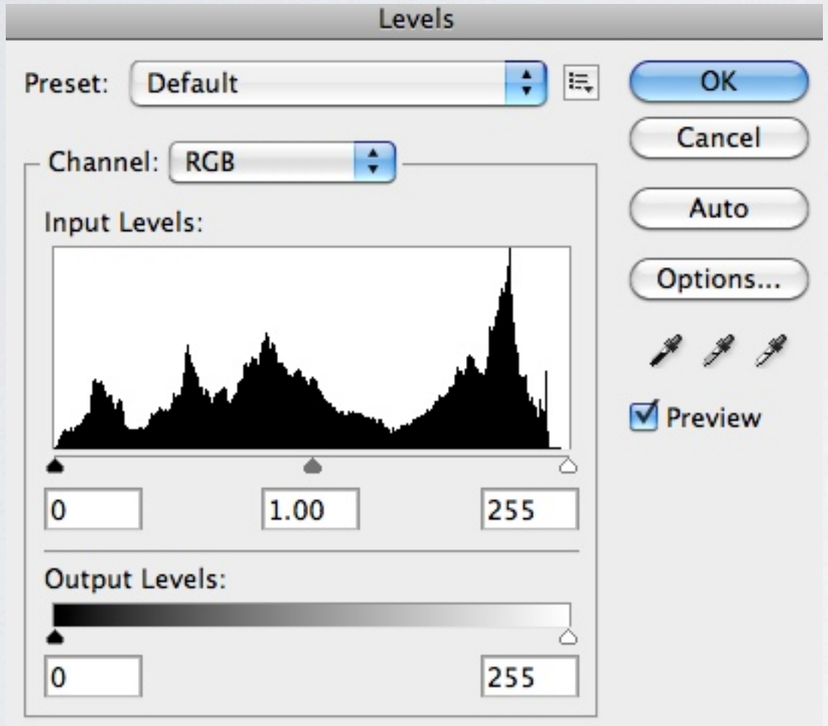


Understanding Histograms

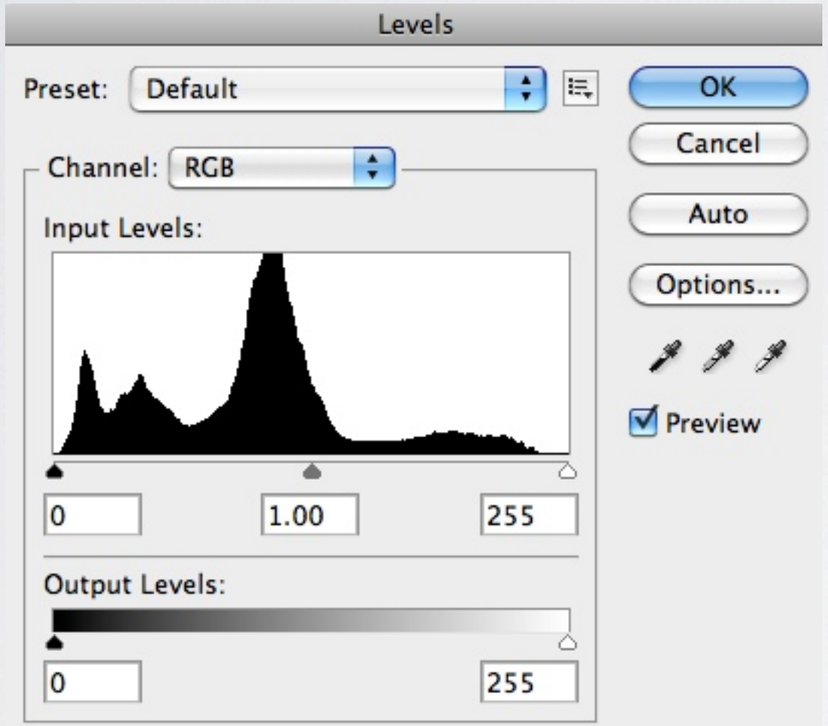


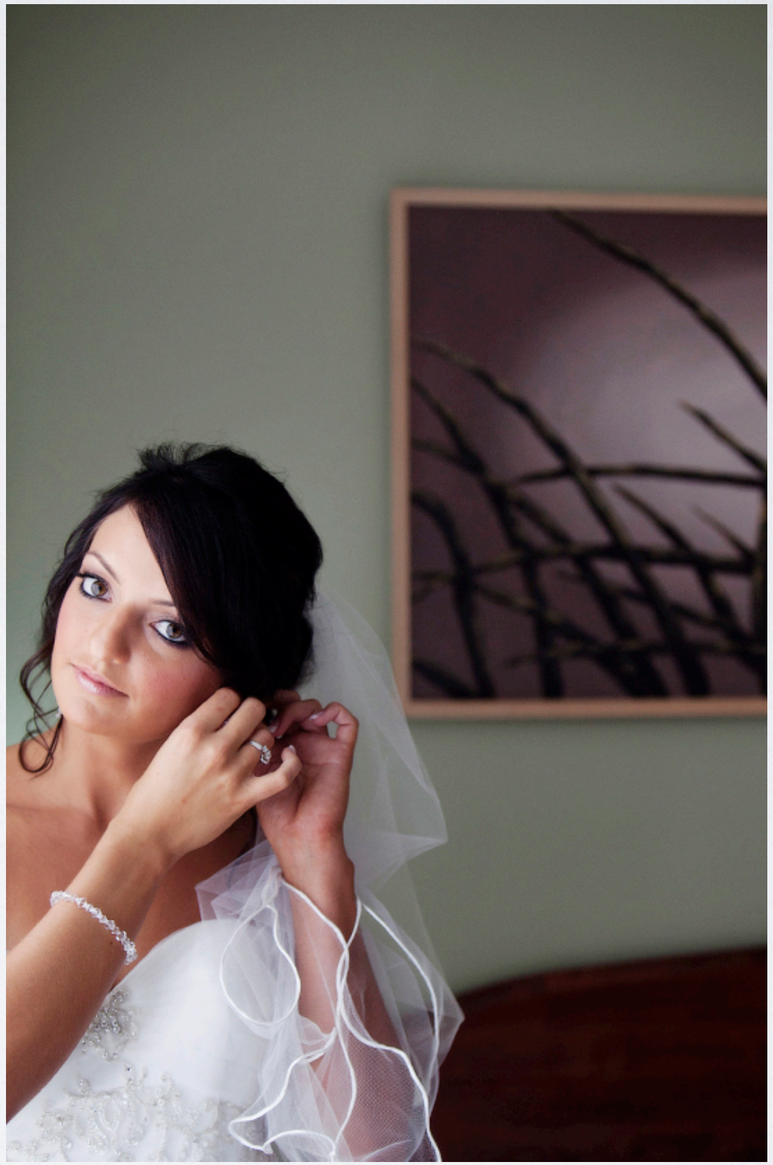
How would this image look if it was shot on auto?

Understanding Histograms

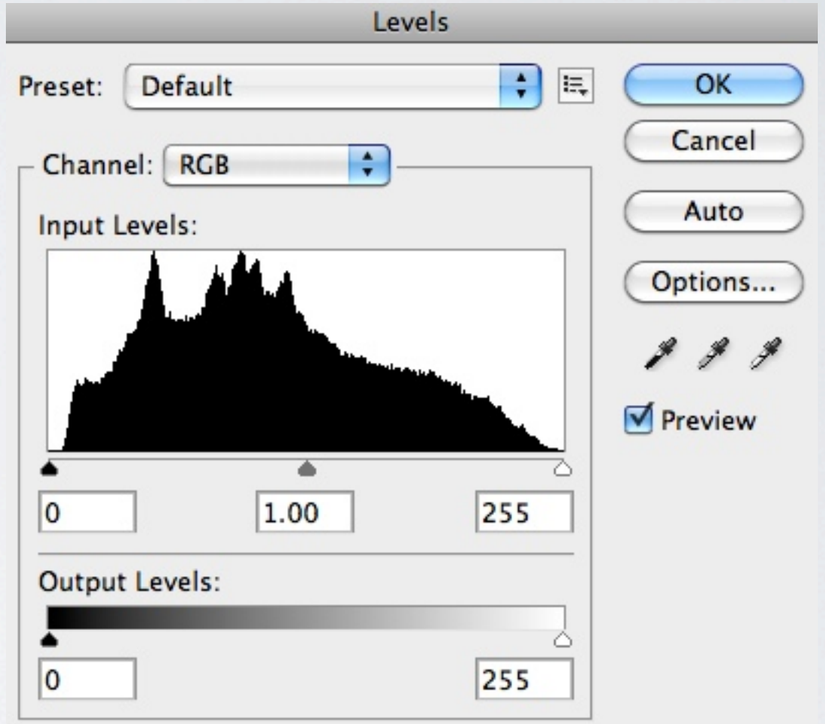


Understanding Histograms

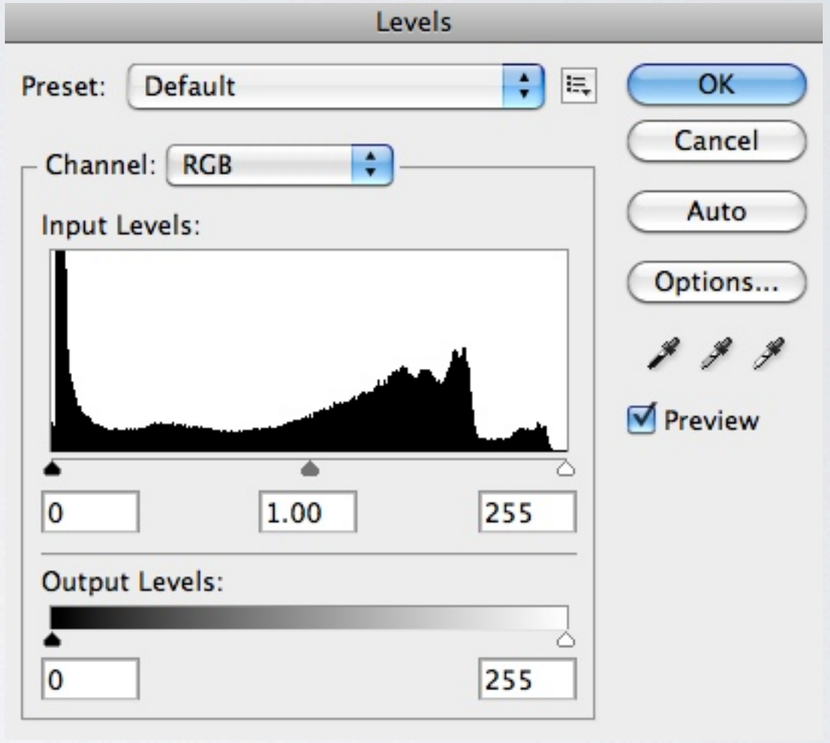




Understanding Histograms



Understanding Histograms



How would this image look if it was shot on auto?

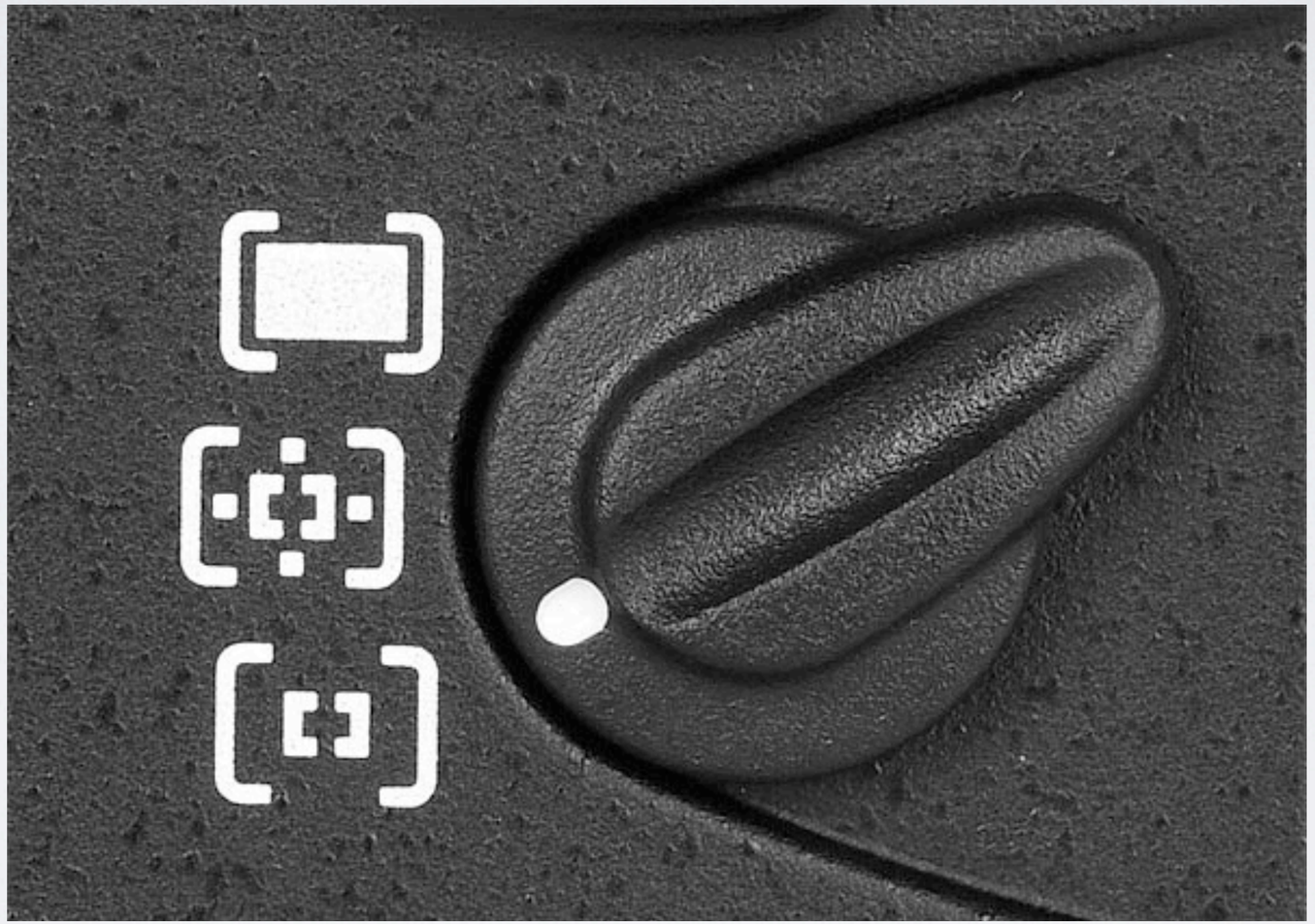
There will be many times when you need to take control and override or 'tweak' your cameras exposure meter

You can do this now!

The numbers on this display should be making sense now!

Questions?

Metering Modes

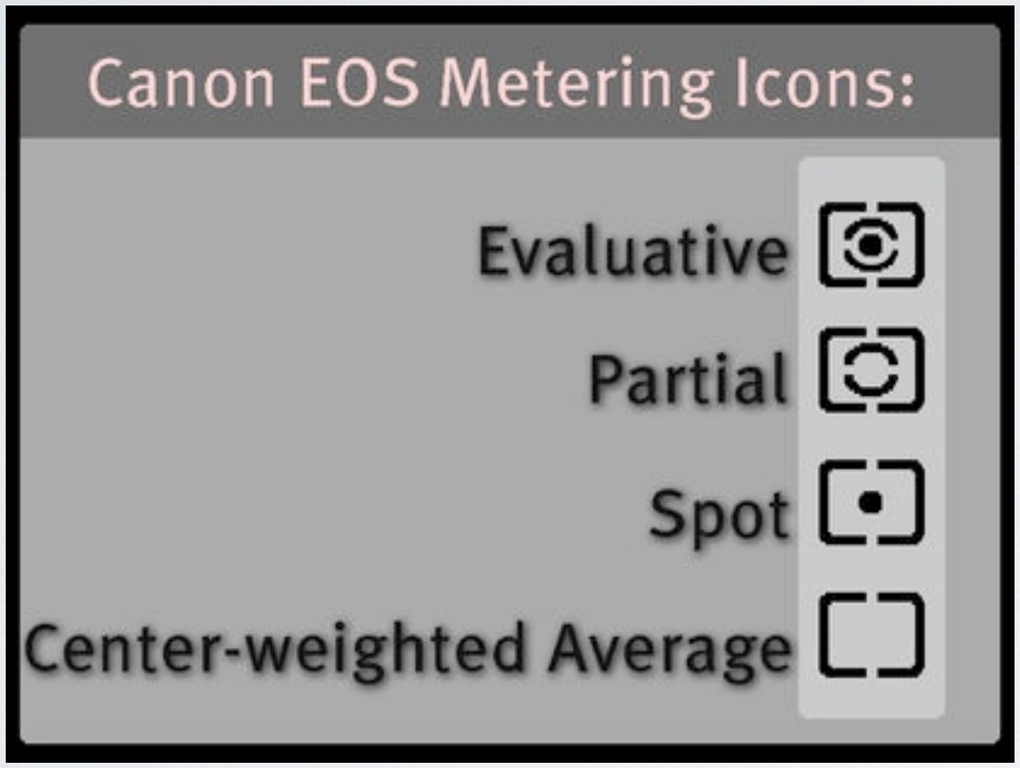


Metering Modes

Matrix or Evaluative metering modes

Spot metering mode

Centre Weighted metering mode


Canon EOS Metering Icons:
Evaluative
Partial
Spot
Center-weighted Average

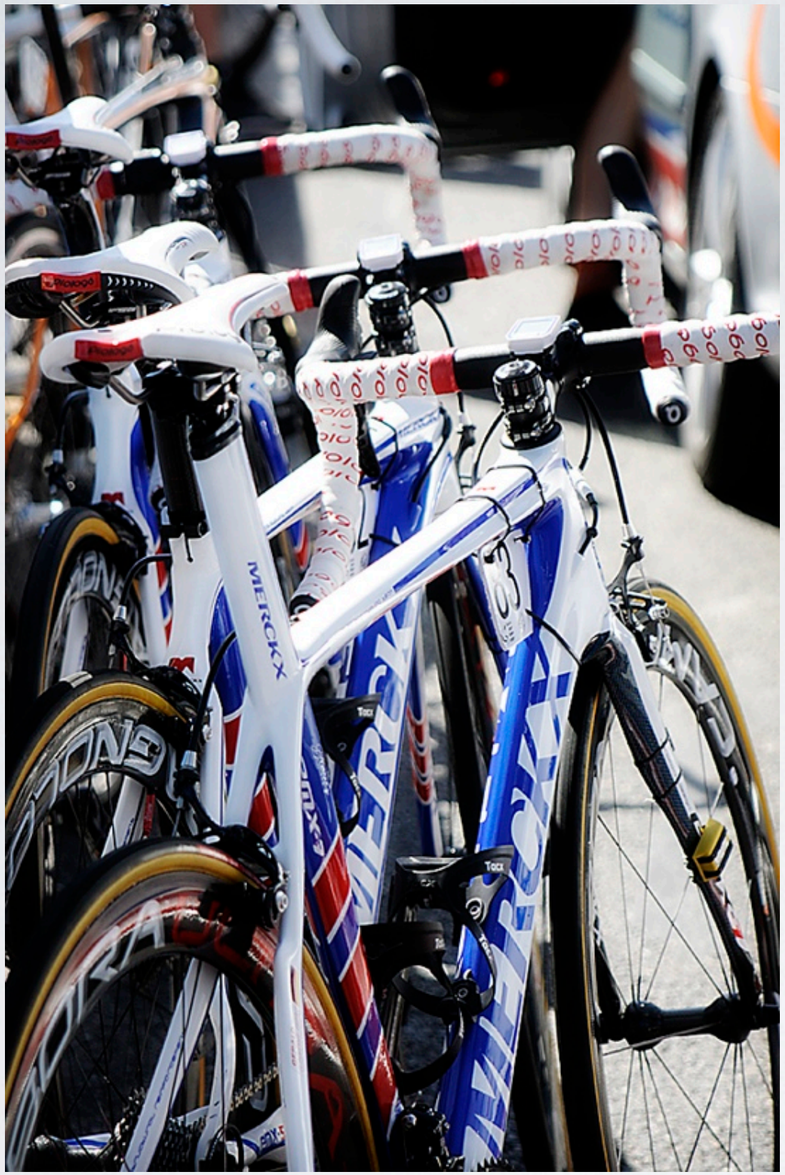
Canon


METERING
Matrix
Center-weighted
Spot
Spot AF area
MENU Exit
OK Confirm

Nikon

I use Matrix metering 99% of the time

Understand that it can be fooled by predominantly dark or light images and backlit scenes



These scenes will easily fool your cameras matrix metering

HOW?

What would you do
to get the correct exposure
this photo?

Shooting Modes

Single Shot: each press of the shutter will take an images

Continuous shooting (low and high): hold the shutter down and continue to take images while the shutter is pressed

Continuous high will take more ‘frames’ per second

Focussing Modes

Different models will have different locations for these controls - even within the same brand

Focussing Modes

One Shot Autofocus: press the shutter release halfway to focus on a single point

Continuous servo mode: press the shutter release halfway and the camera will continually change focus as you or the subject move

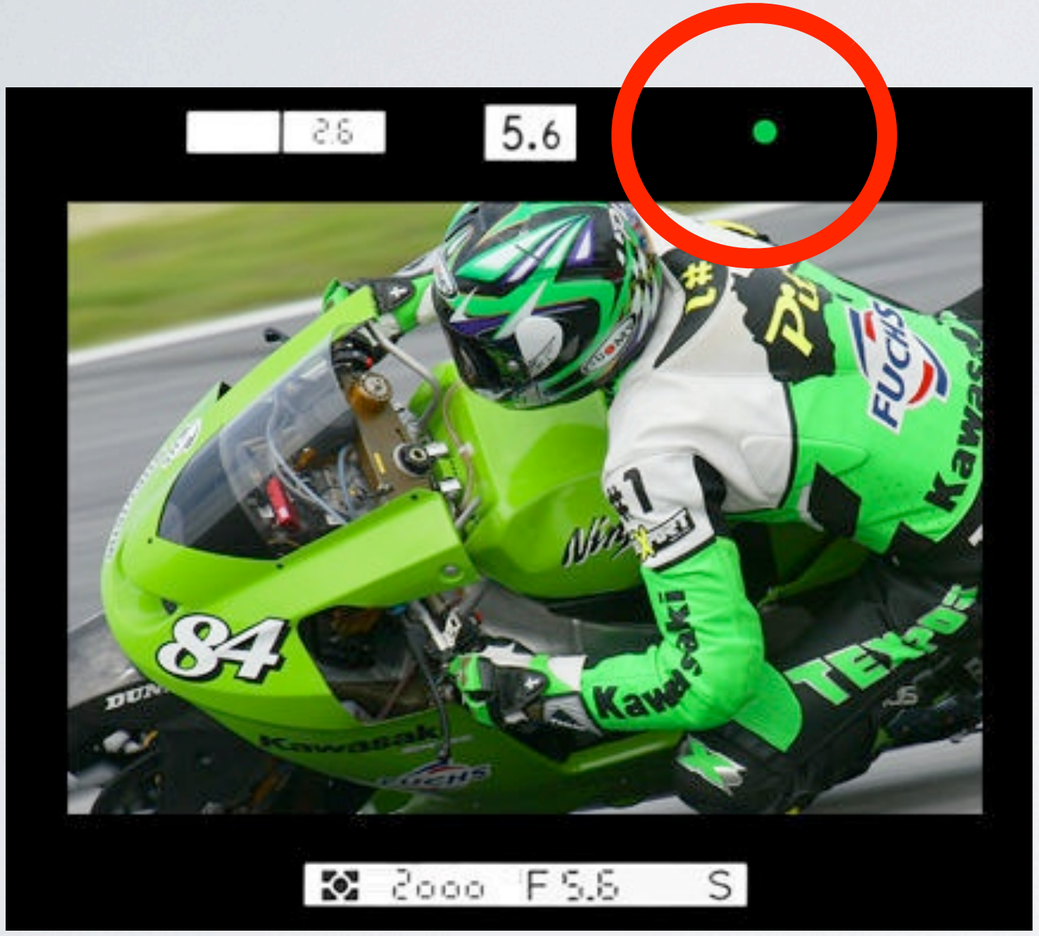
Manual Focus: focussing relies on you rotating the focus ring on the lens

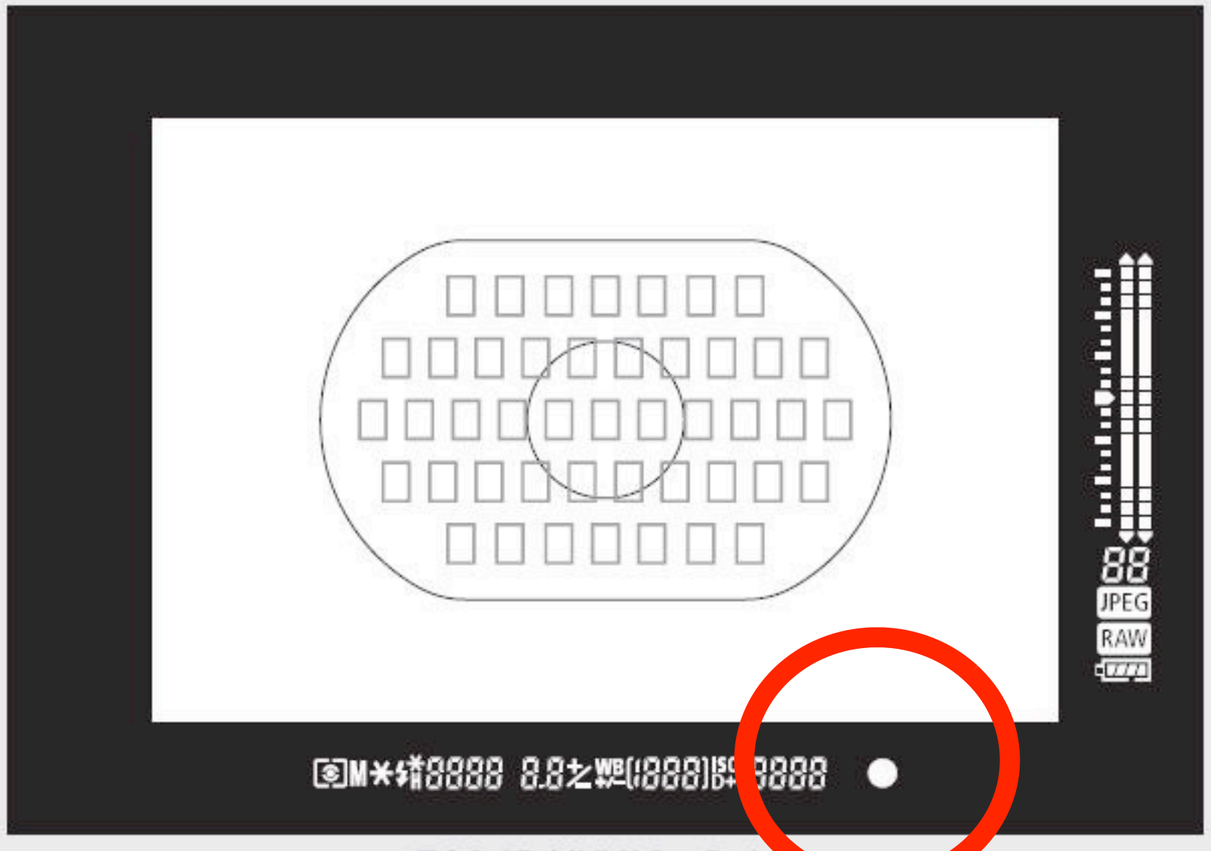
AI Focus Mode (some cameras): the camera starts in single shot auto focus but recognises movement and follows. Better in newer cameras

Focus Confirmation

No matter the mode you shoot in, there will be a focus confirmation light in your viewfinder

Shooting with a large aperture requires careful focusing (you must not drift back or forward after focusing)





EOS 1D MkIV Viewfinder

Focus confirmation lights inside viewfinder

What to do when your camera struggles to focus?

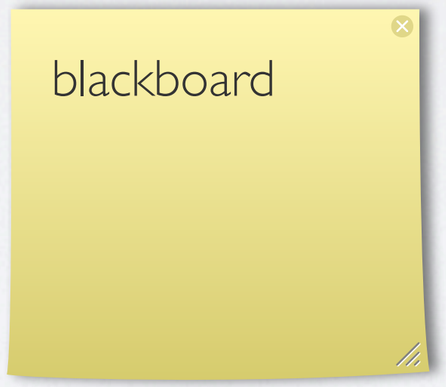
Occasionally, you will hear the camera searching or hunting for focus.

Either rotate your camera

Look for an area of more contrast in your photo

Questions?

Time for a little more revision?



Homework

In a bright situation, photograph something showing an understanding of a good DOF and the correct exposure.

Then, photographing the same object, shoot with a shallow DOF
and the correct exposure.

Photograph a subject moving toward or away from you - using continuous focus.