



# A Level Photography - Tudor Hall School

## Apertures and Depth of Field

An 'exposure' is the amount of 'light' you 'expose' your light sensor to.

An 'exposure' is made up of both an 'aperture' and a 'shutter speed' setting. For example '60@f 8'.

The camera's lens houses the 'Aperture'. This is basically a hole inside the lens which you can increase or decrease to let in more or less light.

A typical Aperture sequence for a S.L.R. lens is as follows:



f2



f2.8



f4



f5.6



f8



f11



f16



f22



f32

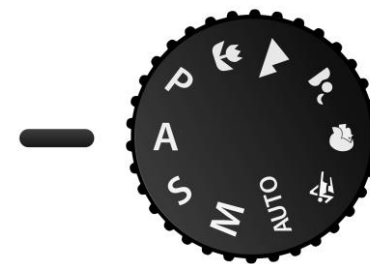
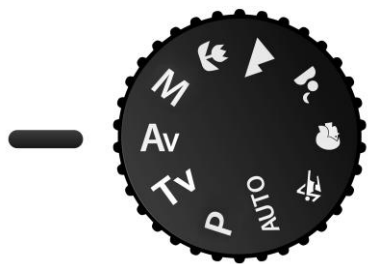


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## Apertures and Depth of Field

Apertures are identified as a series of numbers with the letter *f* in front of them. E.g. *f* 5.6, *f* 8 etc. The *f* stands for 'focal length'.

The 'Av' or 'A' setting on your camera is called the Aperture Priority setting. In this mode you set the aperture and the camera sets the rest of the exposure automatically.



f2



f2.8



f4



f5.6



f8



f11



f16



f22



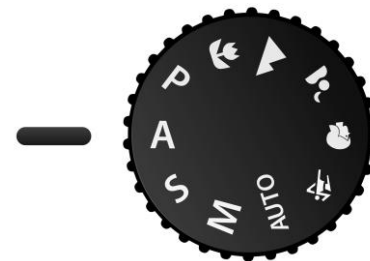
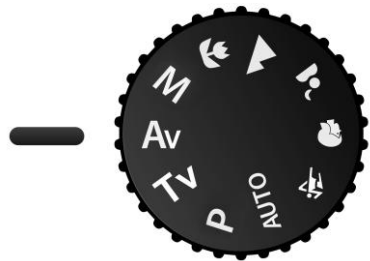
f32



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Task 1 – Practice using the AV or A setting on your camera.

Take pictures in the 'Av' or 'A' setting on your camera. Change the aperture between each shot. Get used to the way your particular camera works in it's Aperture Priority mode.

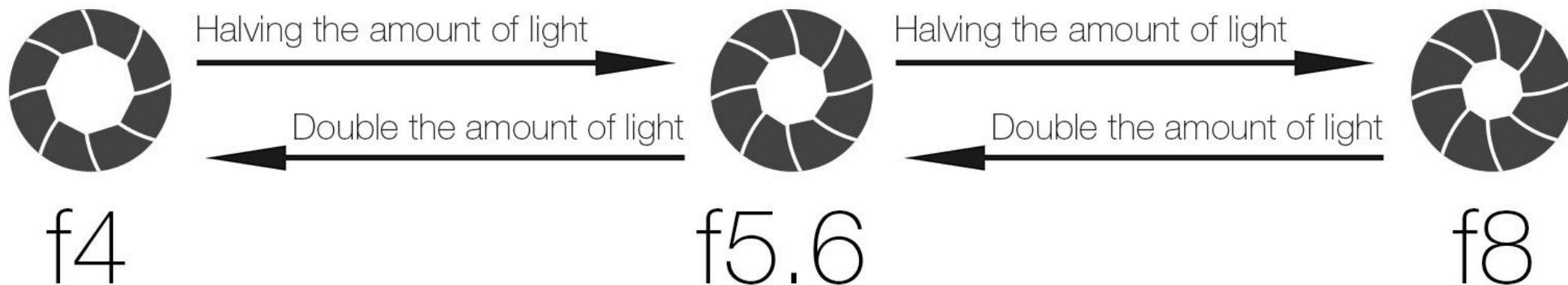




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## Stops in Photography

Light coming into the camera is being halved or doubled when you go from one aperture to the next in the aperture sequence.

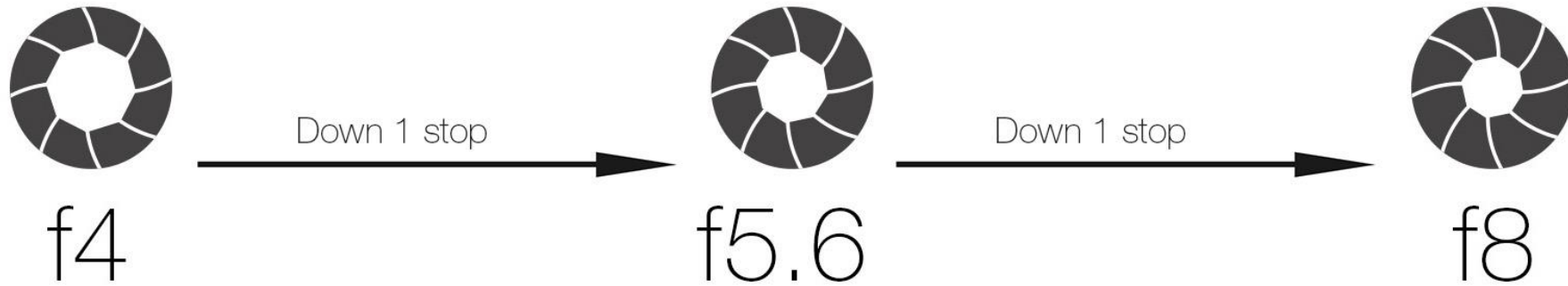




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## Stops in Photography

By halving the amount of light you are going down by one stop.



By doubling the amount of light you are going up by one stop.

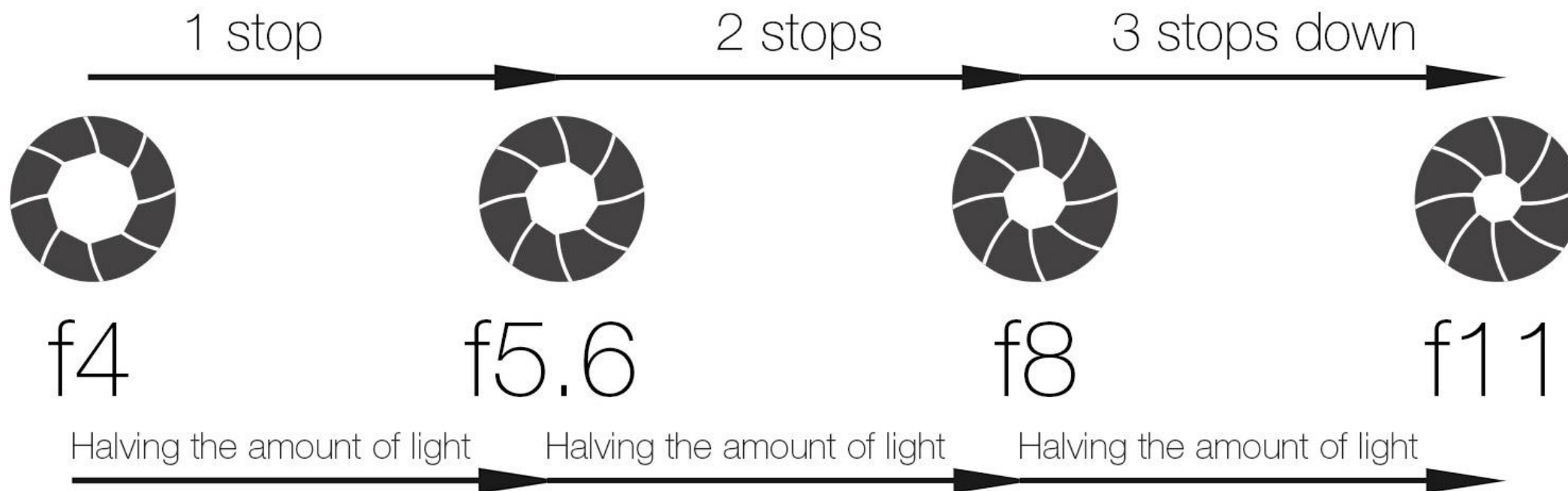




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## Stops in Photography

For example if you change the aperture from to f4 to f11 you have reduced the light by 3 stops. This means you have halved the light, halved it again and halved it again.

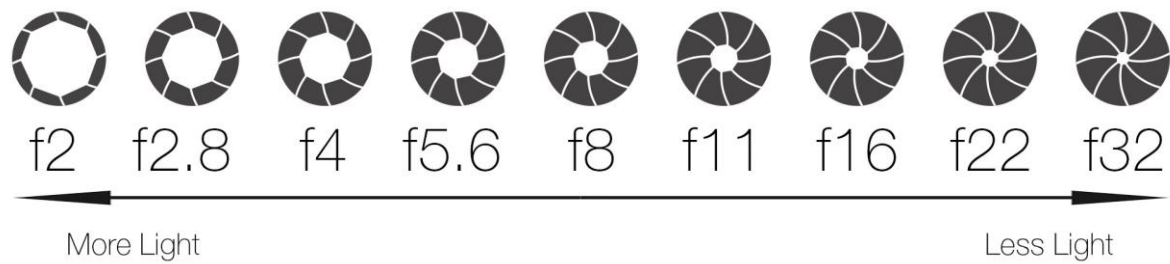
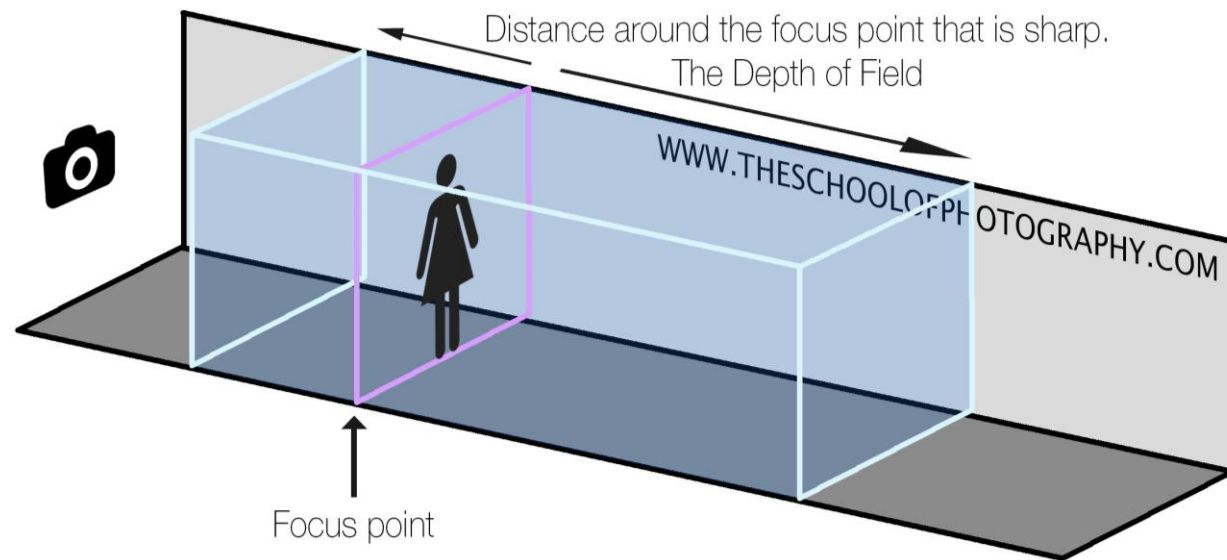




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## Depth of Field

'Depth of field' is the amount of distance within a photograph that is 'sharp'.



Less Depth of Field

More Depth of Field

D.O.F. is controlled by three things in photography.

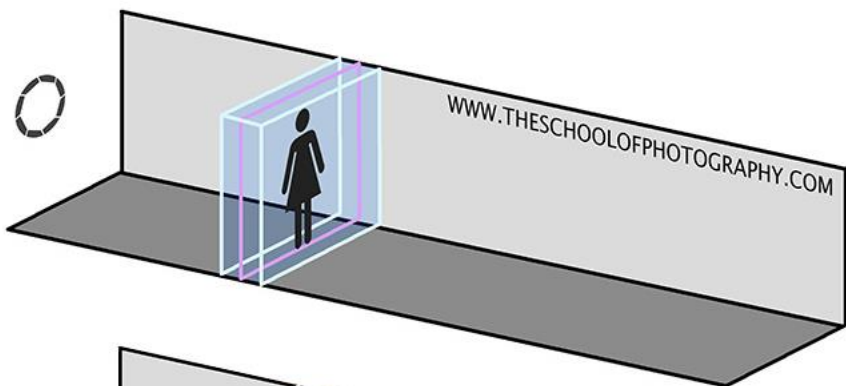
The aperture is one element that controls DOF.





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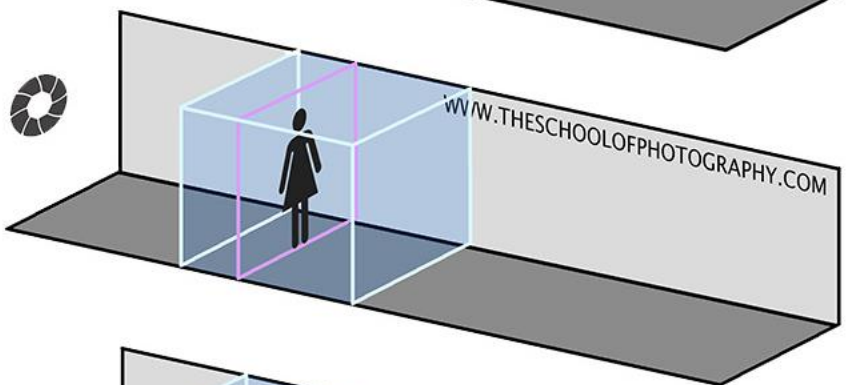
f2.8



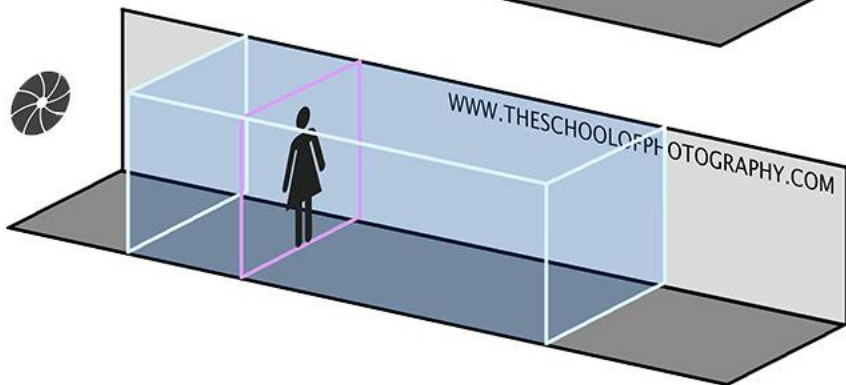
The wider the aperture the shorter the depth of field will be in your photograph (less 'distance' will be sharp).

Referred to as a 'Shallow Depth of Field'.

f5.6



f16



The smaller the aperture the longer the depth of field will be in your photograph (more 'distance' will be sharp).

Referred to as a 'long Depth of Field'.





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## Task 2 – Control 'Depth of Field' using Apertures.

- Put your camera on its Aperture Priority setting (AV or A)
- Put your ISO on Auto
- Make sure your AF point is set to centre frame
- Put your camera's lens on a focal length of around 50.
- Set your camera up on a tripod and have it set to it's 2 second timer or use a remote trigger or cable release.
- Take a series of pictures going through the aperture sequence.



f4



f5.6



f8



f11



f16



f22





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Task 2 – Control 'Depth of Field' using Apertures.

Notice the 'Depth of Field' changing between each picture.



f4



f22





# A Level Photography - Tudor Hall School

Task 2 – Control 'Depth of Field' using Apertures.

NB. The video shows a general guide to camera settings. Different camera brands and models may have the settings in different places. Refer to your camera's manual if you need to.



f4



f5.6



f8



f11



f16



f22





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## Focal lengths and D.O.F.

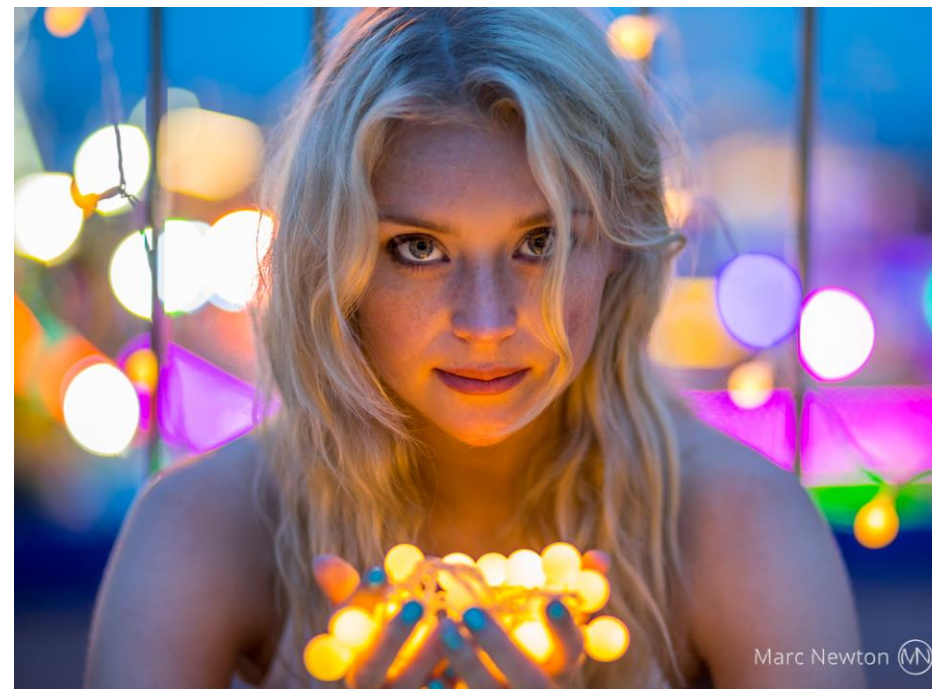
Your focal length also controls D.O.F.

The lower the focal length (wide angle) the more depth of field you will get.

The higher the focal length (the more zoomed in you are) the less depth of field you will get.



Long D.O.F. – Wide angle - Focal length 17mm



Shallow D.O.F. – Zoomed in – Focal length 85mm



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Task 3 – Control ‘Depth of Field’ using the lens’s Focal Length.

- Take two pictures of the same thing, one zoomed in and one at your widest angle.
- Notice the ‘Depth of Field’ change between each picture.



Focal Length 24mm - f5.6



Focal Length 105mm - f5.6



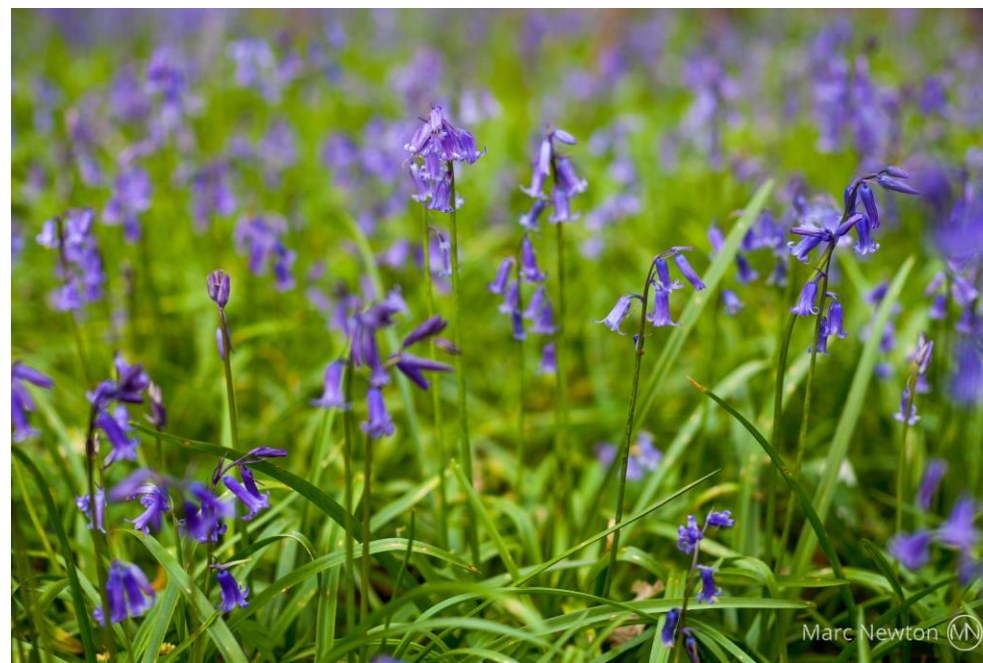


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## Distance of focus point and D.O.F.

The distance of your focus point also controls D.O.F.

The closer you are, the shallower the D.O.F. you can create.



Both shot with an aperture of f2.8 at a focal length of 50mm.





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Task 4 – Control ‘Depth of Field’ using the distance of focus point from your lens.

- Take two pictures of the same thing, one far away and one close up.
- Notice the ‘Depth of Field’ change between each picture.



Focal Length 50mm - f5.6 - Far away



Focal Length 50mm - f5.6 - Close up



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Task – Present your knowledge of Apertures and Depth of Field.

- Title a page 'Apertures and Depth of Field'.
- Briefly explain what an exposure is in photography.
- Explain apertures in photography and add an illustration of the f number sequence.
- Explain what stops are in photography.
- Explain what depth of field is in photography.
- What are the three things that control DOF? Explain how they control DOF.

Aperture

A typical Aperture Sequence for a SLR

f 2 2.8 4 5.6 8 11

Letting more light / More less Depth of field

Double the amount of light - 1 stop up

Half the amount of light - 1 stop

f 8 Aperture

f Stop

Depth of field =

- larger the Aperture more distance is Sharp.
- smaller the Aperture less area is Sharp.

In my opinion aperture is the most important tool. This is because with Aperture you can control light and if taking a photo (or a picture with a subject) you can control the distance which is sharp.

More light / Less depth of field

Less light / More depth of field

60 @ f8

Shutter Speed

aperture.

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What is An Aperture?

In the dictionary an aperture means a hole or opening. In photography terms it is exactly the same although the opening is in the lens. But most importantly when you press down on the shutter a hole in the lens opens giving a glimpse of the scene you are taking of. The aperture you set affects the size of the hole.

Aperture is measured in 'f stops'. Aperture also can control the distance of your subject that is sharp. The higher the Aperture <sup>number</sup>, the smaller the hole which means more distance is sharp. Lower the aperture <sup>number</sup>, bigger the hole which means less area is sharp.

D.O.f (Depth of Field)

Depth of field is determined by many factors such as: Aperture/f stop, the lens and the subject distance. If you have a large Depth of field (small aperture) more distance is sharp. Shallow Depth of field (large Aperture) less distance is sharp.

This photo I took I used f2.8. I did this so the background was blurred but the foreground would be sharp. When I was brainstorming ideas for this I wanted to make this piece I did to make the foreground/subject bright. This is why I chose a large aperture because it adds light to the scene. If I could change my photo in anyway I would zoom in a bit more on the front subject so the background objects on the side are less distracting.

Very good - You show your learning well

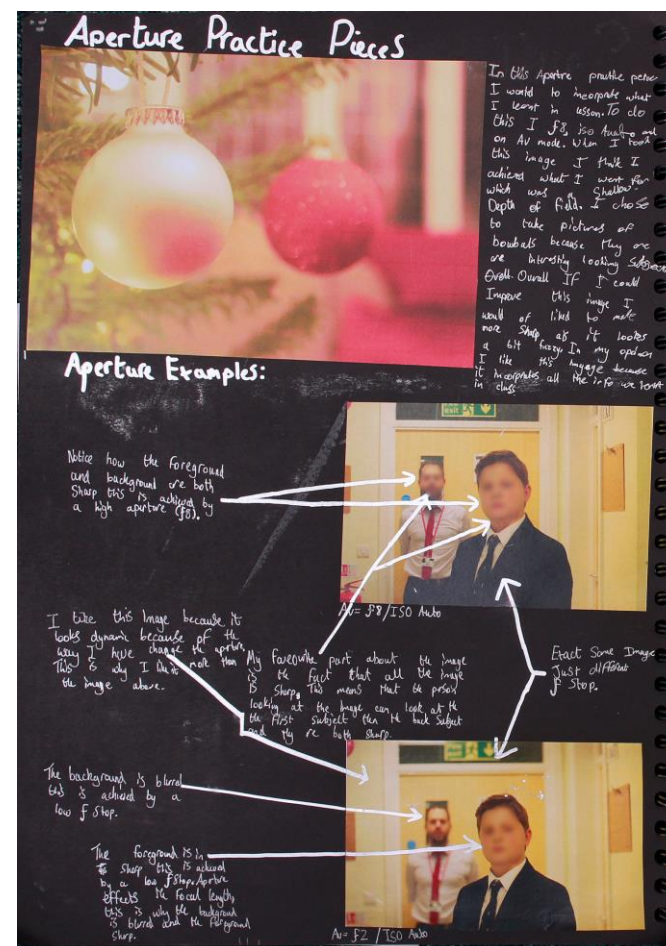




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Task – Present your examples of controlling Depth of Field.

- Present your examples of controlling DOF from the tasks in this lesson.
- Add details of the shot's settings i.e. the aperture used, focal length used etc.
- Make sure you answer the following:
- What type of DOF have you created? E.g. Shallow DOF or Long DOF.
- How have you created it?

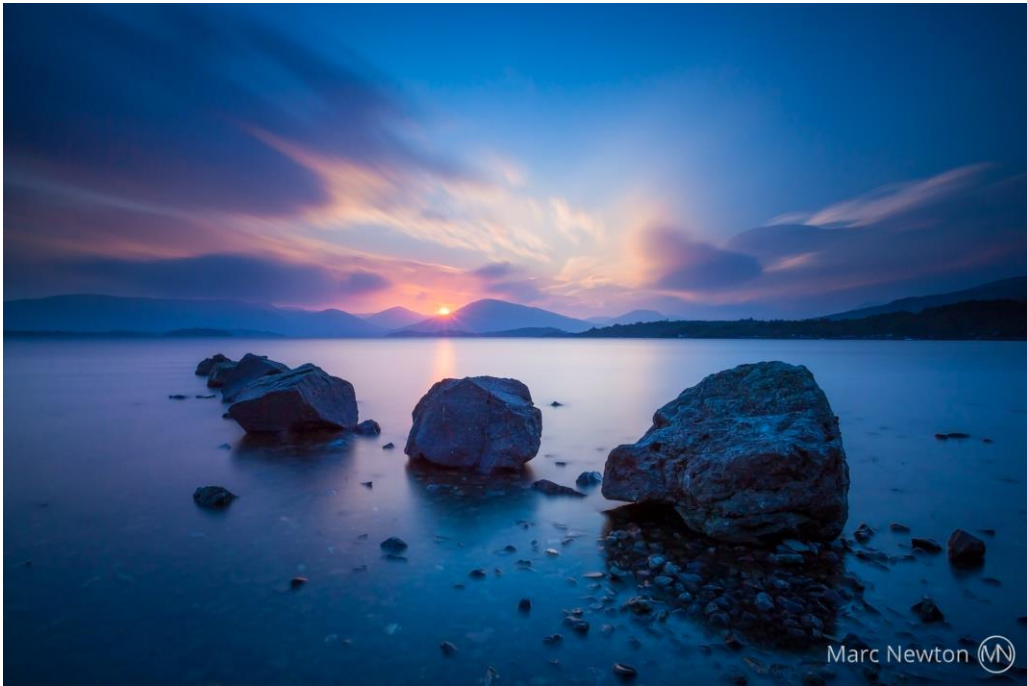




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Extension task – Get creative with your control of ‘Depth of field’.

- At least two – one showing long depth of field – one showing shallow D.O.F.
- You must note down your camera settings. Explain how you’ve controlled these visual effects.



Long D.O.F. – Focal length 17mm – Aperture f22



Shallow D.O.F. – Focal length 85mm – Aperture f1.8



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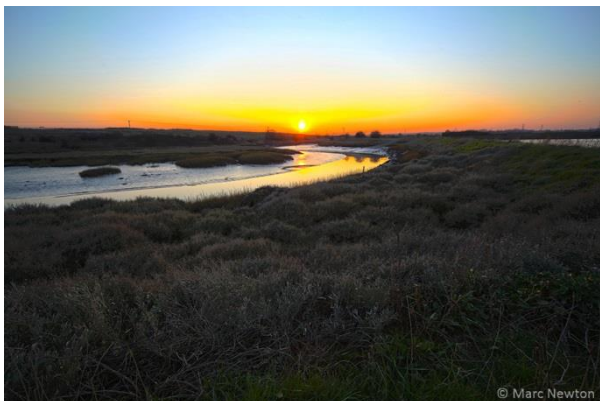
## Hitting the AO's

AO3: record ideas, observations and insights relevant to their intentions in visual and/or other forms.

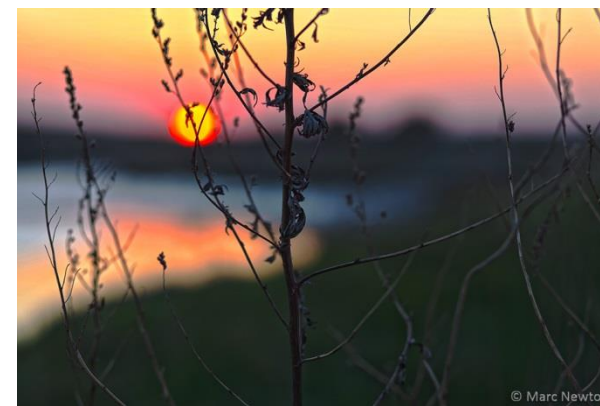
Quality of work in visual and note form – 'A selection of recording from sources using technical control' 'Any specialist terms are expressed accurately.'

Make sure you show your understanding of Depth of field by annotating next to their photos such things as:

'In this photo I wanted to create a shallow depth of field so your eye was drawn to the foreground. I did this by setting the camera to its widest aperture of f.4.'



Long D.O.F.



Shallow D.O.F.

'Here I wanted everything in the picture to be sharp. To get that effect I used an aperture of f.22. This is a small aperture and therefore will give you a long depth of field.'





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