Camera Basics

The Mode Dial, from Auto to Manual Modes

Introduction

On almost every camera, there is a dial, usually on the top of the camera, which controls how the camera behaves.

This is called the “Mode” dial or sometimes the “Command” dial

By turning the dial, you tell the camera which settings you want it to manage and which you want to do yourself.

The amount of control ranges from fully auto (the camera does everything for you) to fully manual (you have full control).

Help !My camera doesn’t have a dial !

It is true that some cameras don’t have a mode dial.

Usually these are either compact cameras, disposable ones, or sport cameras, especially ones with water-proof cases.

These are likely to have a limited range of settings, for example a fixed lens, so there is not much to change.

However, it is worth checking your manual – you may be able to alter some settings using the camera menus.

NB – Smartphones also lack a command dial.

Auto Setting

Auto is usually the automatic mode that most beginners opt for.

In this mode, the camera will choose all settings.

It may be symbolized by a simple green rectangle on the mode dial.

When you use this mode, inside the camera, the camera's software analyses the image coming through the lens to the sensor and tries to work out what sort of image you are trying to take.

The software then applies settings to match the type of image.

It does this so quickly, that you normally don't notice.

Most of the time it gets it right, but sometimes it doesn't.

Auto mode – why use ?

So if the software occasionally gets it's setting wrong, why would you use Auto mode ?

Here are 2 scenarios….

1) You are using a new camera, or are new to photography.

By choosing auto, you know that most of the photos you take will come out well, without worrying about the other settings.

2) If you want to concentrate on the event, or on the composition. By choosing auto, you just need to point and shoot. There is no fiddling with buttons or menus, that might mean you miss that photo. For example, when at a children's party, wedding or sports event.

Scene Modes

If you want to progress beyond full auto, the next thing to try is to use the camera Scene modes. These are the little icons on the mode dial.

By turning the dial to the icon, you tell the camera what sort of image you are trying to take. It doesn't have to work this out any more.

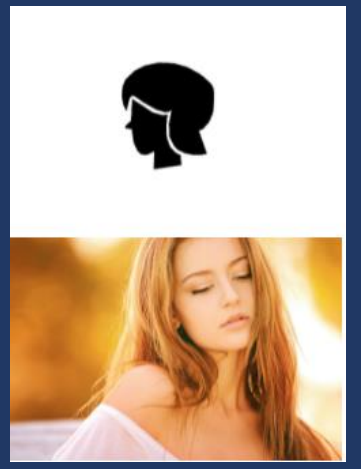
However, in the scene modes, you still rely upon the camera to work out the settings for you. So, Scene mode is another version of Auto.

Warning - there is nothing to stop you using the wrong type of scene for an image. For example, turning the icon to portrait and then taking a sports shot. However, we can use this to our advantage, for creative shots.

Some scene modes – Portrait & Landscape

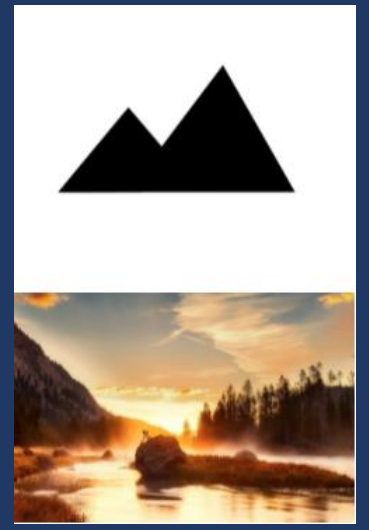
One of the more common features on the dial is Portrait mode.

Suitable for humans and animals (but subjects in motion may be better in sports mode). The aperture will be widened significantly to reduce the depth of field, which makes the background go out of focus to ensures your subject is the obvious feature.



The camera may also adjust its colour settings, to give a warmer, softer look.

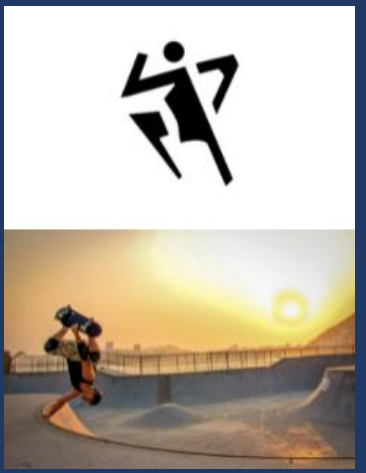
In Landscape mode, the camera will ensure as much of the scene as possible is in focus, by using a wide depth of field (small aperture). The camera may also use a slower shutter speed, or higher ISO to compensate for the small aperture.



The camera may also adjust its colour settings, to give more contrast.

Don’t confuse these with Portrait/Landscape orientation !

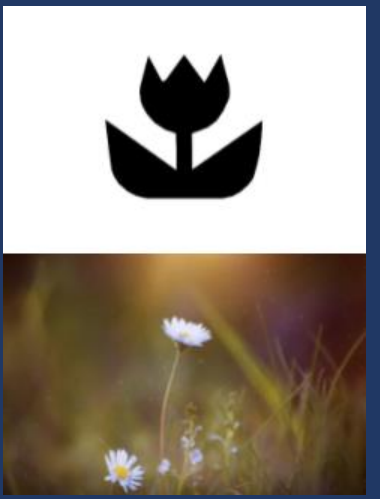
Some scene modes – Sports & Macro



Ideal for action and rapid movement, Sports mode will increase the shutter speed to a higher rate. This will make sure any motion is frozen still and no movement blur occurs.

The camera will widen the aperture, or increase ISO, if necessary, to compensate for the fast shutter.

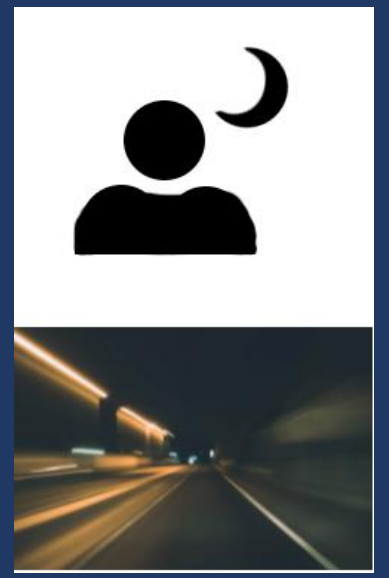
Some cameras may also include a facial tracking focus mode, to make sure the focus follows the players.



Macro mode unlocks an extra focus range on your camera so you can get in nice and close to capture small details. Ideal for floral, insects and abstract photography.

Remember to switch back to different setting after using your macro mode though.
Otherwise, you may not get the focus you want next time !

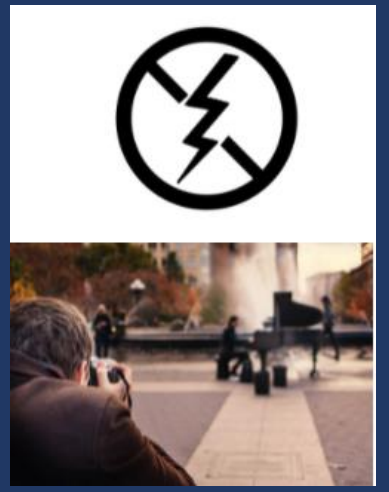
Some scene modes – Night & No Flash



Sometimes called Night or Party mode, this is suitable for low light levels.

Night mode forces the camera to use slower shutter speeds. It may also fire your flash automatically to help with the exposure. So, expect some quirky light trails along with freeze framed motion.

It isn't a good mode to use in the daytime as the slower shutter speed can cause overexposure !



When using No flash mode, the flash will not fire under any circumstances, ideal if you are trying to be discreet with some street photography.

It stops accidents occurring where the flash pops up without your knowledge, and spoiling shots.

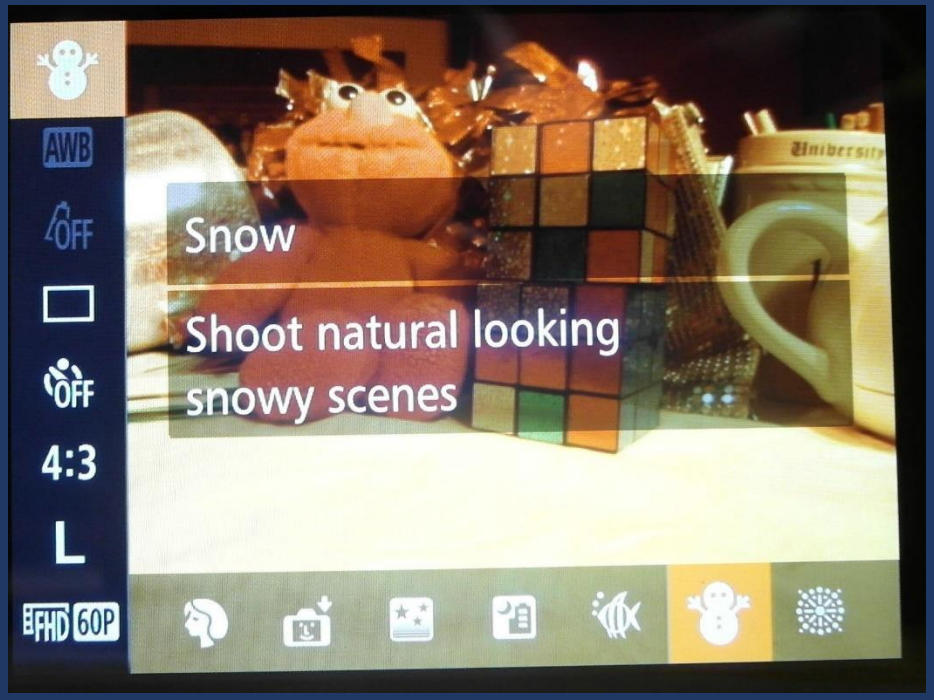
It is also useful in places where flash is banned, for example museums, art galleries etc

Help! I don’t have any icons !

On some cameras, there are no icons, just the word “Scene”.

To get to your scene choices, You have to turn the dial to this setting and then choose the correct type of image, by using the buttons on your back of the camera to scroll through sample images as they appear on your LCD screen.

Check your camera manual to see what you have to do.



Program Mode

To set the camera to Program Mode, turn the dial to P.

(If you don't have a dial, you may need to jump into a menu – as usual, check your manual !)

In Program Mode, the camera will choose both an Aperture and Shutter speed which it thinks will give the correct exposure. This calculation or "Program" is why this mode is called Program Mode.

We can set the ISO ourselves, or let the camera do it for us.

For this reason, Program Mode is sometimes called "ISO Priority".

If we do leave the camera to choose the ISO, then you make think this is just the same as leaving it on AUTO (A), but there are some differences…..

Program Mode – what else can I change ?

Depending on your camera, in Program Mode you should also be able to change…

Adjust the Exposure (Exposure compensation)

White balance

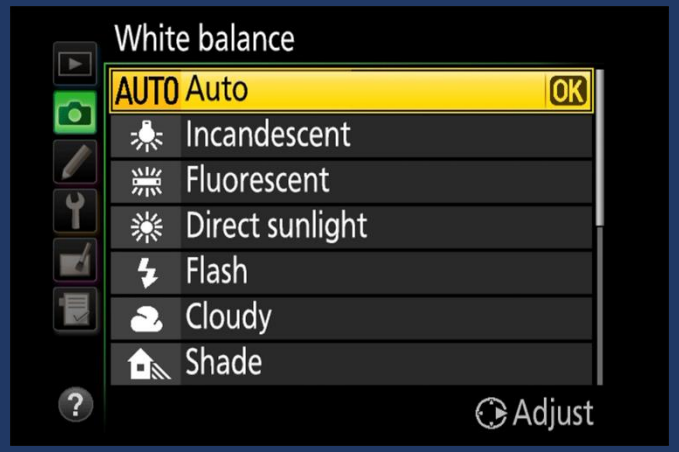
Exposure metering mode (full/centre/spot)

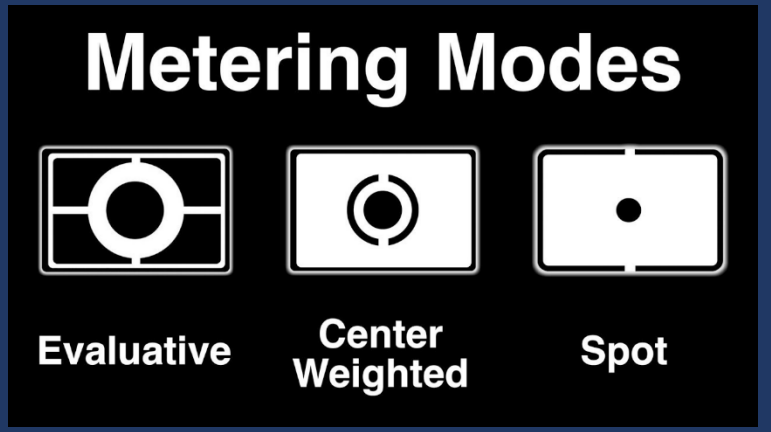
Select which focus point to use and

Tell your camera to use the flash or not

Don’t worry about what these terms mean.

We will cover these in a future meeting, so for now, just remember that Program Mode allows you more control than Auto Mode !





Program Mode – when should I use it ?

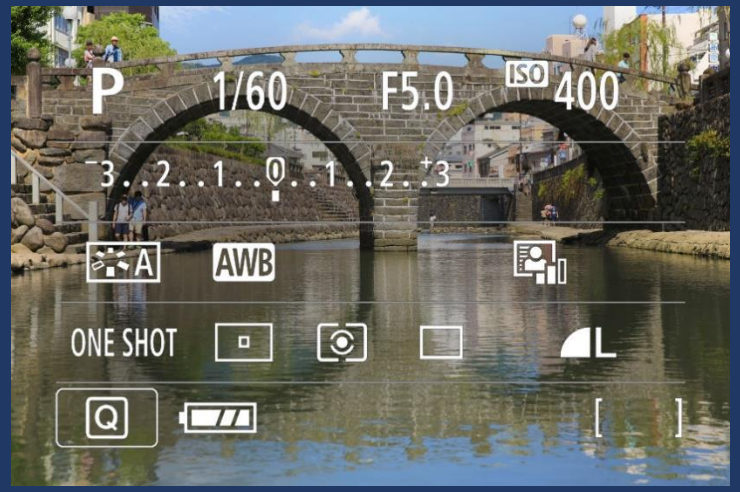
Although the most common use of Program mode is by novice photographers, it does offer advantages to even seasoned photographers

Use it indoors with a high ISO setting to avoid the need to use flash

Use it outdoors with a very low ISO setting to avoid graininess

Use it when you need to take reliably exposed shots quickly

Use it when you want to focus more on composition



Program Mode – program shift

In Program Mode, the camera chooses both the Aperture and Shutter Speed. However, by turning your shift dial (check your manual), it is possible to change these settings, while maintaining the exposure.

This action is called Program shift. We are shifting the calculation (program) to a new combination of values. However, the exposure is the same – this is not Exposure compensation !

For example,

The camera chooses 1/100th second shutter & F8

But we can change this to 1/200th second & F5.6 and get the same exposure

For me this is the biggest advantage of P mode, as sometimes the chosen shutter is too slow or the aperture too wide etc

In Program shift, you can see both the shutter speed and aperture as long strips on the LCD screen. By moving the dial, you can choose a new aperture, or speed and see immediately how this will affect the other.

Aperture Priority

In Aperture Priority, you decide which aperture setting to use.

Once you have set the Aperture, the camera will choose an appropriate shutter speed to obtain the correct exposure (which it has calculated). If ISO is left on Auto, the camera can use this as well, to obtain the correct exposure.

If you then use exposure compensation, the camera will not change your aperture setting, but will adjust shutter and possibly ISO.

The camera will not stop you choosing the wrong aperture, for example, one which is too bright or too dark. It will try to compensate using the shutter speed, but if the resultant shutter speed is too slow, the camera may beep and flash a warning.

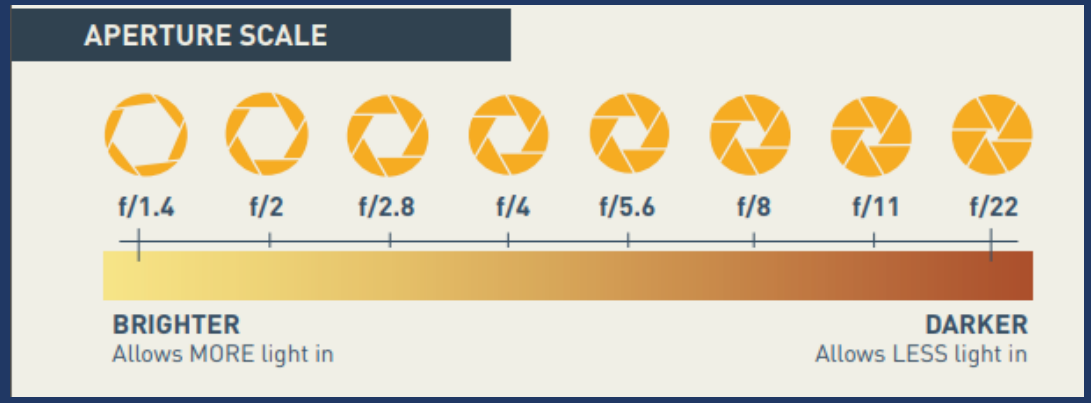
Aperture Priority – why use it ?

Why control the aperture yourself ?

1) To control how much light is entering the camera

A wide aperture (low f number) lets in more light and

a narrow aperture (high f number) lets in less light.



Each time we move from 1 f-number to the next, we are doubling or halving the amount of light which reaches the sensor.

Move to a lower f-number (to the left) = doubling the light

Move to a higher f-number (to the right) = halving the light

If we are in an indoor environment, or one with lots of shadows, a wider aperture would support a choice of a faster shutter speed and/or low ISO by the camera.

It may also help us if we are not able to (or want to) use the flash.

Aperture Priority – why use it ?

Why control the aperture yourself ?

2) To control the depth of field

A wide aperture (low f number) has a shallow depth of field and a narrow aperture (high f number) has a deeper depth of field.

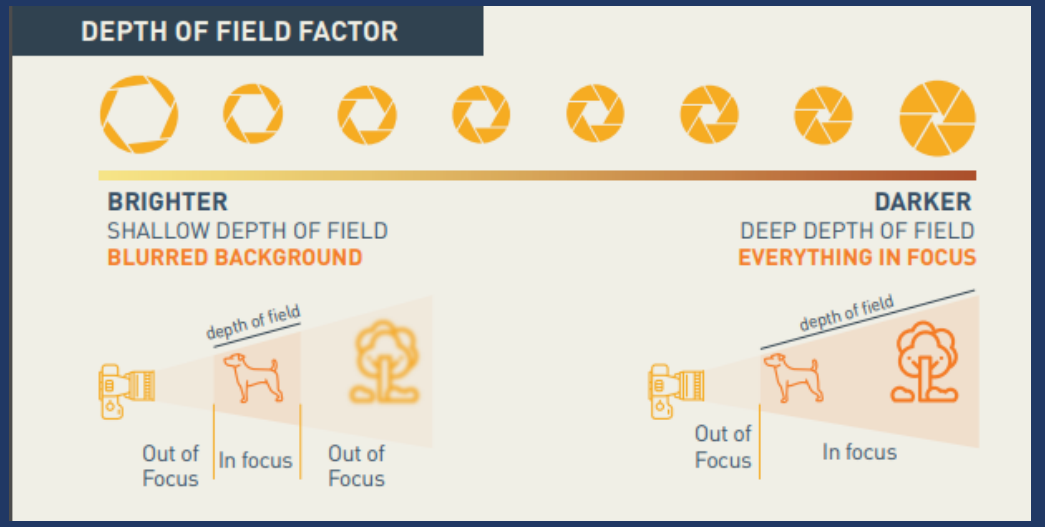
Depth of field means how much of the area around the subject will be in focus.

So, for Portraits, a blurred background may be preferred :

Blurred background = shallow depth of field = wide aperture

For Landscapes, we want the background in focus :

Sharp background = deep depth of field = narrow aperture



Shutter Priority

In Shutter Priority, you decide which shutter speed to use.

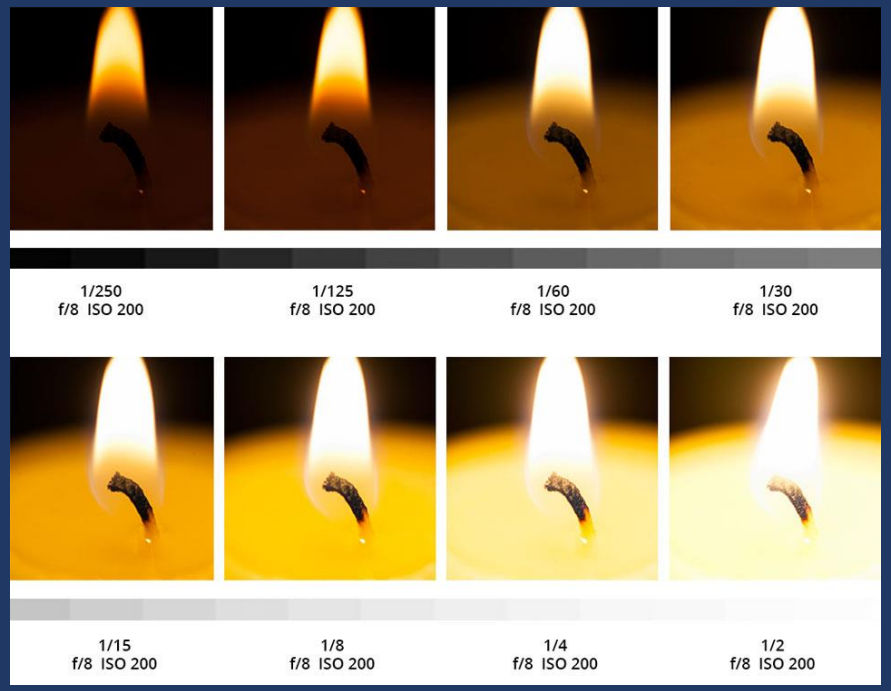
Note – on Canon cameras, Shutter Priority is marked as Tv on the mode dial, for “time variable”

Once you have set the Shutter Speed, the camera will choose an appropriate Aperture to obtain the correct exposure (which it has calculated). If ISO is left on Auto, the camera can use this as well, to obtain the correct exposure.

If you then use exposure compensation, the camera will not change your Shutter setting, but will adjust Aperture and possibly ISO.

The camera will not stop you choosing the wrong Shutter, for example, one which is too slow. Not only could you end up with the wrong exposure, your image may be blurred

Shutter Priority – why use it ?



Why control the shutter yourself ?

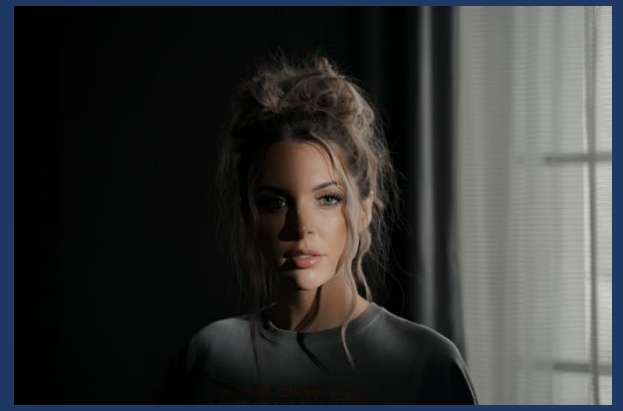
1) To control how much light is entering the camera

A longer shutter speed lets in more light and a faster shutter speed lets in less light.

Each time we move from 1 speed to the next option, we are doubling or halving the amount of light which reaches the sensor.

Move to a lower fraction (left) = doubling the light (e.g. 1/250th => 1/125th)

Move to a higher fraction (to the right) = halving the light (e.g. ½ sec => ¼ sec)



If we are in an indoor environment and not able to use the flash, a longer shutter speed will help. Equally, if we want a moody look, use a faster shutter speed for a darker exposure.

Shutter Priority – why use it ?

Why control the shutter yourself ?

2) To control the amount of blur in the image

A longer shutter has a more chance of blur, than a faster shutter speed. The amount of blur also depends on how fast the subject is moving.

So for Sports, a sharp image may be preferred = faster shutter

For Light-trails or blurry images, use a slower shutter

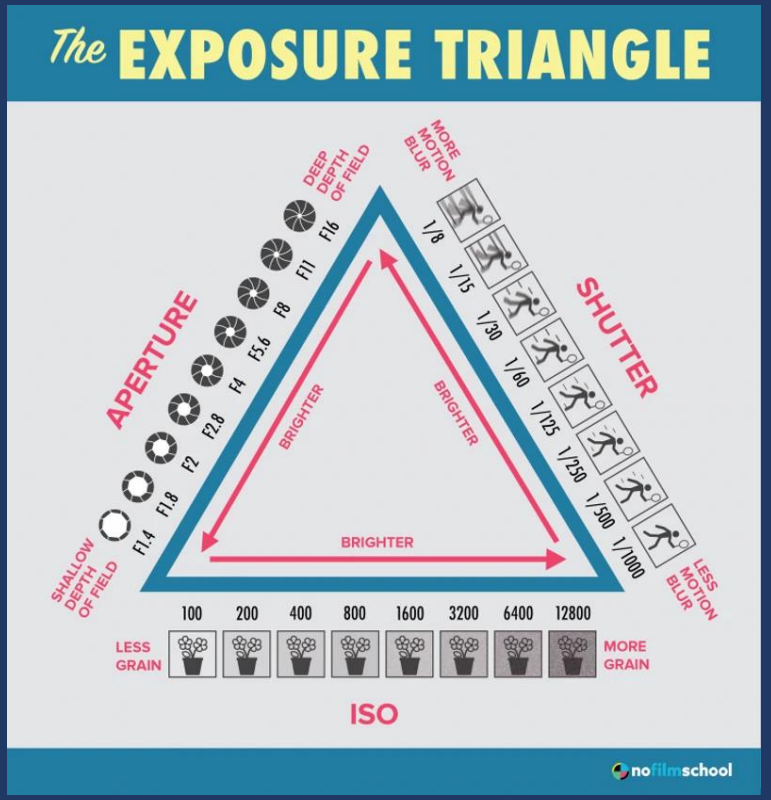
Manual mode

In Manual Mode (M), the Photographer has full control over all the exposure settings.

It is up to you to choose the correct combination of

- Aperture
- Shutter Speed and
- ISO

to get the correct exposure.



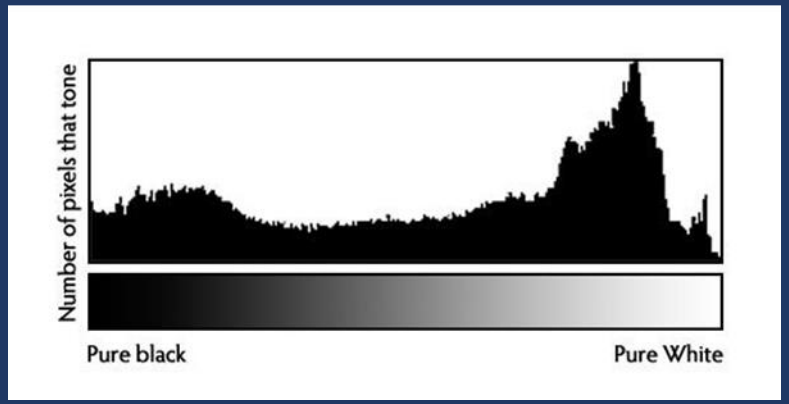
Manual mode

However, the camera can assist you …..

1) Using “Live View”, the screen/viewfinder will show you how the current combination of settings will turn out.

2) If you have them, turning on Blinkies / Zebra patterns will show you where the camera believes the image is over or under-exposed

3) If you have one, using the camera histogram will show you the range of tones in the image, according to the built-in light-meter.



4) If you have kept ISO on Auto, then when you adjust the Aperture/Shutter, the camera will adjust the ISO value to get back to its preferred exposure. You can also specify upper and lower limits for the ISO.

Summary

Today we have briefly covered…….

The Command / Mode Dial and

Auto Mode and Scene Modes

Program Mode

Aperture Priority Mode

Shutter Priority Mode

Manual Mode

Your camera may have other settings/modes, specific to that camera. Please check your manual to find out more !