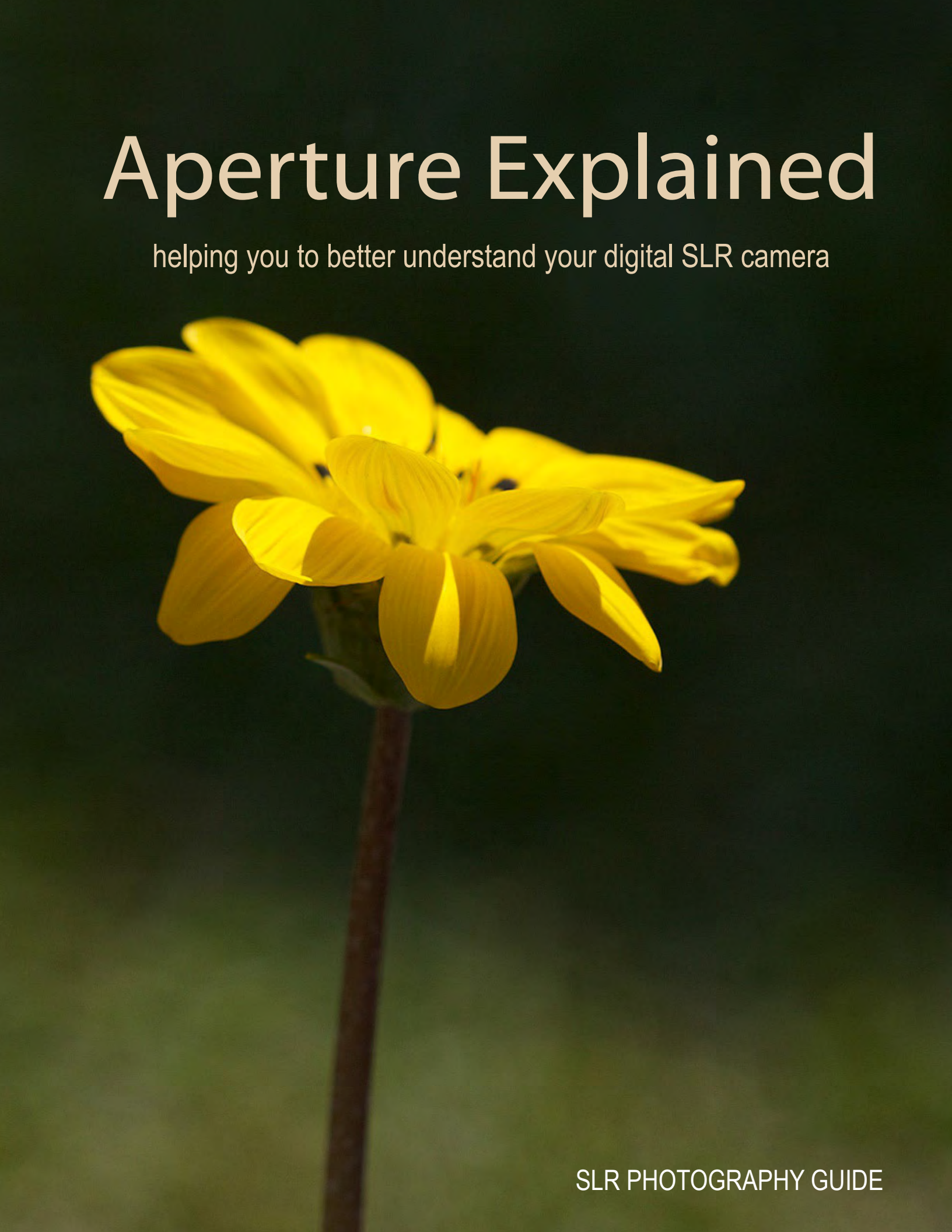
Aperture Explained

helping you to better understand your digital SLR camera



SLR PHOTOGRAPHY GUIDE

WELCOME

Welcome to our first e-book in what will be a 4 part series aimed at helping you to better understand your digital SLR camera.

This 4 part series will cover Aperture, ISO and Shutter Speed, with the last e-book showing you how all 3 settings work together to create the perfect exposure.

It's really not as hard as it seems if at first, you take a little time to understand each setting separately.

We believe that teaching by example is the most effective way for beginners to learn quickly. In areas that do require more explanation, we've tried to keep it as short and simple as possible. There is no need to make it any harder than it should be.

Tanya Puntti

SLR Photography Guide

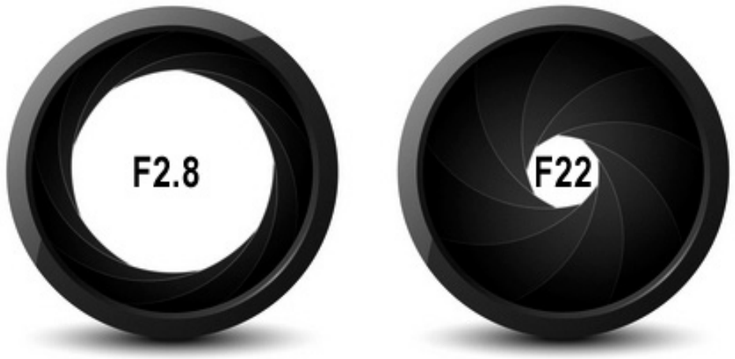
Dedicated to helping you better understand your sLR Camera

www.slrphotographyguide.com

In my experience, Aperture is the most useful setting to help beginners better understand and enjoy their digital SLR camera. Aperture allows you to be creative! You are the storyteller, you choose how the viewer perceives your photograph. Of all camera settings, it is also the easiest to get the gist of. A quick 15 minute lesson on Aperture and my daughter Danielle (seen below) couldn't put the camera down, nor could I get my camera back off her =)

SO WHAT IS APERTURE IN LAYMAN'S TERMS?

Aperture is basically a hole in your lens that allows light to travel through it and towards the camera sensor. As the photographer, you get to choose how large this hole is by setting the Aperture F-Stop.



The smaller the Aperture F number, the faster your camera takes to shoot the image. This is due to a larger hole, allowing more light in to hit the camera sensor with each exposure.

The larger the F number, the more time your camera takes to shoot the image. This is due to a smaller hole that allows less light in.

Why is this useful to understand? If you take a photo and find the result is too dark, or your camera is taking a long time to shoot, then allow more light in by changing the Aperture to a lower F number.

The camera's Aperture setting also determines how much of the subject or scenery is in focus, which we'll be discussing in depth throughout this e-book.

Grasshopper photographed with Aperture f/2.8

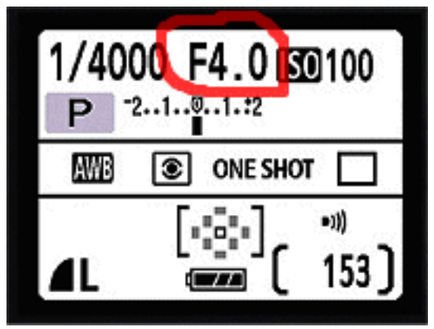
APERTURE SETTING ON YOUR DIGITAL CAMERA

We recommend for at least a week, set your camera to Aperture priority until you fully understand what this setting does. With your camera in Aperture priority, the only rules you need worry about are the ones explained in this e-book. Your camera will automatically change other settings to suit each shot.

The best advice we can give on how to find the Aperture setting on your camera is to look on your top dial at a setting that says either AV or A. If you see neither, then it's best to search your camera manual for Aperture priority.

Once you have your camera's top dial set to Aperture priority, you can change the f-number by rotating the main dial above the shutter button. Note: You may need to refer to your manual to find out how to change the F stop for your specific brand of camera.

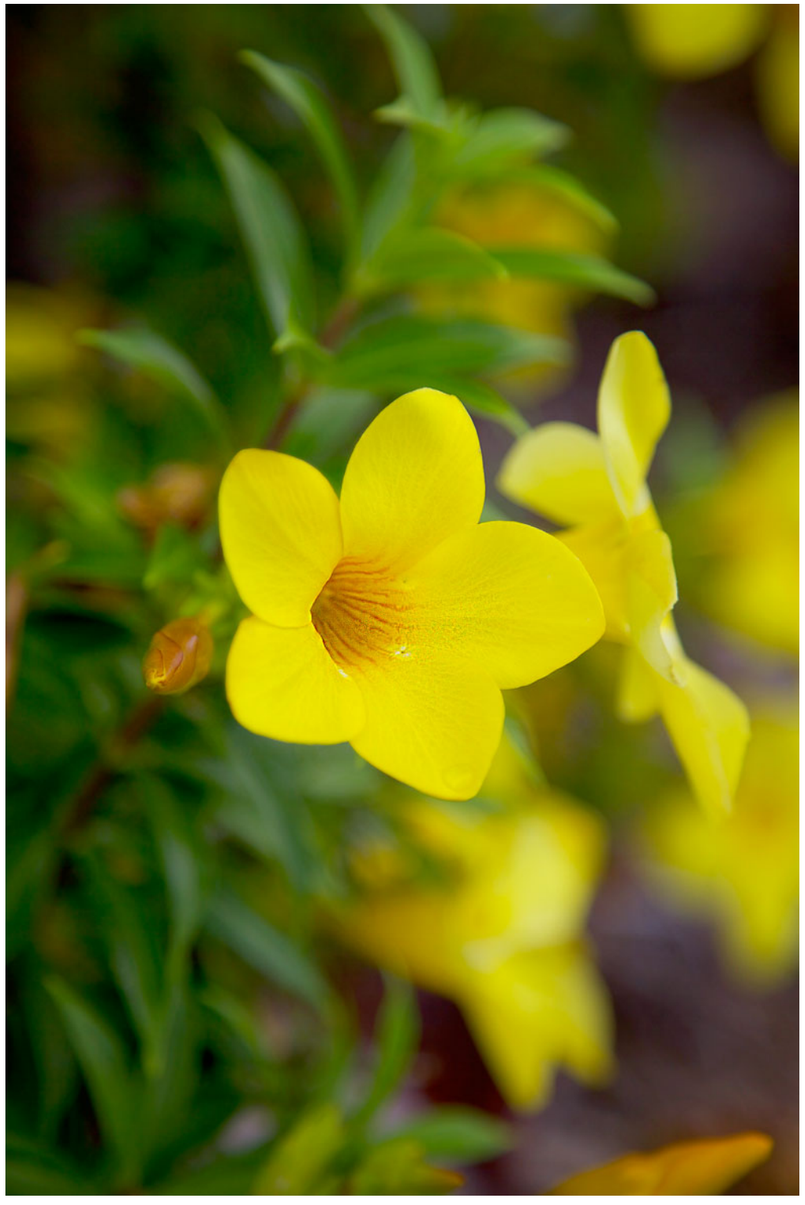
Set your camera to Aperture priority by rotating the top dial to either AV or A (depending on the model).



Look at your back LCD screen (beginners models) or top screen (depending on your camera model) for an F number, as shown in the image to the left. When you look through your cameras viewfinder you'll also notice at the bottom a corresponding decimal number. You can change the F number up or down by rotating dial above your shutter speed. Try and get used to doing this as you have your eye to the viewfinder.

Aperture priority is my walk around setting. Especially when I don't have time to play with camera settings for fear that I'll miss the shot.

DIFFERENCE BETWEEN HIGH AND LOW F - STOPS



Photographed with Aperture f/4

Lower F number = less in focus

Photographed with Aperture f/11

Higher F number = more in focus

DOES IT MATTER WHAT LENS YOU USE?

Photographed with Aperture f/5.6

While each lens is different, basic Aperture rules still apply.
Lower F number = less in focus.
Higher F number = more in focus.

You'll notice when practising Aperture priority, each lens may have a different result as seen in the out of focus area. This is because the out of focus quality is partly determined by the quality of the lens. More expensive lenses result in nice circular bokeh, while their lesser counterparts will have hexagonal patterns. If you want a photograph with a nice blurred background, higher quality lenses don't require the background objects to be so far away in distance. That isn't to say you should throw those cheaper lenses away. You simply need to understand how to use each lens for maximum quality.

Another important point to know, is that an Aperture setting of F8 on one lens may be different to F8 on another. For example, F8 on a landscape lens (17-55mm) will result in much of the scenery being in focus, whereas on a dedicated macro lens you will notice a nice patterned or smooth background (depending on other aspects of the setup).

IMPORTANT: Practise what you learn in this e-book with every lens you own!

VISUAL LEARNING - 4 simple rules for maximum focus

4 simple rules apply when shooting landscapes or sceneries where the background is as important as the foreground.

1. Set a high Aperture F number (f/11 or higher, I never go higher than f/22)

2. Have your lens focal length set to a relatively low mm. For this shot I used a focal length of 30mm.

3. Put some distance between the subject and the camera. In other words, don't stand too close to the subject you are photographing if you want more in focus.

4. Focus 1/3rd into the scene (works for me, although some may argue differently). For this shot I focused on a reflection within the lower 1/3rd of the landscape.

Photographed with Aperture f/11

"Example isn't another way to teach, it is the only way to teach." ~ Albert Einstein

VISUAL LEARNING - 4 simple rules for a blurred background

Photographed with Aperture f/5.6

4 simple rules apply for achieving a nice blurred background.

1. Set a low Aperture F number (f/5.6 or lower for starters) As I mentioned on Page 6, each lens can differ slightly, so experiment until you see a nice result.

2. Zoom your lens out to the highest mm length. For this shot, I used a focal length of 200mm.

3. Stand as close to the subject as possible, while still being able to focus.

4. Place as much distance as possible between the subject and surrounding background elements.

You may as well accept the fact now that unless you have a REALLY expensive lens, you cannot achieve a nicely blurred background if the subject is standing against a brick wall.

Photographed with Aperture f/4

Lower F number = less in focus

Photographed with Aperture f/11

Higher F number = more in focus

Both of the images above were photographed with a walk around lens (similar to a kit lens). There was roughly a meter between the flowers and the ground, as I shot downward towards the grass. You'll notice the image on the left, shot with an Aperture f/4 setting, resulted in a nice blurred out ground cover. Whereas the one on the right, photographed with an Aperture setting of f/11 still has a slight focus on the grass. I know which one I prefer!

Again it's important to note, that the distance between the subject and any background elements also plays a part Had the ground been any closer to the flower, I may not have achieved such an effective blur, as seen in the first image. Instead I would have had to drop to a lower F number if my lens allowed it. Being a kit lens, f/4 was the lowest I could go, so I would have searched a different angle to shoot from, where the background element was further away from the flowers.

This photograph was taken with an Aperture set at f/4. Hence, a lower Aperture number resulted in less of the scenery seen in focus. Notice the trees in the background and people on the boardwalk aren't in focus as much as the foreground? It has a kind of dreamy feel to it doesn't it?

Is it a bad image because less is in focus? I think not. Many photographers creatively use Aperture to tell a story or draw the viewers eye to a specific part of the image.

To demonstrate the difference between low and high f-stops for this particular scenery, I took the shot again with an Aperture setting of f/22. You'll notice the image on the next page has all the scene in sharp focus.

There is no right or wrong when it comes to setting an Aperture f-stop. It just depends on what type of story you want to tell.

Photographed with Aperture f/4

Photographed during our morning walk in Airlie Beach, Whitsundays Australia! I focused the camera on the railing in the foreground.

It's important to note I rarely go higher than Aperture f/16, for good reason! A larger F number does not mean sharper. All lenses have sweet spots.
A sweet spot is the Aperture setting at which the lens is at its sharpest. The further you set your Aperture f-stop
away from the sweet spot, the less sharp the image will be.

Photographed with Aperture f/22

Notice in this image there is blur seen in the foreground and background? This is because I set a low Aperture f/4. Instead of focusing the camera on the first row of bricks in the foreground, I focused around the 3rd row in. I like to think of Aperture as being a circle of focus. A low Aperture f-stop means less in focus, so if you focus the camera in the middle of the subject, you'll see blur in both the foreground and background.

Photographed with Aperture f/4

Aperture is applicable to every niche, whether you enjoy macro, landscape, portrait or whatever style takes your fancy.

Photographed with Aperture f/5.6

So now you've learned that a low Aperture f-stop (number) will result in less of the scenery being in focus. While a high Aperture f-stop (number) will see more in focus. However, like most things in life there are exceptions to the rule. For example, if you want to photograph something that is quite a distance away from you, then there is no need to give yourself a headache over what Aperture f-stop to use. It virtually becomes unimportant. As you've also learned on Page 8 of this e-book, you need to be close to the subject to blur a background. Hence, when photographing subjects that are away from you in distance, most will be in focus even if you use Aperture f/4.

Photographed with Aperture f/4

Photographed with Aperture f/4

As you can see both of these images were taken with Aperture f/4 (the smallest this particular lens would allow me to set). There was no chance of blurring because I obviously wasn't anywhere near the subject in distance. You'll also recall on Page 3 a small Aperture F number means a larger hole, which allows light to enter the camera's sensor faster. Therefore, an Aperture f/4 allowed me to photograph fly overs fast enough to capture the planes in all their glory.

Aerial of Great Barrier Reef photographed with Aperture f/8

5 kids, a $90 lens (nifty fifty), and a f/2.8 Aperture setting!

Photographed with Aperture f/2.8

Photographed with Aperture f/2.8

As you can imagine, the kids were moving pretty quick, so I required a shutter speed to suit. I set an Aperture f/2.8 so allow heaps of light in to the sensor (Page 3 large hole), stood about 2 - 3 metres from the kids, then cropped to my liking in post processing. The trick to photographing portraits or action shots with a f/2.8 is not to stand too close to the action. Otherwise you may end up with too much blurring!

I have set a low Aperture F number, but the background is still not blurred enough?

Photogaphed with Aperture f/4

Photographed with Aperture f/4

Both of these images have been taken with a low Aperture number f/4.0. So why isn't the background nice and blurred? The answer is easy! There isn't enough room between the subject and the background elements.

Not enough in focus?

Nothing is more annoying than photographing a portrait only to find the ears, nose or an eye or two is completely out of focus. The solution is easy!

Either increase the Aperture f-stop number or stand back further from the subject. Sometimes it's just a matter of being too close for that particular lens. Remember standing back further from the subject may result in less background blur, but at least you'll have the main parts in focus.

Photographed with Aperture f/5.6

When experimenting with Aperture priority, if you find your camera takes too long to shoot, it's most likely due to the f-stop being too high for the available light.

Remember Page 3 - a high F number means a smaller hole, which means light enters the sensor slower. ie your camera will take longer to shoot. This is especially true if you're shooting a scene that is relatively dark to begin with (early morning, late afternoon, rainy days, indoors).

When this happens, lower the Aperture F number and your camera will start shooting faster. Or if you're shooting a landscape like the image to the right, put your camera on a tripod and use a remote release. The longer the camera takes to shoot, the slower the motion in the water.

Photographed with Aperture f/22

Adopt the pace of nature. Her secret is patience. ~ Ralph Waldo Emerson

Lower F number = less in focus:	Especially true if you place plenty of distance between the subject and any background elements, stand closer to the subject when shooting, and zoom your lens out to the highest mm length.
Higher F number = more in focus:	If you find not enough of the scenery is in focus, zoom your lens in to a lower mm length, stand further away from the subject, focus one third into the scenery if photographing a landscape. Try not to go over Aperture f/16 as your lens will result in less sharpness the further its set from the sweet spot.
Aperture importance may become obsolete:	If the subject is quite a distance away from you. For example, aerial shots, aeroplanes etc. In these cases, either choose the lowest Aperture f-stop, or that which is the recommended sweet spot for that particular lens. A quick search on Google will usually find this information.
Other notes:	A high Aperture f number will make your camera shoot much slower in low light situations, whereas a low f number will shoot much quicker in similar lighting. Where there is a lot of light available, you should have no problem shooting fast with high Aperture f numbers.

Give yourself a week experimenting with Aperture Priority and you should fully understand this setting and be ready for our next e-book on ISO =)

1. Blurred Backgrounds: Try this with each lens you own. Set your camera on Aperture Priority, choose the lowest f-number it will let you go to (each lens is different), zoom the lens out to the largest mm length. Then stand as close to the subject you want to photograph that your lens will allow you while still being able to focus. If your camera has trouble focusing, move a small fraction back and try again. Make sure there is plenty of room between the subject and any background elements. In other words, don't stand a person up against a tree or brick wall and expect a nice blurred background. Take the shot and you should find a blurred background staring at you in the rear LCD screen =)

2. Now increase the Aperture by 2 f-stops and do the same process as previously. After each shot, keep increasing by 2 f-stops and re-shooting until you reach say f/11. Load all the images on your computer to better see the differences in the background.

3. Repeat assignments 1 and 2, this time with your lens zoomed in to the lowest mm length and stand say 3 meters (9 feet) from the subject. Load your images onto your computer to see any differences. Each lens may have different results, so do these assignments with one lens at a time.

Photographed with Aperture f/5.6

4. And for the last assignment, wait until night time and photograph a few indoor shots. First put the camera on its lowest Aperture f-number available, then take one with the camera on Aperture f-11. Don't take much notice of how good or bad the image is, but rather the length of time your camera took to shoot the photo. You should have noticed the camera shot much quicker on a lower f-number.

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Art washes from the soul
the dust of everyday life.
~ Picasso