

Shutterbug

photography training

Beginner Photography: Class 3

Portrait Mode

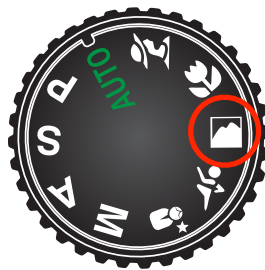


Portraits are normally created using *wide aperture values*, such as f/1.8 or f/2.8 to keep the person in focus while rendering the background out of focus (also known as *shallow depth of field*.)

When Portrait mode is selected, the camera's built-in program will attempt to *prioritize the exposure using a wide aperture* value.



Landscape Mode

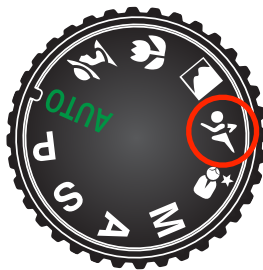


Landscapes are normally created using *narrow aperture values*, such as f/11 or f/16 to have as much of the scene from front to back in focus (also known as *deep depth of field*.)

When Landscape mode is selected, the camera's built-in program will attempt to *prioritize the exposure using a narrow aperture* value.



Sports Mode



Action scenes are normally captured using **fast shutter speeds**, such as 1/500 or 1/1000 second to freeze the subject(s) in time.

When Sports mode is selected, the camera's built-in program will attempt to **prioritize the exposure using a fast shutter speed**. A special auto focus mode is also engaged, which will be covered in detail later.



Macro Mode



In theory, Macro mode permits your camera to focus on objects that are *close to the lens*, making it possible to capture *tiny details*.

Unfortunately, this mode doesn't effectively capture macro shots as well as you would like to be able to. If you want to shoot *real macro images*, you will need a *dedicated macro lens*.



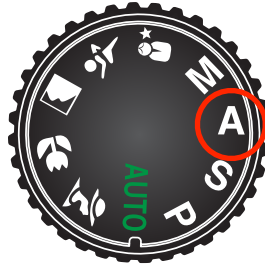
Night Portrait Mode



Also known as slow-sync or night flash, Night Portrait Mode combines the **flash** with a **slower shutter speed** for capturing **evenly exposed** shots of your subject standing in front of a **nighttime background**.

Since you will be shooting in **low-light** that will require a slow shutter speed, the use of a **tripod** is recommended.

Aperture Priority Mode



Aperture Priority is a *semi-manual exposure mode* that allows you to **control the aperture value** while the camera sets the shutter speed. The shutter speed is based on the selected *f/stop, ISO, and available light*.

The main benefit of using aperture priority is that it allows you to **manage depth of field** consistently, determining how much (or little) of your scene will be in focus.

Aperture Priority Mode

Since the camera is *automatically adjusting the shutter speed* based on the current settings and available light, there is a chance that the shutter speed chosen by the camera will be **too slow**, resulting in blurry photos.

If you notice this happening, you can easily compensate for the slow shutter speed by **increasing the ISO sensitivity**. Just keep increasing the ISO until the desired shutter speed is achieved.

Of course, this increase in ISO comes with a cost... remember **digital noise**? Newer cameras have **more advanced image sensors** that are able to handle higher ISOs **more cleanly**, which will allow you to use higher sensitivities without noticing so much noise.

TIP: check the **exercise file** for instructions on how to use this mode.

Shutter Priority Mode



Shutter Priority is a *semi-manual exposure mode* that allows you to *control the shutter speed* while the camera sets the aperture value. The f/stop is based on the selected *shutter speed, ISO, and available light*.

The main benefit of using shutter priority is that it allows you to *manage time and motion* consistently, determining how much (or little) of your subject is captured in time.

Shutter Priority Mode

Since the camera is *automatically adjusting the aperture value* based on the current settings and available light, there is a chance that the aperture value chosen will be *too narrow* to record a proper exposure, which will result in *underexposed* photos.

If you notice this happening, you can easily compensate for the narrow aperture by *increasing the ISO sensitivity*. Just keep increasing the ISO until the aperture *stops blinking*, or the desired aperture value is reached.

Of course, this increase in ISO comes with a cost... remember *digital noise*? Newer cameras have *more advanced image sensors* that are able to handle higher ISOs *more cleanly*, which will allow you to use higher sensitivities without noticing so much noise.

TIP: check the *exercise file* for instructions on how to use this mode.

The Reciprocal Rule

The Reciprocal Rule states that *while hand holding your camera*, your *shutter speed* should *not be slower* than the reciprocal of your *effective focal length* in order to avoid camera shake (for still shots only).

The reciprocal of a number is the *multiplicative inverse of the number*, or one divided by the number. For example, *the reciprocal of 100 is 1/100*.

Let's say you're using a *50mm prime* to capture a portrait, and to apply the reciprocal rule, you would need a *minimum shutter speed of 1/50* to capture a sharp image.

Now let's say you switch to your *70-200mm telephoto lens*. To apply the same rule, you would need to shoot at a *minimum shutter speed of 1/70 at 70mm, and 1/200 if you're zoomed in (racked out) at 200mm*.

Manual Mode

Unlike the previous modes where the camera played at least some part in controlling the exposure, Manual mode *leaves all the decision making strictly up to you*. Basically, you get what you set.

Contrary to popular belief, *shooting in manual mode won't make your photos any better* than if you used *aperture/shutter priority*. The result is the same, but working with priority modes is *faster* and *easier*.

Used in conjunction with the *exposure indicator* (covered momentarily), you simply adjust the ISO, aperture, and shutter speed until the *marker centers at zero*, or reads neutral.

Manual mode takes time, and depending on the scene (children/sports) you may not have that luxury. *Landscapes* are a different story.

Exposure Indicator

The exposure indicator is a *sliding scale* that gives you an idea of what the exposure will look like with the *current* ISO, aperture, and shutter speed. This scale can be found on the back LCD panel, top display panel (if your camera has one), or through the viewfinder.



The marker's position indicates whether your image will be *underexposed* (negative EV), *neutrally exposed* (zero EV), or *overexposed* (positive EV). It is *not indicating* that you have a 'good' exposure, it's just telling you what the current exposure is *relative to neutral*.

Metering Light

Getting a 'proper' exposure comes down to *balancing* the *ISO, aperture,* and *shutter speed*. However, you need to have an *idea of the light levels* you're shooting in *before* you can properly balance those settings.

It's near impossible to know the 'correct' balance of these settings are if you are *unaware of how much, or little, light* you are working with.

Your camera has *several metering systems* available to help *measure light levels in various scenes*. Naturally, each metering mode is more suited for a *particular situation* than the other.

TIP: the marker position for *all exposure modes* (except manual) will always be *centered* on the exposure indicator. It will *only move if you adjust the exposure compensation*, which doesn't apply on manual mode.

Multi-Zone Metering

Also known as *Evaluative* or *Matrix*, the multi-zone mode is the *default metering mode* on your camera, and is the one to choose when you're *not sure* which of the other modes would be best.

This mode works by *evaluating the light from the entire scene*; highlights, mid-tones, and shadows, and then uses that reading to *calculate an average exposure*.

The multi-zone metering mode is best used for situations with *nice, even lighting*, and will generally be a *better choice* when you *aren't comfortable messing around with your metering system*.

However, as handy as it is, this metering system can have trouble with *very high-contrast scenes*, such as backlit subjects.



Center-Weighted Metering

Center-Weighted is a simpler system that averages the light reading across the whole scene like multi-zone metering, but gives **more consideration** to the **center of the frame**.

It is **ideal for portraits** because it will expose correctly for the subject and **not put much 'weight' on the background**, making it less likely to be influenced by tones near the edge of the frame.

Use this mode for scenes where you want **more control over where the camera measures the exposure**.

Prime examples of scenes that benefit from this metering mode are those **shot in full sun**, where getting the **right exposure for your subject** is more important than the **background**.



Spot Metering

Unlike multi-zone metering, which measures the exposure from the entire frame, *spot metering* mode allows you to *meter from a specific area of the frame*. This is helpful if you're shooting a subject that has a lot of very *light or dark areas* (high contrast), or both.

On most cameras, the *'spot' area is located in the center of the frame*, and that's where the meter reading is taken. Some cameras, however, allow the spot area to *follow the focus point*. 📖

When exposing for your subject, be sure to *position the spot meter over a mid-tone area* to avoid exposure issues. For instance, if you meter off of a bright area of your subject, such as their *white shirt*, you will get an *underexposed image*, and vice versa.



ISO 800
1/500 sec
f/2.8 @ 200mm

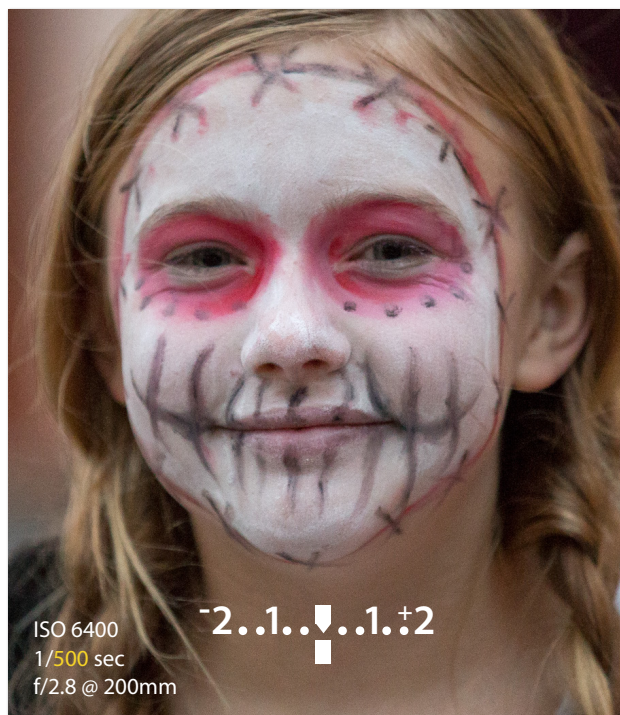
Exposure Compensation

Measured by using the *exposure indicator*, exposure compensation is one of the *most often used* features for *dialing in* the 'perfect' exposure.

As sophisticated as the metering system is on your camera, there are times when the *camera simply won't get it right*. Exposure compensation *gives you the power to override the camera's set exposure*, allowing you to either increase (+) or decrease (-) the exposure as needed.

Exposure compensation settings are *'sticky'*, meaning they will *remain in the same position* until you change them.

So, be sure to *bring your exposure compensation back to neutral* (zero EV) when you are done using it, otherwise, every photo you take afterward will either be *too bright* or *too dark*.



How it Works

Exposure compensation *only works* if you are shooting in an *automatic* or *semi-automatic* shooting mode, and *does not work in manual*. When the camera '*compensates*' for either an increased or decreased exposure, it has to either *get or take away light from somewhere*.

For instance, the previous two images were shot in aperture priority at f/2.8 with an ISO of 6400. For the left image, the camera needed a *shutter speed of 1/500* to make what it thought was a *correct exposure*.

To brighten the image to an acceptable level, an exposure compensation of *+1 EV* (one stop) was applied. Since *more light* was needed to make a brighter exposure, it *slowed down the shutter speed from 1/500 to 1/250*.

TIP: keep an eye on your shutter speed to make sure it isn't *too slow*.

Autofocus Systems

Modern digital cameras have different *autofocus systems*, with the *two dominant* systems being *active* and *passive*.

Active system: (phase detection) uses an infrared beam to adjust focus *based on the distance* between the camera and the subject.

Passive system: (contrast detection) looks for *changes in contrast*, where the most contrasting areas are considered more focus-worthy.

'My camera won't focus!' Subjects that are flat in color and detail will confuse a passive system. These systems need an *edge of some kind to provide contrast* to focus on. If it can't find that edge/contrast, it will *hunt for focus* and not allow your camera to achieve focus lock.

Autofocus Modes

AF-S or One Shot pulls *focus once* and holds it. After you press the shutter button halfway, the camera will *find and hold focus* until either you *take* the photo or *release* the shutter button. This is the camera's *default setting* and is best used when your *subject is stationary*.

AF-C or AI Servo will *continuously attempt to keep your subject in focus* for as long as you have the *shutter button halfway depressed*. This mode is most common for *sports* and *action* scenes.

AF-A or AI Focus does both, *switching* between *single* and *continuous* mode depending on if your subject is moving or stationary.

While this may seem like an ideal setting, it is a little quirky and can give you *less than predictable results*.

Focus Points

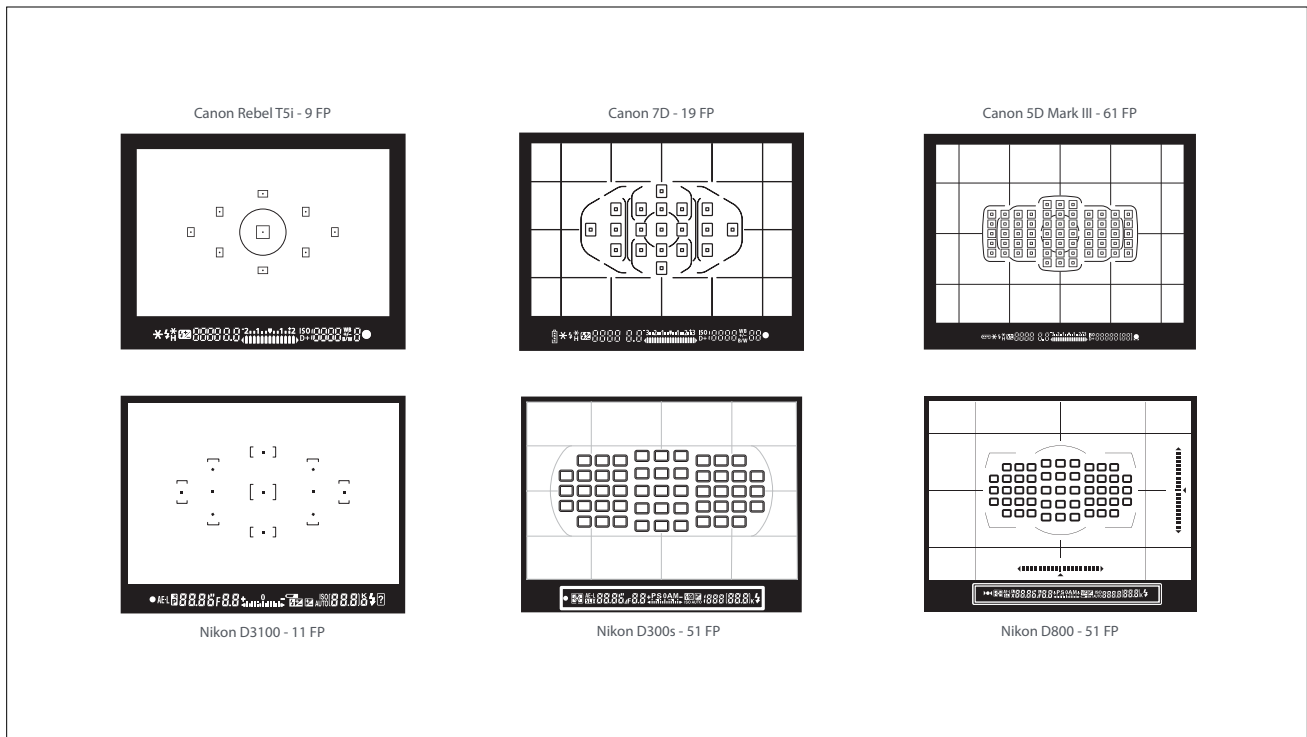
Your camera has two *focus point options* available to help you achieve focus: **Auto** (all) Point Focus and **Manual** (selective) Point Focus. 📖

Auto Point Focus works with the autofocus systems discussed earlier and allows the camera to select *what it thinks should be in focus*.

This has some drawbacks because the camera *doesn't know what you want to focus on*, and really doesn't care for that matter.

Manual Point Focus involves you moving a *single focus point* around the frame until it is in front of what *you want to be in focus*.

For portraits, this single focus point is usually placed on the *subject's eye closest to the camera*.



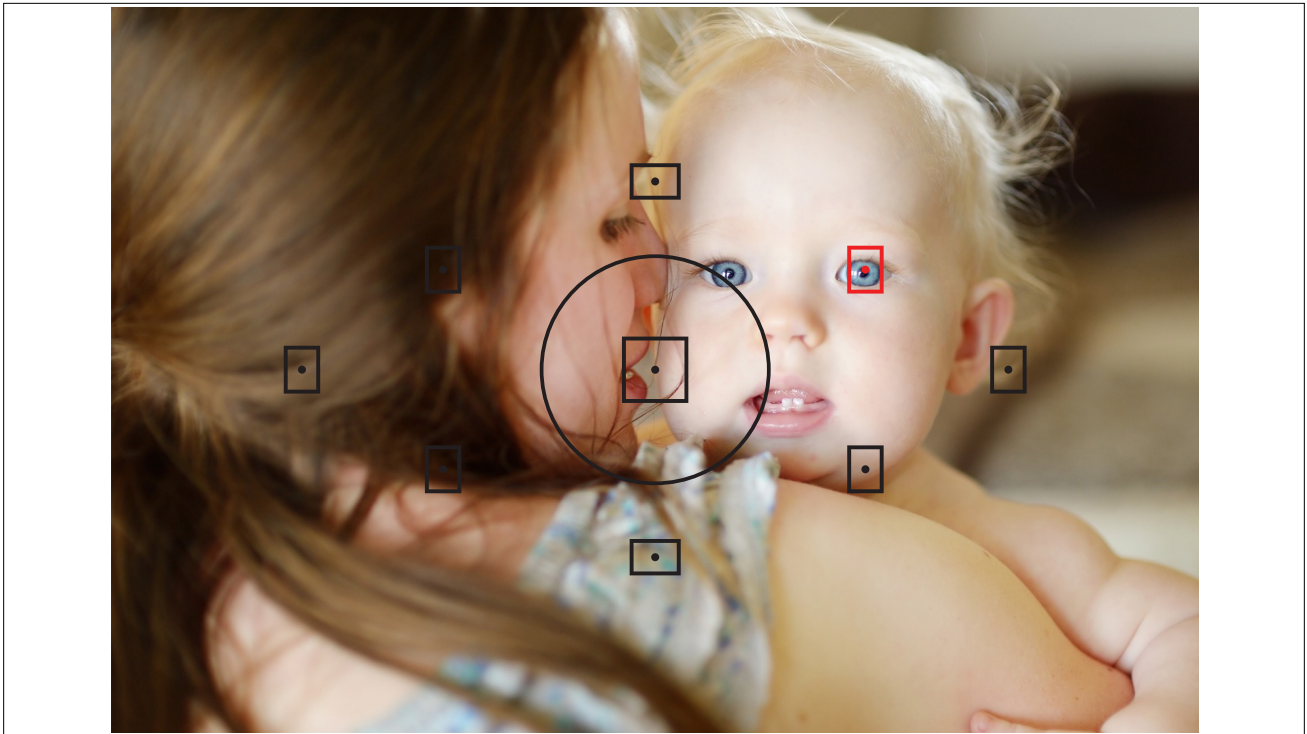
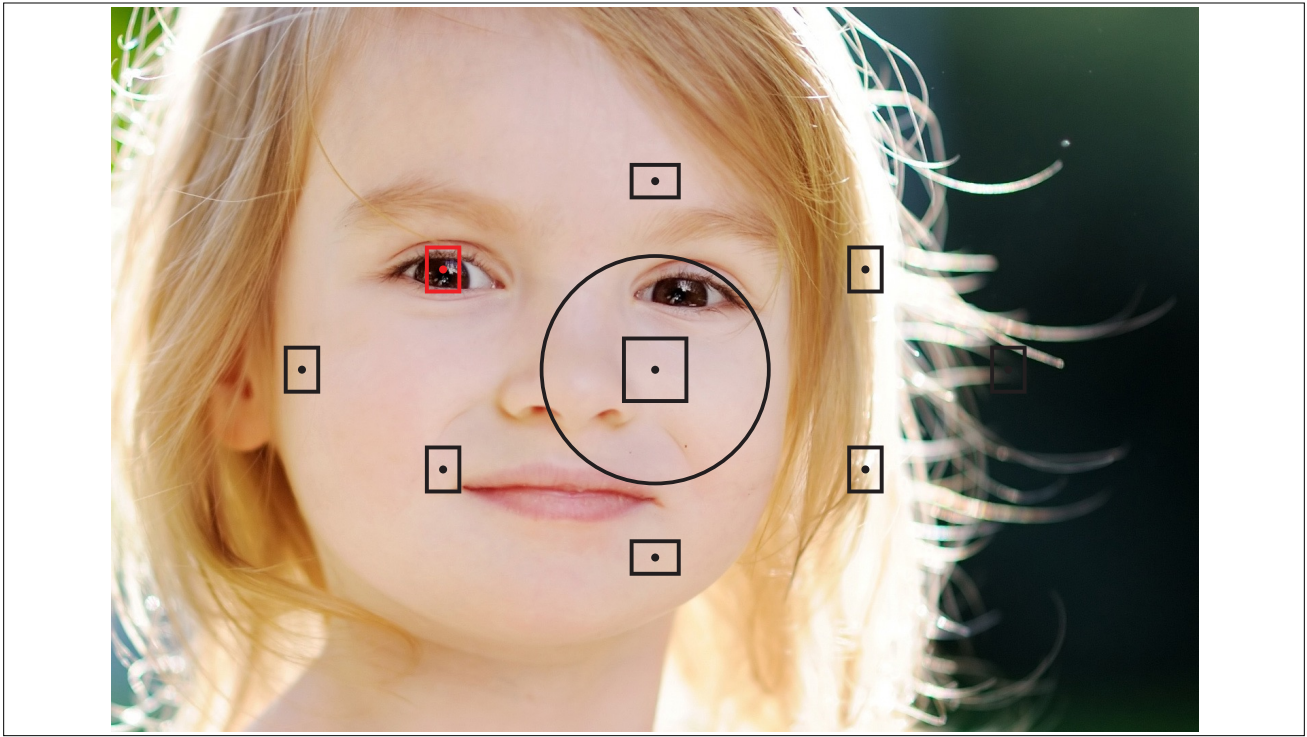
Use Selective AF Points

When capturing portraits, ***making sure your subjects eyes are in focus is an absolute must.*** Portraits are less impactful when the eyes are soft, and you need to ***control where the camera focuses*** so your subject's eyes are ***sharp.***

While ***auto-point AF mode*** is useful for some situations, it is ***not useful*** when it comes to ***portraits.*** For instance, active AF systems ***focus*** on the ***nearest object,*** which could be the ***tip of a nose.***

To make certain you get the subject's eyes tack-sharp, you simply need to use a ***single selective AF point.*** Using only one focus point ***enables you to decide what the camera focuses on.***

TIP: selective focus points are useful for subjects other than people, especially when using a ***shallow depth of field.***



One Shot & Continuous



In **Single** or **One Shot** mode, the camera takes *one photo each time you press the shutter button*. This is the camera's default setting.

Use **Continuous** mode to *capture action*. As long as the shutter button is held down, the camera will keep taking shots (battery/memory.)

Cameras have *different frames-per-second* (FPS) they can capture, and this is where having a memory card with a *fast MB/s* will come in handy. 📖

Assignments

1. Place an object in front of an especially *bright or dark background* and see how the various *metering modes* affect the exposure. Mix in *exposure compensation* to see how they work together.
2. Find a subject that is on the move, such as a child or a pet, and try out the *AI-Servo/AF-C focus drive*.
3. Using a *shallow depth of field*, practice how different *Selective Focus points* can control how the viewer visually interacts with your photo. Also try using *AE-L with the center focus point active*.
4. Review and practice the included exercise files.
5. Exposure simulator: www.canonoutsideofauto.ca

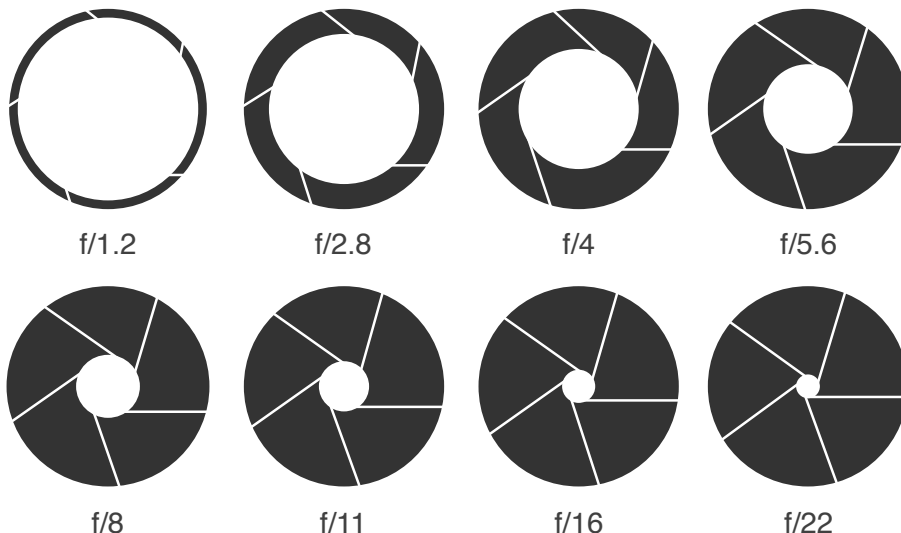
Aperture Priority

1. Set the camera to Aperture Priority Mode.
2. Set the ISO to the lowest setting, usually 100 or 200, depending on your camera. You will likely need a higher ISO, but you are setting it to the lowest sensitivity to see how it indirectly influences the shutter speed.
3. Select the desired aperture for the depth of field you want. Smaller (wide opening) aperture values, such as $f/2.8$ and $f/4$, are used for portraits, medium aperture values, such as $f/5.6$ and $f/8$, are used for groups, and larger (small opening) aperture values, such as $f/11$, $f/16$, are used for landscapes.
4. Look at the shutter speed and note the reading. Is it fast or slow enough? Remember, the camera will automatically adjust this setting for you, so it may not be appropriate with the current ISO and aperture value.

If you are using a tripod, the shutter speed might not be a factor. If your subject is still, such as a landscape, the camera can take as long as it wants to make the exposure.

However, if you are hand holding the camera, and/or your subject is moving, you will need an appropriate shutter speed to avoid a blurry photo.

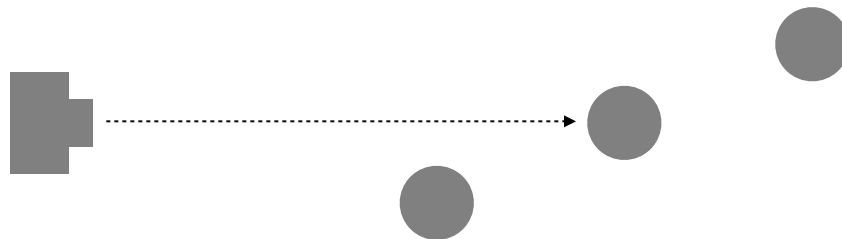
5. If the shutter speed is slower than what is needed, simply increase the ISO until the shutter speed is fast enough to capture a sharp image.



Depth of Field

1. Set the camera to Aperture Priority Mode.
2. Set the ISO according to the ambient light. For example, if you have a lot of light, select 400, or if there is less light, select 1600. Check the shutter speed to make sure it is at at least 1/60 second. If not, increase the ISO until you are.
3. Set up three objects (toys, chess pieces, water bottles, etc.) roughly 6 to 8 inches in distance from each other. Stagger the objects from front to back so you can see all of them at the same time (see diagram below).
4. Select the maximum aperture for your lens (smallest f/stop number).
5. Make sure the center focus point is active.
6. Position yourself roughly one or two feet from the objects, or as close as you can get while still being able to achieve focus.
7. Place the center focus point on the middle object and take a photo. You should see that the object closest to you (foreground), and the object farthest from you (background), are rendered out of focus.
8. Now, increase your aperture value a couple of stops, i.e., from f/3.5 to f/5.6, or f/5.6 to f/8, and take a picture of the middle object again. You should see the foreground and background objects are a little more in focus.
9. Increase the aperture value by yet another couple stops and repeat the process. You should notice that the more you increase the aperture value, the more the foreground and background objects come in focus.

The smaller the aperture opening, the less light is allowed into the camera, and you may need to increase the ISO to maintain a fast enough shutter speed.



Shutter Priority

1. Set the camera to Shutter Priority Mode.
2. Set the ISO to the lowest setting, usually 100 or 200, depending on your camera. You will likely need a higher ISO, but you are setting it to the lowest sensitivity to see how it indirectly influences the aperture.
3. Select the desired shutter speed. Slower shutter speeds are used for capturing motion, and faster shutter speeds are used for freezing your subject in time.
4. With the desired shutter speed selected, look at the aperture and note the reading. Remember, the camera will automatically adjust this setting for you, so it may not be large enough.
5. If the aperture is flashing, that indicates the aperture opening is not wide enough to make a proper exposure with the current ISO and shutter speed. If you take a shot, your photo will be underexposed.

The shutter speed required to freeze your subject in time will be determined by how fast your subject is moving. Slower moving subjects don't require as fast of a shutter speed as do quickly moving subjects.

The minimum shutter speed for hand holding the camera is 1/60 second. Anything slower and you are risking camera shake, which equals blurry photos.

6. If the aperture is too wide to make a proper exposure, simply increase the ISO until the aperture either stops flashing, or reaches an aperture value that will give you the depth of field you want. The higher the ISO, the smaller the aperture will get, which will increase depth of field.

Recommended Shutter Speeds

1/2000 - 1/4000 sec: really fast moving subjects
1/500 - 1/1250 sec: amateur and professional sports
1/125 - 1/250 sec: normal photos and children
1/60 sec: minimum for sharp hand held shots
1/30 sec: panning for action and sports
1/15 sec: blur subjects in motion
1/8 sec: blur fast moving water
1/4 sec: panning for people walking
1/2 sec: blur slow moving water
1 sec or slower: long exposures

Manual

1. Set the camera to Manual Mode.
2. Set the ISO to the lowest setting, usually 100 or 200, depending on your camera. You will likely need a higher ISO, but you are setting it to the lowest sensitivity to see how it indirectly influences the exposure.
3. Select the desired shutter speed. Slower shutter speeds are used for capturing motion, and faster shutter speeds are used for freezing your subject in time.
4. Select the desired aperture for the depth of field you want. Smaller (wide opening) aperture values, such as f/2.8 and f/4, are used for portraits, medium aperture values, such as f/5.6 and f/8, are used for groups, and larger (small opening) aperture values, such as f/11, f/16, are used for landscapes.
5. Look at the exposure indicator and note the marker's position. Is it centered on the indicator, or positioned toward the negative or positive?

If it is positioned in the center, then you have a neutral exposure.

If it is positioned toward the negative (-), your photo will be underexposed.

If it is positioned toward the positive (+), your photo will be overexposed.

The marker's position is not indicating that you have a "good" exposure, it is just telling you what the current exposure is relative to neutral (center.)

6. Depending on the desired outcome of your photo, adjust either, or both, the shutter speed and aperture to bring the marker back toward the center. Use the ISO as needed.

The kind of photo you want to take will dictate what settings you make to the shutter speed and aperture. Remember, the ISO is merely a tool for introducing more light into the camera so you can take the kind of photo you want.

The ISO's sensitivity will depend on the light levels you are working in. If you are in bright sunny conditions, you can get away with using a low ISO, such as 100 or 200.

However, as the light levels decrease, the ISO will need to be increased in order to offset the reduction of light.