IN today’s digital world, most of us possess a digital camera or a smart phone that enables us to capture a moment in time with a single click of a finger. However, not every click results in a memorable and lively picture. More often than not we end up with pictures that are dull, blurred, overexposed with too much light, or low in contrast. In short, what we see with our own eyes is not what we get. Somewhere between seeing and clicking we lose the aesthetic beauty of what we saw, and end up asking ourselves: ‘why’.

It’s not the camera, it’s not the lens, it’s not the photographer, photoshop, or, even the model...It’s all about “The Light”.

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Playing with Photons
Clicking the ‘Right’ Photograph

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There are as many exceptions in photography as there are rules. And once you are hooked to photography as a hobby, it gives you infinite ways to explore your creativity, and takes you on a never-ending learning curve.

The truth is photography is as much an exact science as it is a form of art. From the photographer it asks for sound knowledge, a lot of practice and a lot of patience. While the last two are subjective and vary with individual talent, the first is a matter of keeping some simple rules in mind while shooting your subject.

To begin with we must realize that a good picture – a great picture – is a function of how well we capture the light that falls on our subject. Most modern digital cameras come equipped with three very important settings that let us do so: Aperture, Shutter Speed and ISO. They constitute the golden triangle of photography techniques that every photographer ought to know. If one can understand and master the usage of these three musketeers, it is almost guaranteed that the beauty will lie in the hands of the creator, and not just in the eyes of the beholder.

One does not need fancy or expensive cameras or other accessories to shoot lively pictures. In the end, it is not the model of the camera that creates beautiful pictures; rather the composition of the subject, the almighty light that illuminates that subject, and an understanding of these three controls that allow us to play with it. Let us familiarize ourselves a bit with these key controls that most modern digital cameras allow us to customize.

**Aperture**

Perhaps the most important element in your camera is the eyes with which your camera sees: the aperture. Aperture is like the window to your room. If you keep the window wide open, your room will be flooded with sunlight. If you keep the window slightly ajar, it only allows a streak of sunlight to get in, illuminating only a portion of the room, giving sharpness and depth to the objects that it illuminates.

It’s the same principle with the aperture of your camera lens. If you want sharpness or depth in your shot, keep your aperture small. If you are shooting in low light conditions, you will need a lot of light coming in to your camera to get a decent capture.
Above: From top left to bottom right, the six images have been taken with progressively diminishing apertures (f/stop values f/5.6, f/6.3, f/7.1, f/8, f/9, and f/10 respectively). The shutter speed and ISO have been kept constant at 0.2 seconds and 200 respectively. As the aperture decreases, so does the brightness or intensity of the images.

Above: From top left to bottom right, the six images have been taken with progressively increasing shutter speed (1 second, ½ second, ¼ second, 0.2 second, 0.1 second and 0.05 second respectively). The aperture and ISO have been kept constant at f/5.6 and 100 respectively. As the exposure decreases, so does the brightness or intensity of the images.

From top left to bottom right, the eight images have been taken with progressively increasing shutter speeds and decreasing aperture. Each of the eight images has the same visual intensity and has been shot with the same ISO value of 400 under similar lighting conditions.
picture, so keep your aperture wide open. It is perhaps the single most important feature that any camera has. Most digital cameras have an “aperture priority” mode or setting, in which it allows the photographer to set the aperture appropriately. The rest of the controls will be automatically adjusted by the camera in tandem to the aperture set.

The aperture settings used in cameras are calibrated in f/stops. They are denoted by f/2, f/2.8, f/4, f/5.6, f/8, f/11, f/16, f/22 and so on. These numbers will tell you how much light is passing through the camera lens. The funny thing about aperture is that the f/stop number is inversely related to how wide or narrow the aperture opening actually is. So a smaller f/stop number means a wider aperture, and therefore more light passing through the lens, and vice versa. That is, a lens with f/2.8 will let in more light than a lens set at f/16.

There is a genre of photography known as macro, which ironically is the photography of the micro. You get up close and personal with your subjects, most of which are from the plant and animal kingdom. Aperture plays a vital role in macro photography which calls for wider apertures and shallower depth of field in general. So if you are shooting macro, you should strive to go as close to the subject and use as low an f/stop as possible.

Depth of field is another visual element that the aperture helps capture in your shot. A smaller f/stop such as f/1.8 or f/2.8 (meaning a wider aperture or lens opening) is a good choice for portrait, fashion, sports or macro photography, where you want the subject to hold the centre stage and the background to blur into oblivion. A wider aperture therefore gives you a shallow depth of field, meaning background remains out of focus or blurred. It’s the other way round while shooting landscapes or cityscapes, where you want the background or the entire picture to be in focus. A smaller aperture (higher f/stop values such as f/16) will give a wide angle and high depth of field to your shot.

**Shutter Speed**

When you click the camera to take a snap, the camera opens up the shutter for a fraction of a second and captures the light coming through lens. How fast or slow this action takes place is governed by the shutter speed. Obviously a slow shutter speed

**Left:** The American Niagara Falls at night. This picture was taken with an aperture of f/7.1 and a shutter speed of 25 seconds. Keeping the shutter open for 25 seconds created the smooth silky flowing effect in the waterfall.
Above: All the six images have the same shutter speed (1/10th seconds) and f/stop of f/5.6, but varying ISO sensitivity. From left to right, as the ISO values increase (100, 160, 200, 400, 800 and 1600), the images go from darker to brighter.

Below: The White Balance setting influences how light is perceived by the camera sensor and controls the warmth captured in the picture. If undecided, the camera can be set to Automatic White Balance or AWB.

would mean the shutter opens up and stays open for a longer duration, allowing more light through the lens. How is this helpful?

Think of night-time photography when you don’t have as much light to work with. To have a distinct image, you need more light, which in turn means keeping the shutter open for long – you need a slow shutter speed. Another common use of slow shutter speed is in shooting waterfalls where the photographer deliberately wants to give the waterfall a silky smooth effect. Keeping the shutter open for a long time aggregates the free flowing water pixels and lends it the desired effect. However, photography with slow shutter speed definitely needs a tripod or some mechanism to hold the camera steady and free of any hand-held vibrations.

Having a slower shutter speed means the subject will be exposed for a longer duration, and vice versa. The shutter speed therefore controls the exposure of the subject. If it comes down to a choice, go with underexposure rather than overexposing your subject. Most of the photo-editing software available have the capability to enhance an underexposed image to decent brightness and contrast. But an overexposed image is, more often than not, a click wasted.

ISO
Perhaps the easiest of the three techniques is to customize the ISO setting of the camera. It is the sensitivity of your camera to ambient light too much of which may or may not be desirable. Ambient light brings in a lot of noise, and shows up in the picture
as tiny specks or dots, giving the picture a grainy feel.

ISO values in general are in steps of 100, 200, 400, 800, 1600, 3200, and so on. If you are shooting in low light conditions, set your ISO to a higher value so that the camera is sensitive to the ambient light. Conversely, having a low ISO in bright sunlight ensures that the background noise is reduced. If you have a high ISO and shooting in broad daylight, the picture will inevitably be overexposed. It kind of acts like a sunglass: too much light and you will most likely want to use a low ISO setting, and vice versa.

So the f/stop or aperture is the hole in the lens that lets the light in, while the shutter speed decides how long the lens lets the light in. The two together, along with the ISO setting of the camera, help to compose images under widely varying lighting conditions. Though these three are the most important controls in your camera, there are few others that play a supporting role in determining the quality of the picture.

There are many more features besides the golden three that a camera comes equipped with, which help us being creative, and shoot lively pictures in varying lighting conditions. Though it is not possible to cover every single feature of a modern digital camera, let us touch upon one such control – White Balance.

Unrelated to the ISO, the White Balance of the camera is another element that controls how light is perceived by the camera sensor. It tells your camera what kind of ambient condition you are shooting in. Are you out in the field, shooting in bright daylight or cloudy environment? Are your subjects in a room, lighted by tungsten bulbs? Would you like to give some warmth to the picture, making it look a bit golden yellowish?

Depending on the white balance, your camera has intelligence built into it to adjust the captured image accordingly. For instance, if you are shooting cityscape under bright sunlight, and don’t have the white balance set to daylight, the picture will most likely be overexposed. With the white balance set to daylight, the camera will try to compensate for the overexposure and reduce the backlighting a bit. Of course you can control the exposure by other means as well, through the exposure compensation controls, using a faster shutter speed or perhaps using a larger t/stop to reduce the amount of light entering the camera. The choice is yours.

Having said all that, photography is also an art, and there are situations when the photographer would intentionally keep a high ISO under bright light to introduce graininess in the shot and give it a dramatic effect, or use a high f/stop in a macro to get the background in frame, or choose a very fast shutter speed while shooting waterfalls to capture the tiny water droplets in motion, and so on.

There are as many exceptions in photography as there are rules. And once you are hooked to photography as a hobby, it gives you infinite ways to explore your creativity, and takes you on a never-ending learning curve. It all comes down to what you, as the photographer, want to capture and portray. There is no right or wrong way about it.

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