

Digital vs. Traditional Images

Exposure and Environments?

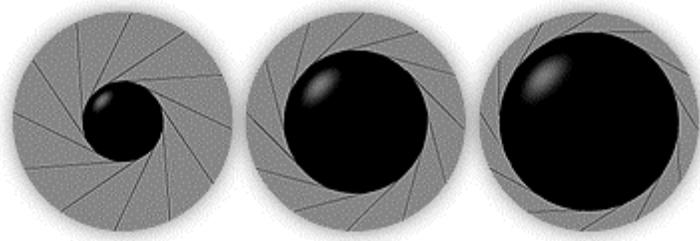


As you gain experience in picture taking you will recognize that one of the key challenges in photography is knowing your environment! If you are to control the outcome of your efforts you must develop an understanding of light, exposure control, depth of field and focus to name a few.

Light on film in a traditional camera **or** the CCD in a digital camera creates the image! This fundamental fact of photography clearly points out the need to understand light and how it affects the success of your pictures. Much of your understanding of light will come from experience, by observing lighting conditions as you photograph and then correlating your observations with the results. In doing so you will come to understand light.

- ?? Light has a "quality" to it and you have a degree of control over that quality. "Soft" diffuse light has a different quality than harsh direct light, and through the use of diffusers and filters, you have some control over the softness of the light you use. In some shots, harsh light is very creative, but for other shots a softer light works best. And in outdoor photography, waiting until a different time of the day can change the whole mood of a shot as the quality of the light changes. Observe this and work to use it to your advantage.
- ?? All light has a color balance to it and you can use this to improve your creative control. For example, late day sun is much "warmer" in color than heavy shade. And photos taken indoors without a flash will look yellow under incandescent lights and green under fluorescent lights. Sometimes the coloration is flattering, and sometimes it's offensive, but if you study light and it's effects, you will know what to expect and how to use it creatively.

Exposure, simply put, is the amount of light that reaches the film or CCD. Exposure sets up a key relationship in photography -- the relationship between aperture and shutter speed. Setting these two controls correctly lets you take properly exposed pictures.



The size of the lens opening on your camera is the aperture. The different apertures are referred to as "f-stops". They are represented as a series of numbers, such as 1.4, 2, 2.8, 5.6, 8, 11, 16, and 22, marked on the camera lens or shown on an LCD panel. The smallest number refers to the biggest opening. The largest number is the smallest lens opening.

When you change from one lens opening to the next one, you are adjusting the lens by 1 "stop". If you move the setting to the next larger one, for example $f/11$ to $f/8$, the area of the opening is doubled, so you expose the film or CCD to twice as much light. Changing from one lens opening to the next smaller one, for example $f/11$ to $f/16$, cuts the light by half.

Shutter speed is the other half of the exposure equation. Most cameras have a meter that either sets the exposure automatically or lets you know when you have set the correct exposure. Exposure is simply the amount of time the light is allowed to shine on the film or CCD. For example, a 4 second exposure is twice as long as a 2 second exposure. Most cameras allow light to reach the film for only a fraction of a second, like $1/60$ th of a second. Some action photography actually uses shutter speeds of $1/4000$ th of a second.

A slow shutter speed (like 1 second) would be used to take pictures of non-moving, darker scenes, like a cityscape at night. Because the buildings don't move, they will appear sharp even though the shutter is open for a full second. On the other hand, if you photographed a car driving with a shutter speed of 1 second, it would be nothing but a blurry streak where the car went by. Sometimes this can be a very interesting effect to try. Give it a shot!

Focal-Length is the distance that a lens should be held from a screen to be sure that a focused image is projected on that screen. Focal length determines the angle of view. Wide-angle lenses have short focal lengths. The longer the focal length, the narrower the angle of view.

Depth of field is the range within which objects in a picture look sharp. As you gain a sound understanding of depth of field, you can use it effectively to make better pictures. Depth of field varies with the size of the lens opening, the distance between camera and subject, and the focal length of the lens. Depth of field becomes greater as:

1. the size of the lens opening decreases,
2. the subject distance increases,

3. the focal length of the lens decreases.



In some shots you'll want as much depth of field as possible. For example, in shooting a scenic picture you may want to include tree branches in the foreground as an interesting frame. To get both the branches and the distant scene in sharp focus, you may use a wide-angle lens and a small lens opening for great depth of field.

In other situations you may not want so much depth of field. You may be photographing a very interesting subject. But what if the background is confusing? You can use a large lens opening, perhaps combined with a long focal-length lens, to produce shallow depth of field. The disturbing background will be out of focus so as not to detract from your subject. The shallow depth of field will help focus attention on the main subject.

Top 5 Picture Tips!



1) Show One Subject Clearly

A picture with a single dominant subject makes its point quickly and clearly. When you look through the camera's viewfinder, it's human nature that your eye and mind will see only one subject, even if there are many objects. This often results in cluttered pictures with unclear intent. When you take a picture, carefully arrange the scene so that one subject stands out.

2) Get Close

Try to fill the picture area with a subject so it stands out and grabs the viewer's attention.

3) Simplify the Background

Busy backgrounds sap pictures of their power by competing with the subject. Move the subject or yourself to position a plain background such as grass, a wall, or a sky behind the main subject.

4) Observe the Light

Harsh sunlight casts deep shadows. Cloudy daylight evenly illuminates scenes so everything is clearly visible. Low lighting reveals textures, while overhead lighting reduces textures. The best effect depends on your subject and intentions. Observe the light and change your position to get a better angle or wait for the sun to disappear behind a cloud to get better results. You can observe and decide.

5) Hold the Camera Steady

Telling you to hold the camera steady is like your mom telling you to look both ways before you cross the street. If you don't hold the camera steady, the results may not be disastrous but they won't be acceptable. Your pictures will be blurry and perhaps unusable. Holding the camera steady is especially important on very cloudy days outdoors.