Digital Photography

by Brian D. Ratty ©2010

Lesson 1

Digital photography is really a three step process, digital capture, crafting images and digital manipulation. In this workshop we will concentrate on the capture side of the process.

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Basic Camera
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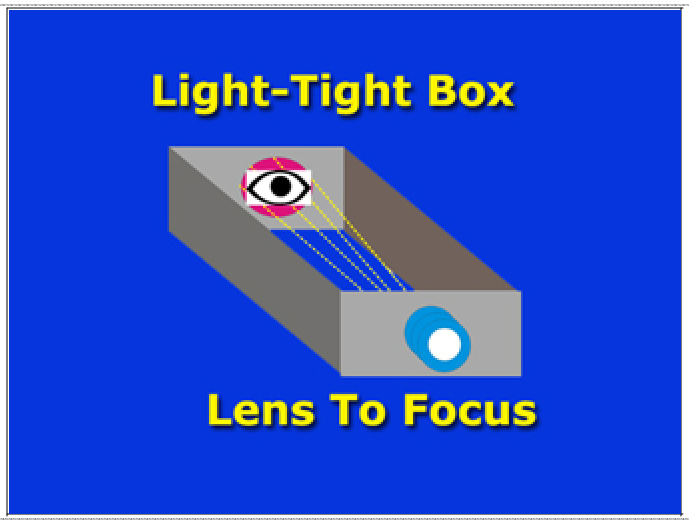
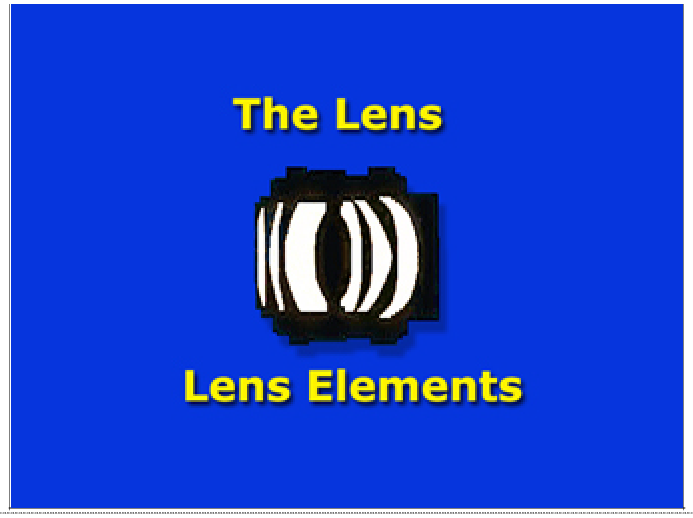
Introduction

Hi I'm Brian Ratty and this workshop is all about digital photography. There's one thing that happens to me all the time. I'll be out shooting somewhere and an amateur photographer will walk over and start a conversation that goes something like this: "Oh, I see you're using a Minolta digital camera...I've got a Canon...it takes pretty good pictures...but do you think the Minolta camera is better?" They are always a little disappointed with my answer; when you compare digital cameras feature to feature, function to function - they're all about equally good. The point is, cameras don't take pictures, people do!

Don't get me wrong. Some of the technological advancements in modern digital camera, made possible by computer aided design and micro electronics, are really incredible. They really can take a lot of the guesswork out of your photography. For now let's forget all that because I want you to think of the camera as just a basic tool. Remember, it doesn't take the pictures, you do.



All modern digital cameras operate on the very same basic principles as the earliest pinhole cameras, and, for that matter, any other cameras ever made. I think it helps to think of any camera as a light-tight box with a hole in it. The hole allows a certain amount of light to enter the box for a certain amount of time so that it can expose, or create an image; on the light-sensitive medium we call an electronic sensor or CCD unit, which is a Charged-Couple Device. We will talk more about these electronic elements later in the program, but for right now just think of this sensor as the eye in your camera that sees your image. But before this happens, the light has to be organized, or "focused", by the lens. So let's start with the lens.



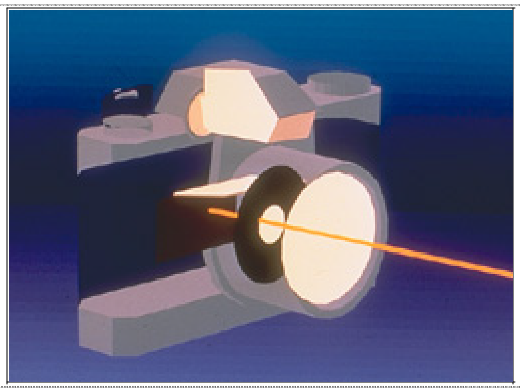
The lens is basically a metal barrel which contains several glass or plastic elements arranged in groups. These elements gather light reflected from the scene you're photographing, focus that light, and deliver it to the surface of the sensor, where it can form the sharpest possible image. If your using manual focus on your digital camera the barrel of the lens allows you to focus on objects near and far; from less than two feet away to infinity, for example. When you turn the focusing ring you are actually moving the glass elements inside the barrel in and out, varying the distance between the lens and the sensor.

Less Then Two Feet

To Infinity

There are three basic image viewing systems used in modern digital cameras. These types of cameras are: The true optical viewfinder used in SLR or single lens reflex cameras, the electronic viewfinder used in SLR type cameras and the through the camera viewfinders found on less expenses digital cameras.

One of the real advantages of using the optical SLR digital camera is that the image you see in your viewfinder is exactly the same image that the lens sees. When light enters the lens, it's reflected by a mirror up through a prism and out to your eye. And it doesn't matter which f-stop, or aperture, you've chosen for your final picture, since the image you see in the viewfinder is always at the widest possible aperture of the lens. This makes it easier for you to focus and compose because the image you're seeing is as bright as possible.



The electronic viewfinder on SLR type cameras have a small color monitor or TV built into the camera itself. This little TV sees exactly what your lens is seeing. This type of viewfinder has a big advantage as it allows you to hold the camera up to your eye as you focus and compose.

The through the camera viewfinder, found on most digital cameras, works ok, but what you see through the viewfinder may not be exactly what you camera sensor is seeing. These two different views can be a big problem if you 're doing a lot of close-up photography.

You'll notice I mentioned f-stops and shutter speeds, probably the most confusing concepts for any photographer who's just starting out. Even if your digital camera is fully automatic you should have a good understanding of these concepts. I 'll take the mystery out of f-stops and shutter speeds in our next chapter.

Key Terms: CCD: The in camera senor that sees and records your image.
Key Terms: Lens: A series of glass elements that focus your image on the camera 's sensor.
Key Terms: SLR: A 'single lens reflex' camera

The contents of this workshop are available on DVD
Digital Photography, The Camera