

A photograph of three bighorn sheep standing on a red rock cliff. The sheep are arranged in a diagonal line from the top left to the bottom right. The top sheep is a dark grey color with large, curved horns. The middle sheep is a lighter grey color with a white patch on its back and smaller horns. The bottom sheep is a dark grey color with smaller horns. The background is a red rock cliff with horizontal layers. There are some green bushes in the bottom right corner.

Digital Photography

Creating the Perfect
Exposure and Composition

**By
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Have you ever wondered what makes a perfect exposure? To answer this question, first we have to know the perfect exposure has three variable elements: shutter speed, aperture and ISO (which in the old days was called film speed). Together, these three make up the Golden Triangle and we will see in this article and Part II how they work together in making the perfect exposure.

Shutter Speed:

Shutter speed refers to how long the shutter curtain (and lens diaphragm) stay open when you press the shutter button. The higher the shutter speed, the faster they open and close. The faster this happens, the less light strikes the camera's sensor.

Typical shutter speed settings are B . . . 2 sec, 1 sec, 1, 2, 4, 8, 15, 30, 60, 125, 250, 500, 1,000 . . . Some DSLRs have settings as long as 30 seconds and as short as 1/8,000 second.

From 1 second and down all the settings are expressed in full seconds. As you go up the scale from 1 second, each setting is expressed as a fraction of a second. Therefore, 500 is really 1/500th of a second. Each successive setting up the scale keeps the shutter open half as long as the previous setting.

When the shutter button is pressed, the diaphragm or aperture in the lens opens at the same time the shutter curtain travels across the sensor opening, thereby exposing the sensor for length of time you selected as the shutter speed. At the end of that time, both the shutter curtain and diaphragm have closed. On the B setting, the shutter curtain and diaphragm will stay open for as long as the shutter button is pressed.

Shutter speed controls action, but the amount of shutter speed needed to show action varies with the direction, distance and speed of the subject. For example, you would need a faster shutter speed to stop an object moving from your left to right than you would to stop that same subject at the same speed if it were moving either toward or away from you. Because you use shutter speed to control action, it can be shown as "frozen" in place by using faster shutter speeds, blurred by using slower shutter speed, or a combination through a technique called panning.

Panning works well when your subject is moving from one side to the other, such as in a horse or car race. To using panning, track your subject in your viewfinder. At some point when the subject is in front of you, press the shutter button. Don't stop tracking your subject when you press the shutter button. Otherwise your subject will be past you by the time your aperture opens and closes. The effect is your subject will be in focus and the background blurred. Nice!

Aperture

Also called f-stop, aperture is the size of the lens opening when the shutter button is pressed and controls how much of a scene will be in focus both in front of and behind the subject. The smaller the setting (larger the number), the more of the photo will be in focus.

The higher the f/stop number, the smaller the opening; the smaller the opening, the less light strikes the sensor. Typical f/stop settings are 1, 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, 22 and 32. Here again, just as with the shutter speeds, there is a direct relationship between the settings. Starting at the lower end, each setting is half as big as the previous one as you go up the scale (even though the numbers themselves might not reflect that).

One technique that uses f/stops at the lower end of the scale is called selective focusing. Using a small f/stop setting, such as f/4 or less, will yield a shallow zone of sharpness so only your subject will be in sharp focus. Because the human eye will go to what is in focus, it will automatically be drawn to your subject. Selective focusing is also used to throw a distracting background or foreground out of focus, thus eliminating the potential competition with the subject.

If each successive stop going up the f/stop scale makes the opening in the lens half as large and if each successive stop in shutter speed is twice as fast as the previous one, can you see as you move one in one direction, you have to move the other one in the opposite direction to maintain a same amount of light hitting the sensor thus maintaining the perfect exposure? For example, if you have your mode selection wheel set to program and your camera selects 1/125th shutter speed at f/8 aperture, but you want more depth of field, you can move the f/stop two stops up to f/16. In turn, your shutter speed will move two stops slower, down to 1/30. Now the same amount of light hits your sensor at the settings of 1/30th of a second and f/16 as it does at 1/125th of a second at f/8. You reduced the aperture opening by two stops, so you had to slow down the shutter speed by two stops to compensate.

ISO:

This is the last part of the Golden Triangle. ISO (International Standards Organization) settings still follow the old traditional film speeds of 100, 200, 400, etc. Use a low ISO setting, such as ISO 100, when shooting requires the use of fast shutter speeds and large f-stops, such as shooting in the bright outdoors. When it is overcast outdoors or you are going to use the camera's flash, use a higher ISO setting, such as ISO 400. For indoor shooting or in high shutter speed outdoor situations, use an even higher setting, such as ISO 800 or even ISO 1600. OF course, you will use these high ISO settings also when photographing outdoor sports at night or stage shows so you can get a fast enough shutter speed to prevent blurring.

So what is the perfect exposure? For the technical answer, let's look at the lighting, focusing and subject placement. If the image is not over or underexposed, the lighting was correct. If the subject is in sharp focus and the foreground and background slightly blurred, focusing was correct. And finally, if the subject was placed in the image using the Rule of Thirds, placement was correct. From the esthetic standpoint, if the image shows what you wanted it to artistically show, then you have a perfect image.

Now, you should see how the three variables of shutter speed, aperture and ISO work together as a team to produce the perfect exposure and how changing one of them changes at least one of the other variables.

Creating the Perfect Composition

Up to now, we have discussed creating the perfect exposure. Now let's focus (I couldn't help it) on creating the perfect composition. But before we can create something perfect, we have to know what perfect looks like.

Why is composition important? It is the difference between a snapshot and a photograph. In a snapshot, you bring up the camera, look through the viewfinder and take the picture. Very little thought goes into setting up the shot.

But when creating a photograph, you bring up your camera, look through the viewfinder and then make several decisions before pushing the shutter button. What goes into these decisions is the basis for this article.

A photograph begins with using some basic compositional elements. The most basic elements are lines, shape, form and texture.

Lines create a path for the eyes to follow. Whether they are S-shaped, curved or straight, they all lead the viewer's eyes from an edge in a photo to the subject. Diagonal lines impart a sense of motion while jagged lines create a feel of violent change.

Straight horizontal lines, such as the horizon, orient the viewer and create some order to a photo. But horizontal lines can also confuse the viewer if used improperly. Straight vertical lines tend to show direction and a sense of action. Curved lines suggest motion and growth, while spirals portray flowing forces.

Circles and spheres symbolize nature's perfection. Triangles and polygons give a graphic sense of strength, stability, and permanency.

Now let's move to shapes. The simplest shape is a silhouette. Even without texture, color, or form, a viewer can usually identify the object by its outline –think the pyramids in Egypt. Shapes alone can make great graphic images. A shape only showing one side stresses shape but the form or depth is missing. In other words with a one-sided shape, we can see how high and wide it is, but we can't discern how deep or how far back it goes. When we add a second side, by shooting from an angle where we can see both the front and side of an object, now we get the depth and create form.

Form makes an object three-dimensional and therefore more lifelike. The recesses of an eye-socket, the cylindrical trunk of a tree and the curve of a horse's flank all give these objects form and therefore depth. Shot from an angle gives these objects a much different feel than when shot from the straight-on viewpoint.

Texture defines the surface of an object. It shows us the smoothness or roughness of an object's surface. But showing texture is not always what we want to do. Depending on the subject, it might be better to minimize the texture. Let me explain.

Accenting texture works well when showing the rugged weathered face of a fisherman, but doesn't work well when showing the face of a model. How you light the subject determines if the texture will be accented or minimized. Direct side-lighting accents texture and allows the viewer to visualize how that object feels while diffused side-lighting or front-lighting minimizes texture.

Elements of Composition

Now let's talk about a dozen elements of composition and how to use them to your advantage when creating the perfect composition.

- **Positive and negative space** - Positive space is the area within a pattern of lines, while negative space is the area outside a pattern of lines. In your mind, picture a sailboat on the water. The area inside the outline of the boat, sail and mast is the positive space. The area outside this triangular pattern of lines is the negative space. The contrast of positive to negative space, and the relative size of each, creates balance in a photo. Try to have your positive space (or the subject) toward the foreground and off-center. If your positive and negative space are about the same size, it is difficult for your viewer to determine the subject of the photos.
- **Watch the horizon.** Remember what I said earlier about how horizontal lines could confuse a viewer? When shooting horizons, don't have the horizon in the middle of the photo.

When the sky and ground get equal attention, it causes confusion in the mind of the viewer. What is the subject in this photograph? Give the area you want to emphasize the most room in the photo. If you are emphasizing the landscape, have the horizon 2/3rds of the way up from the bottom. If you are emphasizing the sky, have the horizon only up 1/3rd of the way from the bottom.

- **Leading Lines.** Highways, roads, trails, and rivers all are good sources for leading lines and as their name indicates, they lead the viewer's eye from the edge of the photo and to your subject.
- **Seek out patterns.** Translucent pattern subjects such as the veining in leaves are especially effective when they are backlit or when the light illuminates from behind your subject. Pattern subjects can also make for pleasing photos when the pattern is run along a diagonal line. Take the leaf veining example again. When placing in the viewfinder,

start the main vein at the bottom corner of the viewfinder and run it up to the opposite upper corner. The smaller veins then branch out in opposite directions, but still at a diagonal.

- **Time of day.** The light during the early morning and late afternoon is a very soft golden light bringing out the color in everything. Illumination of a subject occurs from one of three possible directions: front - called front-lighting, back - called back-lighting, or the side - called side-lighting.

Front-lighting is good for two-dimensional shots, while back-lighting is best for a rim-lighting or the halo effect. Side-lighting creates a 3D effect by emphasizing texture and shadows. Which lighting you use depends on subject placement and what message you are trying to convey.

- **Rule of thirds.** This one composition technique will improve your photography more than the rest of the compositional elements combined. When composing photos, don't try to bulls-eye everything.

By this I mean don't have every photo's main subject smack dab in the middle of the frame. Instead, use the Rule-of- Thirds, also known as the Golden Grid Rule.

Start by visually breaking down your scene in the viewfinder into thirds both vertically and horizontally thus forming an invisible grid in your mind; like a tic-tac-toe board. The rule is to place your subject on one of the intersecting points in the grid.

Many of today's Digital Single Lens Reflex (DSLR) cameras have a grid built into the LCD back-screen that shows when you are using live-view or you can get a focusing screen with a grid built in it for your viewfinder.

- **Scale and proportion.** A human or something else of a generally known size automatically introduces a recognizable scale into a photo. If the viewers have something to compare the subject to, they can relate to either how big or how small your subject is compared to the object used for scale.
- **Vary your viewpoint.** Most people shoot pictures from eye level. Before pressing the shutter button, try looking through the viewfinder from a low vantage point and a high one. Then also move to the right or left and see how the scene changes. Many times the perfect shot is just steps away from where you stopped. The change in viewpoint adds zest to your photos because they deviate from the norm, or what people are generally used to seeing.
- **Framing.** With framing, you are using an object, such as a doorway or window to draw

your viewer's eyes to your subject. Overhanging tree branches with leaves make a good framing device also. One of the most common errors when first learning how to use framing is not using a frame located close enough to your subject.

If you have too much negative space between your subject and the frame, the photo loses its impact because the subject is so small, the viewer doesn't know if that is the subject or not. So the key is to have your subject large enough within your framing device to identify it as the subject.

Also watch for cluttered edges of the frame. Before pressing the shutter button, check the edges of your viewfinder for any unwanted objects. When creating a photo, the edges of the viewfinder are often overlooked and a distraction isn't seen until after the picture is printed. If you do end up with something unwanted, you can always edit it out in post-processing.

- **Foreground and Background.** Check the foreground and background of your picture before pressing the shutter button. If you have something distracting in the background, many times you can eliminate it by moving yourself either to the left or right.

Also keep in mind when focusing on your subject that $1/3^{\text{rd}}$ ahead and $2/3^{\text{rd}}$ behind your subject will also be in focus.

- **Single Center of Interest.** Choose a single center of interest. Often a photographer has so many objects in a picture, it is difficult to determine what is the subject of the photo. Choosing a subject is easily accomplished by using a zoom or fixed telephoto lens. Because of their narrow field of vision, either lens will work. These lenses can reduce the amount of negative space in a photo, thereby eliminating some of the clutter and making your subject stand out.
- **Selective Focusing.** The eye focuses on the sharpest detail in a picture. Keep the background simple by using a shallow depth-of-field. This means select a large aperture (small f-stop number) so the foreground and background are blurred. This technique is known as selective focusing. With the background blurred, attention is drawn to the object in focus, your subject.

By using these 12 compositional elements from the two columns, you can transition from merely taking snapshots to creating vibrant, exciting photographs. While you will not use every element on every photo, incorporate the ones you can use when you can. You'll be amazed how your photos will improve. Happy shooting!