

7 Keys to using a camera

by Kelly Van Shaar

There are really only 7 things you need to understand to get the most from any camera:

- **Exposure**
- **Framing**
- **Focus**
- **Resolution**
- **White balance**
- **Lighting**
- **Camera position and movement**

Exposure is how much light hits the sensors (or in the old days, film). There are two (or three) settings on the camera that control the exposure:

- **Aperture** (How wide the camera iris is opened)
- **Shutter speed** (How long the shutter remains open)
- **Film speed** (also called ISO) In film cameras, this refers to the sensitivity to light of the film you are using. Some digital cameras have a setting for 'virtual' film speed, which really means adjusting the light sensitivity of the sensors.

Framing is how elements are composed in the shot. Also known as shot composition, it refers to what items are in the frame and how they fit in relation to each other. Of course it is also affected by the shape or *aspect ratio* of the picture you are taking. (4:3, 16:9, etc.)

Focus, as it relates to actual camera settings, is an adjustment of the camera lens so that light from objects at a certain distance strike the film or sensors in a coherent manner. This distance is referred to as the *focal distance*. *Depth of field* is the distance in front and behind the focal distance where objects remain in focus. It is affected by several factors including the lens in use, the aperture, and the focal distance.

Resolution is the number of dots or pixels that your picture will contain. This is usually stated in the format *horizontal x vertical*, such as 800x600, 2400x1200, etc. The megapixel rating of a digital camera is the maximum resolution that the camera can support, with the horizontal multiplied by the vertical. For example, a 4.1 Megapixel camera can capture images with a maximum resolution of 2560x1600 pixels. (2560 x 1600 = 4096000 pixels, which they round up to 4.1 megapixels)

White balance is the process of adjusting your camera to the color of the light in the shooting environment. For example, sunlight is considered 'pure' white; incandescent bulbs have a strong yellow tint. Our eyes adjust for this automatically, but with a camera you must tell it what color is white. Typically this is done by pointing the camera at a white object that is being lit by the same light as your subject and pressing the white balance button. Failure to do this properly will cause pictures to have an unnatural tint.

Lighting is the evaluation of all light sources affecting your picture. Many experts will tell you that understanding and using light and shadow is the most important element of great photography. Of course, experts will assume that you already understand everything else on this page. Lighting can be directional, ambient, overhead, underneath, behind, and of any color. Lighting can emphasize certain subjects and de-emphasize others. Light can be focused, bounced, reflected, diffused, combined or blocked.

Camera position and movement refers to where the camera is positioned and how it is held in that position. For instance, you may have a camera sitting on a wall or on the ground, a tripod-mounted camera looking at the stars, a camera being held out of the window of a car. At lower shutter speeds, the shaking of your hand is movement that must be considered.

A final thought: There are no right or wrong answers. There is no setting that is perfect for every situation. These are just principles that, once you understand, you can manipulate to get the results that you desire. The more you understand the **science**, the more you can improve your **art**.