



# Introduction to Digital Photography: Composition

In his book **The BetterPhoto Guide to Digital Photography**, Jim Miotke defines composition as “the conscious placement of elements in a picture”—how you organize what’s in the picture and where you choose to place things.

## The Subject

In photography, the subject is any person, place, or thing that you are photographing. Whether it is a skyscraper or a flower, the subject is the character in your photograph. A photograph can have both major and minor subjects—and their emphasis depends on where they are placed in the picture.



## Framing

Framing refers to what you place in the foreground of the image that provides the audience with a sense of where the viewer is standing.



## Point-of-View

Point-of-view refers to where the photographer places the camera; for example, placing the camera above the subject creates a bird’s eye view of the subject.



## Balance

Balance refers to the placement of the main subject in the picture—and the main subject’s position in relation to minor subjects and the background.



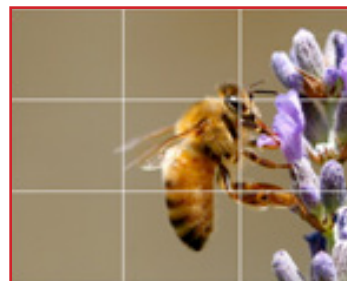
## Contrast

In composition, contrast has two different meanings. You can use contrast to emphasize the importance of a main subject by contrasting it with another object. Contrast also refers to the tonal differences of light and dark parts of a photograph.



## Rule of Thirds

The Rule of Thirds suggests that you position your subject in certain key spots. This placement helps the viewers’ eyes travel around the rest of the image.



# Introduction to Digital Photography: Part II



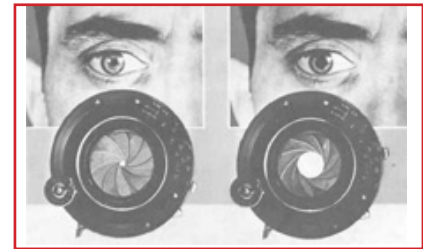
## Exposure

In film photography, exposure refers to the amount of time that light falls on the film. In digital photography, exposure refers to the amount of time the light falls on the sensor. Understanding **aperture**, **shutter speed**, and **ISO** is necessary for understanding exposure.

### Aperture

Aperture, or f-stop, is the size of the opening of a lens. The aperture determines how much light will enter through the lens. Aperture change is similar to the way that the pupil dilates to control how much light enters the human eye.

As the f-stop number get bigger, the aperture gets smaller.

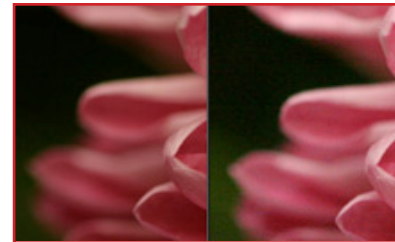


f16

f6

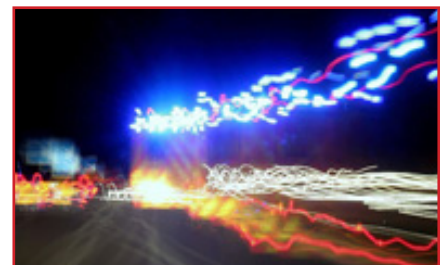
### ISO

ISO is the measurement of the digital camera's image sensor's sensitivity to light. (In film photography, ISO is the measurement of the film's sensitivity to light.) A lower ISO number means that more light is required—either with a longer shutter speed, a larger aperture opening, or both—to get the same effect that a higher ISO number would get with less light.



### Shutter Speed

Shutter speed refers to the amount of time that the aperture can remain open. The longer the shutter speed, the more light enters the camera and reaches the sensor.



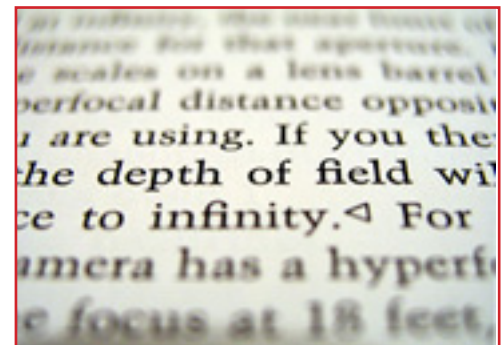
## Focus

In photography, focus refers to the point where rays of light that originate from a point on an object (or “object point”) converge. If the rays of light converge well in the image, then the image is in focus. An out-of-focus image will appear fuzzy or blurry.

### Depth of Field

Depth of field is the distance in front of and behind the subject that appears to be in focus. If you look at the nearest and farthest subject in a photograph, the depth of field of that image will refer to the people or objects that are most sharply in focus.

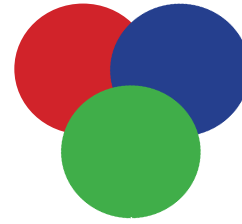
When photographers focus their lens on a subject, anything at that same distance from the lens will be in focus. The objects that are out of focus will appear fuzzy.





## Color

A digital camera sees colors in a way that is similar to the human eye. A digital camera reads the brightness of light and translates that information into the colors that one sees. Like the human eye, a digital camera analyzes the brightness value of the light and records the brightness value for each color in separate parts of an image file (or, for a person, an image-storing part of the brain). The camera then combines those colors to create a full-color image.



## Light

Although we can't usually notice it, all visible light has color. We only perceive light to be colorless because our eyes naturally compensate for the various colors in light and then balance those colors accordingly.

However, digital cameras' image sensors often have difficulty automatically adjusting those color levels.

## White Balance

When you adjust white balance on your digital camera, you are removing unrealistic colors levels from the image and adjusting those color levels for the camera. White balance refers to the adjustment of relative amounts of red, green, and blue so that the neutral colors are correctly reproduced.



incorrect white balance

correct white balance

## Pixels

Digital images are composed entirely of pixels. If you magnify a digital image on your computer screen, you can see the individual pixels, which appear as little dots. These pixels are the smallest components of every digital image.



## Image Size

Image size, or "pixel dimensions," refers to the number of pixels that comprise an image (and is measured by the number of pixels wide by the number of pixels high). In digital photography, the quality of pictures often depends on the image size of the picture. The more pixels a digital camera can record, the more detail and clarity it can capture.

## Resolution

Resolution also determines the quality of an image and is measured in pixels per inch (ppi). A higher ppi (i.e., more pixels per inch) means that the image will be crisper and of a higher quality. Image resolution is measured in pixels per linear inch, not pixels per square inch. Therefore, a resolution of 50 ppi means that there are 50 pixels horizontally and 50 pixels vertically—or 2,500 pixels per square inch.

