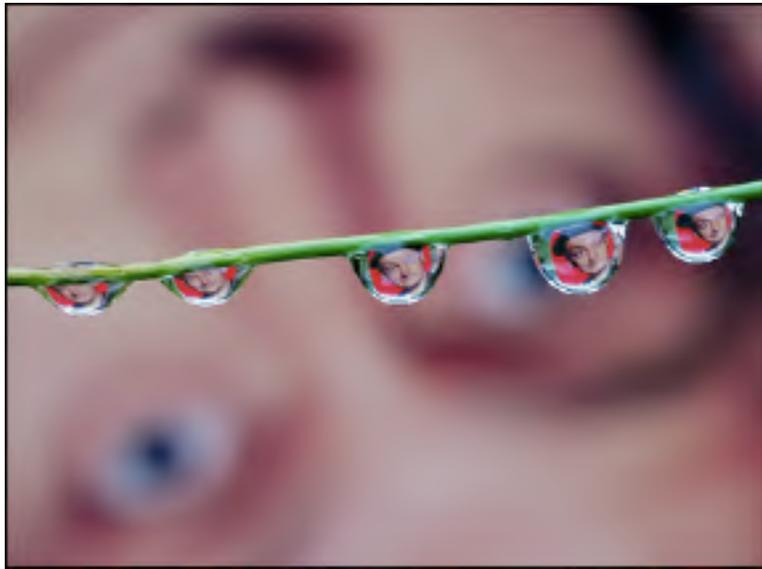


# Controlling Aperture and Shutter Speed to create Visual Effects

**Learning goal:** How to control visual effects using the manual settings in your camera - No computers or software required!!!



By Marcine Linder

# Review: Basic Exposure

How many ways can you combine two numbers to add up to 10?

$1 + 9$

$2 + 8$

$3 + 7$

$4 + 6$

$5 + 5$

$6 + 4$

$7 + 3$

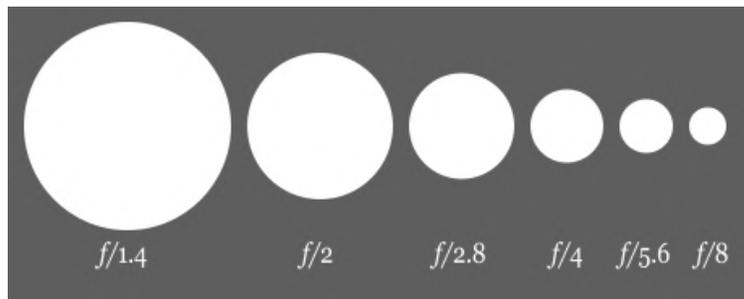
$8 + 2$

$9 + 1$

**Exposure** is determined by two factors that control the amount of light that reaches the film (or chip in a digital camera):

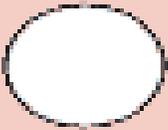
**Shutter speed** = how quickly the shutter in the camera opens and closes ex. 1/1000 second vs. 1/30 second (4 “stops” or 32x as much as 1/1000)

**Aperture** = the size of the opening in the lens: ex. f 8 creates a small opening that lets in a small amount of light, f 1.4 creates a large opening that lets in a large amount of light (5 “stops” or 64x as much as f8)



How much does exposure increase when a stop is added?  
How much does exposure decrease when a stop is taken away?

**All off these combinations will result in the same amount of light exposure**

Aperture	Shutter Speed
<i>f</i> 2.8 	↔ 1/500 sec.
<i>f</i> 4.0 	↔ 1/250 sec.
<i>f</i> 5.6 	↔ 1/125 sec.
<i>f</i> 8 	↔ 1/60 sec.
<i>f</i> 11 	↔ 1/30 sec.
<i>f</i> 16 	↔ 1/15 sec.



a) How are these two photographs the same?

b) What is different in these two photographs?

c) What is the technical Term for this difference?

d) What part of the camera Controls this?

e) Which setting might have been used for

i) the top picture?

ii) the bottom picture?



# Aperture

**Aperture** = the size of the opening in the lens. Aperture is measured in f-stops as follows:

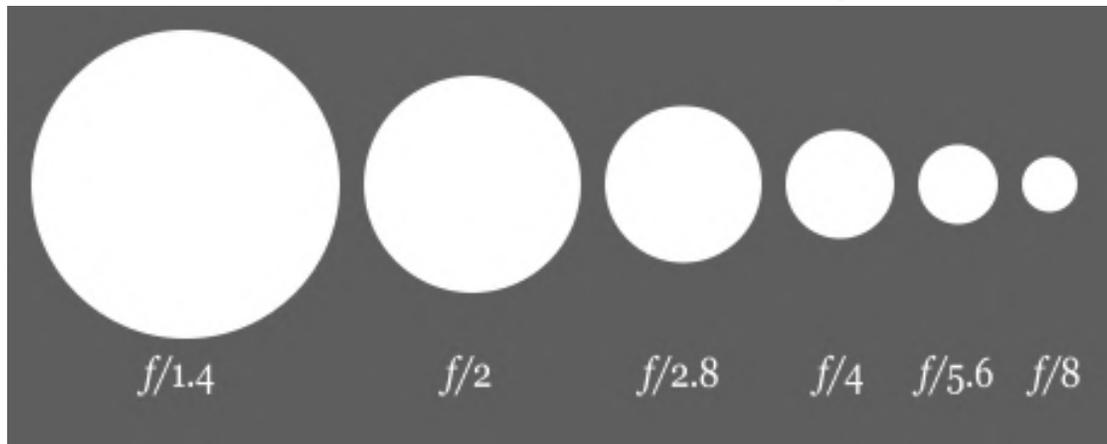
**f 1.4, f 2, f 2.8, f 4, f 5.6, f 8, f 16, f 22,**

f 1.4 lets in 2x as much light as f2, f2 lets in 2x as much light as f 2.8 etc.

f 22 lets in 1/2 as much light as f 16, f 16 lets in 1/2 as much light as f8 etc.

Aperture controls two aspects of the way the image will look:

- **exposure:** f 8 creates a small opening that lets in a small amount of light, f 1.4 creates a large opening that lets in a large amount of light
- **depth of field** which objects/how much depth is in focus





**Shallow  
and  
Deep  
Depth of  
Field**

# Shallow and Deep Depth of Field



# Shallow depth of field



# Deep depth of field



## Deep depth of field



Film still from the movie Citizen Kane which is famous for its deep depth of field

# Deep depth of field



## Deep depth of field



This composition of a topiary (a kind of evergreen tree) looking up from below is a fabulous use of spiral composition and deep depth. It disorientates the viewers, causing them to do several double takes before they realise what is going on. So profound is the highlight of the back light that it takes a few moments to realise it is natural and not the result of an eraser tool in an editing program. By Mike Foster - source: Flickr

# Compare these images



1) How are these three photographs the same?

2) What is different in these three photographs?

3) What is the technical term for this difference?

4) What part of the camera controls this?

5) Which setting might have been used for

**a)** the left picture?    **c)** the right picture?

**b)** the middle picture?

# Shutter Speed

**Shutter Speed** = the size of the opening in the lens. Aperture is measured in fractions of a second as follows:

1/1000s, 1/500s, 1/250s, 1/125s, 1/60s, 1/30s, 1/15s, 1/8s, 1/4s, 1/2s, 1s, B  
Freezes action ----- blurs action

1/500s lets in 2x as much light as 1/1000s, 1/250s lets in 2x as much light as 1/125s

1/60s lets in 1/2 as much light as 1/30s, 1/30s lets in 1/2 as much light as 1/15s etc.

Shutter Speed controls **two** aspects of the way the image will look:

- **exposure:** 1/500s is a fast shutter speed that doesn't allow much light to reach the film
- **degree of motion blur/freezing:** is a moving object completely frozen, somewhat blurred, or very blurred?



**Fast shutter speed**



**Slow shutter speed**



**Slow Shutter Speed**



**Slow shutter speed**



**Slow Shutter Speed**



**Slow Shutter Speed**