

# CAMERA EXPOSURE: APERTURE, ISO & SHUTTER SPEED



## APERTURE

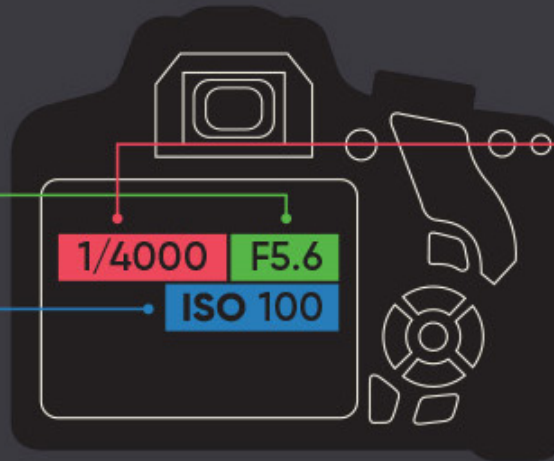
Aperture refers to how wide the lens is open, which determines how much light is let into the camera.

low numbers = large aperture = more light



high numbers = small aperture = less light

**IMPORTANT:** Changing the aperture also affects the depth of field.

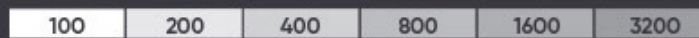


## ISO

Is the sensitivity of the sensor to light. The sensor doesn't need a lot of light at a high ISO, and needs a lot more at a low ISO.

### \* LOW ISO

Low sensitivity to light | Use during day time  
Higher quality



### HIGH ISO ☾

High sensitivity to light | Use during night time  
Lower quality



## SHUTTER SPEED

The shutter speed is how fast the shutter opens and closes. A shutter speed of 1/2000 is very fast, while a shutter speed of 1/15 is much slower.

30'	▶ slower = brighter = blurrier
15'	
10'	
2'	
1'	
1/25	
1/30	
1/50	
1/100	
1/125	
1/250	
1/320	
1/500	▶ faster = darker = sharper
1/1000	

**IMPORTANT:** Changing the shutter speed also affects motion blur.



# Learn

# PHOTOGRAPHY

*manual mode photography cheat sheet*

## EXPOSURE SETTINGS IN ACTION

### Moving Waterfall



 f/4

 100/400

 1/2000

Slower shutter speeds will blur motion; faster will stop the motion





## Bokeh Effect



f/4  
or wider



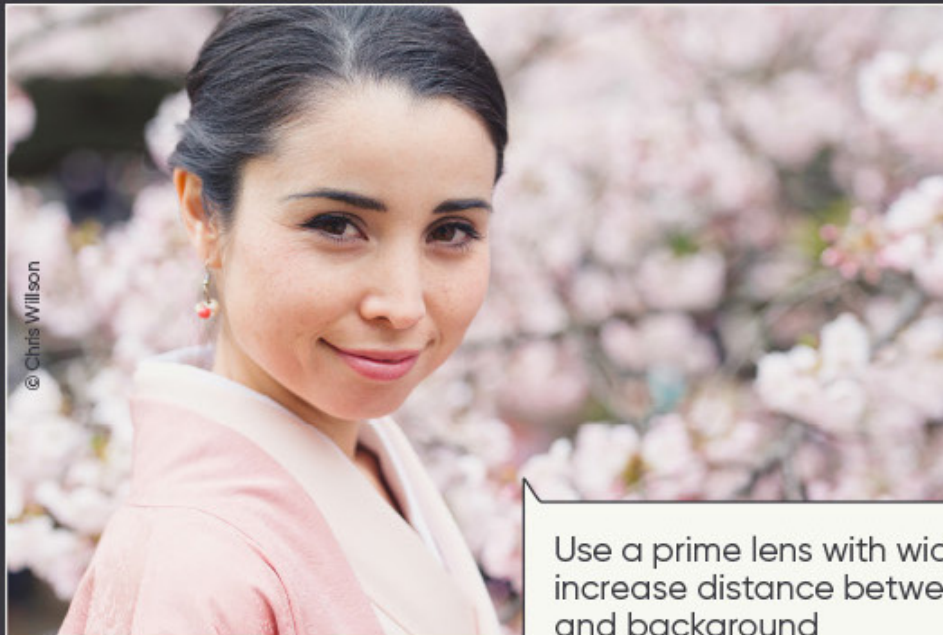
100/400



1/60  
or faster

Keep a good distance between the subject and background; have a source of light in the background

## Blurred background for portrait



Widest  
available



100/400



1/60  
or faster

Use a prime lens with wide aperture; increase distance between subject and background



## Photo of stars



Widest available



800/6400



30 seconds or longer



Use manual focus and a tripod

## Blurred motion



f/8 - f/16



100/200



Slower than 1/60



Use a tripod and pan along with your subject



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## Landscape



f/11 - f/16



100

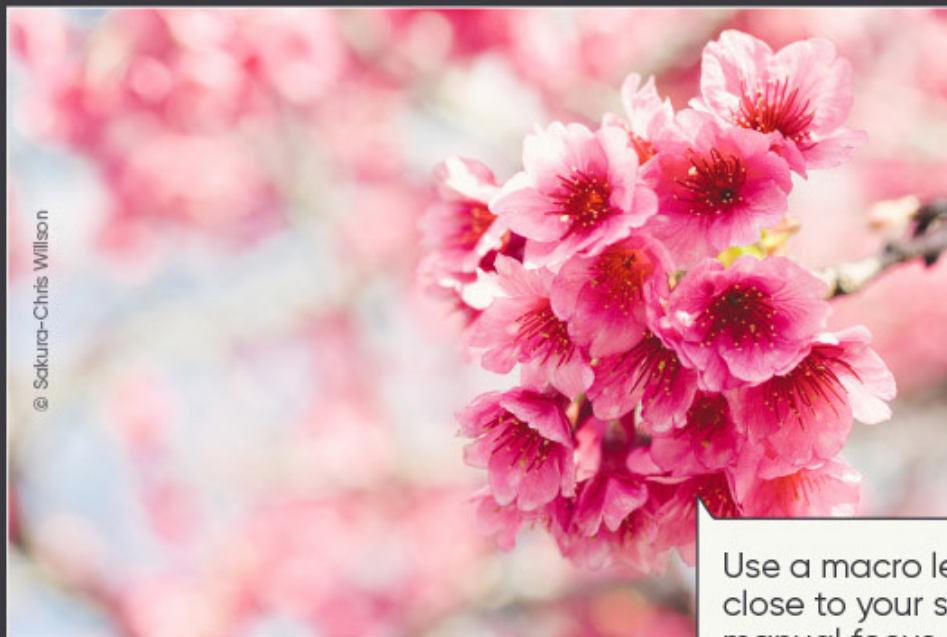


1/60  
or faster



Use a wide-angle lens to capture more area

## Macro flower photo



f/5.6 - f/11



400/800



1/60  
or faster

Use a macro lens to get close to your subject; use manual focus



## Light painting



f/8 - f/22



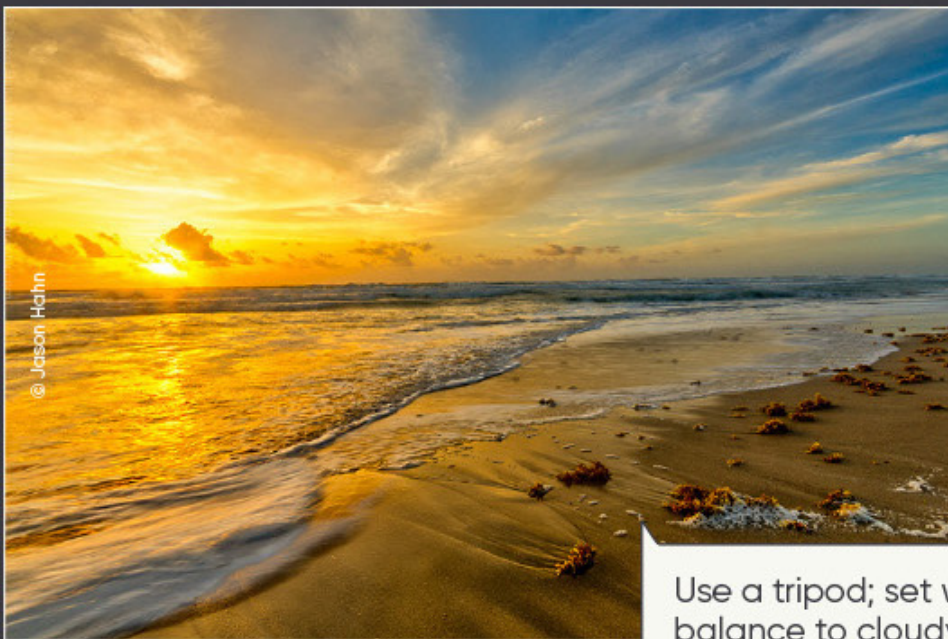
100



10-30  
seconds

Use manual focus; use a tripod; keep the light source constantly moving

## Sunrise/sunset



f/11 - f/16



100/400



Varies

Use a tripod; set white balance to cloudy or shade





## Golden hour



f/2.8 for bokeh, f/11  
f/16 for landscapes



100/400



30 seconds  
or longer



Use a tripod for slower shutter speeds; set white balance to cloudy or shade

## Water blur



f/22



100



1/15  
or slower



Use a tripod and neutral density filter on bright days



## Freezing action



f11/f16



100/400



1/2000



@ Daniel Kordan

Focus as the subject comes into the frame, then take photo

## Light trails



@ Daniel Kordan



f/5.6 - f/11



100



10-15 seconds

Use a tripod



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## Food photography



f/4  
or wider



100/400



1/60  
or faster

Use natural light but  
not direct sunlight

## Concert photography



f/2.8  
or wider



640  
or higher



1/125  
or faster

Use a zoom lens  
with a wide aperture

