

HOW DOES A CAMERA READ LIGHT?



(by
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Frisbie)



TODAY WE'RE
LEARNING THE
BASICS OF THE
FOLLOWING:



SHUTTER
SPEED



APERTURE



(+ how
they work
together)

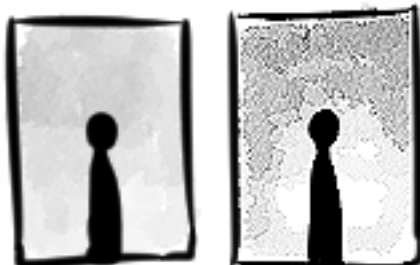
DEPTH OF
FIELD



F-STOP



ISO



TO START...
THE BASICS OF
SHUTTER
SPEED



SHUTTER SPEED IS
DEFINED AS THE AMOUNT
OF TIME A CAMERA
SHUTTER IS OPEN,
EXPOSING THE SENSOR
TO LIGHT.



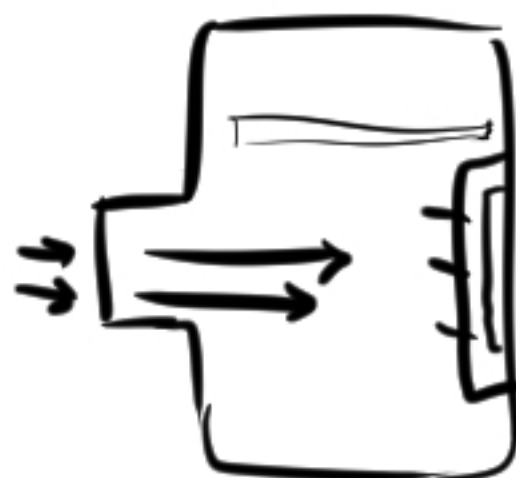
THE SMALLER
THE NUMBER, THE FASTER
THE PHOTO IS TAKEN, AND THE
LESS MOTION IS CAPTURED.



NOW YOU MIGHT BE THINKING: "WHY WOULD I EVER WANT A SLOWER SHUTTER SPEED?"



SIMPLE - TO CAPTURE MOTION OR TAKE IN MORE LIGHT.



HERE IS A VERY SIMPLIFIED DIAGRAM OF THE PATH OF LIGHT TO THE SHUTTER + SENSOR. THE LONGER THE SHUTTER IS OPEN, THE MORE LIGHT + MOTION THE SENSOR TAKES IN.



SLOW SHUTTER

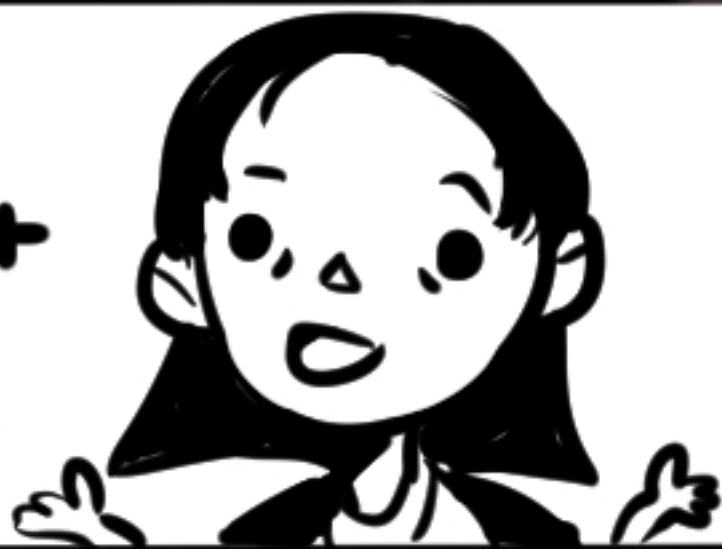
FAST SHUTTER

GOOD FOR LOW LIGHT + THE CAPTURE OF MOTION.

GOOD FOR CRISP PHOTOS + THE CAPTURE OF MOMENTS IN TIME.



NEXT UP...
APERTURE +
F-STOP ≡



THESE TERMS ARE CLOSELY
LINKED. APERTURE IS DEF-
INED AS THE OPENING IN
A CAMERA LENS THROUGH
WHICH LIGHT PASSES.

THE F-STOP IS THE NUMBER
THAT DETERMINES THE
APERTURE DIAMETER.
THE SMALLER THE F-STOP,
THE LARGER THE APERTURE.



f/2



f/8



f/22



WE'RE GONNA
TAKE F-STOP
+ APERTURE
ONE STEP
FURTHER



AND DISCUSS
DEPTH OF
FIELD

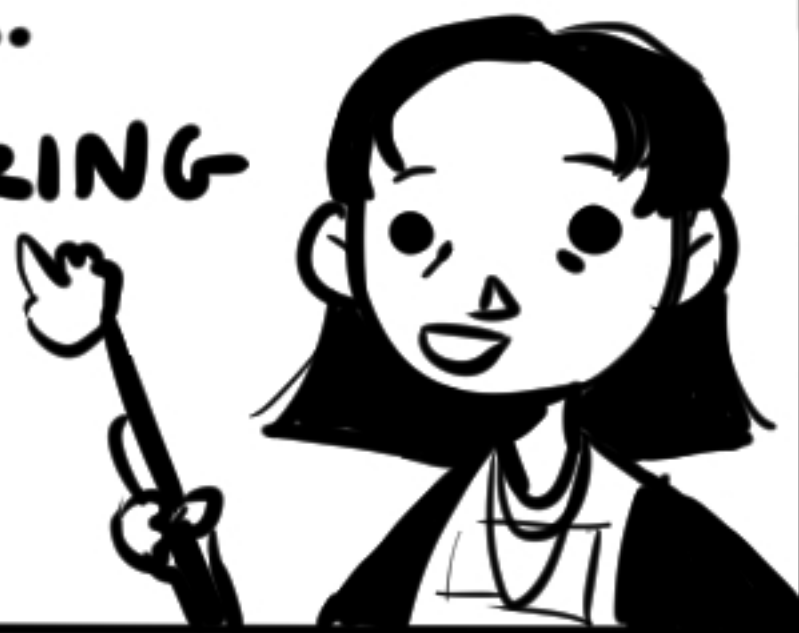
PUT SIMPLY, THE DEPTH OF
FIELD IS THE SPACE WITHIN A
PHOTO THAT APPEARS IN FOCUS.
DOF CAN GREATLY
DIFFER.

Aperture size
large ← → small
more ← → less
F-stop
small ← → large
depth of field
shallow ← → deep



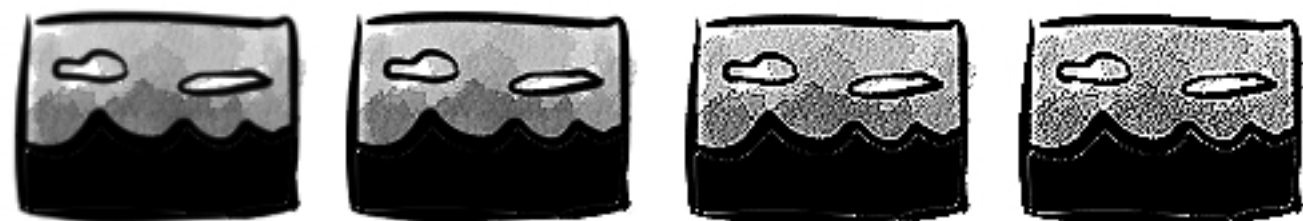
THE MORE SHALLOW THE DEPTH OF FIELD,
THE BLURRIER THE BACKGROUND.

MOVING ON...
WE'RE COVERING
ISO ≡









ISO IS DEFINED AS THE MEASURE OF A CAMERA SENSOR'S SENSITIVITY TO LIGHT.

100 200 300 400 800 1600 3200 6400



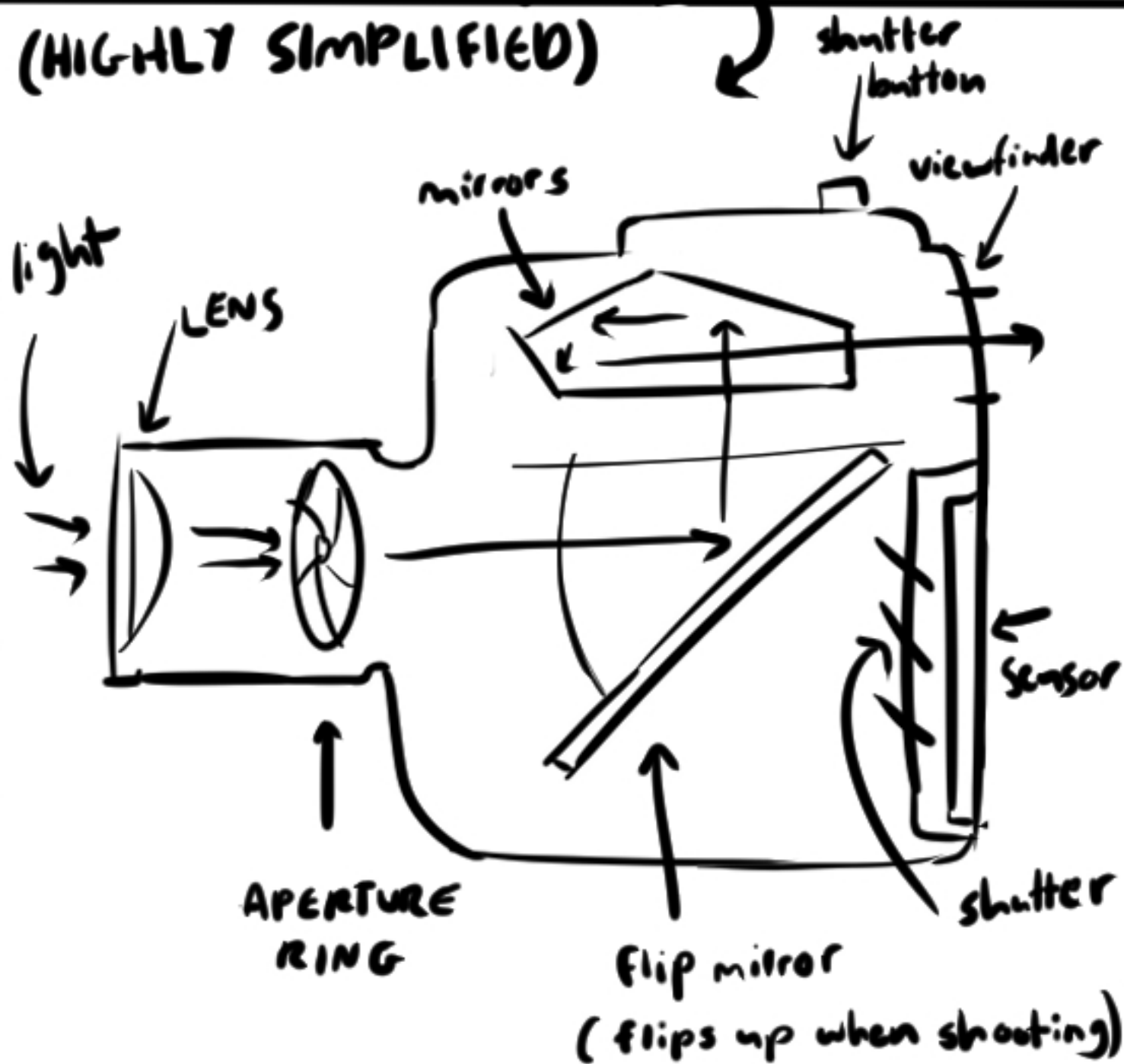
R. L. Smith smooch into frame this time in

<p>ISO 100</p>	<p>Sunny day, bright light</p>	
<p>ISO 200</p>	<p>partial shade, bright light</p>	
<p>ISO 400</p>	<p>cloudy day, bright indoors</p>	
<p>ISO 800</p>	<p>evening, dim lighting</p>	
<p>ISO 1600</p>	<p>nighttime, dark indoors</p>	
<p>ISO 3200+</p>	<p>dark, no flash</p>	

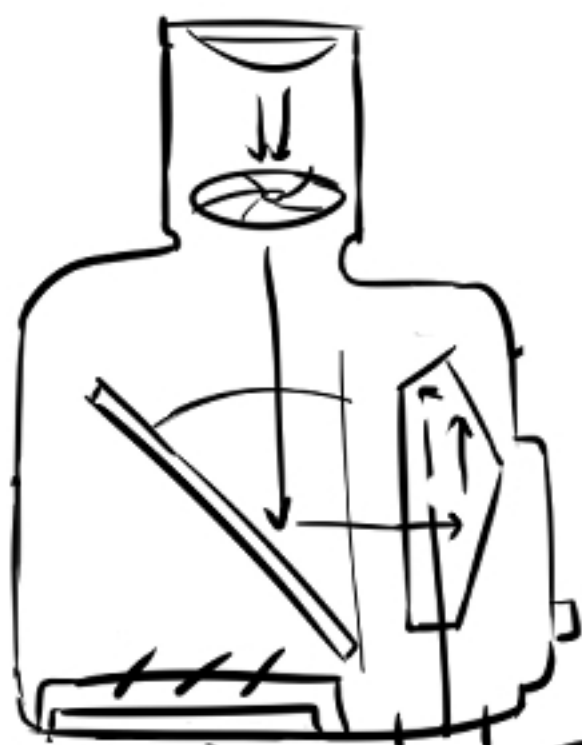
TO FINISH UP, WE'LL BE
TAKING A DIVE INTO
THE INNER WORKINGS
OF A STANDARD
CAMERA + THE PATH
OF LIGHT.



(HIGHLY SIMPLIFIED)



AT FIRST, THIS DIAGRAM MIGHT BE OVERWHELMING. WELL, FRET NOT YOUNG PADAWAN. JUST FOLLOW THE LIGHT. WHEN NOT SHOOTING, THE MIRROR IS IN A DOWN POSITION. THIS ALLOWS THE LIGHT TO BOUNCE OFF ITS SURFACE, REFLECT UP INTO THE PRISM OF MIRRORS, AND PROVIDE AN IMAGE FOR THE VIEWFINDER.



WHEN SHOOTING, THE MIRROR FLIPS UP SO IT IS NO LONGER BLOCKING THE SHUTTER + SENSOR.

THE SHUTTER OPENS FOR THE DURATION OF THE SHOT. THE

SENSOR THEN TAKES IN THE LIGHT + IT IS CONVERTED INTO AN IMAGE.

