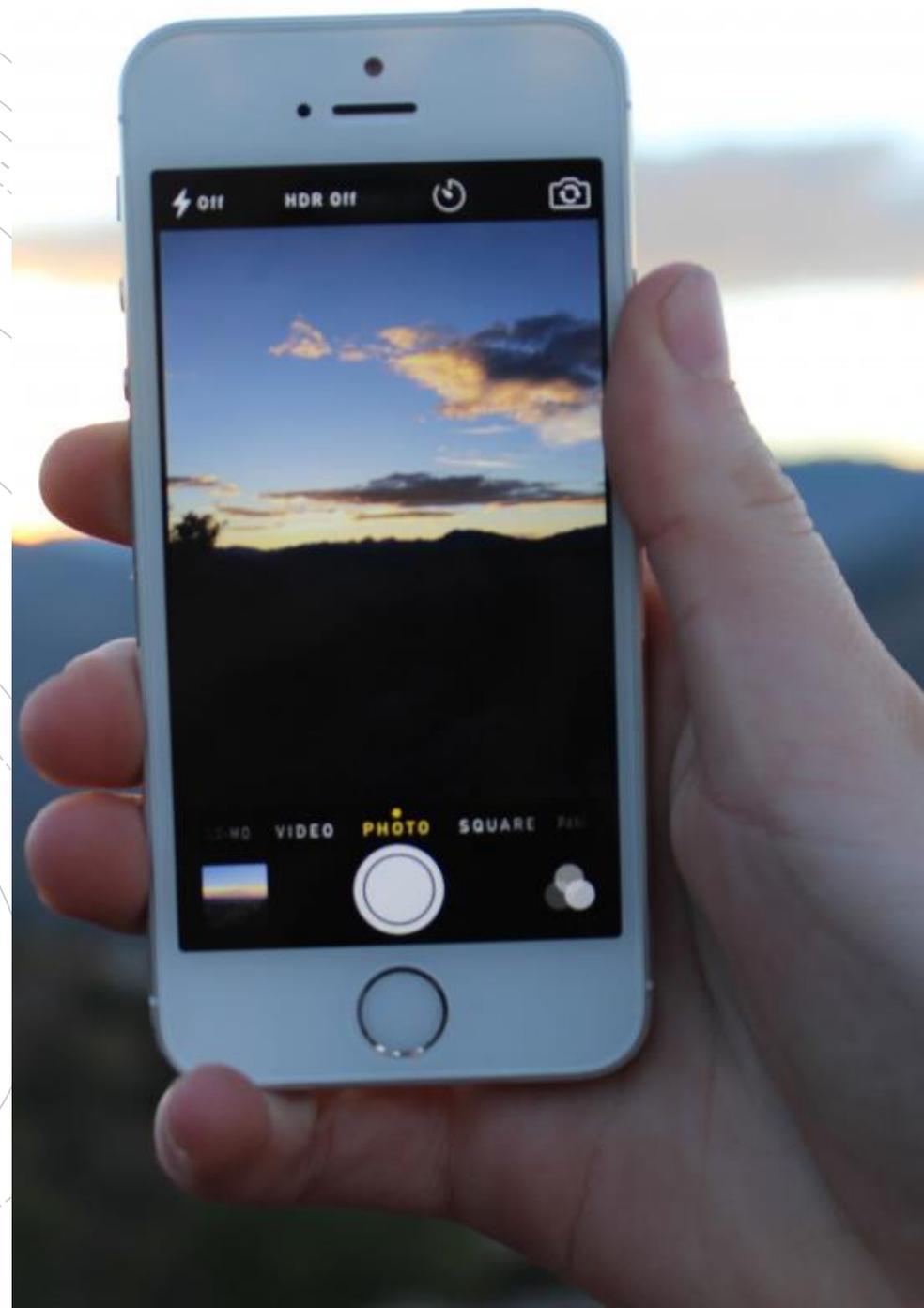


BEGINNER BASICS

APERTURE AND SHUTTER SPEED

SNAPSHOTS OR THOUGHTSHOTS?



WHAT IS MOST IMPORTANT TO YOU?

- GETTING THE PICTURE (SNAPSHOT)
- **THOUGHT SHOTS**
 - DEPTH OF FIELD
 - BLUR OR ITS LACK
 - NOISE

The background features several concentric circles, some solid and some dashed, in a light gray color. A large blue speech bubble shape is centered on the page, containing the text. The text is in a bold, red, sans-serif font.

THE EXPOSURE TRIANGLE

EXPOSURE IS DETERMINED BY

HOW LONG SHUTTER IS OPEN

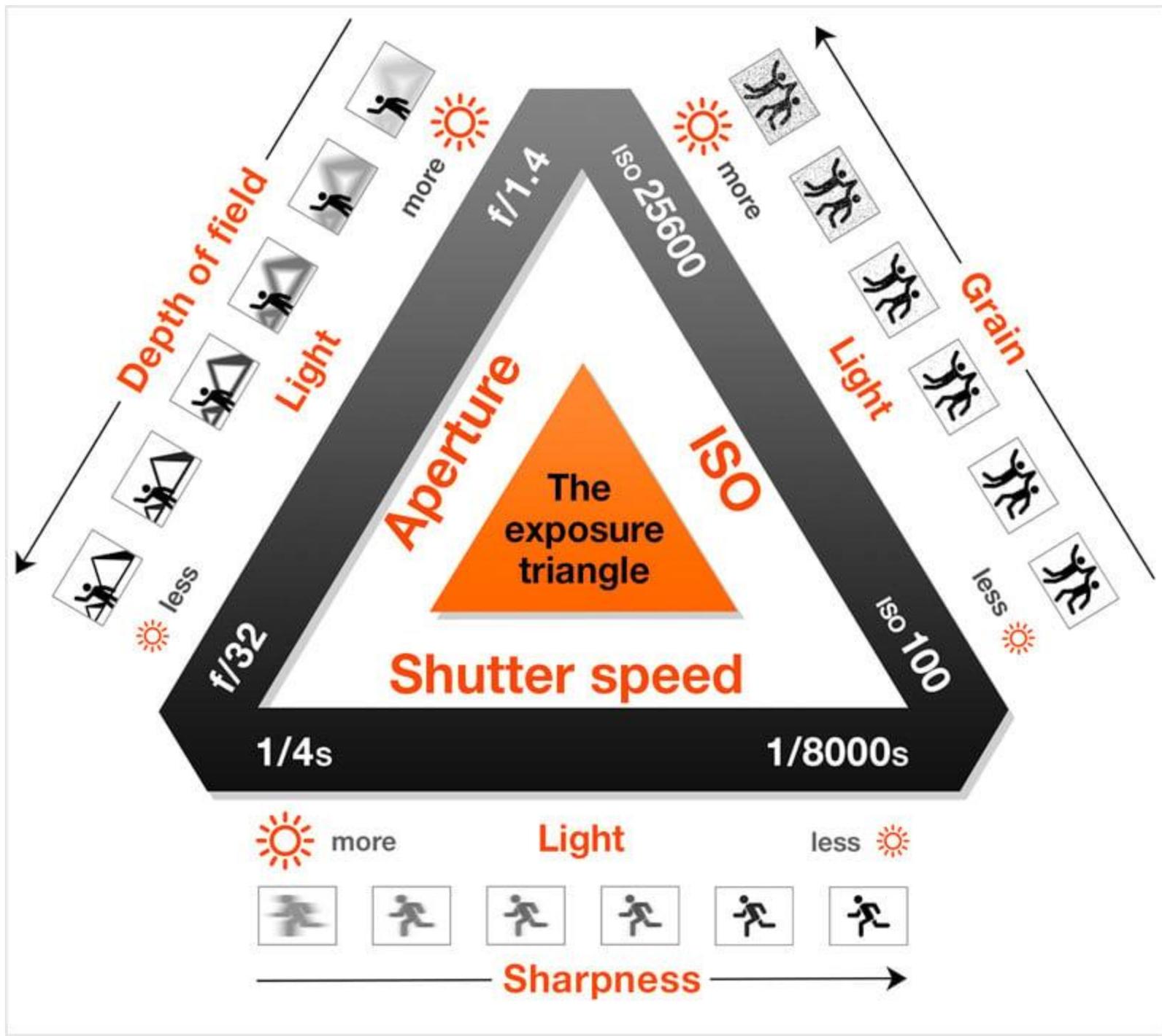
THE SIZE OF THE LENS OPENING (APERTURE)

THE SENSITIVITY OF THE SENSOR (ISO)



YOUR EXPOSURE

(THINK OF A PHOTON AS A WATER MOLECULE AND YOUR EXPOSURE IS A BUCKET FULL OF WATER)



REVIEW OF LAST CLASS

- AN APERTURE IS AN JUST AN OPENING LIKE THE PUPIL OF YOUR EYE.
- THE LARGER IT IS, THE MORE LIGHT GETS TO THE CAMERA'S SENSOR.
- THE FOCAL LENGTH OF A LENS IS THE DISTANCE FROM THE CENTER OF THE LENS TO SENSOR.
- AN F/NUMBER IS THE FRACTION OF THE FOCAL LENGTH THAT THE LENS APERTURE IS.
- $F \text{ STOP} = \text{LENS FOCAL LENGTH} / \text{LENS DIAMETER}$
- FOR **ALL** FRACTIONS, THE LARGER THE DENOMINATOR, THE SMALLER THE ABSOLUTE VALUE. FOR EXAMPLE, $1/8$ IS HALF AS MUCH AS $1/4$ AND $1/2$ IS TWICE AS LARGE AS $1/4$. SO IT IS WITH F STOPS, YOU DOUBLE OR HALF THE AMOUNT OF LIGHT REACHING THE SENSOR BY MOVING BETWEEN FULL STOPS.

REVIEW OF LAST CLASS

- DEPTH OF FIELD IS THE AMOUNT OF A SCENE THAT IS *ACCEPTABLY SHARP* IN FRONT OF AND BEHIND THE SUBJECT (ROUGHLY 1/3 IN FRONT AND 2/3 BEHIND).
- DEPTH OF FIELD IS A FUNCTION OF THE FOCAL LENGTH OF THE LENS AND THE APERTURE AND DISTANCE TO THE SUBJECT.
- A LARGE APERTURE PRODUCES A SHALLOW DEPTH OF FIELD WHEREAS A SMALL APERTURE GIVES GREATER DEPTH OF FIELD

YOUTUBE VIDEOS

- [Aperture and Shutter - WHAT IS their relationship? A photography tutorial for beginners. – YouTube](#)
- <https://youtu.be/NcKrT6h7oHo>
- <https://youtu.be/LmdBh0YHCfQ>
- [What is panning and how to do it \(diyphotography.net\)](#)
- [How Aperture & Shutter Speed Interact for the Best Photos Possible \(VIDEO\) | Shutterbug](#)

EXAMPLES

APERTURE AND DEPTH OF FIELD

BOKEH IS THE TERM USED TO DISCRIBE THE
BLURRED BACKGROUND DUE TO A SHALLOW
DEPTH OF FIELD



OM-1
300 mm f/4
1/2500 sec
ISO 320





OM-1
300 mm f/4
1/1600
ISO 400

**A STRONG
BOKEH
INCREASES
THE CONTRAST
BTWEEN THE
SUBJECT AND
THE
BACKGROUND**



OM-1
300 mm f/4
1/2500
ISO 200



E-M 1 MkII
f/11
1/320 sec
ISO 400

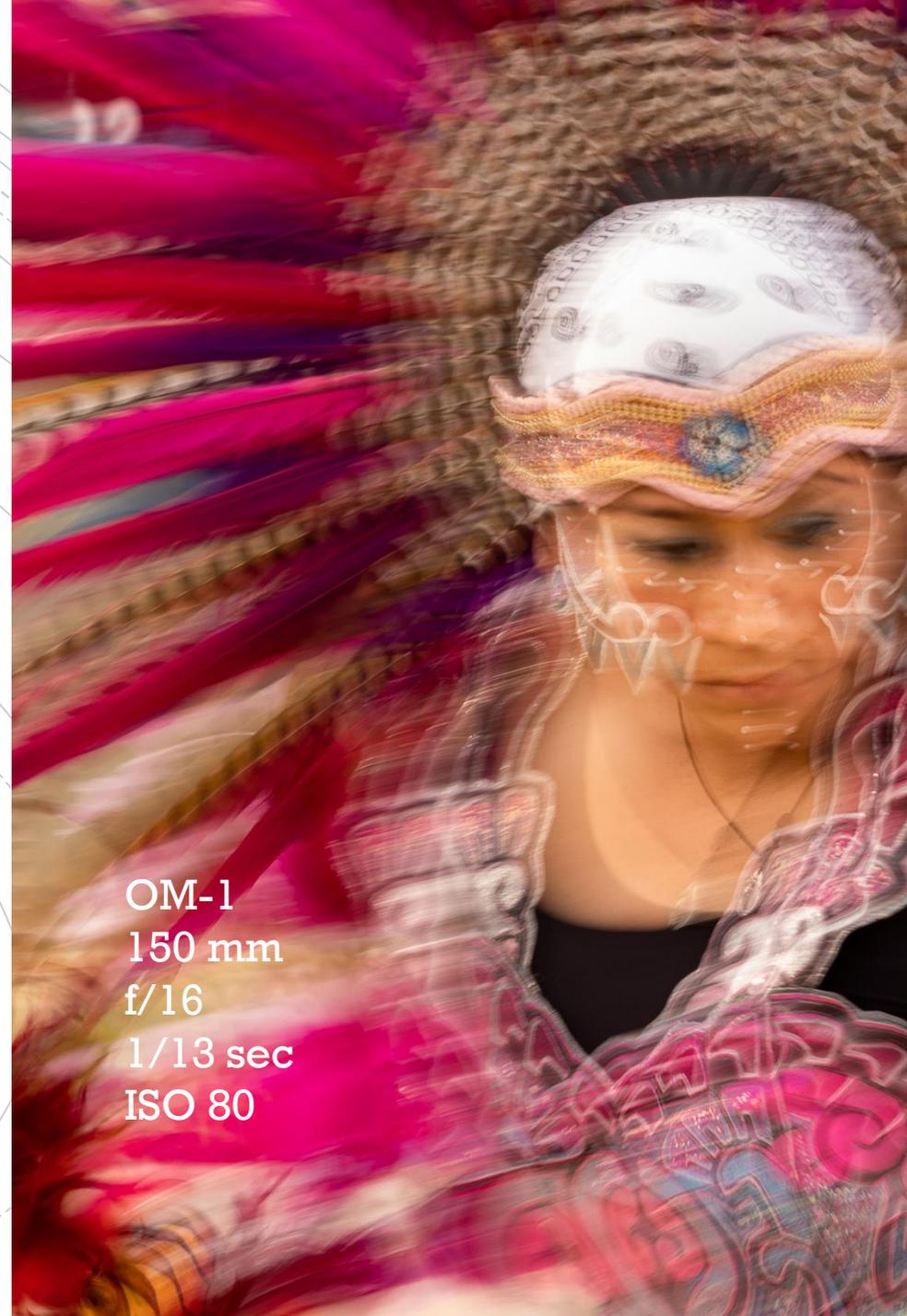


iPhone SE. Phone cameras have very small sensors which produce lots of depth of field.

SHUTTER SPEED

THE LENGTH OF TIME THE SHUTTER IS OPEN. USED TO ADD BLUR OR TO ELIMINATE BLUR DUE TO CAMERA MOVEMENT OR SUBJECT MOVEMENT.

OM-1
150 mm
f/16
1/13 sec
ISO 80





OM-1
115 mm f/4.5
1/640 sec
ISO 500

PANNING IS A
TECNIQUE WHERE A
SLOW SHUTTER
SPEED IS USED TO
KEEP A MOVING
SUBJECT SHARP
WHILE BLURRING
THE BACKGROUND

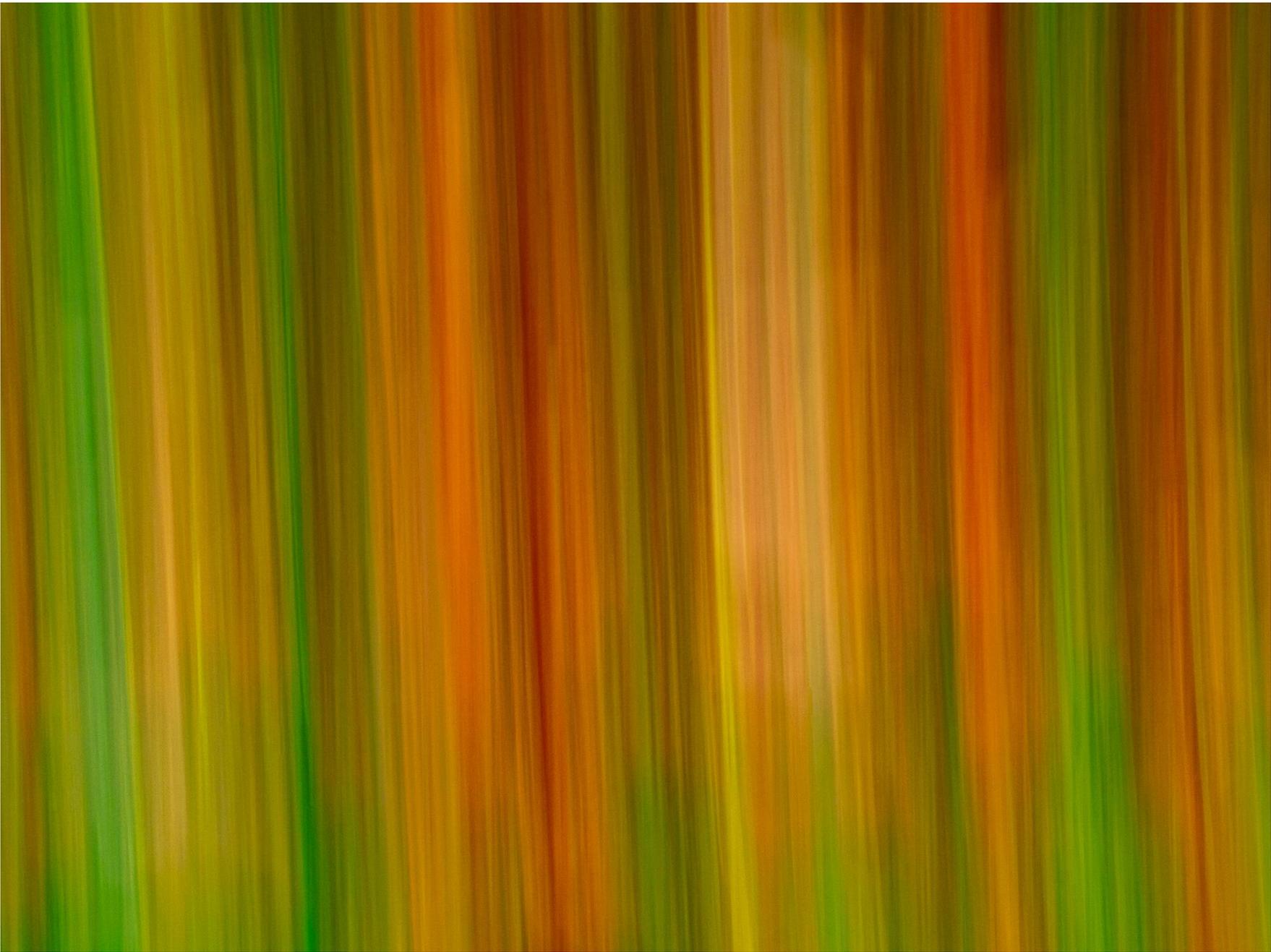


OM-1
f/22
1/40 sec
ISO 80
62 mm



**EM-1
31 mm f/8
1.6 sec ISO 200**

**I USED A TRIPOD,
A CIRRULAR
POLARIZER, AND
A NEUTRAL
DENSITY FILTER.**



INTENTIONAL CAMERA MOVEMENT

**EM1 MkII
F/22
1/3 sec
ISO 64
40 mm**



**ZOOMING WITH
SLOW SHUTTER
SPEED**

**EM-1 MkII
f/20
¼ sec
ISO 64**



OM-1 1/2500 sec 300 mm f/4.5 ISO 200

IN SUMMARY, IF YOU WANT TO GET BEYOND THE SNAPSHOT STAGE IN YOUR PHOTOGRAPHIC ENDEAVORS, TAKE CONTROL. DECIDE WHAT IS **MOST IMPORTANT**, SHUTTER SPEED, APERTURE, OR IMAGE QUALITY. SET THAT PARAMETER AND THEN USE YOUR KNOWLEDGE OF THE EXPOSURE TRIANGLE TO MAKE IT WORK.