# The Basics of Insect Photography

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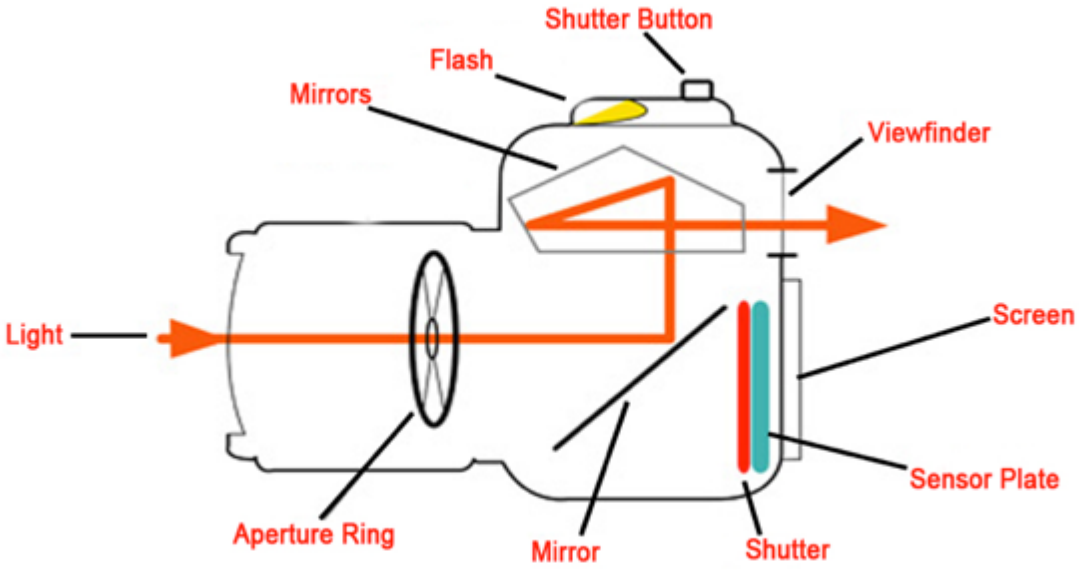
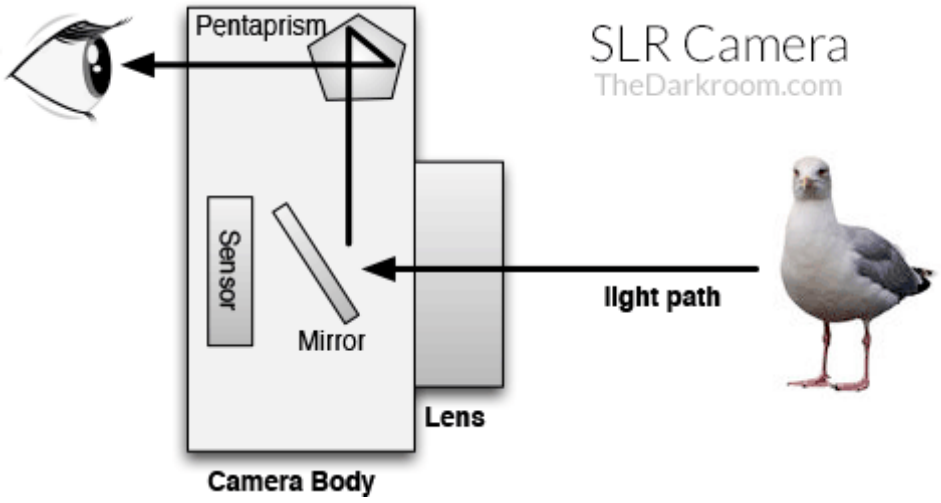
# Camera Basics

- Aperture
- ISO
- Shutter Speed

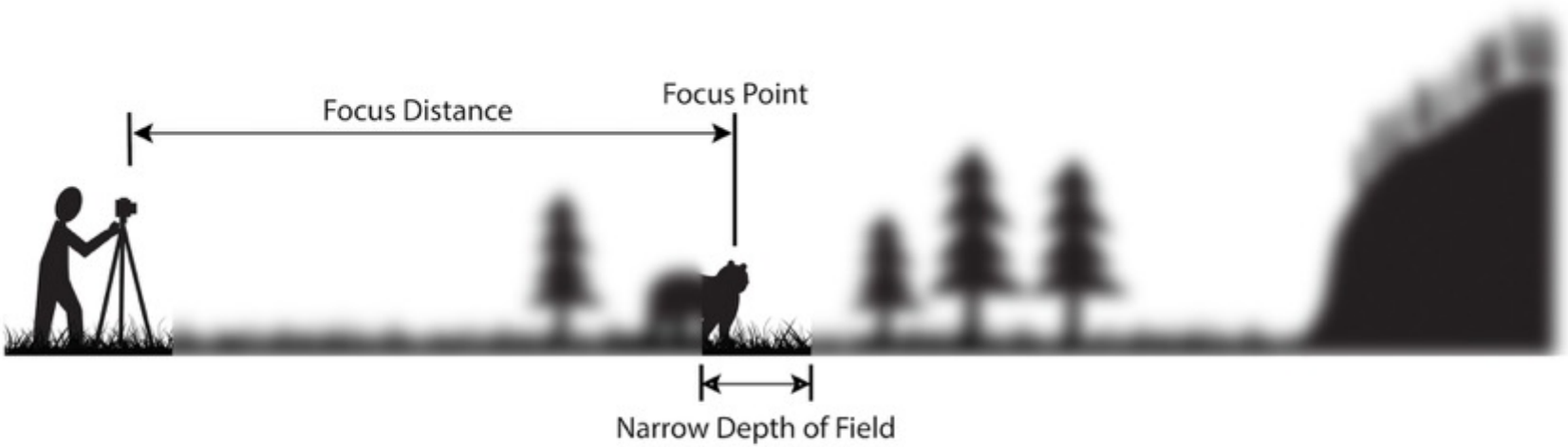


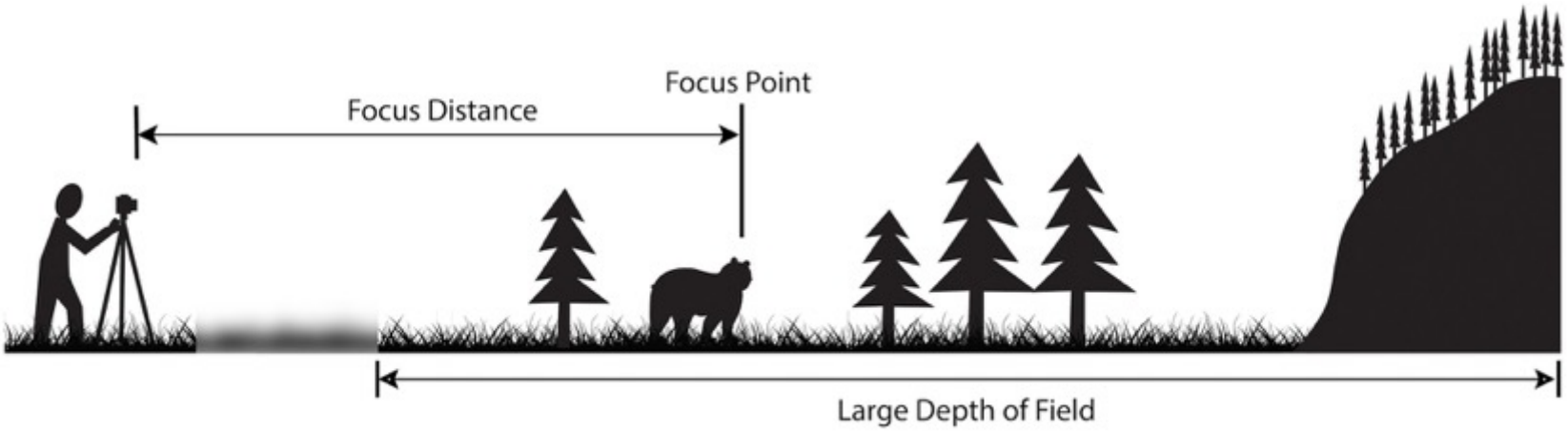



# Aperture Terminology

- F-stop
  - Stopped up = open
  - Stopped down = closed
- Iris, diaphragm
- Depth of field

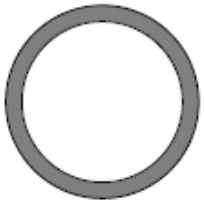
# Aperture Terminology | Depth of Field

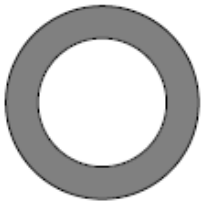








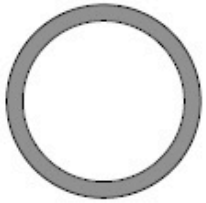


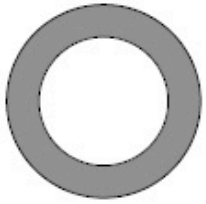
# Aperture

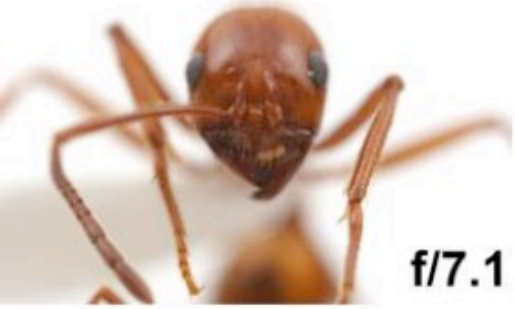
(shutter speed adjusted to maintain exposure)

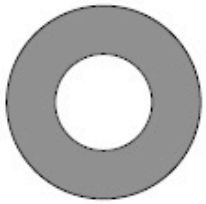
Expressed as a fraction relating opening size to lens length

Courtesy of Alex Wild






Courtesy of Alex Wild

# ISO

(shutter speed adjusted to maintain exposure)

## Sensitivity of camera sensor

**Low ISO**

**Decreased sensor sensitivity**

**Darkens image**

**Less ‘noise’**

**High ISO**

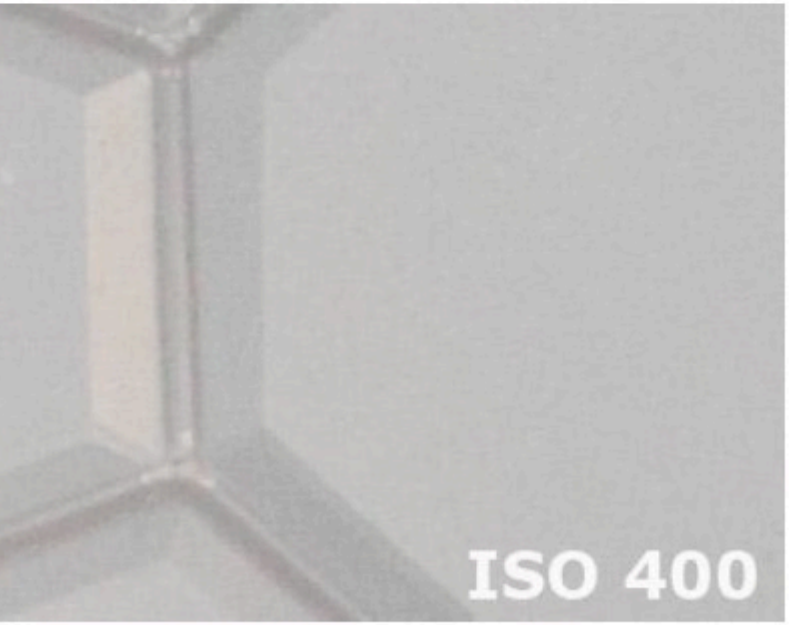
**Increased sensor sensitivity**

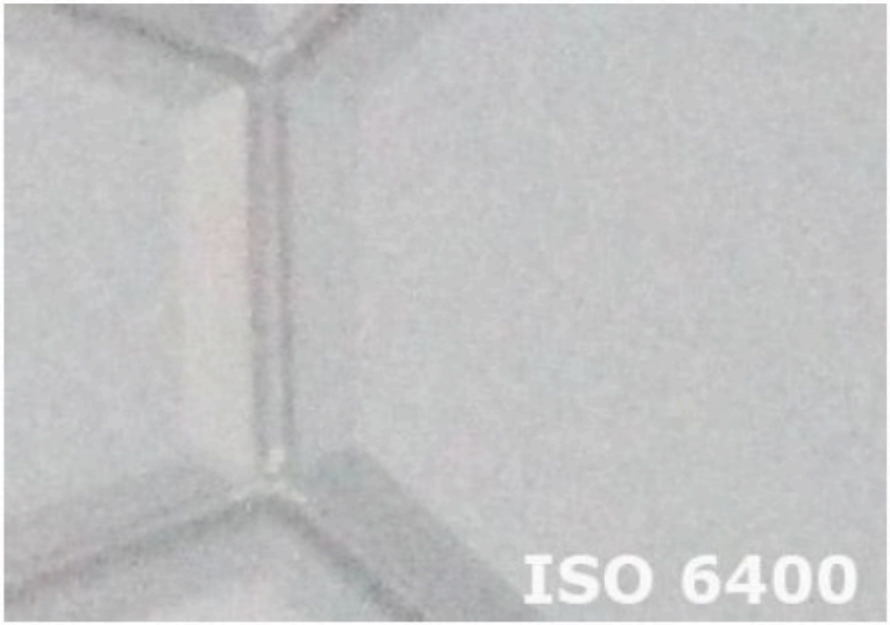
**Brightens image**

**More ‘noise’**


# ISO

(shutter speed adjusted to maintain exposure)

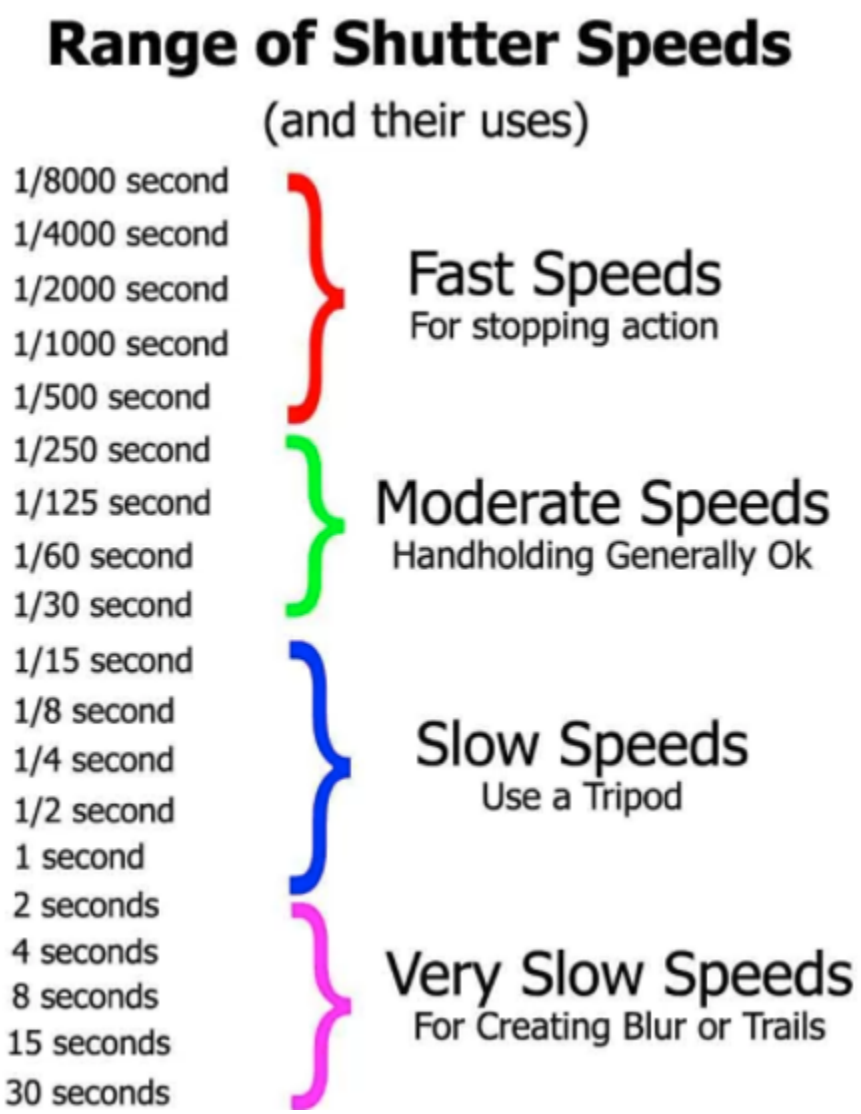


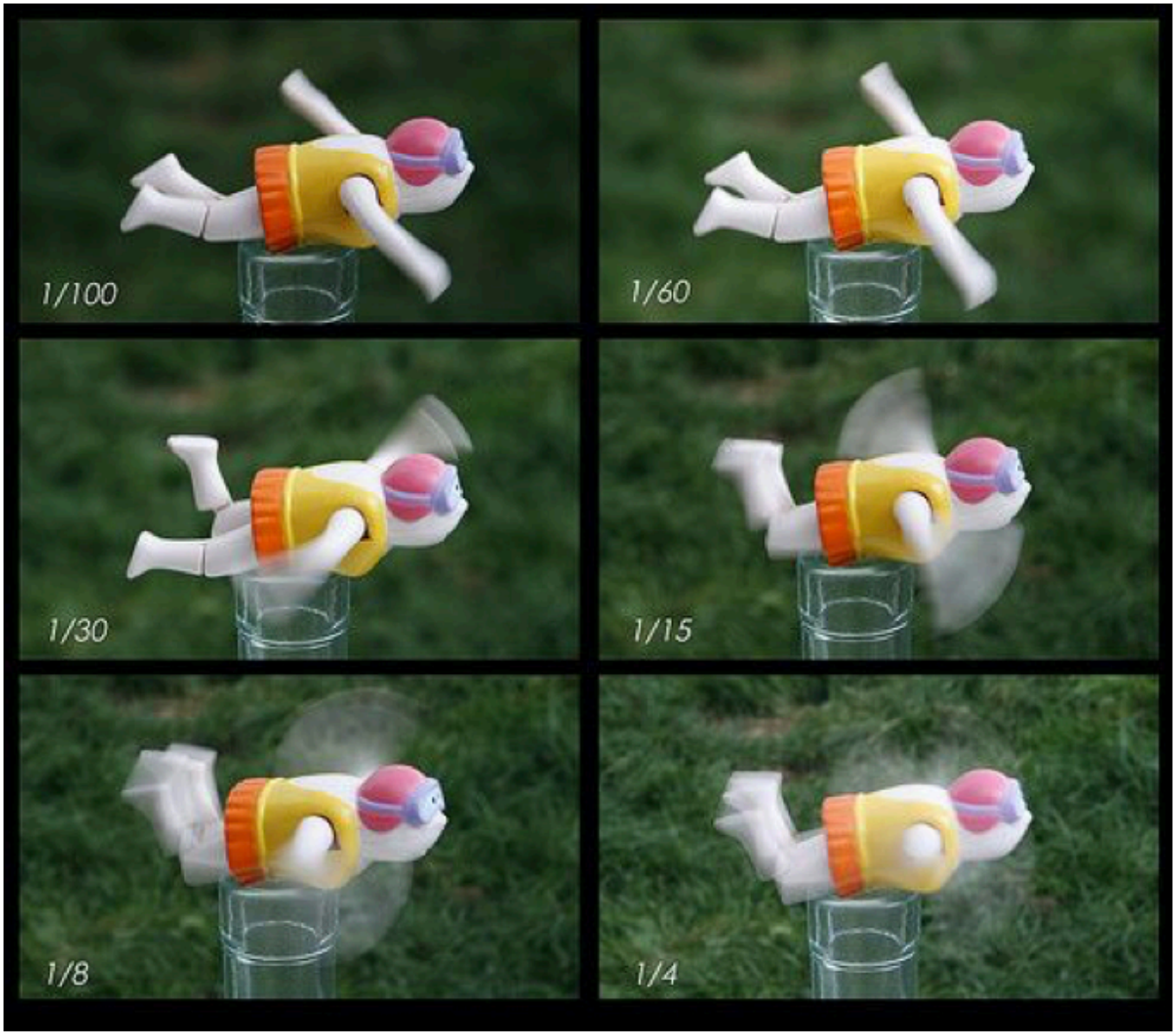
# Shutter Speed

How long the sensor is exposed to light

# Shutter Speed



# Shutter Speed



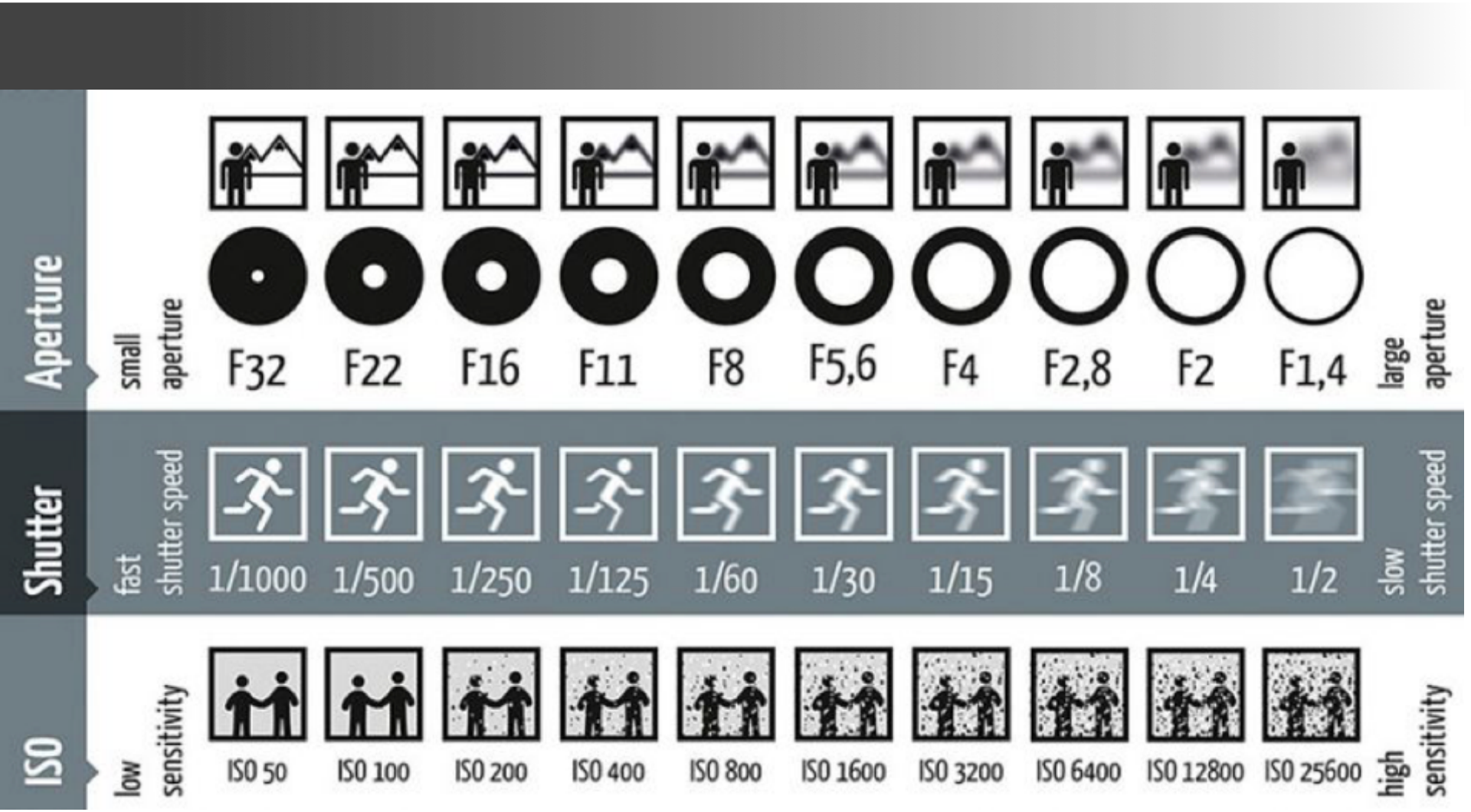
# Shutter Speed | Insanely fast

# Shutter Speed | Insanely slow

# Camera Basics Combined

Dark

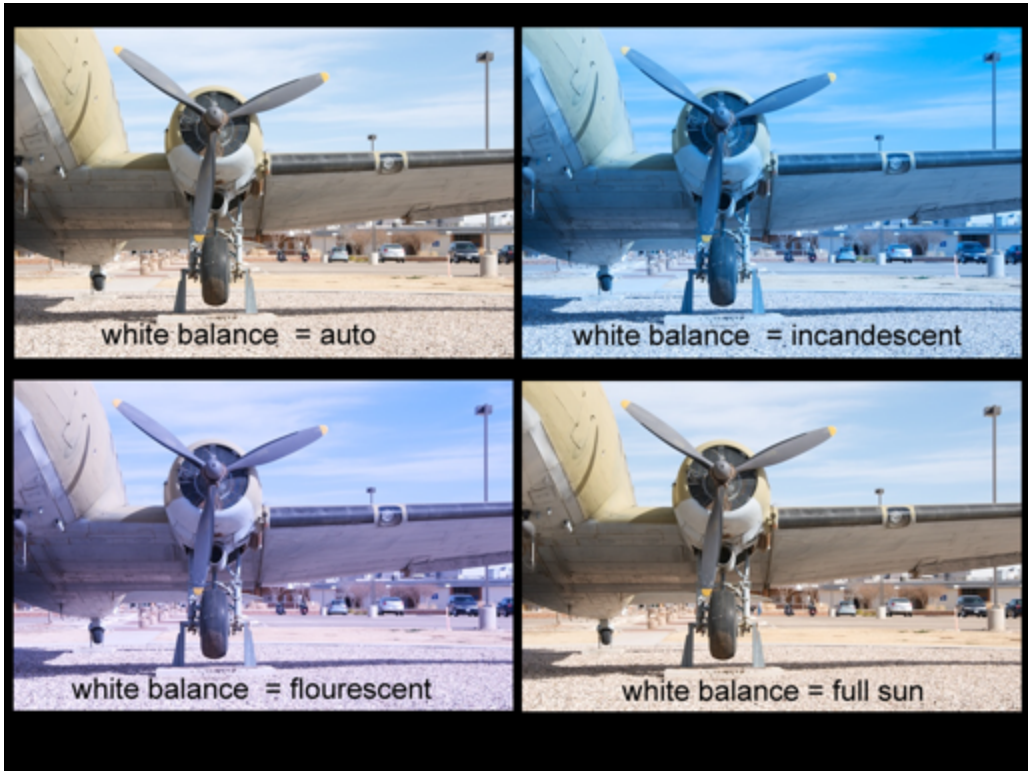
Light



# Camera Basics: White Light

## The color temperature of light

- Adjustable in digital cameras
- Automatic settings not always correct
- Shoot in RAW for maximum ability to adjust white balance




- Use a grey card or color profiler for best match


Is this wasp really this color of red?

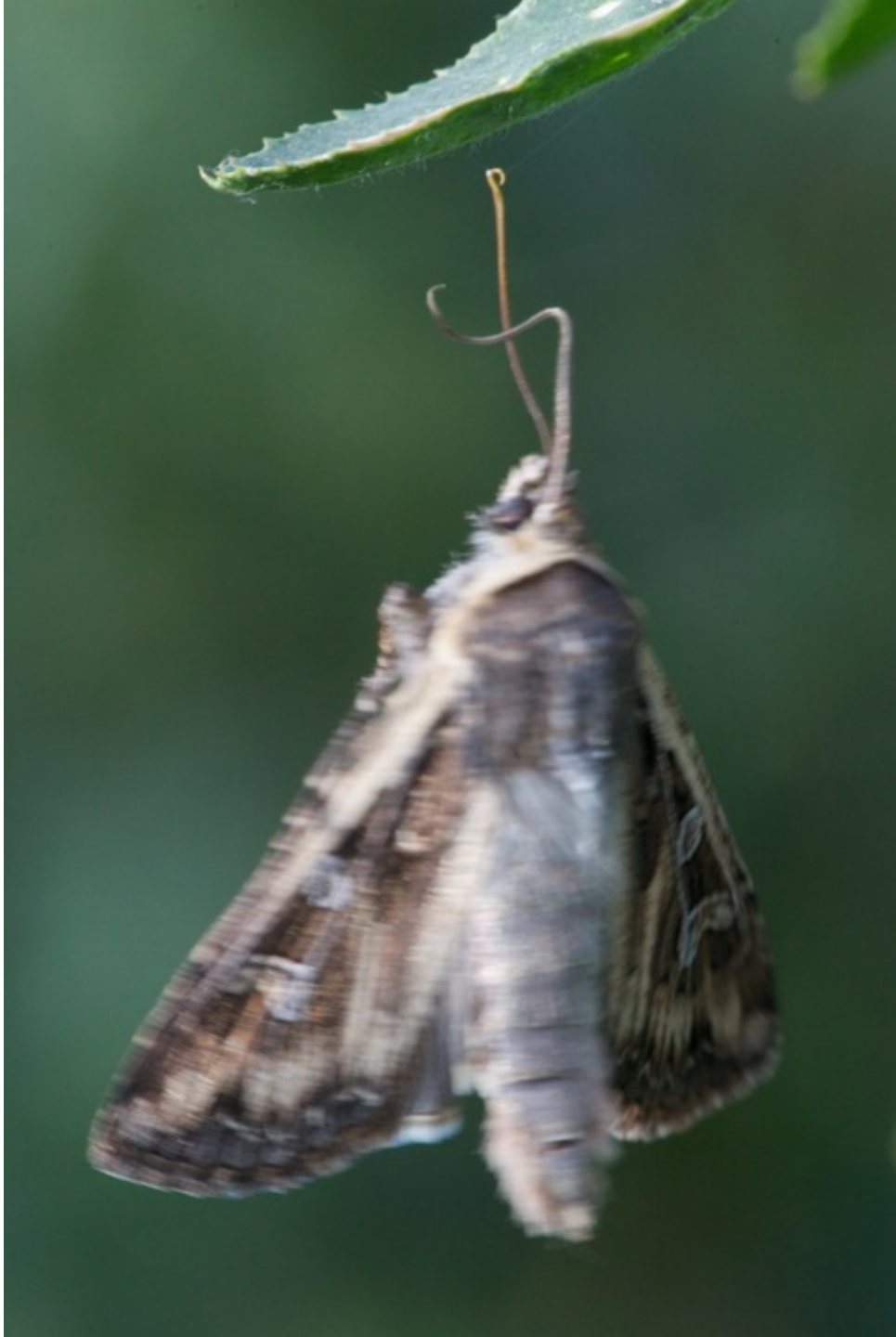
# Basic concepts of insect photography

- Focus
- Steady shots
- Lighting
- Background
- Depth of field
- Composition

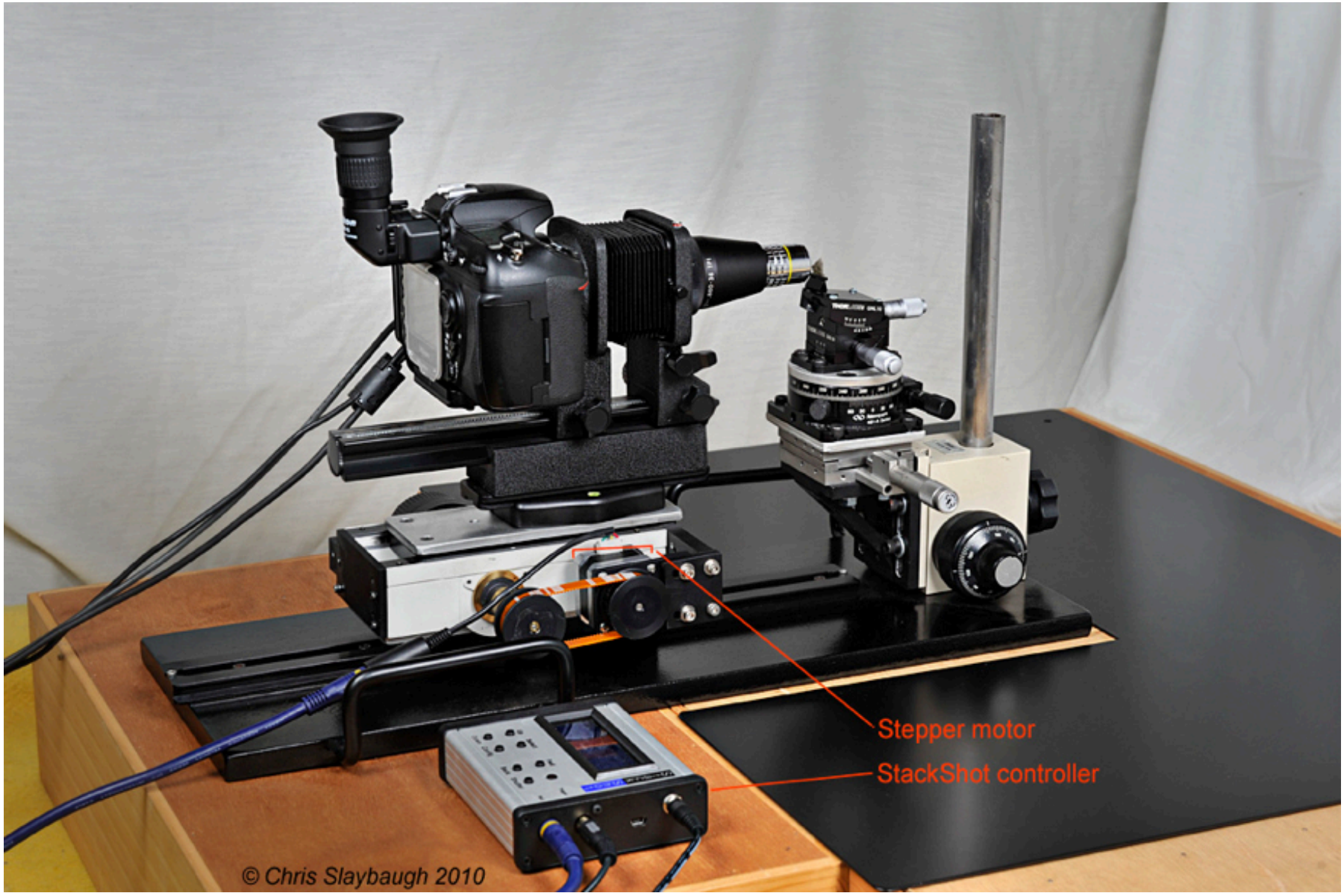
# Focusing

- Narrow depth of field*
- Manual focus
- Use live view
- Check image after capture

* except with wide angle lenses



# Focusing



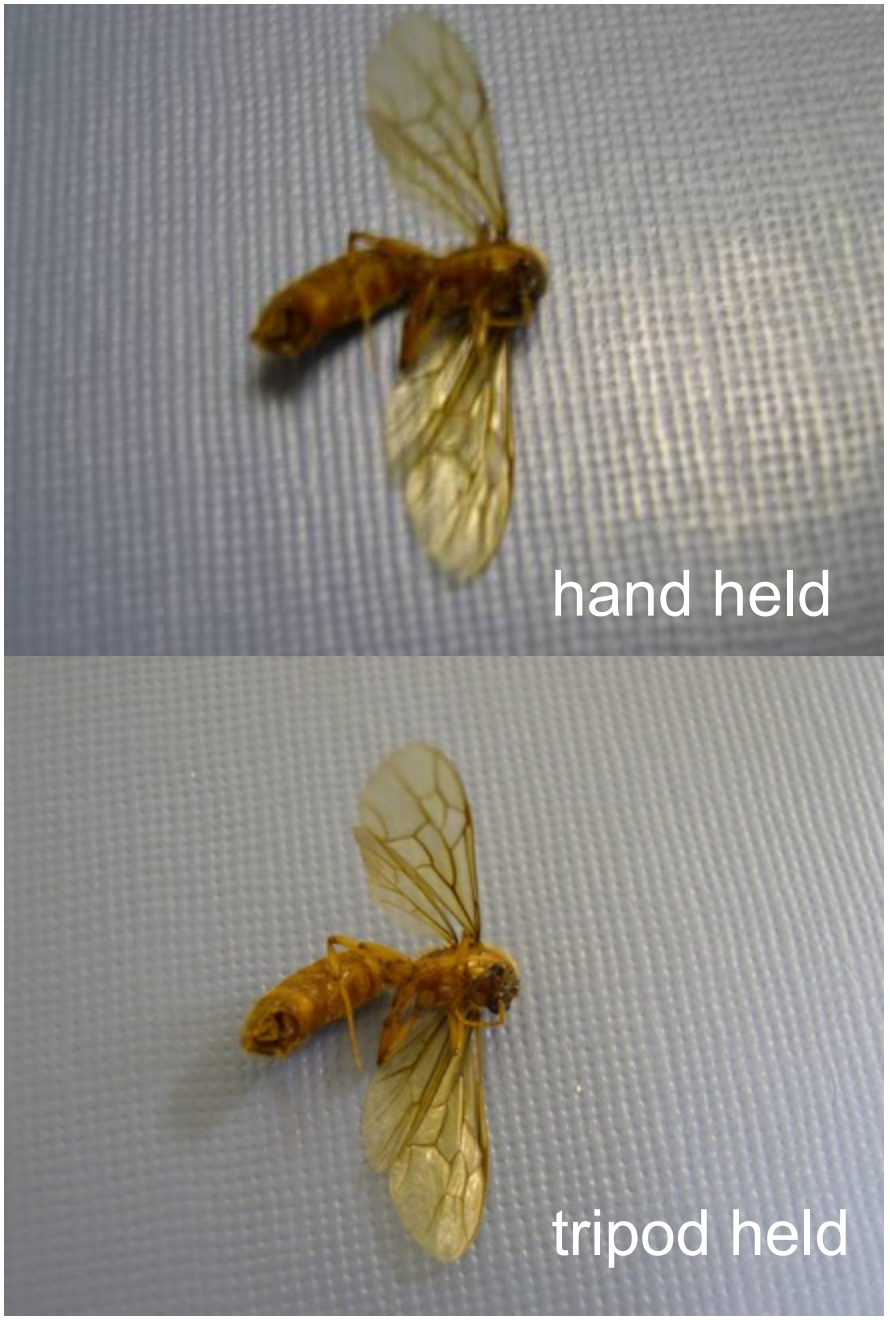
# Focusing

# Focusing


https://youtu.be/FMefm1thqiY?t=215

# Reduce motion blur

- Use faster shutter speed
- Use higher ISO
- Take multiple shots
- Place subject on firm surface and steady camera hand on solid object
- Use a tripod!



# Sometimes Motion Blur is Good

Courtesy of Alex Wild

# The Background

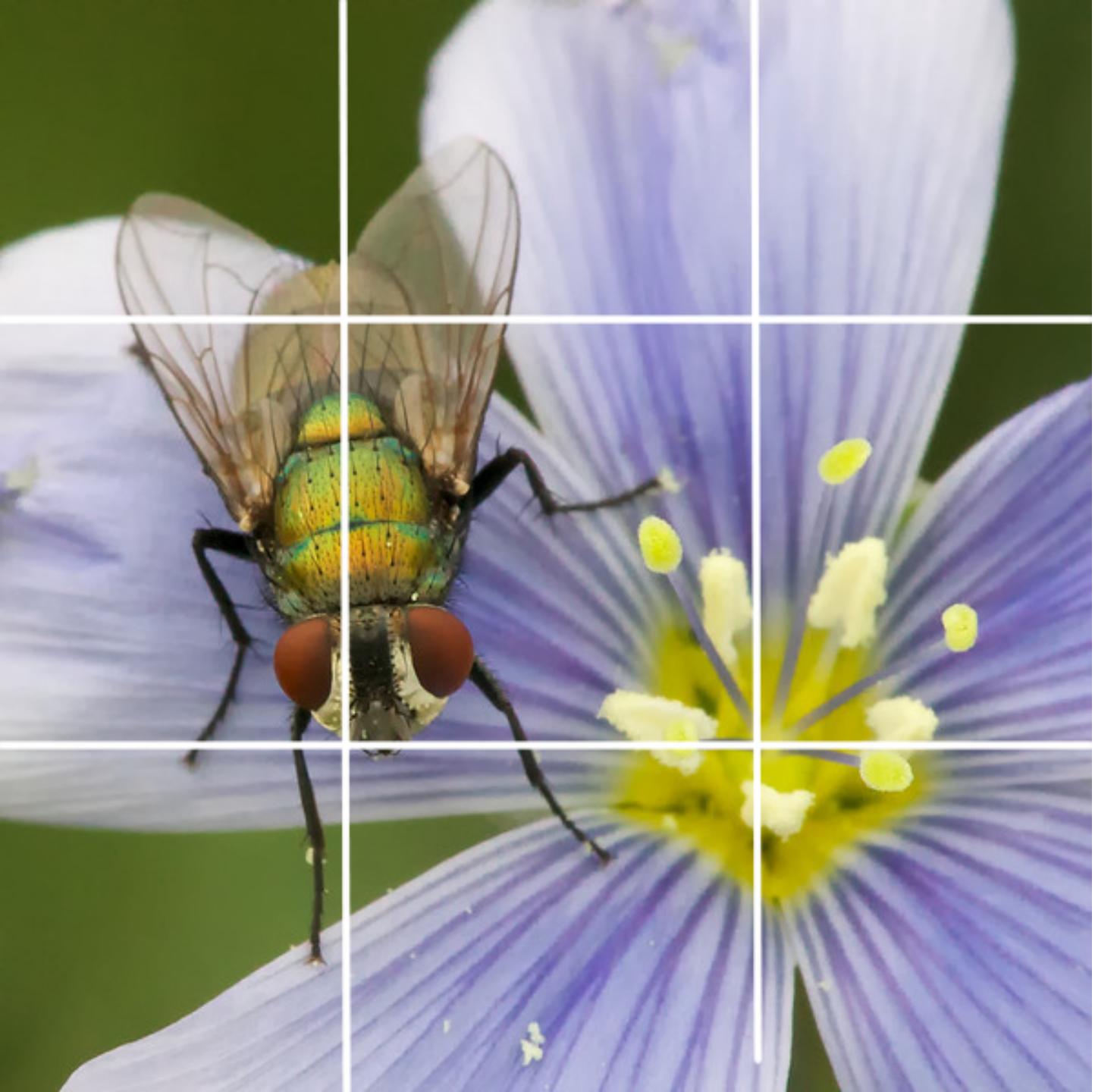
- Make your subject stand out
- Avoid distracting backgrounds
- Use a neutral or contrasting background
- Use depth of field to blur background


f/6.3 to soften background
Patrick Porter

# Composition

- Fill the frame
- The center is deadly?
- Rule of thirds?
- Compose as you shoot or ….
- Get the shot and crop it later
- GET THE SHOT

Composition



Rule of Thirds

- Or -

Suggestion of Thirds

# Rule of  Thirds: Feel Free to Break It

# Perspective:

# Perspective: (and focus on the eyes)

# Lighting

"Light illuminates, shadows define." (Rick Sammon)

- Single most important element of close-up photography
- Photograph outside or in room with bright light
- Supplement with flash, LED light panel, flashlight, reflector, diffuser

Flash illuminates the underside on a sunny day.

Photo courtesy of
Dr. Mark Muegge
Texas AgriLife Extension

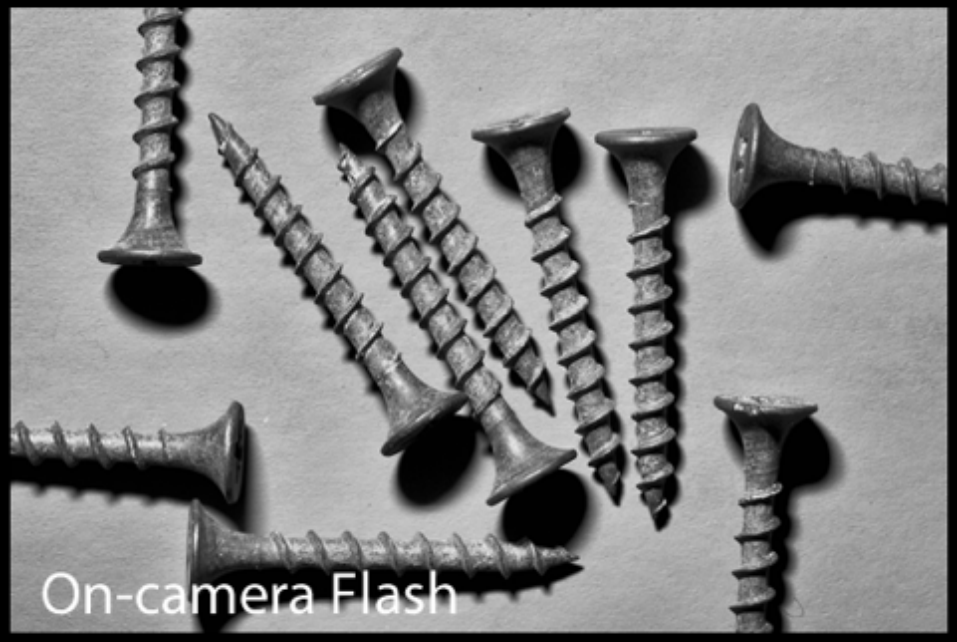
# Lighting

- Indirect or diffuse light best
- Softens harsh shadows
- The closer the light the softer the light
- The bigger the light the softer the light

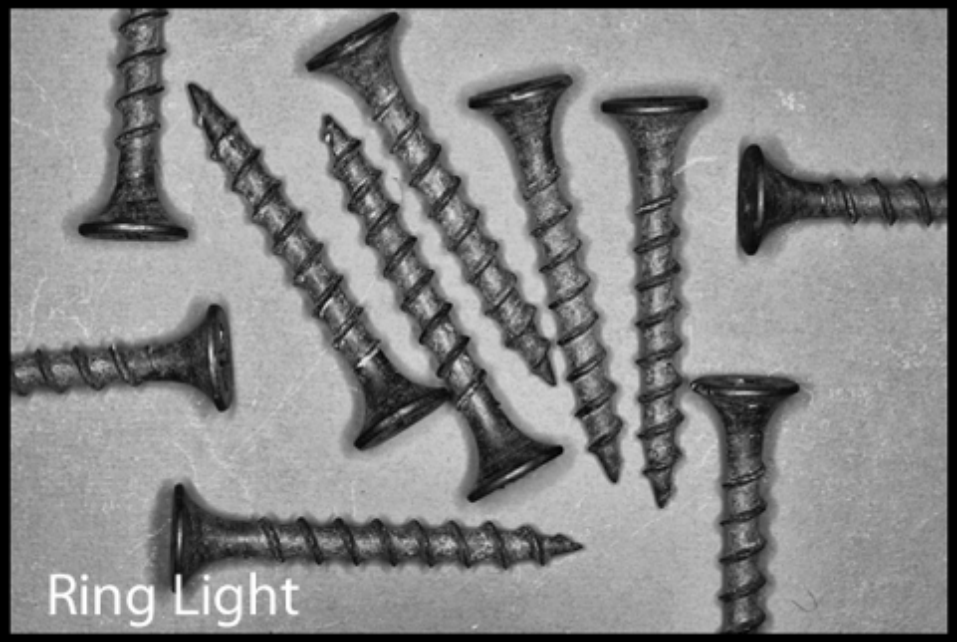
Harsh shadows with on-camera flash

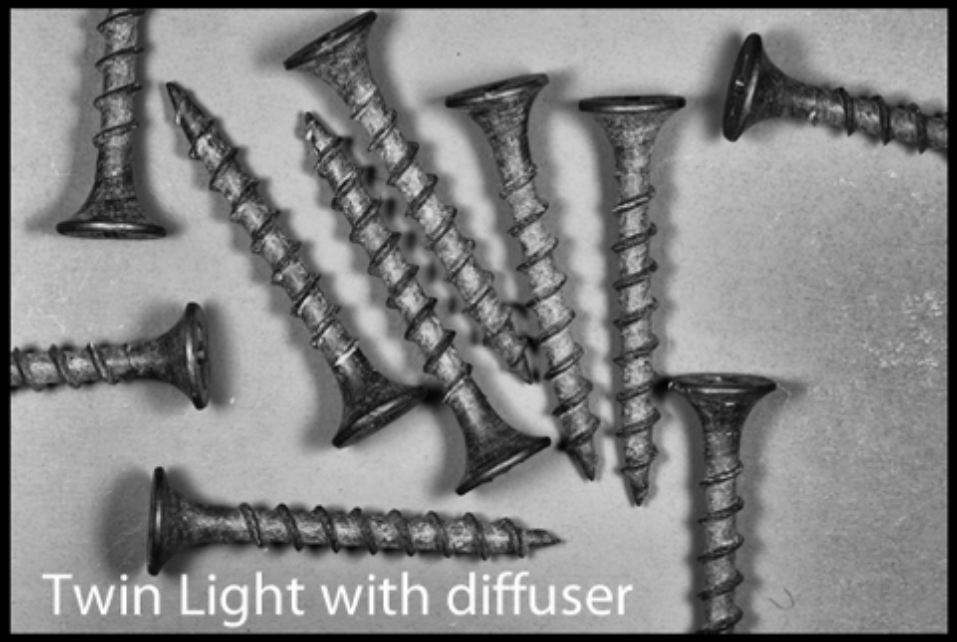
Plastic diffuser on flash

# All Types of Flashes Are Not the Same: Shadows, Softness







# Wide Angle vs. Telephoto Lenses


Wide angles bring forward, telephotos and macros compress

WIDE vs. LONG

# Choosing a camera

# Choosing a camera

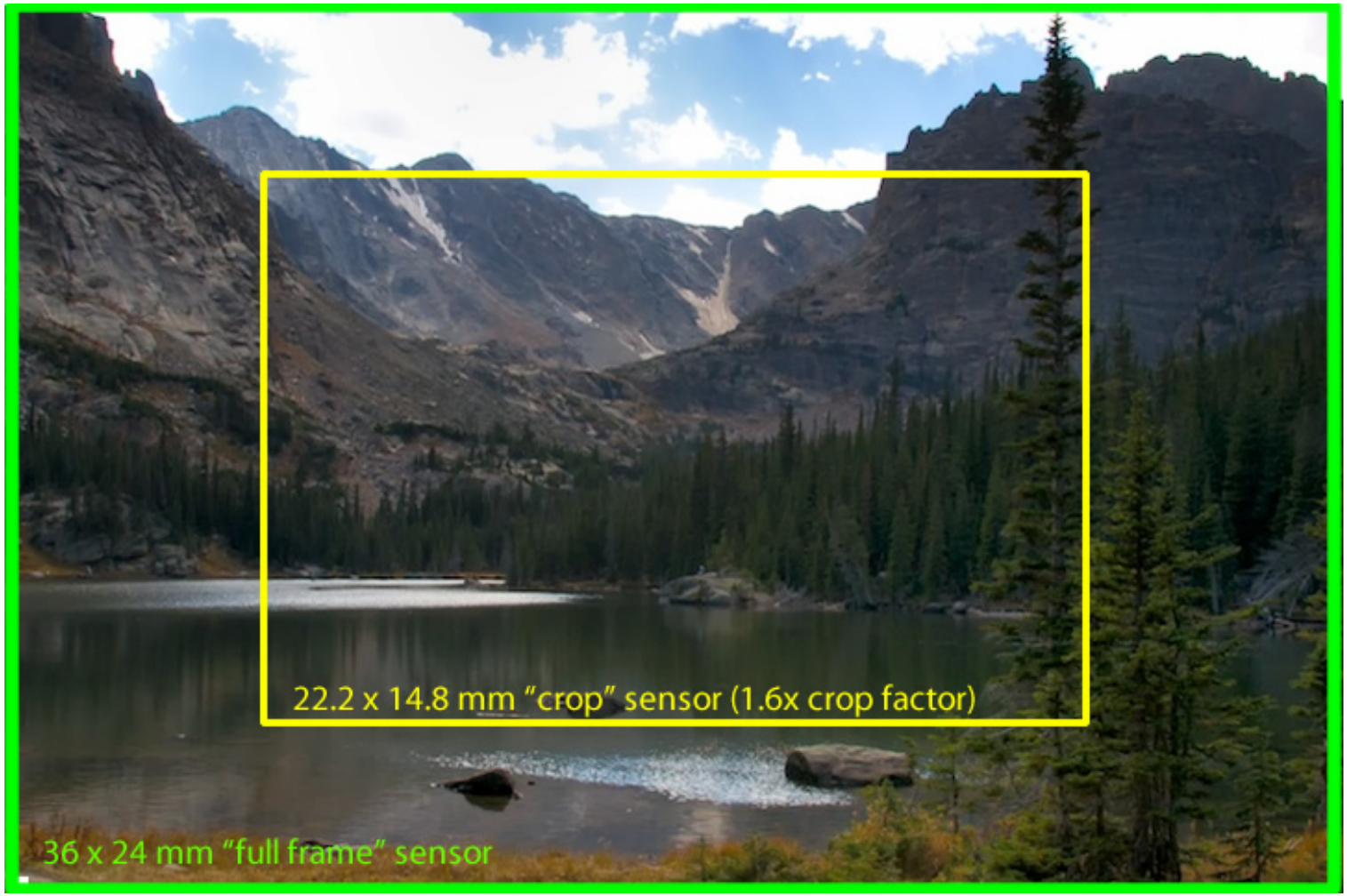

C or Crop Sensor

Full Frame
(35mm equivalent)

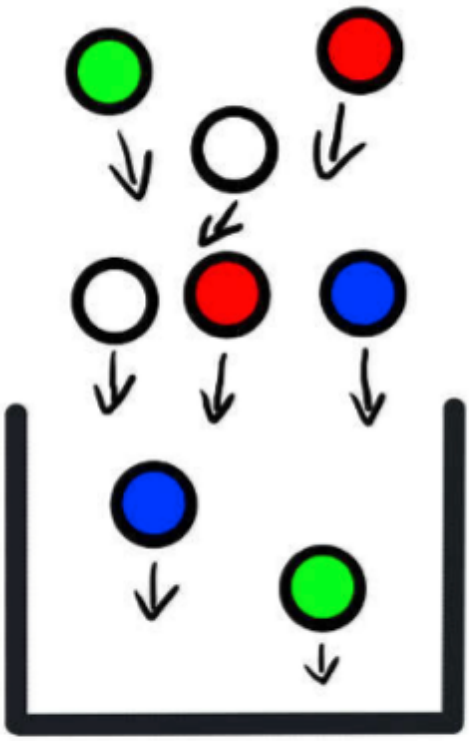
Medium Format

Photo: Pat Porter

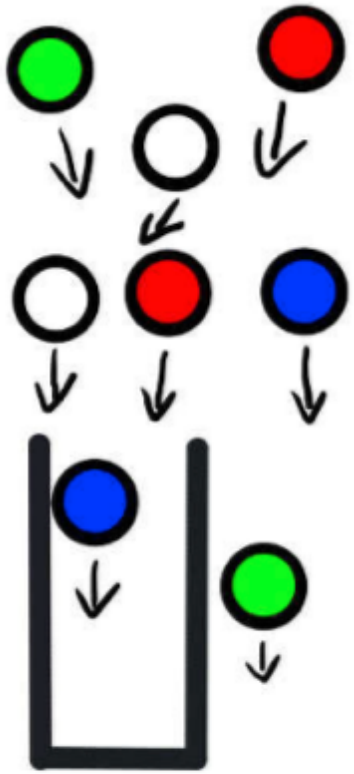
# Full frame (35mm film) equivalent sensor vs. “crop” sensor



# Advantages and Disadvantages



Bigger pixel



Smaller Pixel

Bigger sensor = more and/or larger pixels

# Advantages and Disadvantages

- Full sensor (preferred for landscapes, sports and best image quality)
  - Bigger pixels, higher light sensitivity, better high ISO performance (less “noise”), improved dynamic range (better color reproduction)
  - Camera bodies much more expensive (>$2,500), heavier
  - Lenses more expensive and heavier
  - Bigger file sizes (>21 MP or more in RAW) – storage issues

- Crop sensor (preferred by many for wildlife and macro use)
  - Crop factor gives telephoto effect (1.5 – 1.6x)
  - Bodies much cheaper ($500 - $1,200), dedicated lenses, too
  - Lighter and easier to carry
  - Can use all full frame lenses on crop sensor bodies
  - Can *sometimes* use crop sensor lenses on full frame cameras
    - Some full frame bodies automatically crop to the lens

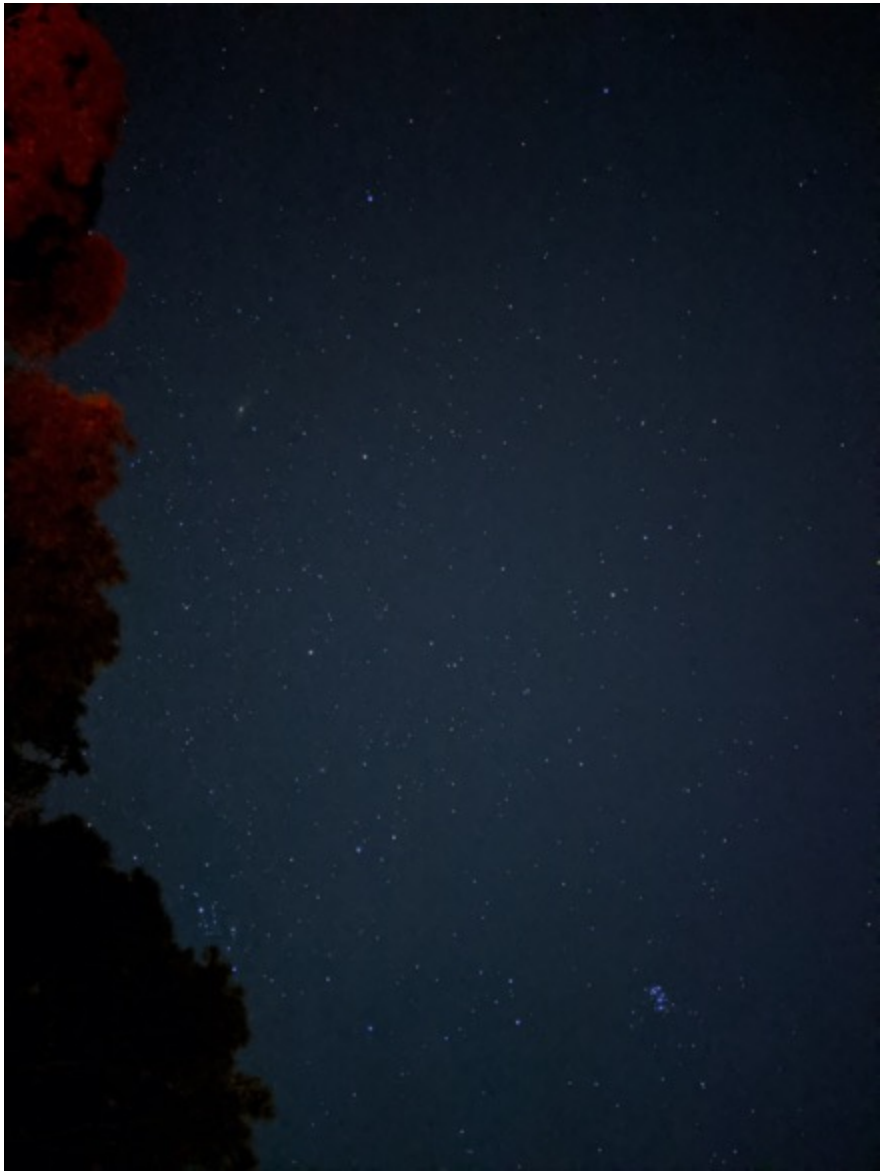
# Cell Phone Cameras?

Why Not?

# Advantages:

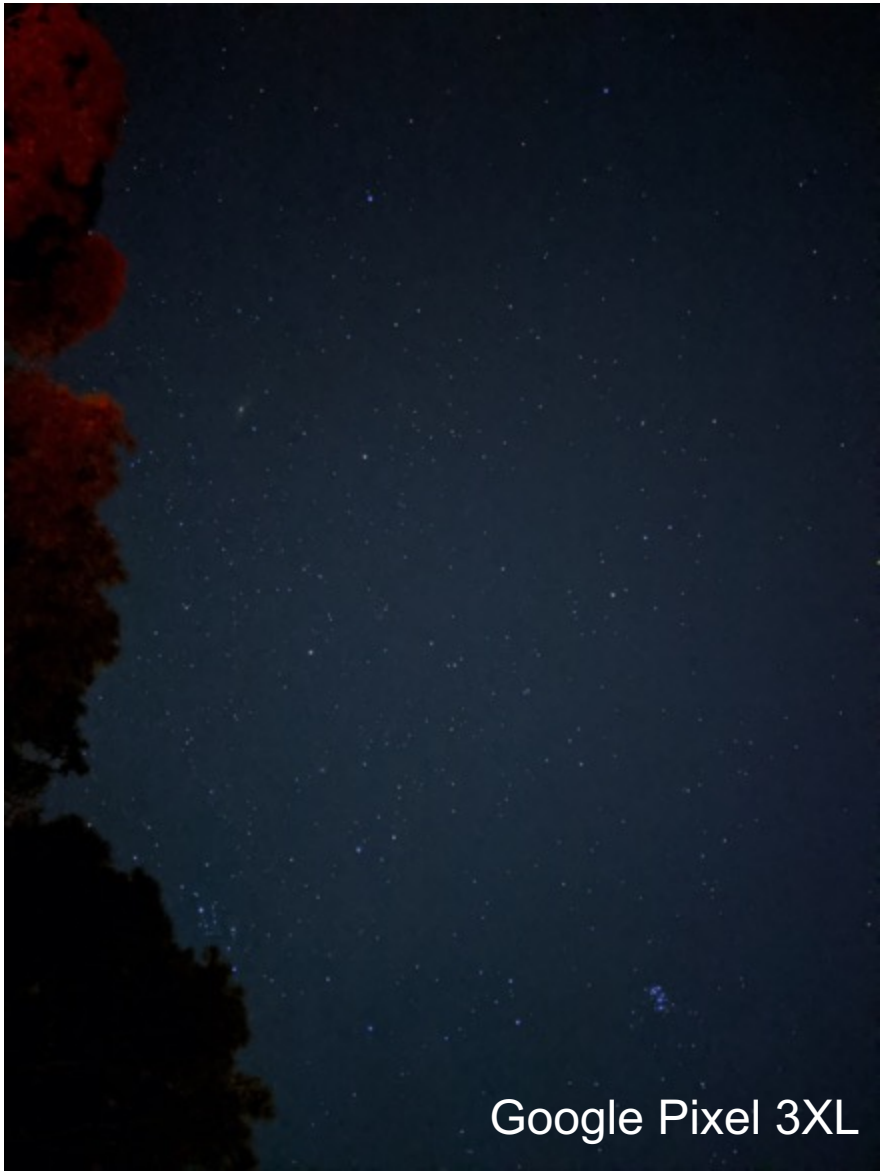
Very convenient & light
High reproduction ratio
Quick sharing
AI post-processing

# Smartphone Photography | AI post-processing



# Smartphone Photography | AI post-processing

# Smartphone Photography | AI post-processing

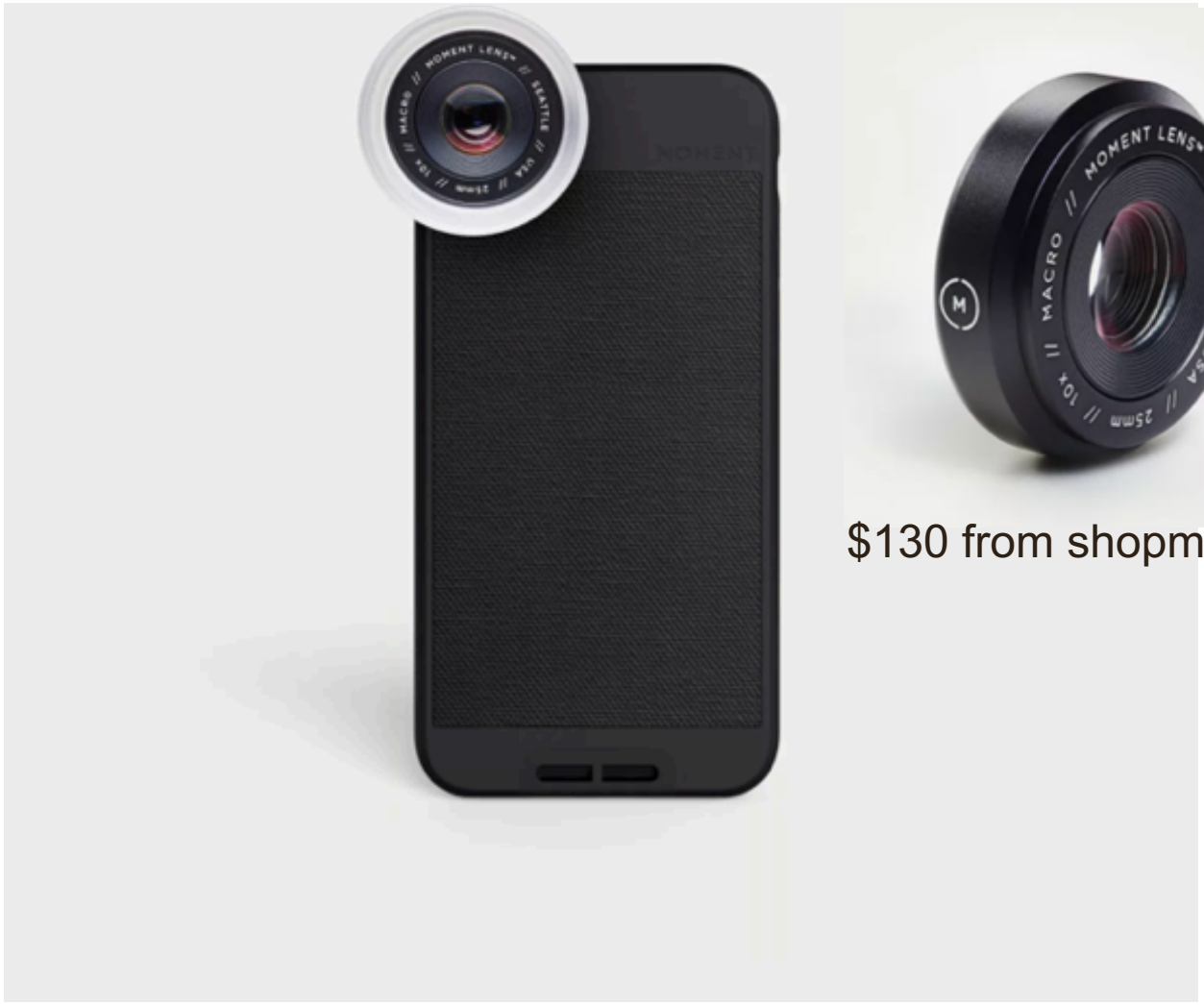
# Disadvantages:

Not customizable
Mostly automated
Minimal-to-no optical zoom
Small sensors

# Smartphone Photography | Magnification


$40 on Amazon

# Smartphone Photography | Magnification





$130 from shopmoment.com

# Smartphone Photography | Magnification

Erfan Vafaie
Moment Macro Lens
Google Pixel 3XL

# Smartphone Photography | Magnification

Erfan Vafaie
Moment Macro Lens
Google Pixel 3XL

# Smartphone Photography | Magnification

BEWARE! THE ABERATIONS!!

# Smartphone Photography | Magnification

BEWARE! THE ABERATIONS!!

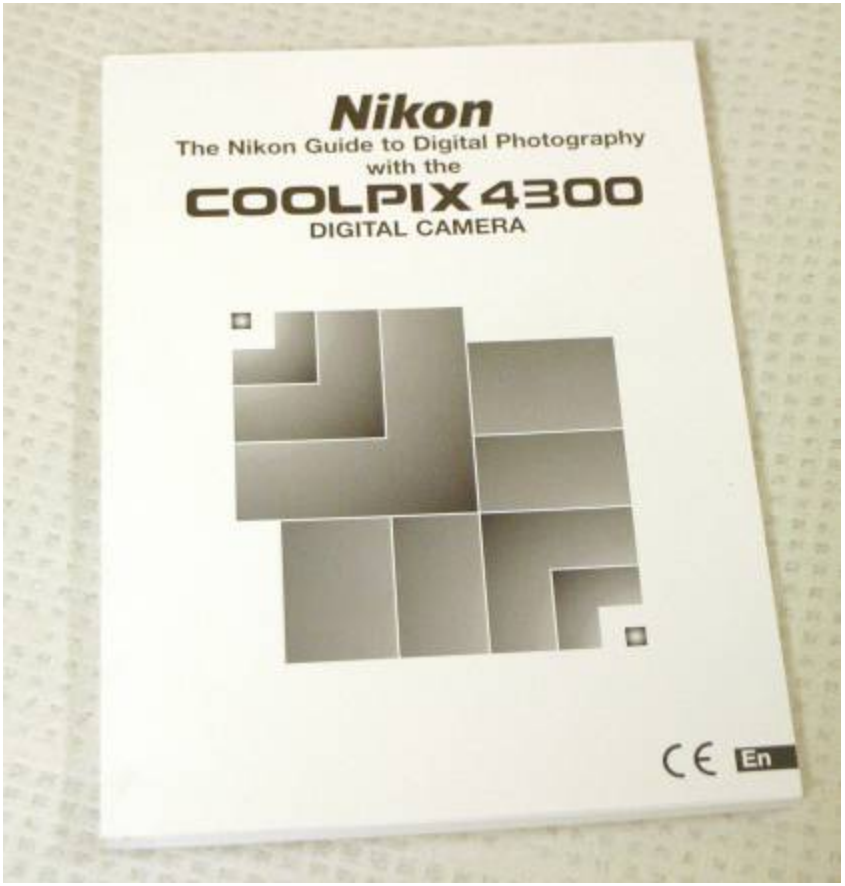
# SLR or point and shoot? Use What You Have



| | SLR or Mirrorless | Digicam |
|---|---|---|
| Pros | • Smooth, clean images<br>• Longer working distance<br>• Greater control of lighting and optics<br>• Less noise<br>• Greater dynamic range | • Less expensive<br>• Small and light<br>• Long focal depth<br>• Wide-angle macro<br>• Easier to learn |
| Cons | • Expensive<br>• Cumbersome<br>• Less depth of field<br>• Wide-angle macro difficult | • Images noisy, grainy<br>• Shutter lag<br>• Short working distance<br>• Limited magnification<br>• Less control over light and optics |

# Last piece of advice

- Read your manual



# BUGSHOT FLORIDA

JUNE 18-21

2020

ALEX WILD
THOMAS SHAHAN
JOHN ABBOTT

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PHOTO BY JOHN ABBOTT

# Questions?