OHIO STATE UNIVERSITY EXTENSION

A Closer Look

Danae Wolfe

THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

What We'll Cover…

- Basics of photography & your camera
  - Technical
- Macro & close-up techniques
  - Creative

What is Photography?

Photography: the art, science, & practice of creating durable images by recording light or other electromagnetic radiation, either chemically, or by means of a light-sensitive material such as photographic film, or electronically by means of an image sensor

What is Photography?

Photography: recording light!

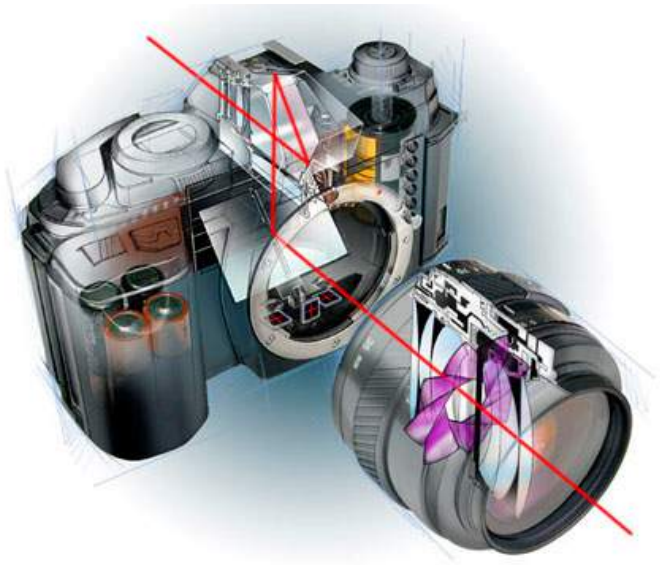


Photo courtesy of: www.beaudaniels-illustration.com

Technical

Technical Components of Photography

- ISO*
- Aperture*
- Shutter speed*
- Modes of shooting
- White balance

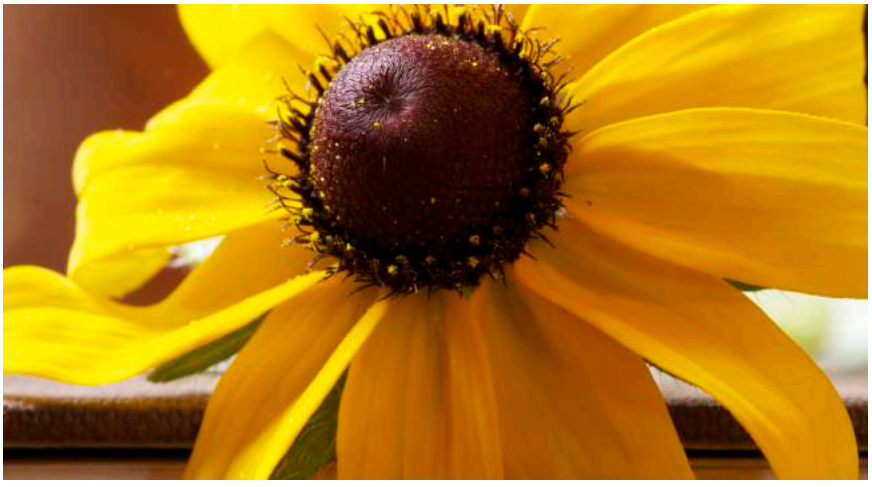
ISO

- Indicator of sensor sensitivity
- Higher ISO = increased light sensitivity
  - Great for low light situations
- Lower ISO = decreased light sensitivity
  - Great for high light situations

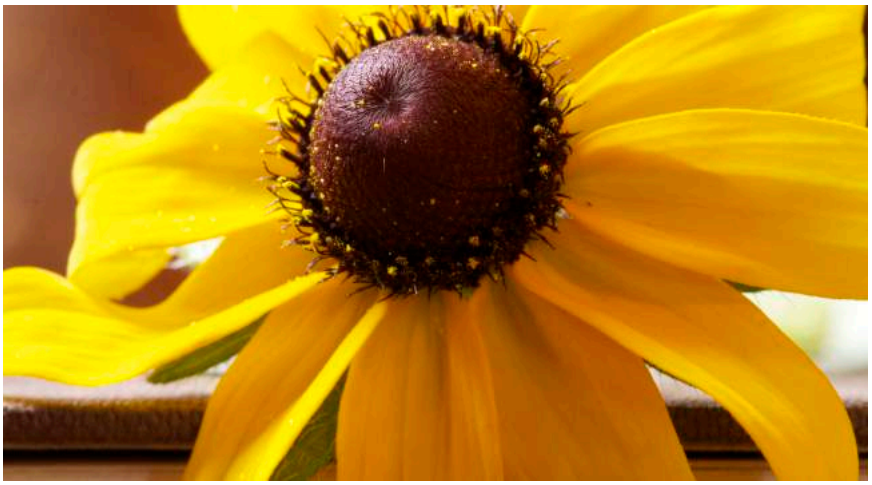
ISO & Noise

- When the sensor is more sensitive to light (higher ISO), it picks up extraneous light produced by the circuitry of the camera. The result is “noise.”
- Higher ISO = more noise
- Lower ISO = less noise

ISO & Noise – ISO 200



ISO & Noise – ISO 1600



ISO & Sensor Size

- Smaller sensors (APS-C) produce more noise at higher ISO speeds
  - More pixels are packed into a smaller area

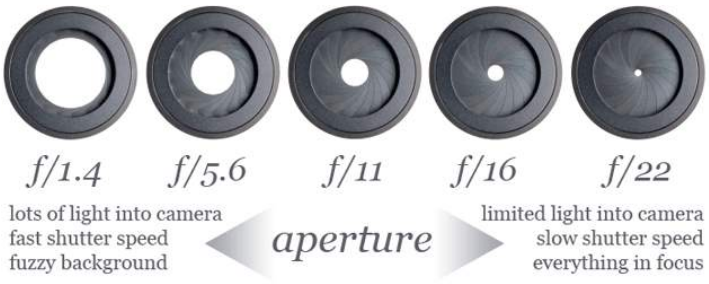
Aperture

- Aperture – size of the opening in the lens that determines amount of light falling onto sensor

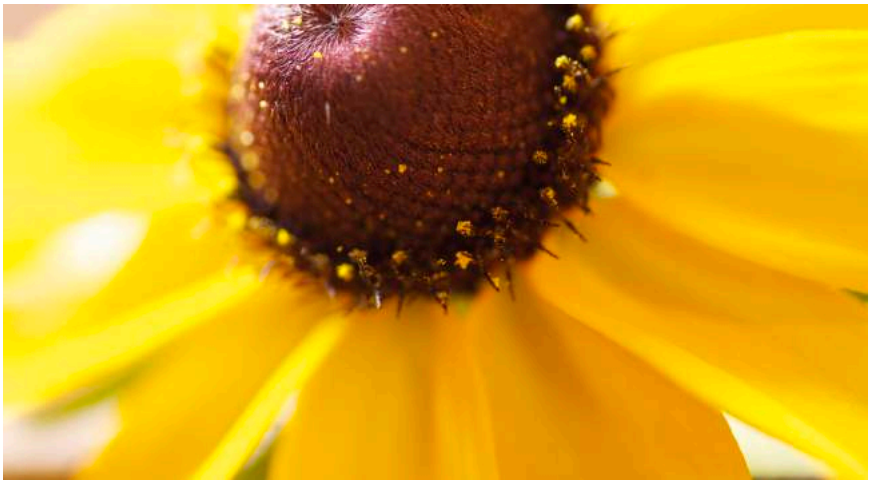
More on Aperture

- The higher the *f*-number, the smaller the aperture
- The lower the *f*-number, the bigger the aperture

Aperture & Depth of Field



Aperture & Depth of Field - ƒ3.5



Aperture & Depth of Field - ƒ16

Shutter Speed

- Shutter speed – the length of time the shutter is open when taking a photo
- Slow shutters good for:
  - Low light situations (nighttime)
  - Capture movement (running water)
- Fast shutters good for:
  - Movement (sports, macro)

Modes of Shooting

- Automatic
- Programmable
- Scenes
- Aperture priority
- Shutter priority
- Manual
- Movie (if applicable)

Photo courtesy of: yourcontentnotes.com

Automatic

- Camera chooses ISO, aperture, & shutter based on light entering camera
- Camera also chooses white balance & flash

Programmable/Creative

- Camera chooses shutter & aperture, but you can choose other settings (like ISO)

Scenes

- Macro – optimizes settings for close-ups
- Sports/motion – fast shutter
- Landscape – small aperture (high *f*-number)
- Portrait – large aperture (low *f*-number)
- Night – slow shutter

Aperture Priority

- You choose aperture, camera chooses shutter

Shutter Priority

- You choose shutter, camera chooses aperture

Manual

- You choose all settings (ISO, aperture, shutter, white balance)
- Camera still provides suggested settings based on meter reading

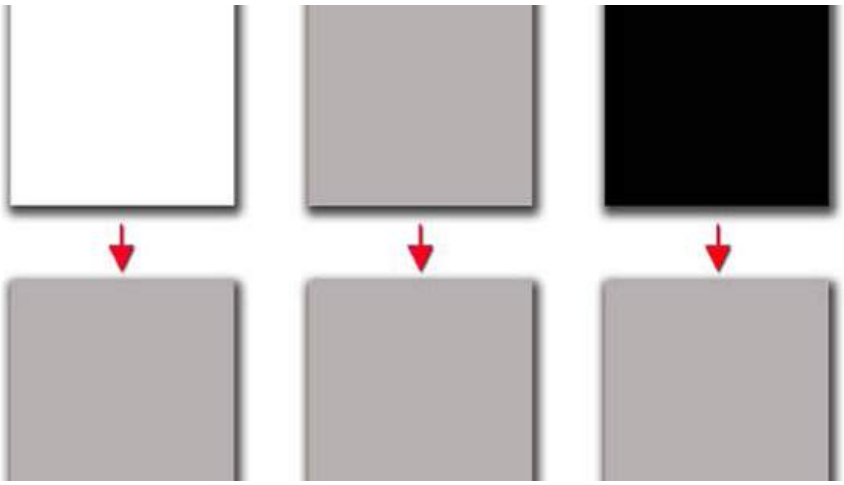
White Balance

- Removes color casts created by shooting under particular light situations
  - Auto white balance
  - Kelvin
  - Custom
  - Tungsten
  - Fluorescent
  - Daylight
  - Flash
  - Cloudy
  - Shade

Built-in Light Meter

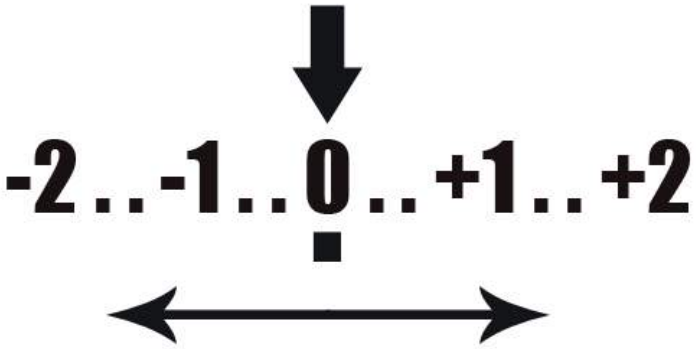
- Camera exposes for middle gray
  - Midway point between white & black
  - Also referred to as “18% gray”
- Not always accurate for bright white or dark scenes
  - Snow
  - Nighttime photography

Built-in Light Meter



Built-in Light Meter

Exposure



Macro & Close-up Techniques

Video Time!

- http://www.youtube.com/watch?v=wqRn3at0H60

Macro Lenses

- Macro lenses
  - 50mm
  - 100mm
  - 180mm
  - 200mm
- Lenses with macro feature
- Dedicated macro lenses
  - Canon MP-E 65m: 1-5x magnification

Wolfe Macro
Photography

Wolfe Macro
Photography

Wolfe Macro
Photography

Wolfe Macro
Photography

Reverse Lens

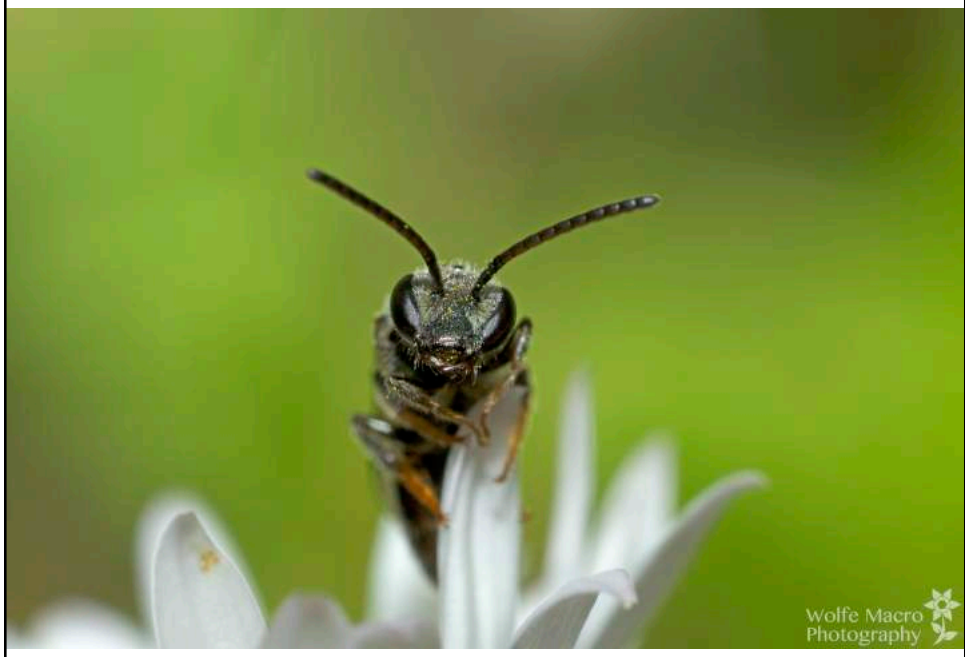
- Reverse prime lens (28mm or 50mm)
- Use special adapter
- Reversed lens acts as magnifier

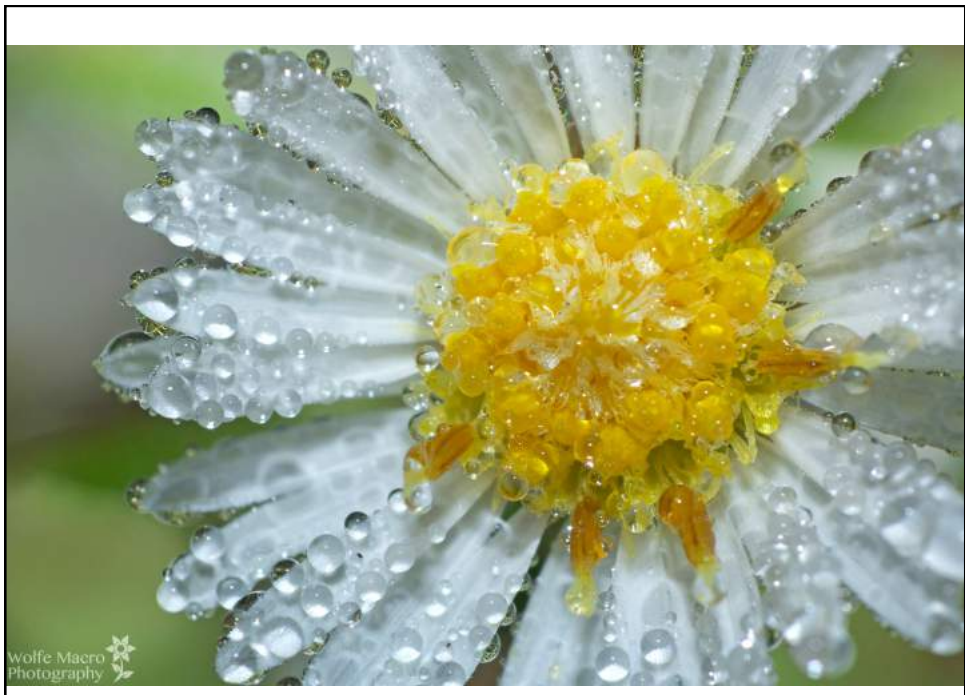
Wolfe Macro
Photography

Wolfe Macro
Photography

Wolfe Macro
Photography

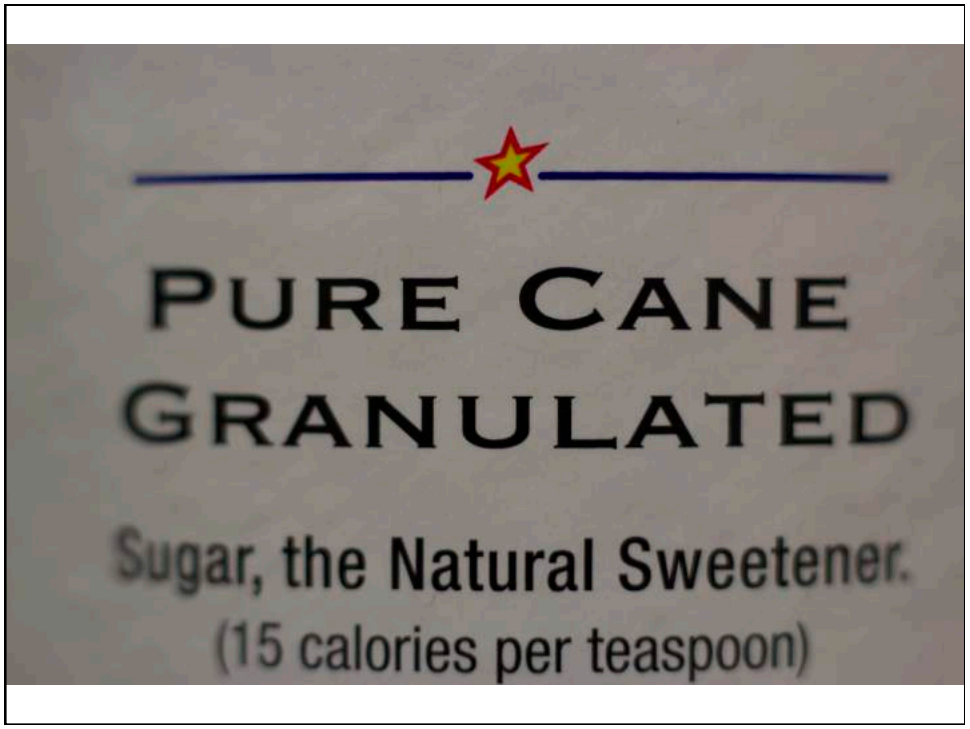
Wolfe Macro
Photography

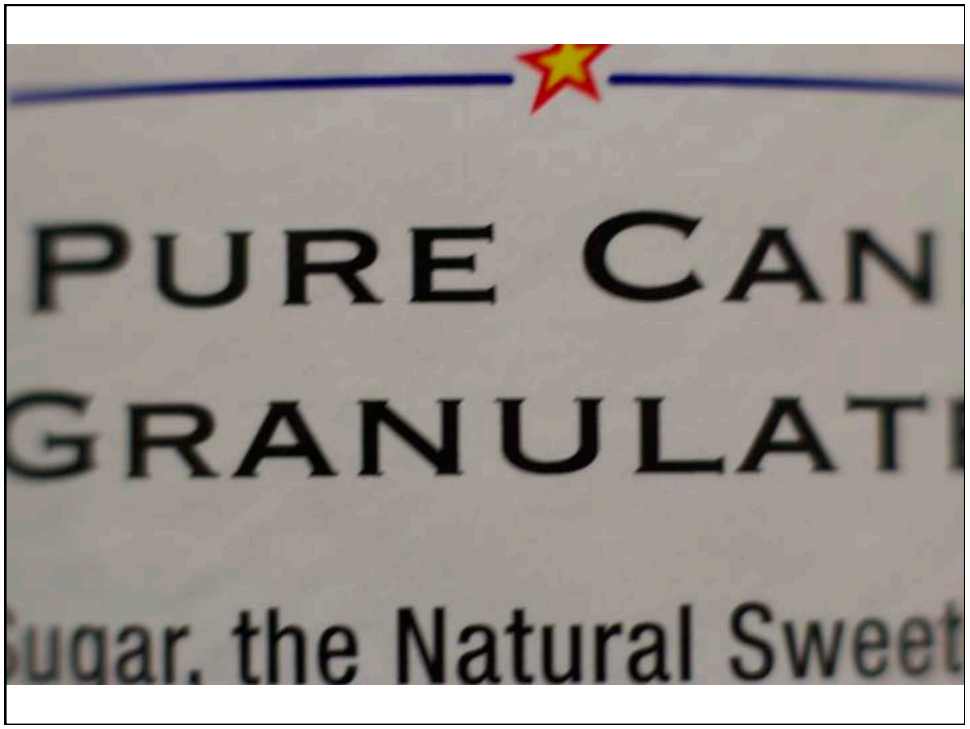

Wolfe Macro
Photography


Wolfe Macro
Photography

Extension Tubes

- Decreases minimum focal distance
- Increases magnification of subject on sensor
- Contain no optical elements (glass)
- Come in variety of sizes (can combine)
- Cheap ones do not maintain electrical connectivity (difficult to master)


PURE CANE
GRANULATED
Sugar, the Natural Sweetener.
(15 calories per teaspoon)


PURE CAN
GRANULAT
ugar. the Natural Sweet

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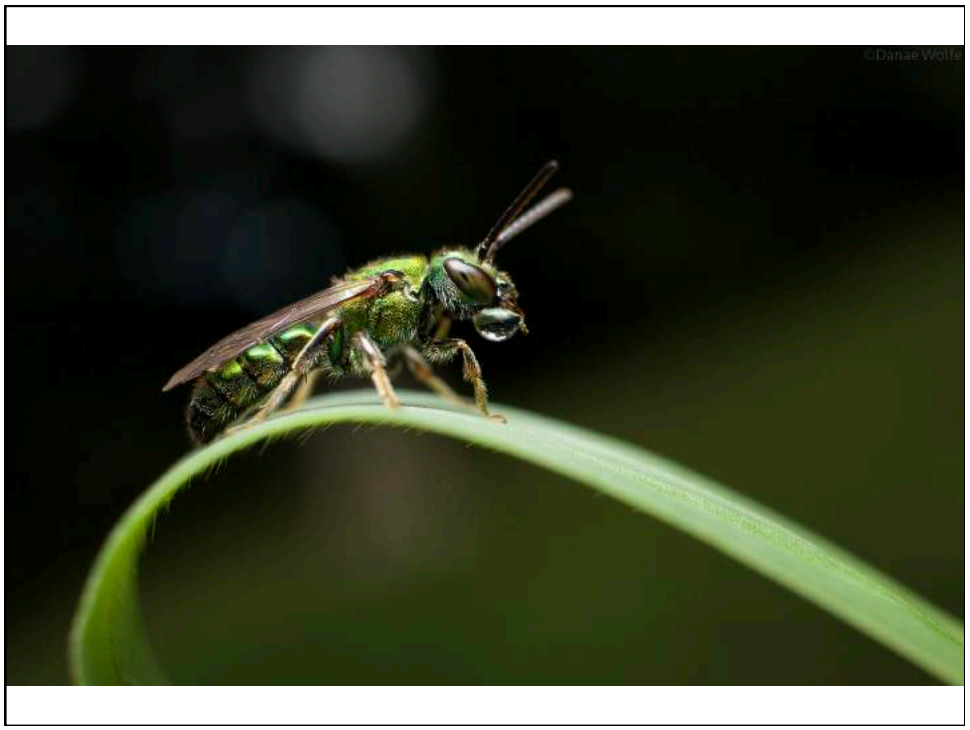
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Filters

- Filters that screw onto end of lens
- Add magnification
- Add extra glass element
  - Reduces light

Macro Flash

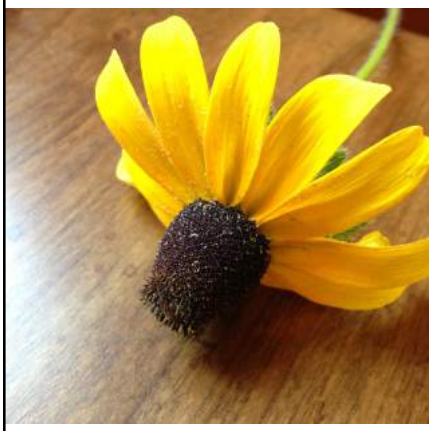
- Ring flashes
- Twin light flashes

Macro for your Camera Phone

- Macro lens adaptors
- Use old camera lens

Macro with iPhone

Without lens



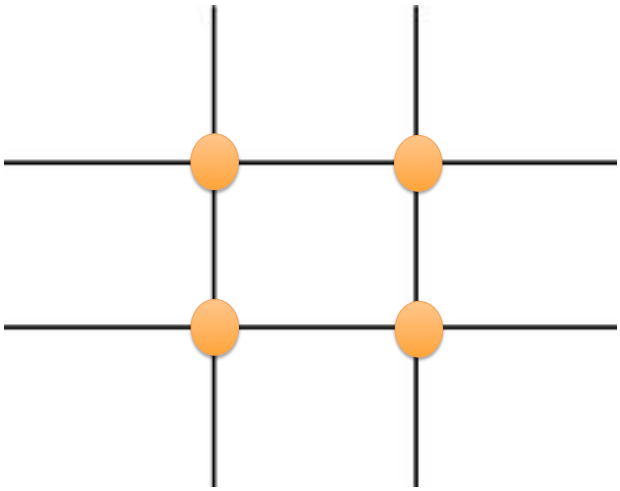
With lens

Creative

Get Creative!

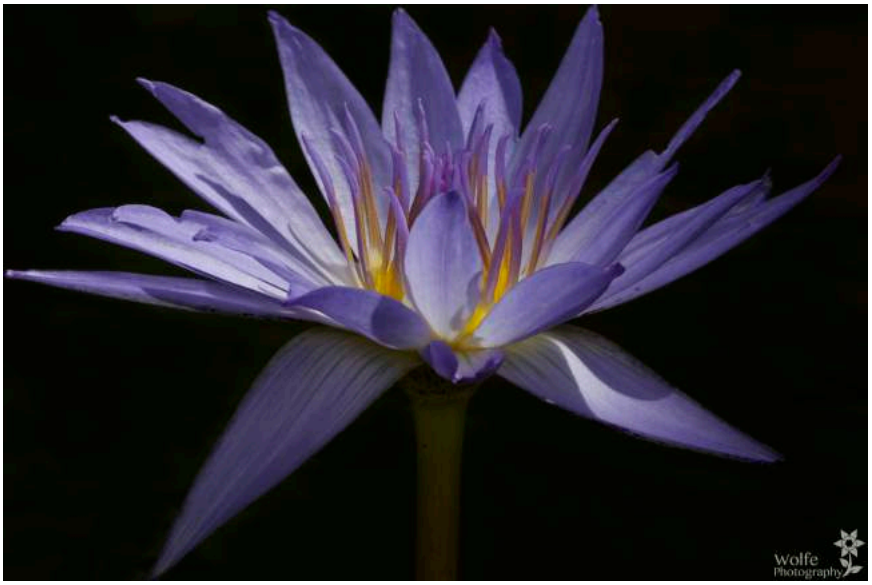
- Composition
- Lighting
- Depth of field
- Background & bokeh
- Color
- Subject

Rule of Thirds



Composition

Lighting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Photography

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Photography

Depth of Field
(DOF)

Wolfe Macro
Photography

Background

Bokeh

Color

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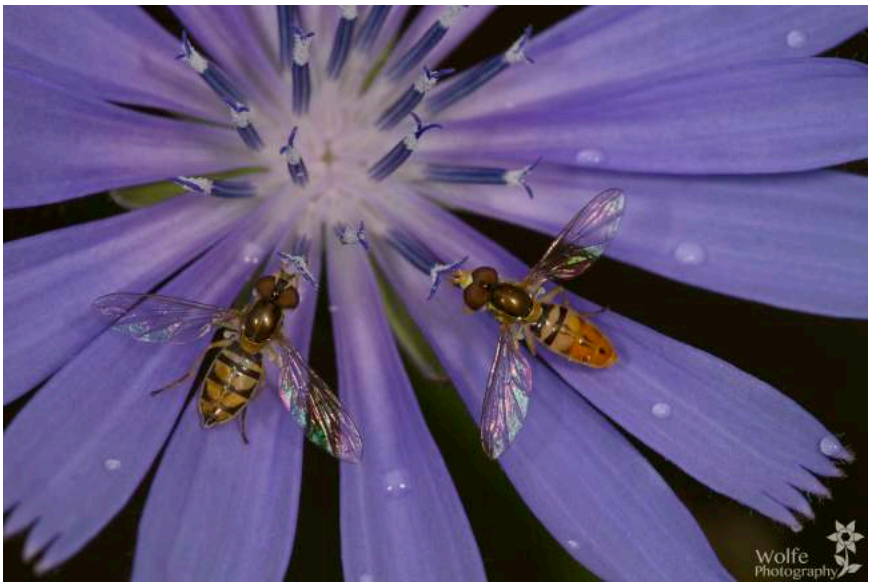
Photography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Photography

Wolfe
Photography

Wolfe Macro
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