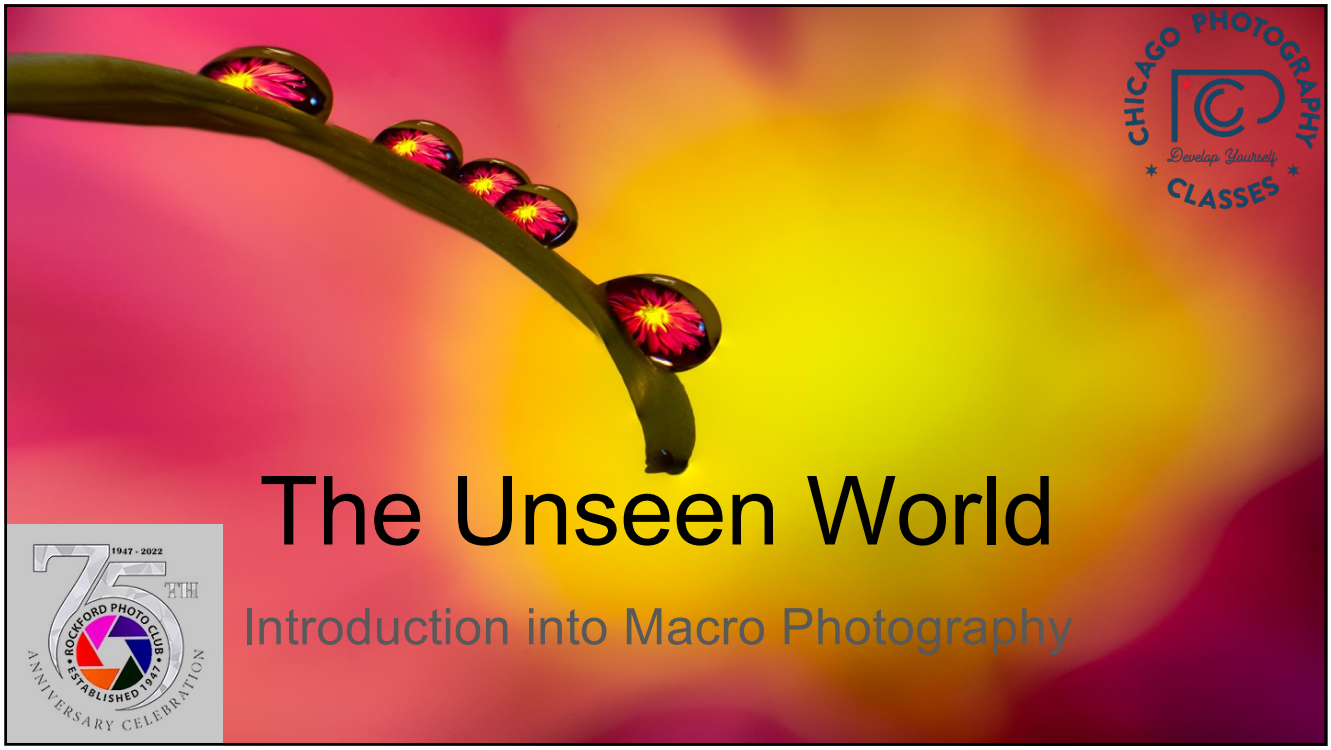
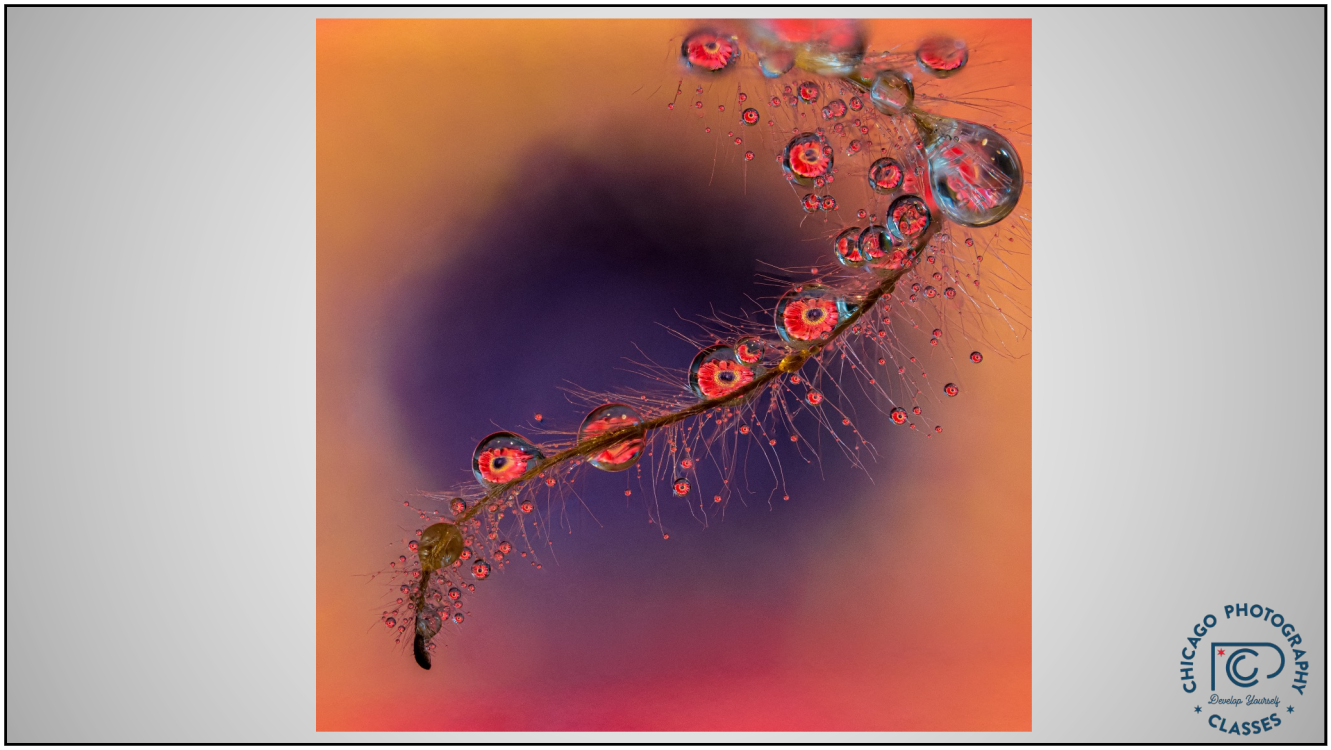


The Unseen World

Introduction into Macro Photography

1

2



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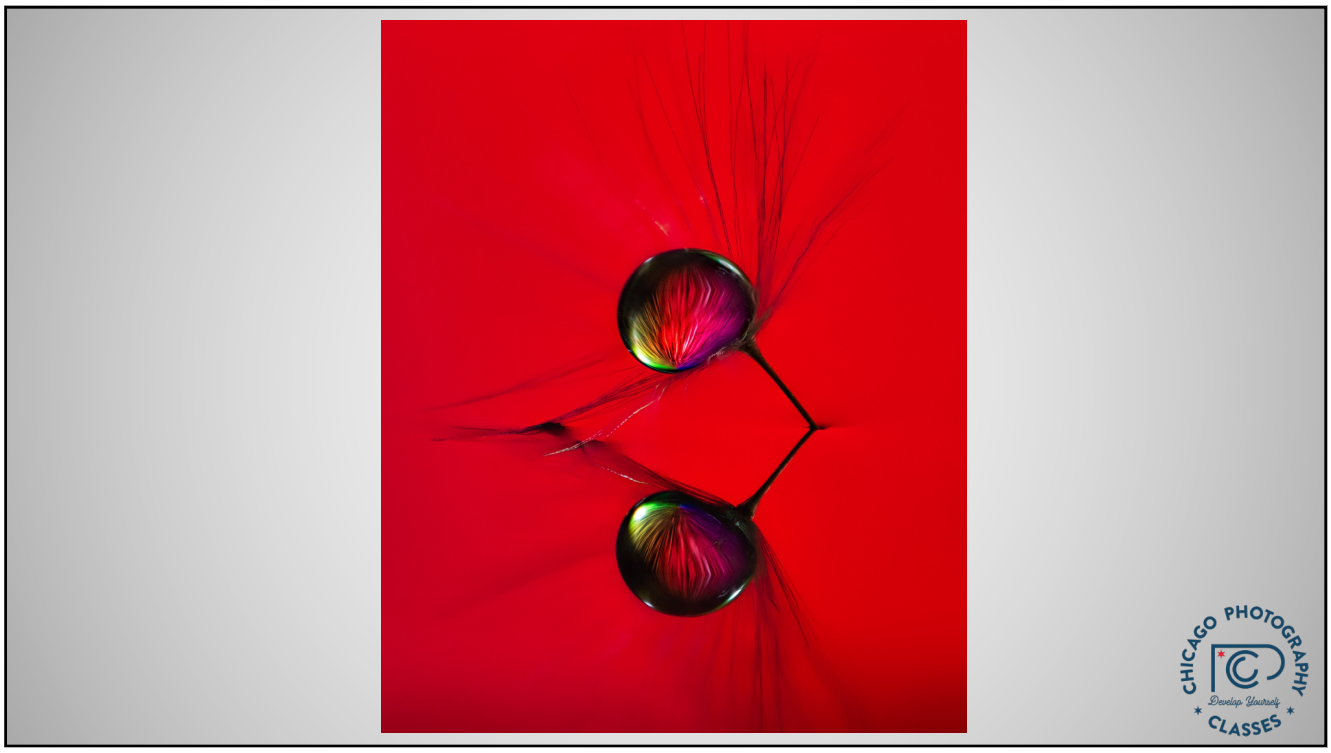

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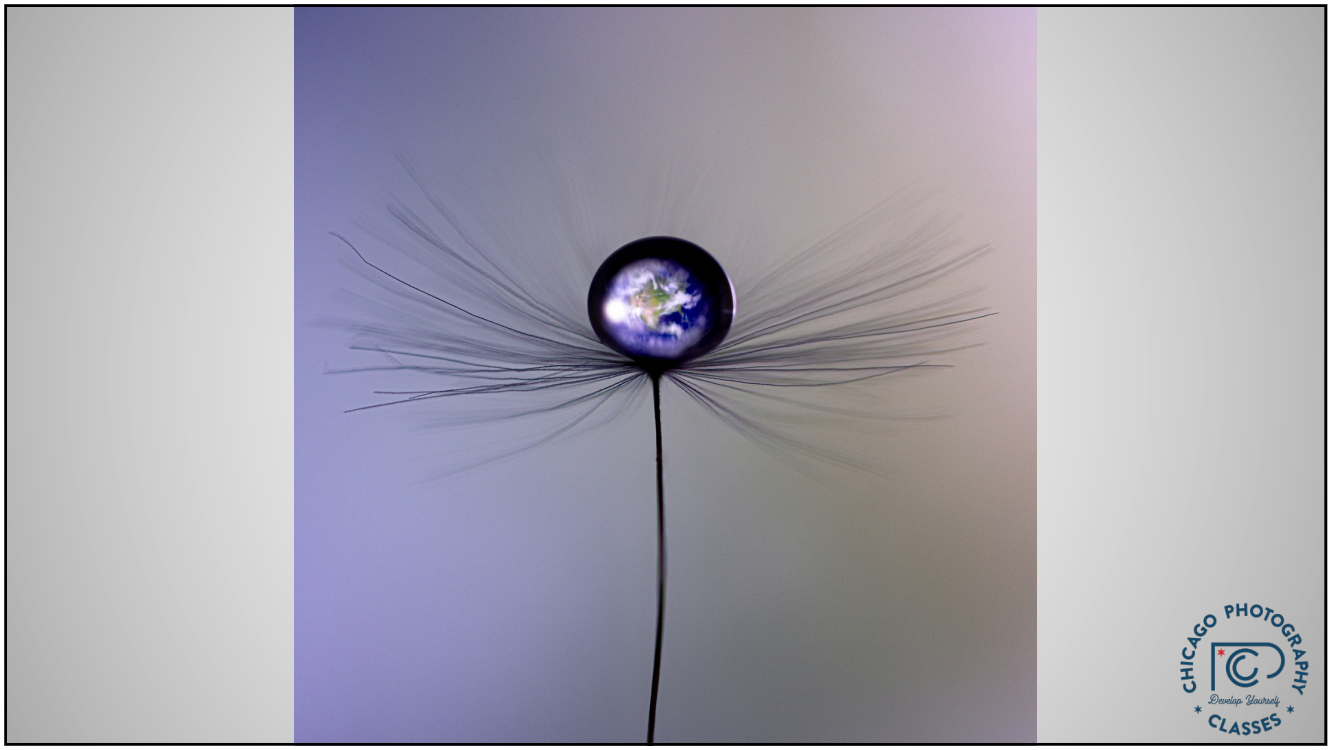
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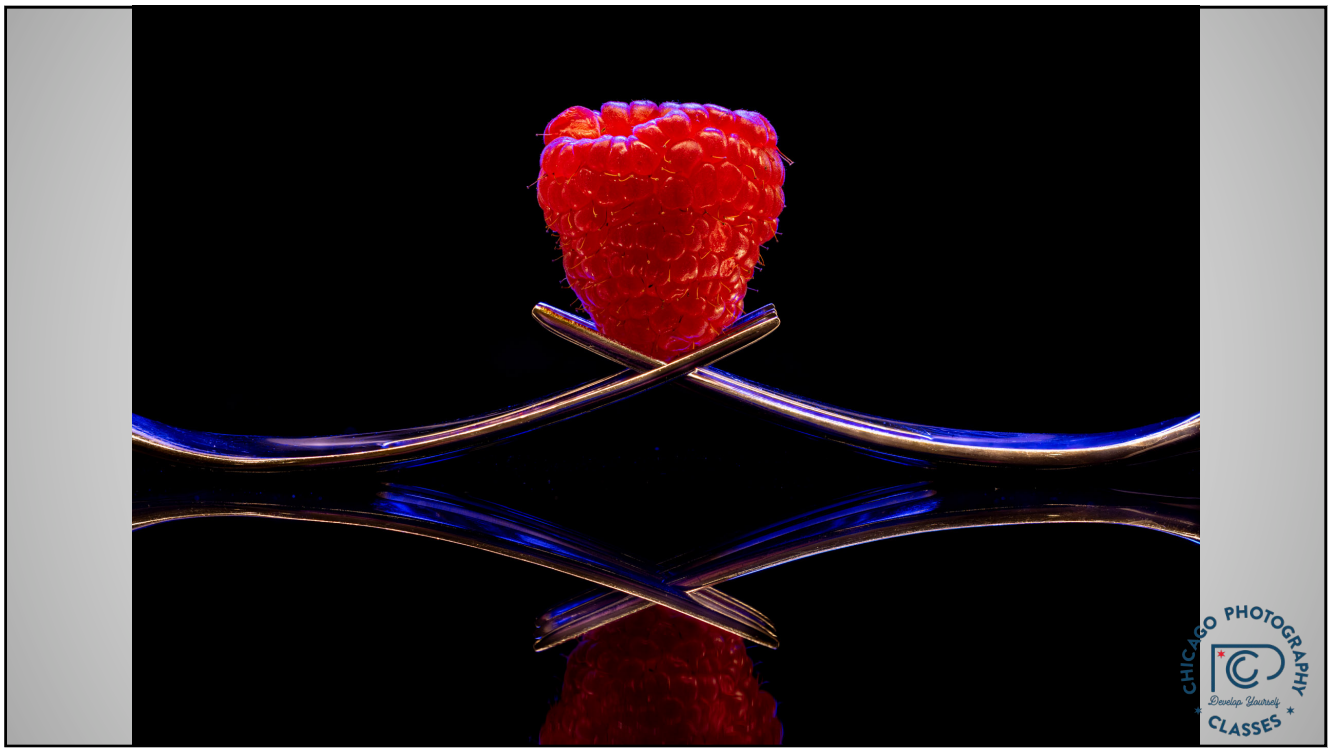
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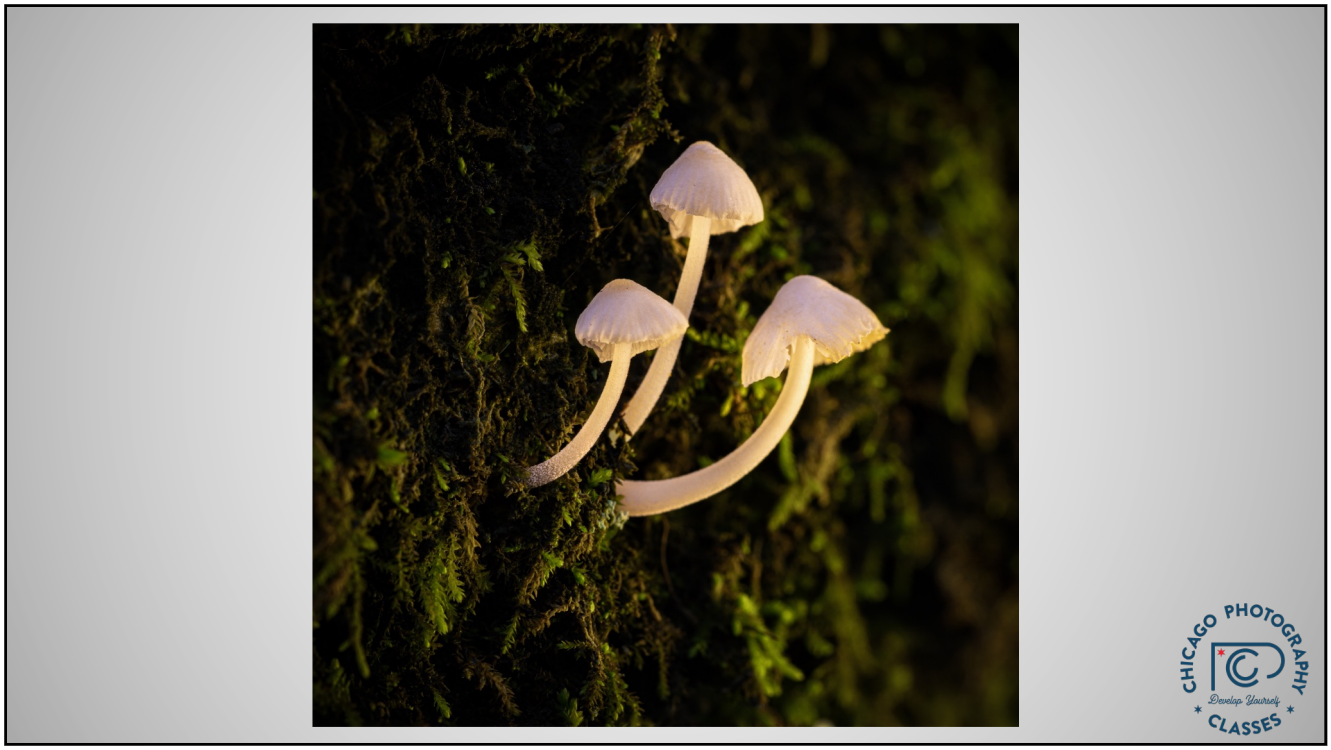

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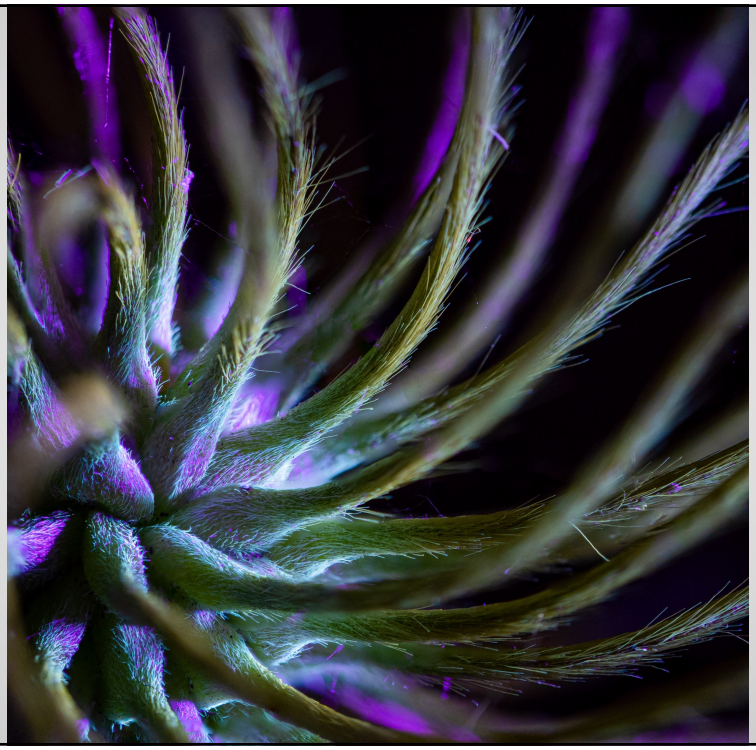

21

The Unseen World: Macro Photography

- Equipment
- Magnification Ratios
- Ways To Achieve Macro Photos

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Equipment: Cameras

To be successful with Macro Photography you need to view the composition through the lens.

- DSLR
  - Viewfinder
  - Live View (Great if screen rotates) but will need extra batteries!
  - Need large amount of light for composition
- Mirrorless
  - Viewfinder
  - Rear LCD Screen Rotation
- Rangefinder Cameras
  - Typically not suggested for this type of photography

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Equipment: Lighting

Photographing small subjects requires additional lighting due to using smaller apertures.

- Detachable Flashes
  - Will not be used during this class but can be useful for adding dimension to the subject.
  - Do not use on-camera
- Ring Lights (Flash)
  - Yongnuo YN14EX II
    - Great xenon flash.
    - Made for Canon TTL but can be used with other camera manufacturers in Manual Mode.
    - Short Flash Duration

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Equipment: Lighting

- Ring Light (Flash)
  - LED Flash Ring Light
    - Less Expensive
    - Able to independently control sides of flash - adding directional light
    - Longer Flash Duration
- Ring Light (LED)
  - Least Expensive
  - Constant Light
  - Able to control direction of light

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Equipment: Lighting

- LED Lighting
  - Lume Cube (or similar)
    - Rechargable
    - Small and very bright
    - Easy to mount on light support
  - Flashlight
    - Adjustable beam
    - May be challenging to mount on light support
  - LED Panel
    - Larger light source for softer light
    - Easy to move around the subject to see the light variation

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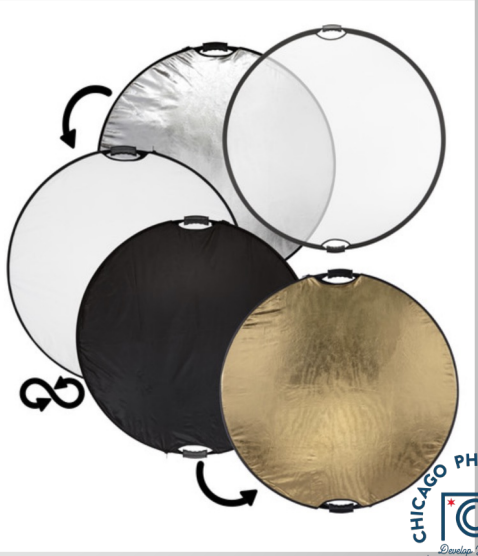
Equipment: Lighting

- Reflectors
  - Sheet of reflective material used to bounce light into the shadows of a subject.
  - You can purchase reflectors or just use a sheet of foam core.
- Diffusers
  - Placed between light source and object to soften the light.



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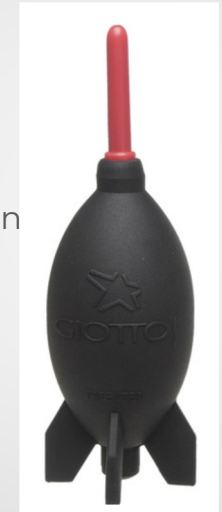
Equipment: Various Other Tools

- Tweezers
- Syringes
- Third-Hand Tool
- Blower
- …everything in your kitchen



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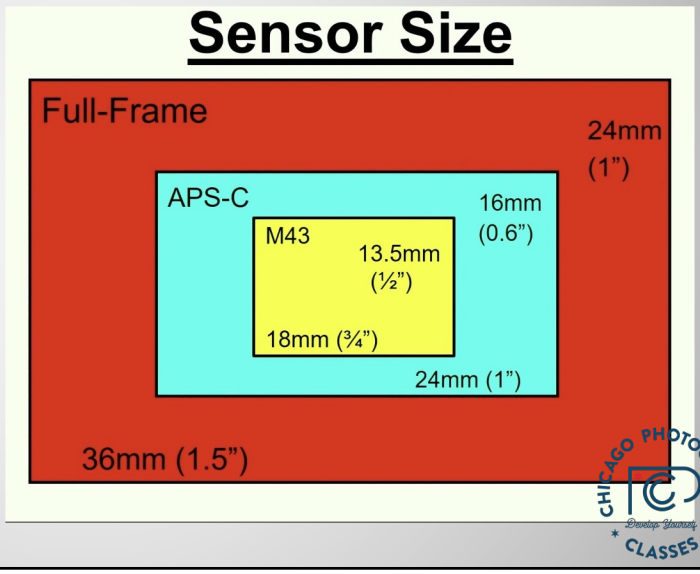
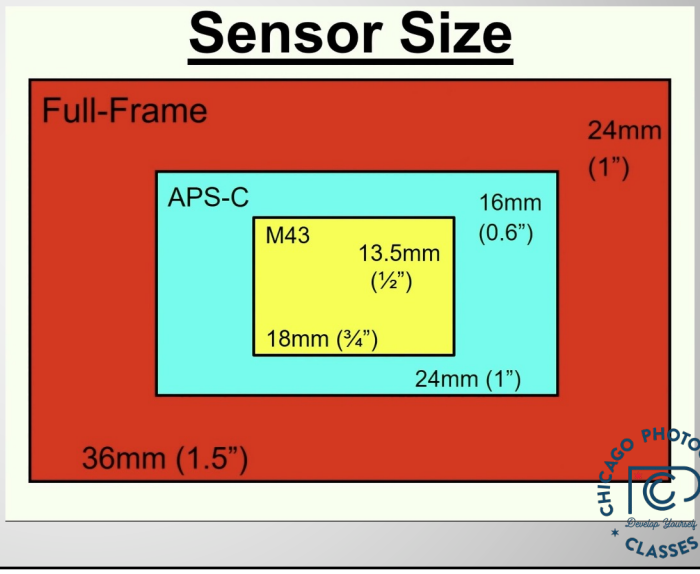
Magnification Ratios

There are many ways to achieve magnified images. First, let's talk about Magnification Ratios which directly relates to the size of the sensor.



33

Magnification Ratios



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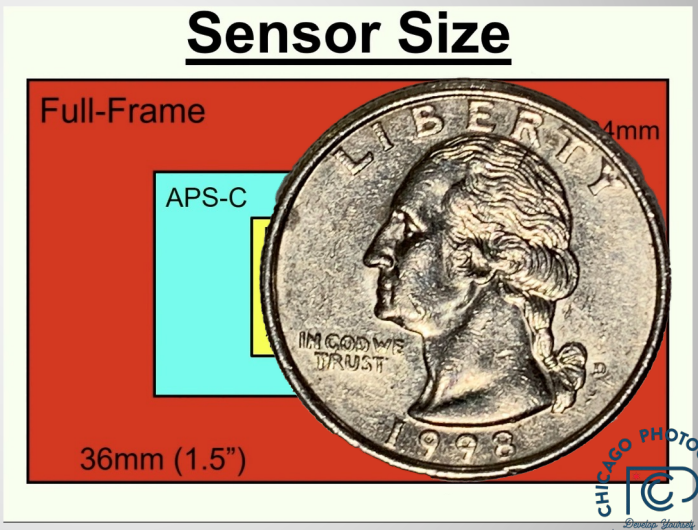
Magnification Ratios

1:1 Magnification Ratio



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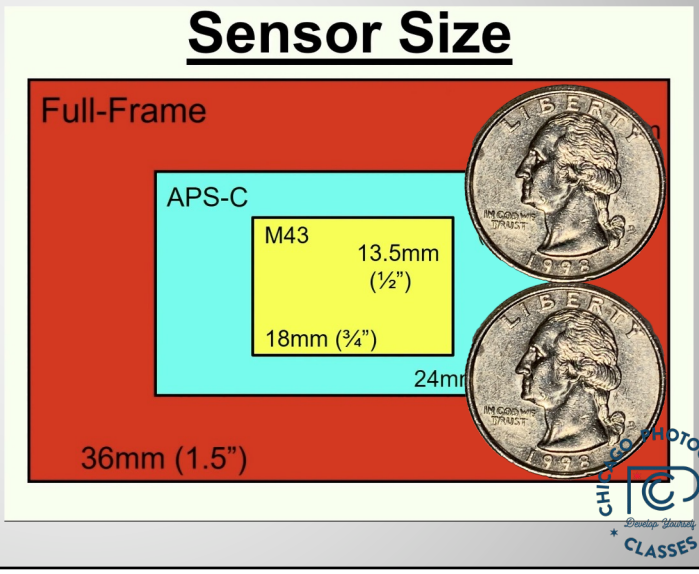
Magnification Ratios

1:2 Magnification Ratio



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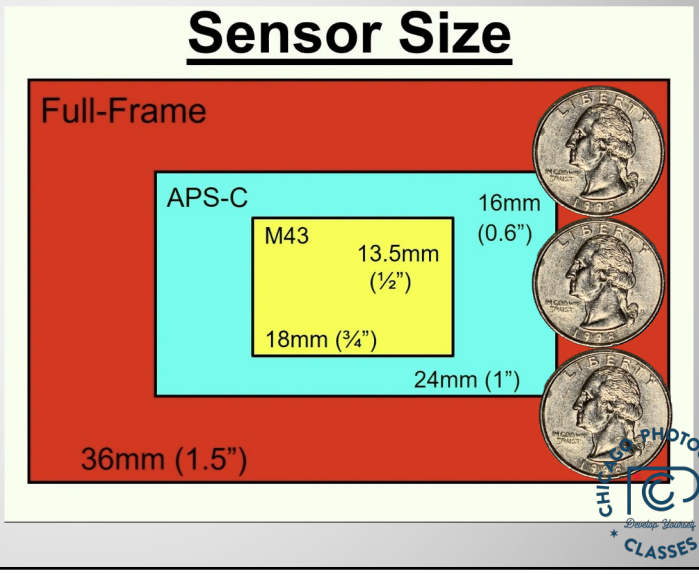
Magnification Ratios

1:3 Magnification Ratio



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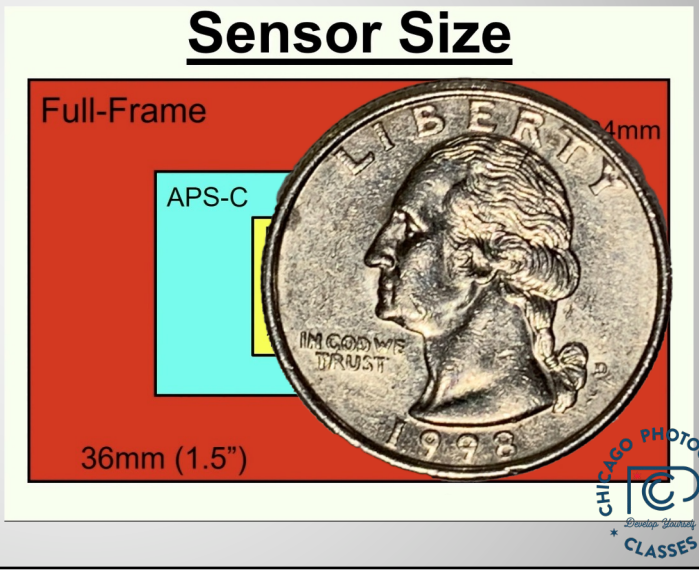
Magnification Ratios

1:1 Magnification Ratio



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Magnification Ratios

2:1 Magnification Ratio

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Magnification Ratios: Classification Nomenclature

1:3 - 1:1	Close-up Photo
1:1 - 9:1	Macro Photo (1:1 - 5:1) Super Macro (5:1 - 9:1)
10:1 or greater	Micro Photo (think **micro**scope)

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Equipment: Camera Stability

To achieve the sharpest photos possible:

- Tripod
- Cable release or wireless remote
- Mirror Up Mode (For DSLR Cameras)
- Live View and magnification

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Equipment: Tripods (Camera Supports)

There are a ton of options for tripods but here are my favorites:

- MeFoto (Benro) - Globetrotter Carbon Fiber
  - Compact and Lightweight
  - Great Ball Head (Arca-Swiss)
  - Reversing Center Column - Great for getting low!
- PlatyPod Max
  - Great for tabletop photography
  - Add Goosenecks for lighting supports
  - Have a non-slip pad available for stability

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Equipment: Remote Shutter Releases

To get the sharpest images possible, you'll want to not touch the camera when the shutter opens. This means you'll need to get one of the following:

- Cabled Shutter Release
- Wireless (IR or radio) Shutter release.
- WiFi or Bluetooth App (Sony)
- Or simply use the timer on the camera

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Equipment: Adjustment Rails

Vital piece of equipment for Macro Photography. This will fit between your head of the tripod and the camera.

Good: A single rail that lets you adjust the camera backward or forward. This is best for field work since it is easy to carry

Best: Two rails that let you adjust the camera in lateral movement as well. Good for studio work.

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Equipment: Methods to Achieve Macro Photos

- Close-Up Filters
- Extension Tubes
- Reverse Ring
- Coupling Ring
- Prime Macro Lenses
- Telephoto Macro Lenses

45

Equipment: Close-Up Filters

Magnification glass that is screwed into the lens filter threads.

Pros:

- Inexpensive
- Buy a large filter thread size and use step-down rings for all of your lenses

Cons:

- Image quality will be sacrificed with very soft edges
- Vignetting can occur as you stack filters

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Equipment: Extension Tubes

Tubes that fit between the camera and the lens and have electrical contacts to adjust aperture and auto-focus.

Magnification Ratio = Extension Length / Focal Length

Pros:

- Inexpensive
- Good optical quality

Cons:

- Time consuming to alter magnification.
- Loose light
- Reduced working distance

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Equipment: Reverse Ring

Enables lenses to be mounted to the camera by the lens's filter threads.

Pros:

- Very inexpensive
- High Magnification

Cons:

- Need to use a manual aperture lens.
- Close working distance.

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Equipment: Coupling Ring

Allows you to attach two lens together via their filter threads. Always mount the longer focal length lens on the camera body and the shorter focal length reversed.

Pros:

- Extreme magnification
- Inexpensive

Cons:

- Second lens needs to be have a manual aperture ring.

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Equipment: Prime Macro Lenses

Ultimate in image quality and ease of use. To be classified as a true Macro Lens, it must be able to focus at the 1:1 magnification ratio.

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Equipment: Prime Macro Lenses

What is the appropriate focal length to get?

Dependent on:

- Working Distance
- Field of View
- Background

Working Distance:	6.29”	7.5”	11”	12.2”

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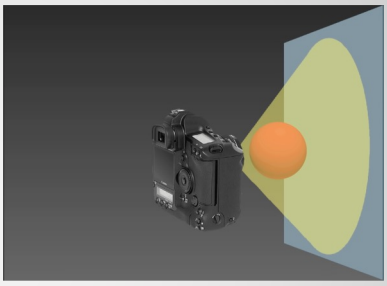
Equipment: Prime Macro Lenses

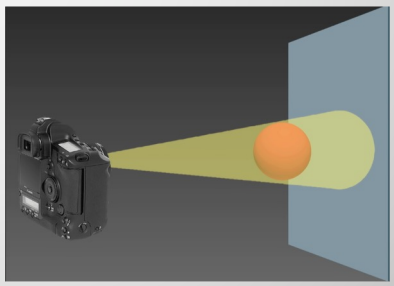
Field of View - Wide Angle Lens

- Closer working distance
- Includes more background



Field of View - Narrow Angle Lens

- Further working distance
- Includes less background



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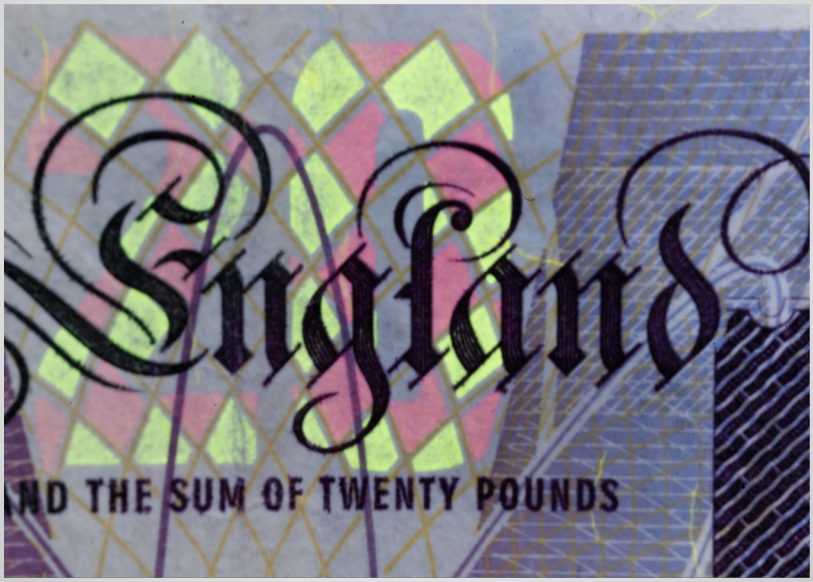
Student Samples

Caroline Kopplin

53

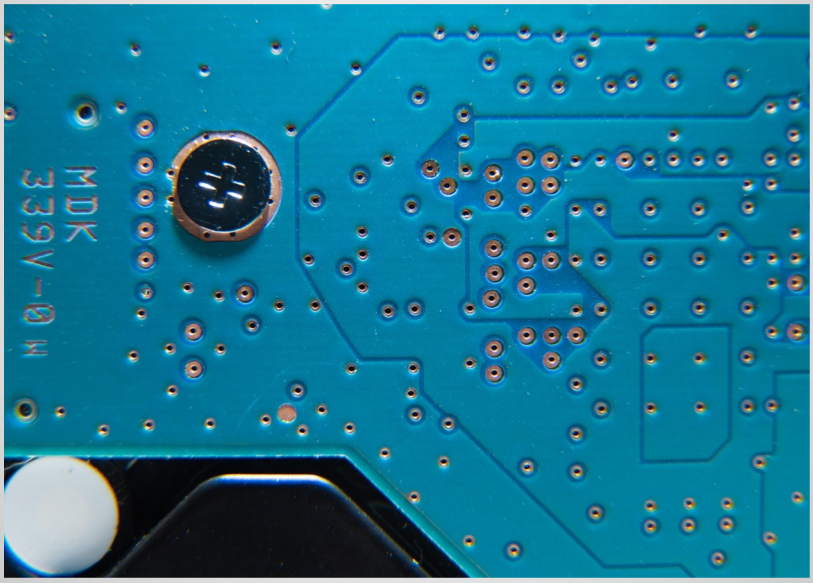
Student Samples



Steve Pedvin

54

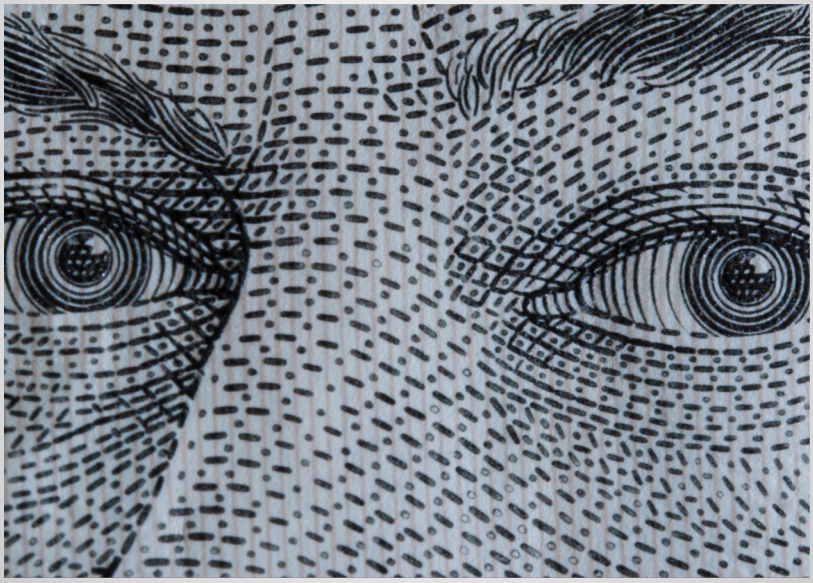
Student Samples



Michael Morgen

55

Student Samples



Kathleen McGarrigle

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Depth of Field

Just so everyone is on the same page:

"The distance between the nearest and the furthest objects that give an image judged to be in focus in a camera"

Controlled by 4 Factors:

1. Aperture
2. Focal Length
3. Distance to Subject
4. Sensor Size

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Depth of Field - Aperture

We know that the smaller apertures produce a deeper DoF whereas a wider aperture produces a shallower DoF.

f/2.8

f/22

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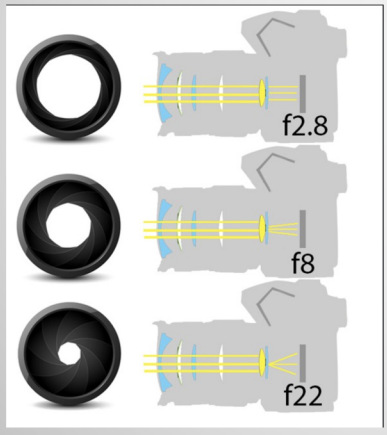
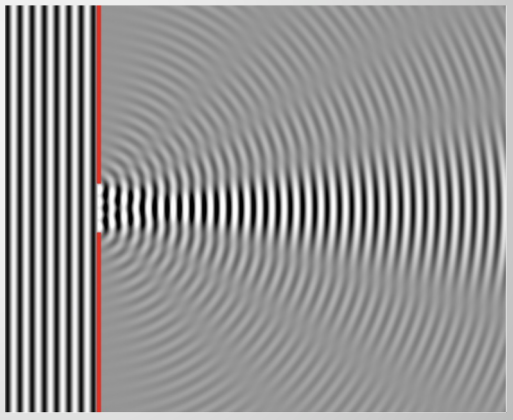
Depth of Field - Aperture - Diffraction

To achieve the greatest depth of field, shouldn't we then close the aperture down to the narrowest aperture? The narrower the aperture, a deeper DoF will be achieved but sharpness will be sacrificed due to diffraction.





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Depth of Field - Aperture - Diffraction

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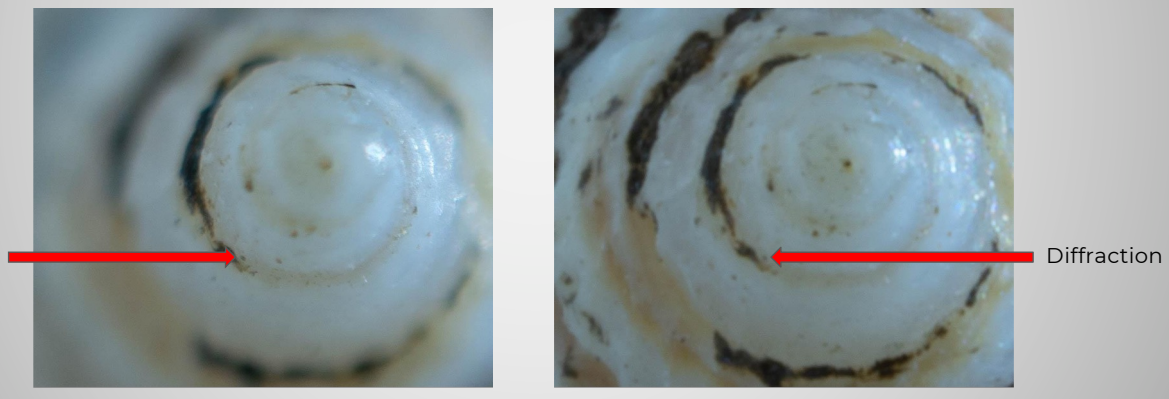
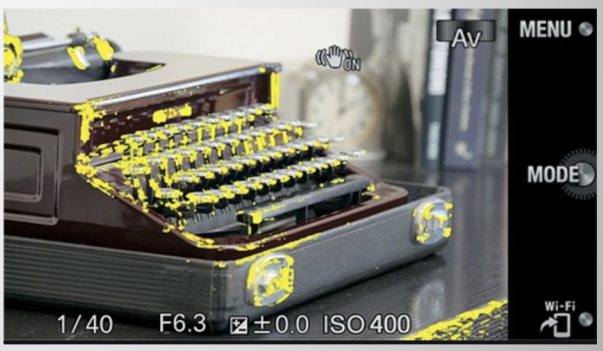


Cropped 400%

60

Depth of Field - Focus Peaking

Most mirrorless cameras and some DSLRs now come equipped with a option called Focus Peaking. In manual focus mode, the Focus Peaking will show a highlighted color at on the object that is in sharp focus. Refer to your camera's manual to determine if your camera is equipped with this ability.



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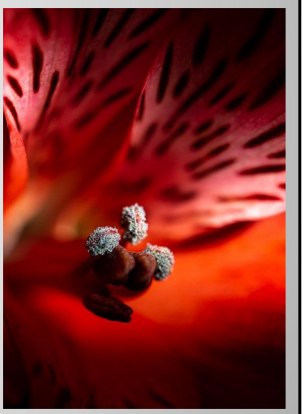
Depth of Field - Single Focus Point Inspirations



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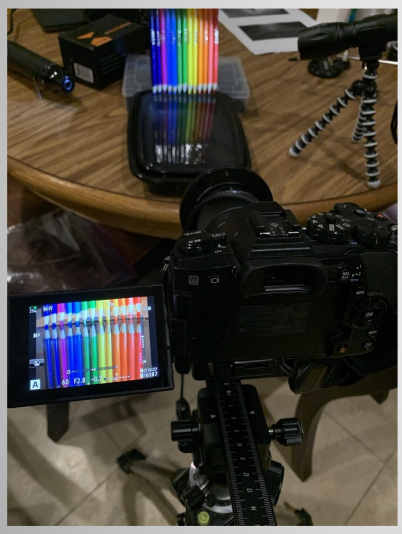
Depth of Field - Single Focus Point Inspirations



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Depth of Field - Single Focus Point Inspirations

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Student Image Inspiration

Steven
Jungerwirth

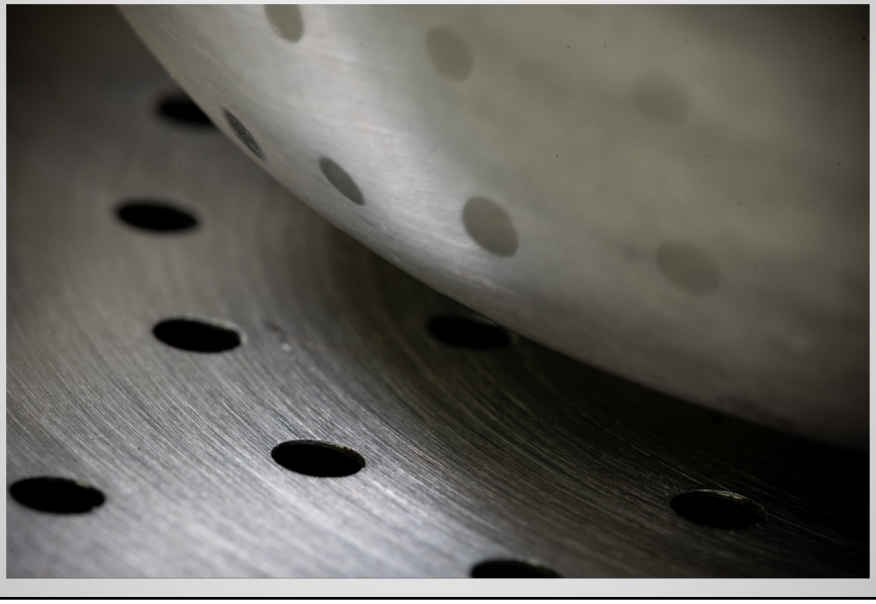
65

Student Image Inspiration

Jennifer
Spagnolo

66

Student Image Inspiration



Amy
Perlmutter

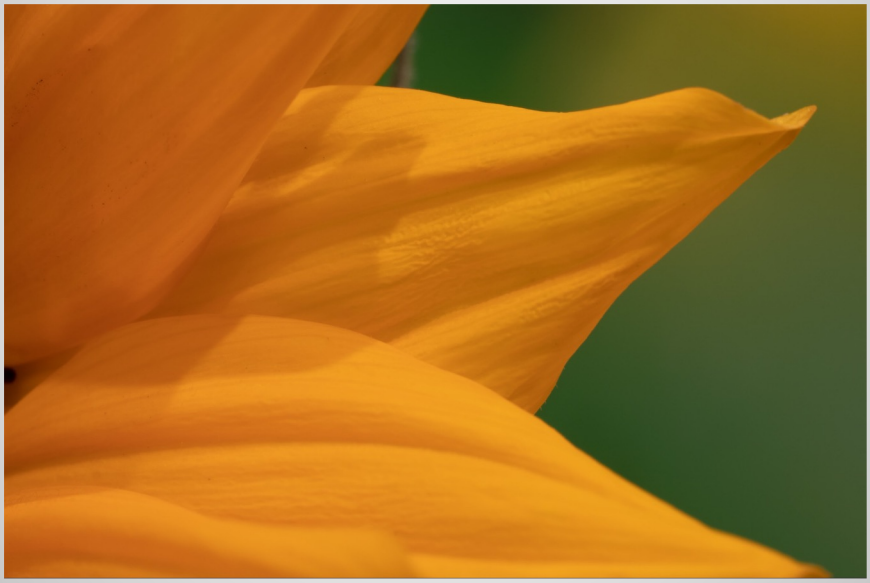
67

Student Image Inspiration

Ellen
Sullivan

68

Student Image Inspiration



Elana
Dermer

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Student Image Inspiration

Robin
Arkin

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The Unseen World

Thank you!

If you would like a copy of the slide deck, email me:
nick@chicagophotoclasses.com

Nick Sinnott
IG: @nick.sinnott
IG: @cpcunseenworld

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