



Photographing finds

Presented by Derek Morton



Definition of macro photography

- “The art of making very large photographs”
- Defined as a photograph where the negative or sensor is larger than the subject.
- Sometimes defined as a photograph where the final image is larger than the subject.



Considerations

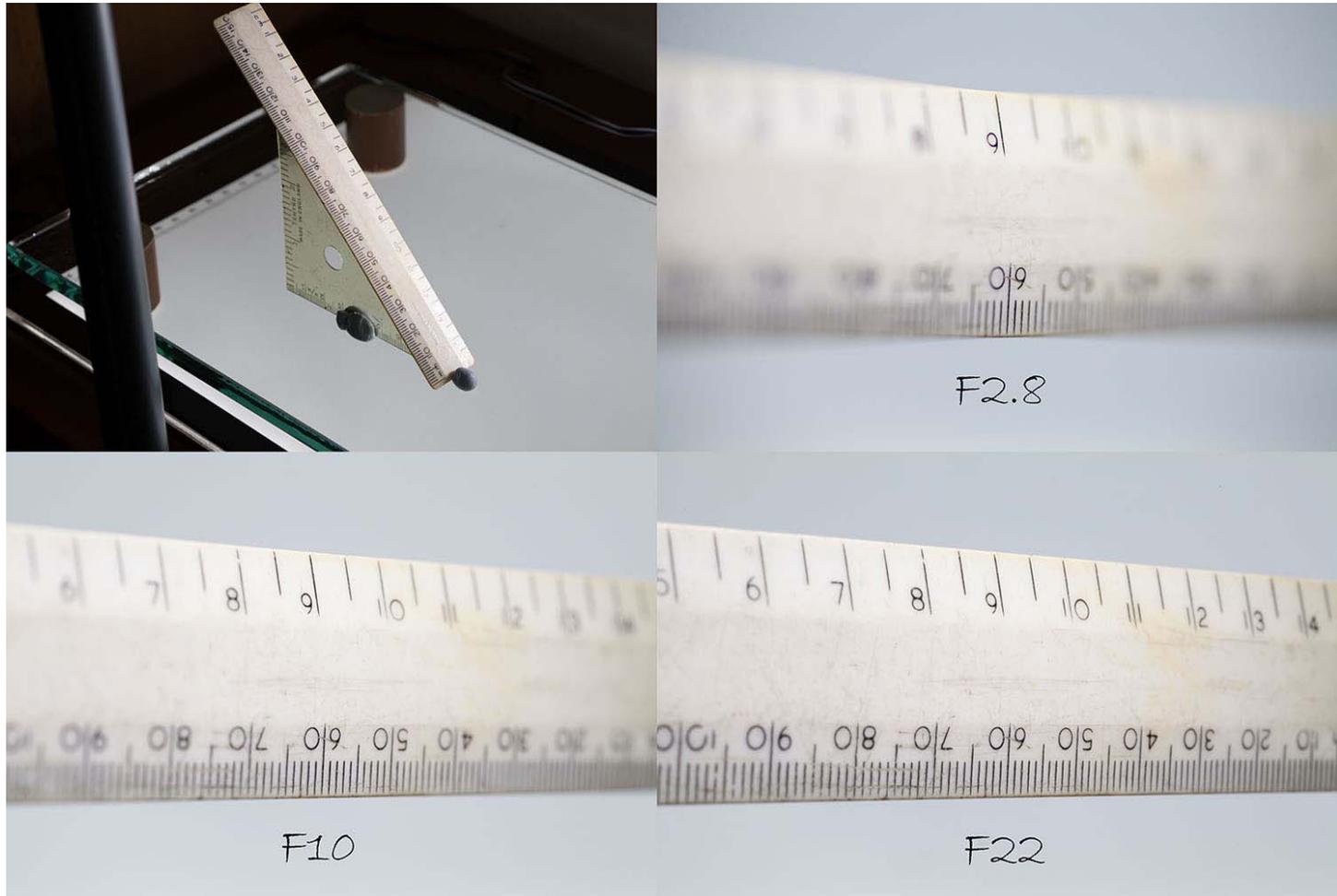
- Depth of field
- Lens
- Sensor
- Lighting
- Background
- Compact cameras
- Accessories



Depth of field

- Depth of field is a measure of the distance in front and behind the focal point where the subject appears in focus.
- Affected by:
 - Distance to subject
 - Aperture
 - Indirectly by sensor size

Effect of aperture on DOF





Lens

- A lens will have a reproduction ratio $\langle \text{projected image size} \rangle : \langle \text{subject size} \rangle$
- 2:1 means x2 magnification
- 1:2 means a 50% reduction
- The projected image is the image captured by the sensor or negative
- Macro lenses rarely have a ratio greater than 1:1



Macro lens alternatives

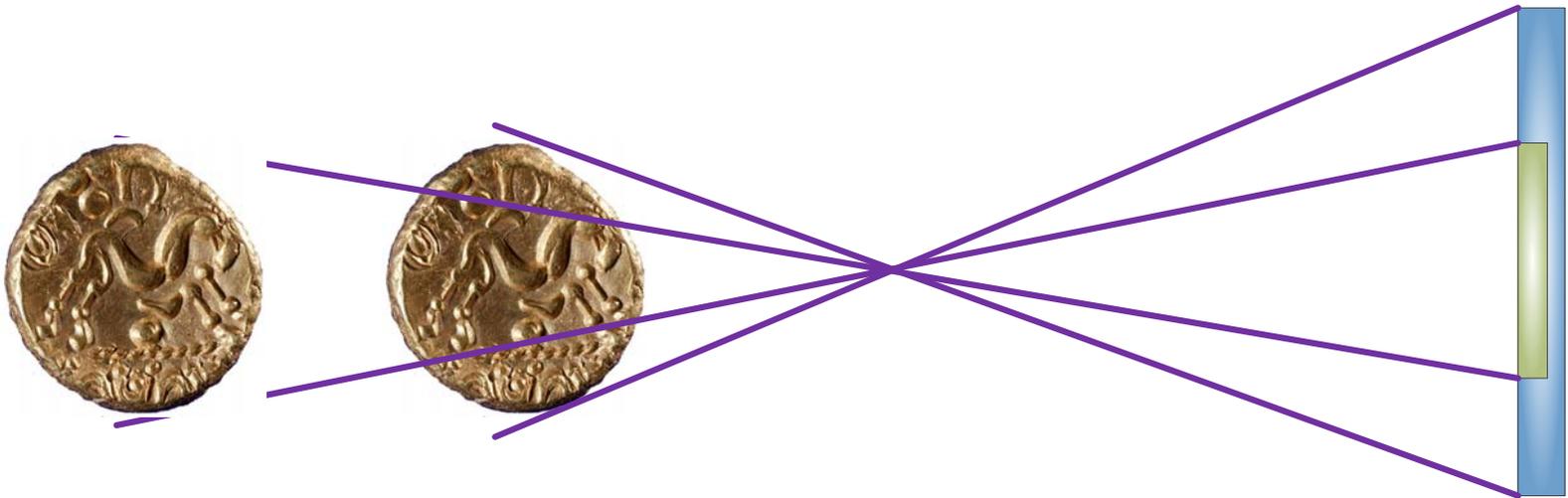
- Extension rings
 - Move the lens away from the camera which allows it to focus closer
 - Normally come in sets of different sizes
- Close up filters
 - For cameras without removable lenses
 - Will affect image quality
- Reversing ring
 - Allows a lens to be mounted backwards
 - Makes a lens magnify instead of reduce



Sensor

- They come in many types, sizes and pixel densities.
- Sensor size effects macro photography more than other forms of photography.

Effect of sensor size





Lighting

- Light sources can be a point source or a diffuse source
 - Diffuse sources light an object evenly
 - Point sources cause shadows which can enhance detail
- Position of light sources is important
 - Light above an object will light it more evenly but throw a shadow behind
 - Light to the side will cause shadows to enhance detail
 - Light on the background reduces shadows



Light sources

- Flash
 - Does not provide 'preview'
 - A single flash provides little control and harsh lighting
 - A ring flash provides more even diffuse lighting but light can be flat
 - Twin head flash provides more control but are more specialized and expensive
 - Is small and transportable



Light sources

- Lamps
 - Proper photography lamps can be expensive
 - Table lamps can be very cheap but can cause colour casts. Different bulb technology produce different colour light
 - Provides a 'preview' of the final image
 - May be large, less transportable and need 'mains', though modern LED lighting is more practical.
 - LED lights are now available with adjustable light output.

Lighting

- Light position is important.
 - Light from above (in the photograph)
 - Experiment with additional light and reflectors.



Direct light



Oblique light



Oblique light
with reflector



Background

- Choice of colour is important.
 - White works for all objects.
 - Black works for gold and clean silver.
 - Avoid other colours, it will distract from the subject.
- Use a non reflective surface.
 - It will be impossible to get an even background with reflections.
 - Anything synthetic will be too reflective.
 - The best material I have found is cotton velvet.



Illuminated backgrounds

- Using an illuminated background provides benefits over a plain colour background.
 - Easier to eliminate shadows.
 - Easier to get a pure white background by overexposing the background.
 - Requires careful balancing between the subject and background lighting.

Positioning object on background

- Lift the subject object away from the background.
 - This will put the background out of focus.
 - With an illuminated background, putting the object directly on the background will cause uneven lighting across larger objects as the edge is illuminated from the background.





Positioning object on background

- Flat objects (coins) can be stood on something to light them from the background.
 - Dice of various sizes are a cheap option.
 - Will cast a shadow.
 - Does not work for irregular shaped objects.
- A sheet of glass can be used to provide a transparent background.
 - Helps eliminate shadows.
 - Can cause reflections.
 - Needs to be thick (heavy) otherwise it will be fragile.



Compact cameras

- Smaller sensor
- Lens not interchangeable
- Specs state minimum focal distance not reproduction ratio
 - Shorter distance is better
 - Will be for widest zoom angle



Accessories

- Tripod
 - Stable platform to eliminate movement
- Hide clamp
 - Designed to clamp binoculars or telescope to a hide
 - Also good to clamp a camera to a table
- Remote control
 - Fires the camera shutter remotely
 - Used to prevent camera shake
 - Can use timer if no remote is available