

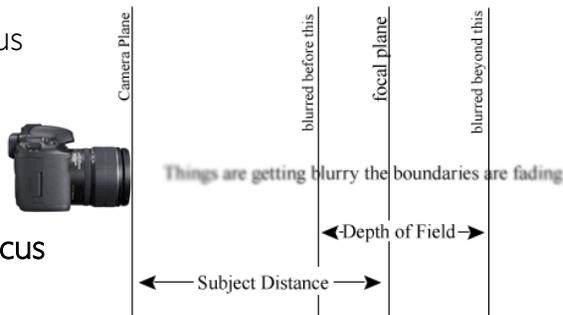
General Guidelines

- Aperture
- Narrow the aperture to keep as much in focus as possible. (Depth of Field)
 - Focusing is a challenge in macro.
 - Especially problematic at these short distances.
 - We are talking about getting a full ¼" DOF here!
- As the magnification of the optics increases, the DOF *decreases* exponentially.

Macro Photography

Focus

- Don't focus on the nearest surface.
- Put the **focus plane** one third of the way into the desired full depth of field.



(In scenic photography, a *related* term "Hyperfocal distance" is the distance at which everything beyond it is in acceptable focus. It is beyond the focus plane distance we use in macro.)

Focal Length and Perspective

- Close up, you can get extreme perspective effects. Use a slight telephoto and minimize this problem.
- However a wide angle lens may be better at getting a deeper depth of field.

Shutter Speed

- Usually slow to allow for narrow aperture
- Use a timer or a remote release (“bulb exposure”)

Tripod

- A must for serious work
- Steadies the camera
- Allows for remote or timer shutter release
- Allows a series of shots with the same frame

Flash

- Usually either washes out the image (too bright too close) or is aimed at the wrong spot, to the side of the lens.
- so...
 - Use an off-camera flash at 45 degrees
 - Use a diffusion panel or tent
 - Use a *ring flash* designed for macro photos

When Setting Up, Consider

- Texture, surface material
 - Emphasize texture or not? Type and direction of light
 - Surface reflection potential? Direction of light.
 - *You don't want to see anything identifiable reflected.*
 - Need of props? Support item at proper angle
- Appropriate contrasting background?
 - White is good for image to be later *selected*.
- Two soft light sources prevent heavy shadows.
 - One bright plus one fill is typical. Shows form.
- Auto focus usually will not give you the best shot.

Glass and Ceramics

- Watch for glare spots
 - (use diffused *soft* light source)
 - Avoid direct flash
- Underexpose to minimize glare spot clipping
- Often with a dark background contrasting background, possibly silk or velvet or wood.

Metal

- Can be reflective like glass or ceramics
- Cool colored
 - Common background of warm tones & textures
- Side light highlights the shape
- Hard light (single point source) emphasizes engraved numbers, brushed surfaces

- Precision products need sharp detail and contrast
- Added glow (PS) makes it look new and exciting
- Crisp metal often put against a wood background