Clinical Photography

Goals

- Communications
- Marketing
- Documentation
- Case presentation

"A picture is worth a thousand words"

One Look Is Worth A Thousand Words--

One look at our line of Republic, Firestone, Miller and United States tires can tell you more than a hundred personal letters or advertisements.

WE WILL PROVE THEIR VALUE BEFORE YOU INVEST ONE DOLLAR IN THEM.

Ever consider buying Supplies from a catalog?

What's the use! Call and see what you are buying. One look at our display of automobile and motorcycle accessories will convince you of the fact.

THAT WE HAVE EVERYTHING FOR THE AUTO

Piqua Auto Supply House

133 N. Main St.—Piqua, O.

Good Photography

- Quality
- Content
- Consistency

If YOU Were the Viewer…

Section IX: Case Finishing and Treatment Results

A. Overjet/Overbite: 1mm/2mm

B. Cuspid/Molar Relation: Acceptable cuspid protected occlusion

C. Plane of Occlusion: In proper alignment both left and right side

D. 7's in Occlusion: In occlusion and acceptable intercuspation

E. Marginal Ridges: Both upper and lower acceptable. Slight discrepancy between 1st and 2nd molars.

F. Rotations: Both upper and lower acceptable. Minor problems teeth nos. 11, 12, 21, and 28.

G. Spaces: All spaces closed, both upper and lower arch

H. Soft Tissue (Intraoral): Significantly improved facial and dental esthetics and function after treatment. Maxilla which was -4mm retrognathic was brought forward 2mm. Mandibular which was -6mm retrognathic was brought forward 4mm. Lower facial height which was short by -7mm was increased by 5 mm to near normal vertical height.

I. Root Parallelism: Before treatment, roots were not parallel between teeth nos. 10-11, 20-21-22. After treatment root parallelism was not perfect but improved.

J. Facial & Dental Midlines: Facial asymmetry (mandibular shift to the right) improved but not entirely corrected. Mandibular incisor midline had a 4mm shift to the right from the maxillary incisor midline. After treatment, the mandibular shift was reduced from 4mm to 1mm. This treatment resulted in enhanced facial esthetic improvement.

K. Results - Skeletal: Patient was bi-skeletal retrognathic, and vertically short. After treatment, significant skeletal improvement according to superimposition of pre-treatment and post-treatment cephalometric radiographs Steiner, Wits, and Jefferson Ceph Analysis.

? Superimposition of Pre and Post ceph shows significant skeletal improvements: maxilla developed forward, mandible repositioned and developed forward, lower facial height which was -7mm short was increased by +5mm to near normal vertical. These skeletal improvements correlated with a more esthetic facial profile (Rickett?s Esthetic Line from +4mm/+5mm to +1mm/+4mm; Naso-Labial angle from 97? to 100?; Steiner?s S-line from +6mm/+6mm to +5mm/+6mm).

? Steiner: FMA from 20? to 28?; SN-GoGn from 23? to 25?; ANB from 5? to 3?.

? Wits: From 3mm to 1mm.

? Jefferson: ANS to Ant Arc from -4mm to -2mm; P to Ant Arc from -6mm to -2mm; M to age appropriate Vert Arc from -7mm to -2mm.

? Four years and 6 months post treatment assessment showed continuous skeletal improvements based on IBO ceph measurements in lower vertical height, SNA and SNB; however, IMPA and Interincisal Angle got slightly worse. Jefferson Ceph Analysis showed significant improvement after post treatment due to growth. ANS advanced 1mm to near normal A-P position; Pogonion moved from -2mm to 0 which means mandible is at perfect A-P position; and Menton is -1mm from ideal lower vertical height which can be determined as near perfect lower facial height.

L. Results - Dental: Before treatment patient was Class II molars, Class II cuspids, and Class II anteriors both left and right side; severe overjet by 10mm; severe deep bite 80 to 90% deep. After treatment patient was Class I molars, Class I cuspids, and Class I anteriors both left and right side; overjet reduced to 2mm, severe deep bite to 10% near normal. Occlusion was near normal except minor marginal discrepancy of lower 2nd molars.

--Patient was referred to me by a general dentist and lived quite a distance from my office. She never returned for a 2 year post treatment record. Four years and 6 months later, I was able to take records.

Four years and 6 months post treatment assessment showed that although there was minimal dental relapse, IMPA increased by 2?, Interincisal angle became more acute by 3?. These two measurements diverged from the norm. There was no explanation for this.

M. Results - TMJ: No signs or symptoms, full range of motion at the end of treatment.

N. Results - Retention: Maxillary Hawley retainer with a small anterior bite plane to prevent intrusion of posterior teeth. Lower bonded retainer from canine to canine.

O. Results - Treatment Time: Started 12-13-2007, finished 6-2-2009. Estimated treatment time 18 months, actual treatment time 18 months.

Post-treatment Photographic Set
Patient: 2, Session Date: 6/2/2009, Start Age: 11 year old

Good, Quality Photography Is All About…?

Hint: The picture is a result…but not what it's about!

…Controlling Light!

Requirements

- Gear
- Technique
- Style
- Reference
- Practice

Gear

It really does make a difference

Gear

- “Real” SLR camera
- True Macro lens
- Ringlight FLASH is a must have
- Quality power sources
- Willing staff member*

Gear – Camera

- "Real" SLR camera with Optical viewfinder
  - "Cropped" sensors are cheaper
    - Canon Rebel, 70D, 7D2 – 1.6x
    - Nikon "DX" D5x00, D500, - 1.5x
    - Most Olympus and Pentax – 2.0x

- "Full-frame" sensors are easier to see through and work with
  - Canon 6D, 5D3, 1DX
  - Nikon "FX" D610, D750, D8x0, D4/5

Gear – Lens

- "Macro" - designed to work close up without distortion
- 100mm in "full-frame" ideal to work with
  - Cropped sensors have multiplication factor – 1.6x/Canon, 1.5x/Nikon
  - Special lenses for cropped cameras – "EF-S"/Canon, "DX"/Nikon
- Canon
  - Full-frame: EF 100/2.8L IS USM
  - Cropped: EF-S 60/2.8 USM (60mm x 1.6 = 96mm equivalent)

- Nikon
  - Full-frame: AF-S Micro-Nikkor 105/2.8G VR IF-ED
  - Cropped: AF-S Micro-Nikkor 60/2.8G ED (60mm x 1.5 = 90mm)

Gear – Lighting

Point Source

- Off center axis
- Casts shadow opposite

Macro Sources

- Around center axis
- Even, shadowless lighting

Gear – Macro Lights

Ring Light

- Easy to control
- Consistent
- Light always 180°

Twin Light

- Fully adjustable
- Must aim correctly
- Can be anywhere in circle

Gear – Ring Light

- Canon – MR-14EX II
- Nikon - Doesn't have one! (R1C1 Twin only)

- Alternative
  - Nissin MF18
    - Canon or Nikon

- Avoid LED ringlights – not enough power!

Gear - Power

- Most powered by AA or AAA batteries
- Use NiMH for most power and fast recycling
  - Panasonic Eneloop Pro highest capacity
  - Maha PowerEx or Panasonic Eneloop (white)

- Good charger keeps batteries from cooking during charge
  - PowerEx MH-C801D
  - True, controlled 1 Hour charge
  - Keeps extra batteries ready

Technique

Keep it simple

Technique

Configuring the Camera – Operating Mode

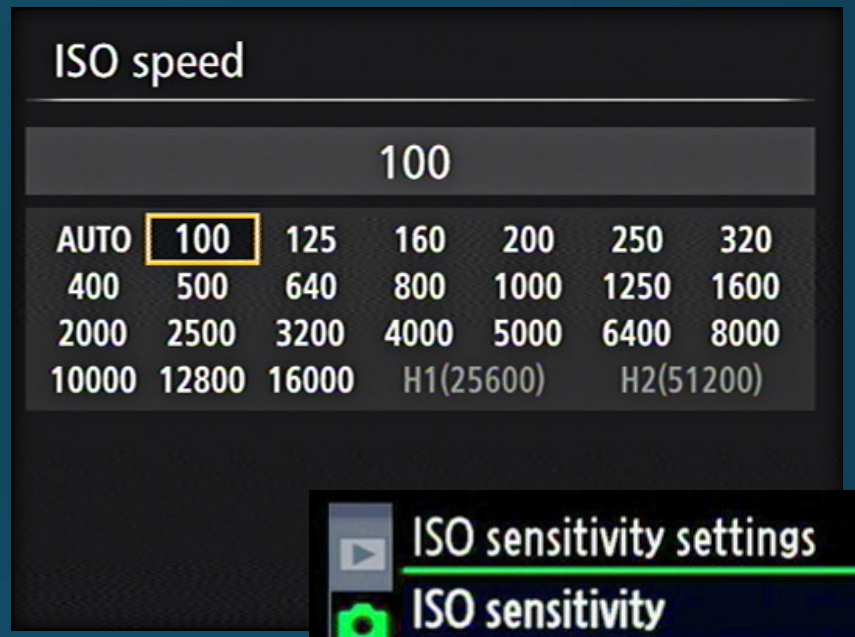
- Set camera for “P” or “A” modes
  - Don’t use AUTO or “Scenes”
- “P” mode does more automation
- “A”/”Av” allows more control over settings and flash output

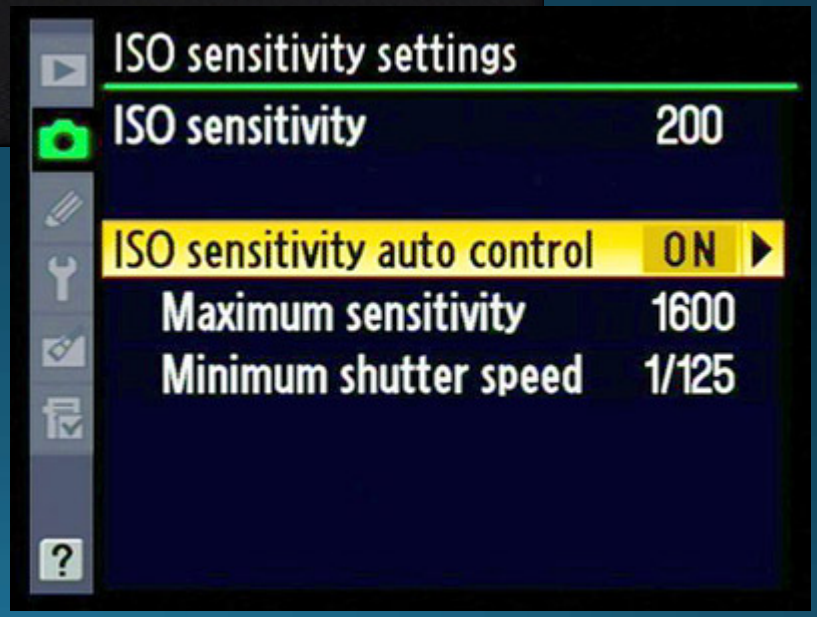
Technique

Configuring the Camera – ISO

- ISO 400. 800 ok on newer cameras. Lower settings wasting power of flash

- Keep as low as possible, higher is noisier
- Can increase to get more usable flash distance

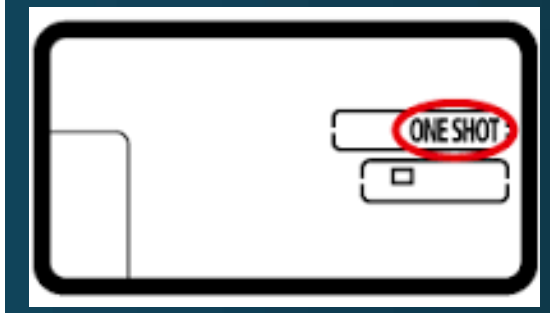




Technique

Configuring the Camera - Focus Mode

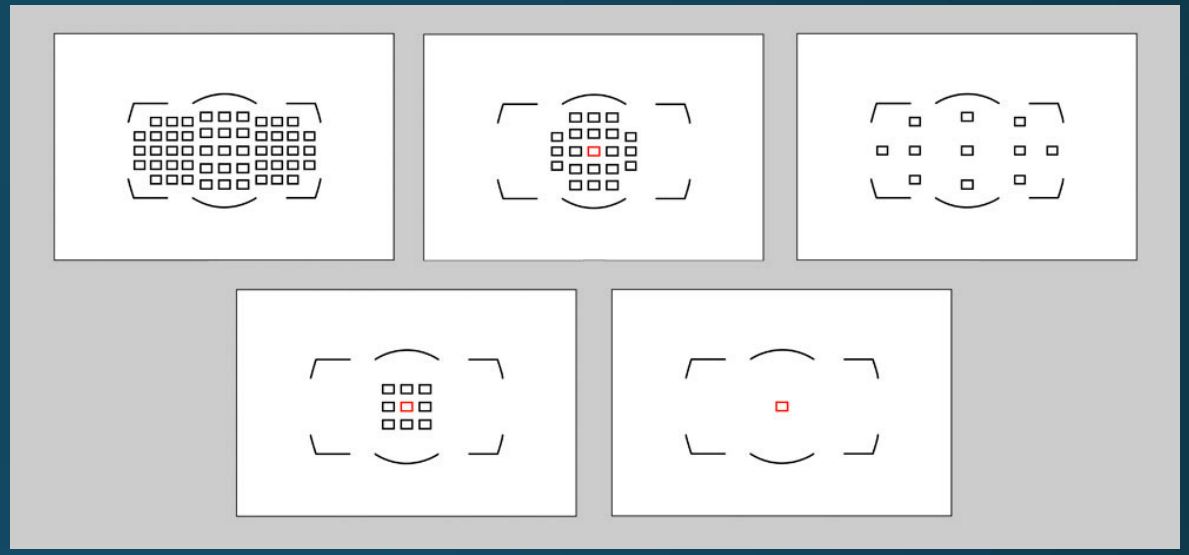
- Focus set for One-Shot AF or AF-S
- Canon is always “One Shot”
- Nikon may be labeled “Single-Servo”, “S”, “AF-S”

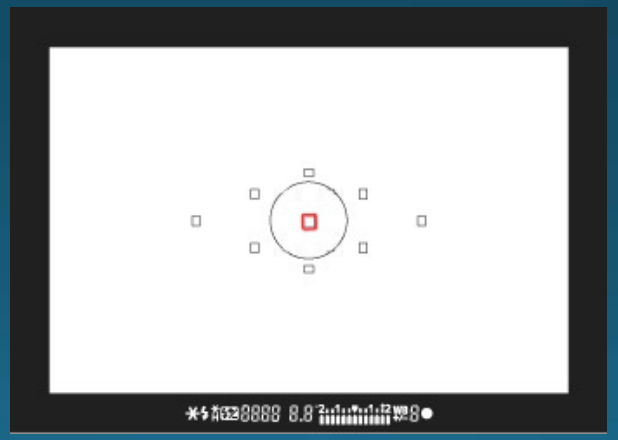


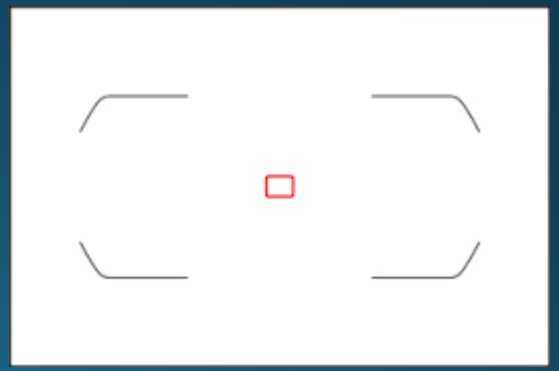
Technique

Configuring the Camera - Focus Points

- Use center point focus
- Keep point on closest object in focus
- Keep the beep on, it'll help!







Technique

Holding the Camera

- Held improperly induces more movement and shake
- Support weight of camera with left hand
- Movement worse with more mass

Technique

The Ringlight Flash

- Orient the two tubes in the ring appropriately (red areas)
- Select E-TTL (Canon) or i-TTL (Nikon) mode on flash
- Use focusing lights to help guide the camera to good focus (blue areas)
- Use fresh, NiMH batteries of good quality – it makes a difference!

Style

Define yourself with it!

Style

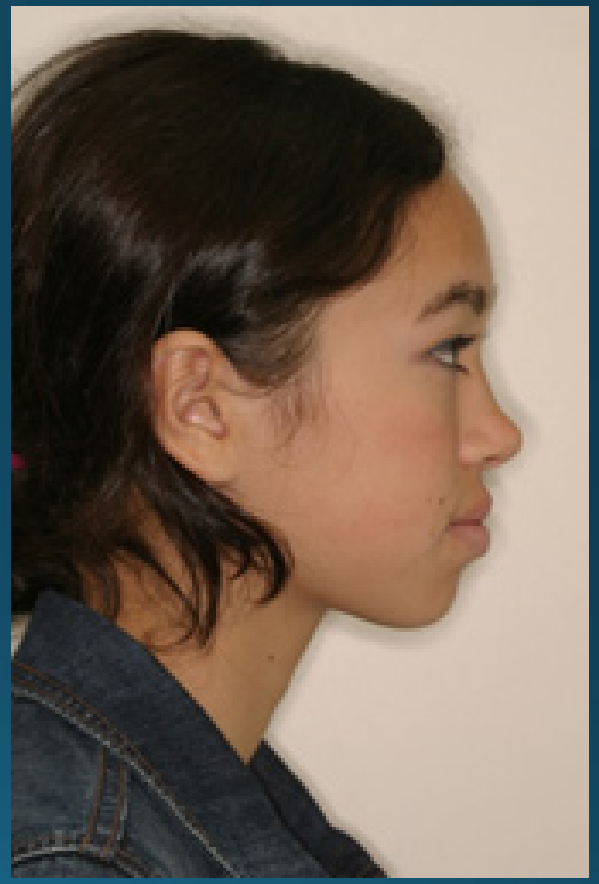
Shadowless lighting

- Don't use point flash
- Turn the ring appropriately

- Don't point op chair light into mouth

- Dim or turn off overhead lighting





Style

Light-Grey or Off-White Background

- Don’t use colors
- Don’t use patterns
- Don’t use black

- Clean “eggshell” matte surface drywall
- Background papers from Savage
  - “Arctic White” background paper
  - “Medium Grey” background paper
- Grey cotton duck from fabric store

Style

Proper Orientation, Level, and Expression

- Patient should be standing comfortably with feet flat on ground
- Patient should have arms at side, not crossed, perpendicular to floor
- Pupillary plane parallel to floor
- Shoulders parallel to floor

Style

Proper Orientation, Level, and Expression

- Occlusal plane should be centered and level
- Show surrounding soft tissue

Style

Proper Exposure

- Good, clear details
- No “blown out” whites
- No “blocked up” black patches with no detail
- Too close or too far from subject can keep flash from doing it’s job

Style

Sharp from Front to Back

- Sharp from closest to farthest tooth
- Needs higher f-stop setting on camera (more depth of field)
- Start at f/16-f/22
- Focus on closest point

Style

Clean, White Lighting

- Stay away from windows
- Avoid mixing light sources
- Turn off overhead lights
- Use the camera's "Flash" white balance mode

Style

Framing and cropping

- Show the whole image
- Center & level the image on the occlusal plane
- Crop appropriately in the viewfinder
- Retract properly and completely
- Lateral should show incisor angle all the way back to furthest molar, parallel to midline, 90 degrees to side

Style

Framing and cropping

- Show the whole image from front to back
- Use retractors and mirrors
- Warm mirrors to prevent condensation & fogging
- Parallel and level
- Should be able to see all sides of each tooth

Style

Framing and cropping

- Frontal: nose centered, interpupillary line parallel
  - eyes looking into lens
  - one with lips lightly closed
  - one shot with natural smile

- Lateral: further eyebrow slightly visible, facing to the RIGHT from camera, looking straight ahead

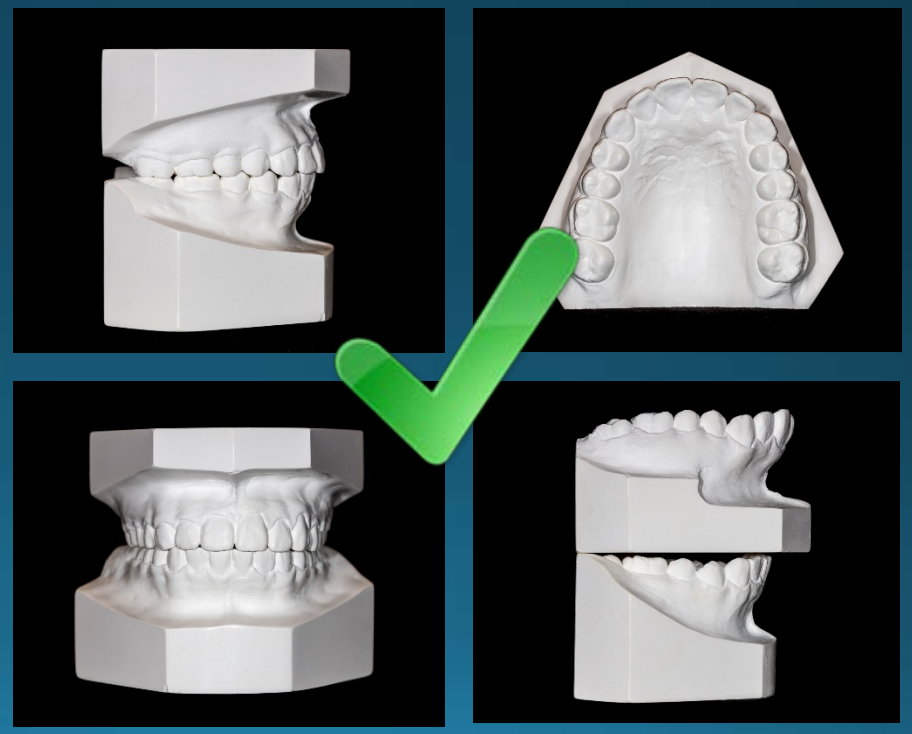
- Remove glasses, piercings, earrings!
- Pull hair back or tuck so ears and eyes are completely visible

Style

Models

- Black background
- Remove ALL labeling and patient information
- Center and level on occlusal plane
- Use ring flash and tripod

- Soap and finish completely, no holes, bubbles; trim correctly
- Send to lab if needed for best result



Reference

Don’t fix what’s not broken

Reference

- Record settings that work
- Use same location, op, or area
- Mark locations

- Create a comp card of proper shots for reference

- Dedicate a staff member who likes their task*
- Secure dials and buttons
- Keep accessories in easy to remember location

- Update and clean gear on a schedule

Strive to create the reference each time!

Practice

Give the squeaky wheel some grease

Practice

- Try different settings to learn what changes
- Try different locations to see how image is affected

- Establish a practice time for honing skills

- Pay attention to the rough spots!

- Group review imaging

Discussion

- Gear
- Technique
- Style
- Reference
- Practice

Gear – Full Frame (Canon), $2,700

- **Camera**: Canon 6D - $1,399
  - http://www.bhphotovideo.com/c/product/892349-REG/Canon_8035b002_EOS_6D_Digital_Camera.html
- **Lens**: Canon 100/2.8 USM -$599
  - http://www.bhphotovideo.com/c/product/194451-USA/Canon_4657A006_100mm_f_2_8_USM_Macro.html
- **Flash**: Canon MR-14EX II - $549
  - http://www.bhphotovideo.com/c/product/1030212-REG/canon_9389b002_mr_14ex_ii_macro_ring.html
- **Batteries**: Canon LP-E6N - $65
  - http://www.bhphotovideo.com/c/product/1081825-REG/canon_9486b002_lp_e6n_battery_f_7d_mark.html

Gear – Cropped (Canon), $2,100

- **Camera**: Canon 70D - $999
  - http://www.bhphotovideo.com/c/product/986389-REG/canon_8469b002_canon_eos_70d_dslr.html
- **Lens**: Canon 100/2.8 USM -$469
  - http://www.bhphotovideo.com/c/product/371176-USA/Canon_0284B002_EF_S_60mm_f_2_8_Macro.html
- **Flash**: Canon MR-14EX II - $549
  - http://www.bhphotovideo.com/c/product/1030212-REG/canon_9389b002_mr_14ex_ii_macro_ring.html
- **Batteries**: Canon LP-E6N - $65
  - http://www.bhphotovideo.com/c/product/1081825-REG/canon_9486b002_lp_e6n_battery_f_7d_mark.html

Gear – Full Frame (Nikon), $2,577

- **Camera**: Nikon D610 - $1,496
  - http://www.bhphotovideo.com/c/product/1008264-REG/nikon_d_610_digital_slr_body.html
- **Lens**: Nikkor 60/2.8G ED -$597
  - http://www.bhphotovideo.com/c/product/545660-USA/Nikon_2177_AF_S_Micro_Nikkor_60mm_f_2_8G.html
- **Flash**: Nissin MF18 Macro- $439
  - http://www.bhphotovideo.com/c/product/832690-REG/Nissin_NDMF18_N_MF18_Macro_Flash.html
- **Batteries**: Nikon EN-EL15- $45
  - http://www.bhphotovideo.com/c/product/735929-REG/Nikon_27011_EN_EL15_Lithium_Ion_Battery_1000mAh.html

Gear – Cropped (Nikon), $2,177

- **Camera**: Nikon D7200- $1096
  - http://www.bhphotovideo.com/c/product/1127271-REG/nikon_1554_d7200_dslr_camera_body.html
- **Lens**: Nikkor 60/2.8G ED -$597
  - http://www.bhphotovideo.com/c/product/545660-USA/Nikon_2177_AF_S_Micro_Nikkor_60mm_f_2_8G.html
- **Flash**: Nissin MF18 Macro- $439
  - http://www.bhphotovideo.com/c/product/832690-REG/Nissin_NDMF18_N_MF18_Macro_Flash.html
- **Batteries**: Nikon EN-EL15- $45
  - http://www.bhphotovideo.com/c/product/735929-REG/Nikon_27011_EN_EL15_Lithium_Ion_Battery_1000mAh.html

Gear – General, $115

- **Flash batteries**: 12x AA Panasonic Eneloop PRO $18/set of 4 - get 3 sets!
  - http://www.bhphotovideo.com/c/product/1148532-REG/panasonic_bk_3hcce_4be_eneloop_xx_aa_4.html
- **AA charger**: Maha/Powerex MH-C801D - $61
  - http://www.bhphotovideo.com/c/product/883786-REG/Powerex_MH_C801D_8_Cell_1_Hour_Charger.html