Crime Scene & Evidence Photography

Instructor

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Introductions

- Name /Title/Years of Service
- Department / Dept Size
- Experience with Photography
- What are your Responsibilities with Evidence and Crime Scene photography
- What do you want out of this class

Guidelines & Best Practices

- For current Guidelines and Best Practices utilize the website for The International Association for Identification (**theiai.org**)
  - SWGIT Guidelines (Scientific Working Group on Imaging Technology)
- Some of the information available
  - Equipment
  - Image capture, processing, archiving & authentication
  - Photography of latent, tire and footwear impressions

Introduction

- Crime scene photography tells a story to those who were not present at the scene.
- Provides visual preservation of the scene, location and condition of evidence, and creates a permanent record
- Aids in the reconstruction of events
- Refreshes the memory of investigators and witnesses

Introduction

- Ensures accurate representation of the evidence for a thorough investigation and successful prosecution of the case.
- Documents the location and condition of evidence
- Photographs can help make or break a case.

Introduction

- Remember, prosecutors, judges, juror's, witnesses and victim's families may view the photographs you take. Your work is not only a reflection upon your department, but a reflection upon you.
- **Photos should always be *fair and accurate*** so they can be used in court

Why do you need to spend so much time learning photography?

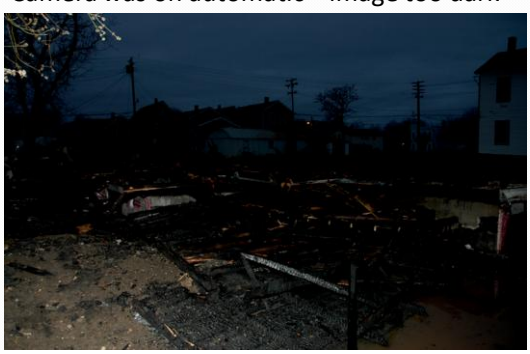
- Not every scene will require you to:
  - Dust for prints
  - Collect blood or DNA
  - Cast shoe or tire impressions
  - Collect other trace evidence

However, all scenes require **quality photographs** before any processing occurs!!!!!

Can't I just use the camera's automatic setting?

- Quality modern camera equipment will produce very good photos most of the time. However, you can take better photos yourself if you understand basic principles and make manual adjustments.
- The camera doesn't know what your goal is and can produce a photo that is too light, too dark or out of focus.

Camera was on automatic – image too dark

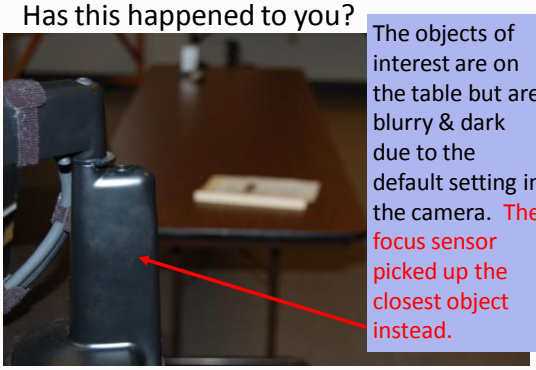


Camera on "automatic" may not expose properly creating either a too dark, or too light image

By using the camera's meter, you can decide the proper exposure and adjust for it

What creates this shadow?

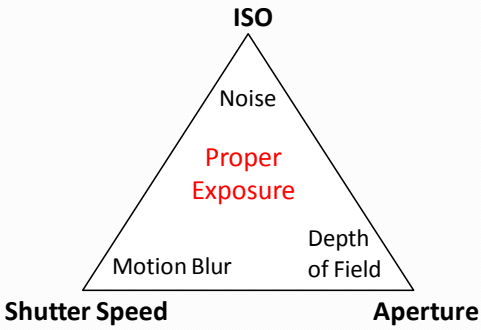
Has this happened to you?



The objects of interest are on the table but are blurry & dark due to the default setting in the camera. The focus sensor picked up the closest object instead.

This was corrected by simply locking the focus sensor on the object of interest by pressing the shutter halfway, then re-composing and capturing the image

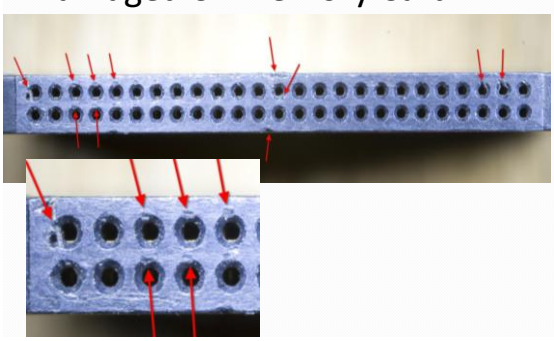
What is needed to create proper exposure?



Body Nomenclature

- Memory card slot cover
  - Located on the side of the camera, allows you to place digital media into camera.
  - Keep closed to prevent dirt and moisture out.
  - Use caution when inserting your digital media into the slot to prevent damage to the metal contacts that are inside, and always have camera turned off.

Damaged CF Memory Card



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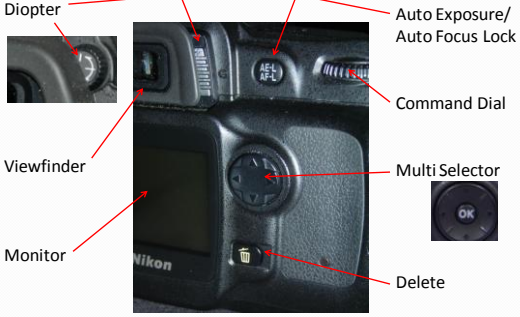

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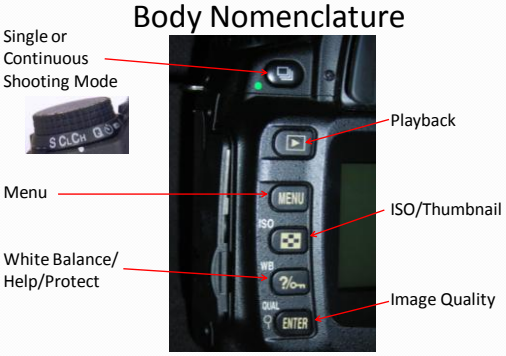

Body Nomenclature

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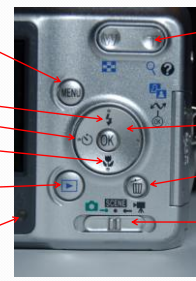
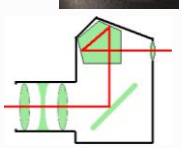


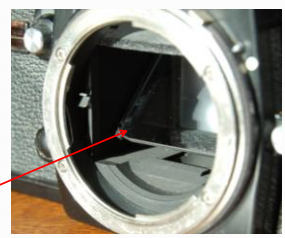
Body Functions

- Hot Shoe / PC Socket
  - Hot shoe is on top of camera
  - PC socket is usually on the side or front of camera body

- Self Timer
- Pentaprism
  - is a five-sided optical glass element that reflects light



Body Functions



- Mirror
  - Directly behind the end of the lens that attaches to the camera body. Covers the shutter or sensor and allows camera user to see through the eye piece and look directly through the lens for a "what you see is what you get."

Body Functions

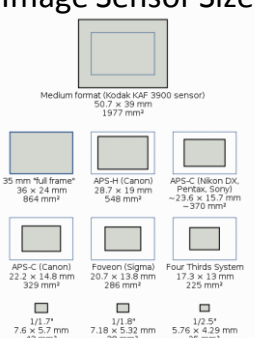
- Shutter
  - Traditional type was a curtain made of cloth. Modern cameras use blades made of aluminum alloy, carbon fiber or titanium that blocks the light that comes through the lens. The shutter opens and closes at a preset amount of time called shutter speed. Usually found at the back of the camera, just in front of the film.

- With digital, you may have an electronically controlled shutter or a combination of mechanical shutter and electronic sensor that turns on for a specific amount of time.

Body Functions - Image Sensor Size

Film has been replaced by a microchip with microscopic transistors. Millions of transistors create the chip that is the image sensor. The larger the sensor, the better the quality.

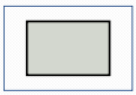
As the sensor is made smaller, a multiplier is used to replicate a normal (cropped) view or normal perspective. APS-C is multiplied by approx 1.5x.



Field of view/Perspective

Full size sensor 35mm or higher end DSLR **vs.** Smaller digital sensor on most of the DSLRs

35 mm "full frame"
36 × 24 mm
864 mm²



APS-C (Nikon DX, Pentax, Sony)
~23.6 × 15.7 mm
~370 mm²

50mm lens with Full Frame camera

In order to replicate a "normal" view or perspective, a "full frame" camera would use a 50mm lens as shown above

With a digital camera that has a smaller sensor, you would use about a 35mm lens as shown below. 35mm x 1.5 = 52.5 (close to 50mm)

35mm lens with APS-C smaller sensor

If you don't compensate for the smaller sensor, you will have a cropped effect

50mm lens with Full Frame camera

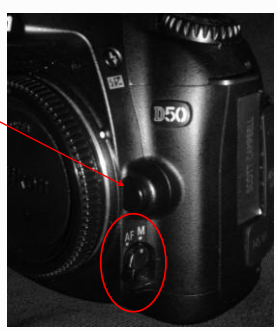
50mm lens with smaller sensor.
Notice the cropped, or enlarged image

Body Functions

- Camera modes
- Different cameras have different modes available
  - Scenes (could be programs for action or portraits indicated by icons of a runner or woman's face)
  - Shutter Priority
  - Aperture Priority
  - Manual
  - Automatic
  - Program

Body Functions

- Lens Release Button
- Focus
  - Auto
  - Manual



Lens Functions

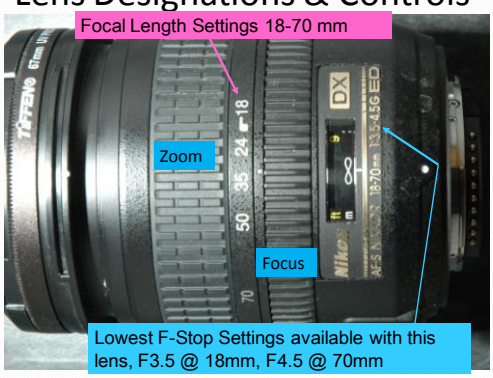
- Lens
  - Serves to focus light rays / image so it is crisp and clear on the sensor.
- Focal Length (affected by the size of the camera's sensor)
  - The smaller the sensor, the more magnification (crop)
  - Measured in millimeters
    - Wide angle Digital APS-C less than 35mm
    - **Normal** Digital APS-C @ **35mm** (Full frame DSLR, then 50mm)
    - Telephoto Digital APS-C greater than 35mm
    - Zoom – multiple focal lengths incorporated into same lens 28-200mm
    - With most "point and shoot" cameras it's not easy to figure out what focal length the lens is set at

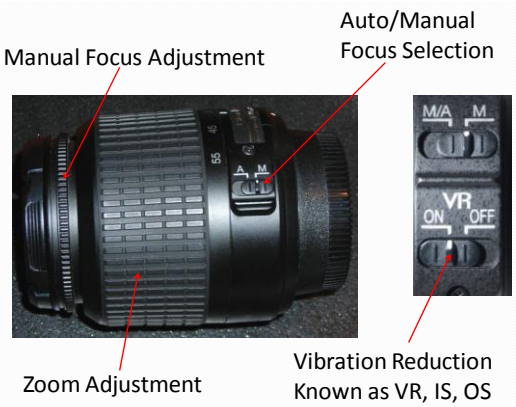
Lens Functions

Focal length can distort normal perspective

24 mm lens | 50 mm lens | 200 mm lens

Lens Designations & Controls

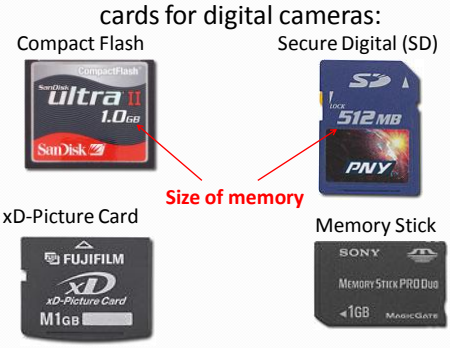




Auto Focus vs. Manual Focus

- Auto focus works well and quickly in bright areas
- In limited lighting, the camera may not let you take the photo if the camera can't focus
- Manual focus will generally be best for close up work and especially where limited light is available
- Manual also works well for moving objects if you can pre-focus on an area then take the photo as the person or object moves into the area, such as surveillance and sporting events

Common types of flash memory cards for digital cameras:



How many photos can a card hold?

Memory cards come in different storage capacities, ranging from 8MB all the way up to 64GB and beyond.

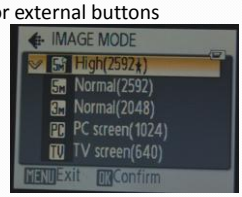
- How many digital photos the card can store depends on the resolution (megapixels) of your camera, the quality of image, and file size you choose.
- The higher the resolution or megapixels, the larger the file size and the more memory each photo uses.
- Many SOP's recommend using the highest quality images for crime scene and evidence such as RAW
- Some labs require RAW files for comparison work
- Otherwise use higher quality JPEG images

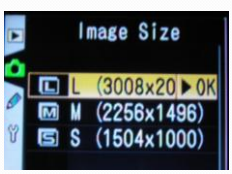
In addition to resolution, the capacity also depends on the **combination** of image quality **and** image size

Using a 1 GB card in a 6.1 megapixel Nikon D50 camera, the following chart indicates the photo capacity

Printed image size:	Large 15"x10"	Medium 11.5"x7.5"	Small 7.5"x5"
• RAW	135	N/A	N/A
• JPEG Fine	285	495	1000
• JPEG Norm	552	940	1800
• JPEG Basic	1000	1700	3100
• RAW + Basic	119	N/A	N/A

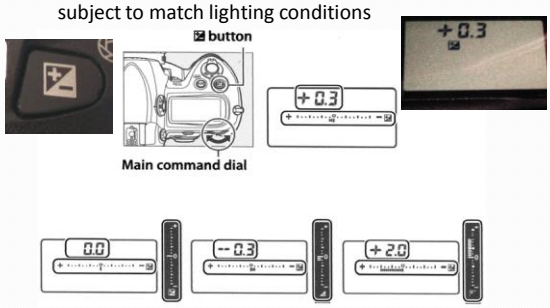
The **combination** of image quality **and** image size can be selected in the menu or external buttons





Exposure compensation

- Causes camera to under or over expose your subject to match lighting conditions



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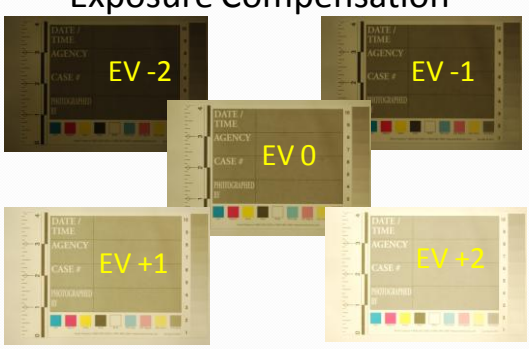


Shutter Speed

- The AMOUNT of TIME the shutter is open or the digital sensor is on, allowing light to strike the sensor
- Combined with aperture & ISO for proper exposure
- Generally measured in fractions of a second
  - 1/60th (indicated by the number **60**, or 1/60)
  - 1/125th (indicated by the number **125**, or 1/125)
- May be seconds or even several minutes long
  - 1 second (usually indicated by **1"** or different color)
  - 30 seconds (usually indicated by **30"**)
  - "Bulb" is used for time longer than 30 seconds

Shutter Speed

- Controls Motion
  - Fast shutter speeds "freeze" motion
    - Bullet being shot from a gun
    - Race car "stopped" on the track
    - Sporting events
  - Slow shutter speeds "blur" motion
    - Car's taillights shown at night as a long red streak behind the car

Shutter Speed

- On bright sunny days, you have the chance to over-expose your photos, or wash them out
- In order to reduce the amount of light getting to the digital sensor, use a faster shutter speed
- Change from 1/60 or 1/125 of a second, to a faster speed of 1/500 or even 1/1000th of a second
- Flash Synchronization Speed
  - Generally about 1/60th Second
  - May be higher depending on camera (1/125, 1/250)
  - Too fast of a shutter speed can cause part of the photograph to be cut off

Shutter Speed

- May be set by a dial or combination of buttons and/or dials
  - 60 actually means 1/60th of a second
  - Shutter speeds will be displayed in the control panel, viewfinder, on the monitor or a combination of these

Slower shutter speed allows more light (exposure)

Shutter Speed – 1/60
Camera held still, But too slow for vehicle

Shutter Speed – 1/250
Camera and vehicle movement

Shutter Speed – 1/250
Camera panned with vehicle

Shutter Speed – 1/1000
Camera hand held

Standard Full Shutter Speed Stops

- 1/2000
- 1/1000
- 1/500
- 1/250
- 1/125
- 1/60
- 1/30
- 1/15
- 1/8
- 1/4
- 1/2

Tripod suggested below this speed

" indicates full seconds

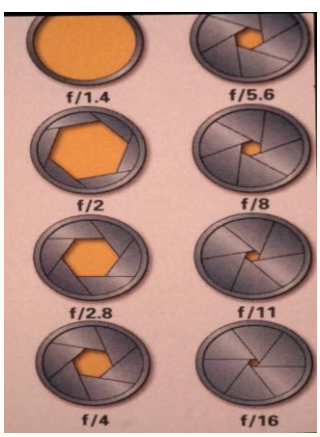
- 1"
- 2"
- 4"
- 8"
- Speeds continue up to 15-30"
- Bulb after 30"

Some speeds can get confusing between 1/8 second and 2 seconds

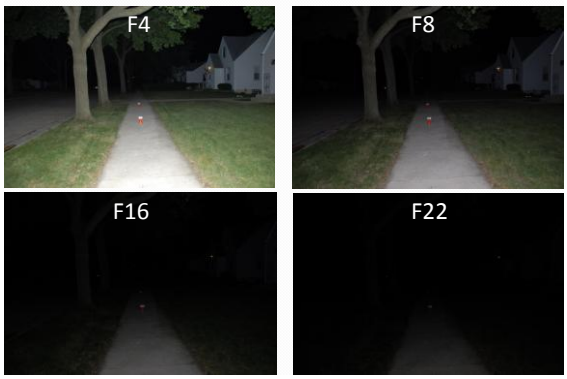
Shutter Speed shown on camera				
8	=	1/8	=	.125 Seconds
6	=	1/6	=	.166 Seconds
5	=	1/5	=	.20 Seconds
4	=	1/4	=	.25 Seconds
3	=	1/3	=	.33 Seconds
2.5	=	1/2.5	=	.4 Seconds
2	=	1/2	=	.5 Seconds
1.6	=	1/1.6	=	.625 Seconds
1.3	=	1/1.3	=	.77 Seconds
1"	=	1"	=	1.0 Seconds
1.3"	=	1.3"	=	1.33 Seconds
1.6"	=	1.6"	=	1.6 Seconds
2"	=	2"	=	2.0 Seconds

Aperture

- F/stops
  - A specific sized hole that is controlled w/in the camera lens
  - Allows a specific amount of light through the lens to the sensor
  - The larger the opening, the more light gets in
  - Controls Depth of field



Larger opening (lower number) allows more light

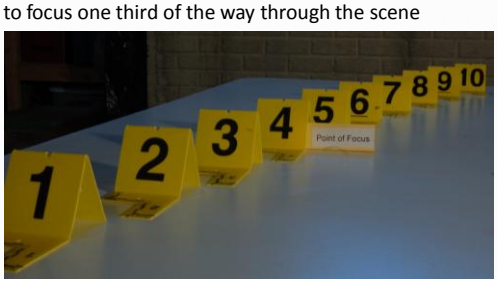


Depth of Field

- The area of the photograph before and after the point of focus that is clear and sharp
- Controlled by the aperture
- The larger the opening, the less depth of field
- The smaller the opening, the greater depth of field
- It becomes more critical on close up photography such as fingerprints on a curved surface such as a light bulb or door knob

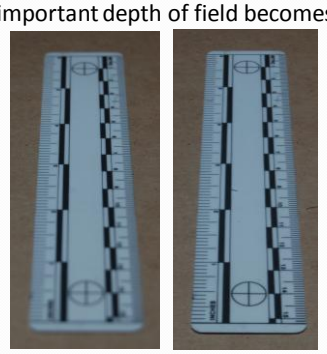
Depth of Field

- The point of focus can also affect the depth of field
- Balance depth by using the "rule of thirds" which means to focus one third of the way through the scene



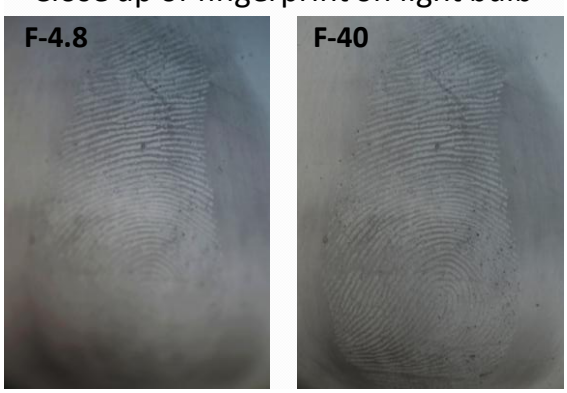
The closer to the object, the more important depth of field becomes

F-5.6



F-36

Close up of fingerprint on light bulb



Film/Digital Sensitivity

ISO – Film speed or the digital equivalent

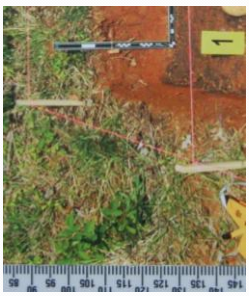
- Film speed/ISO is the sensitivity to light
- The lower the ISO number, the less sensitive to light
- The higher the ISO number, the more sensitive to light
- 100 speed film is less sensitive to light and needs MORE light to be properly exposed than does 200 speed film

•The more sensitive to light , the more grainy it gets, generally lowering quality

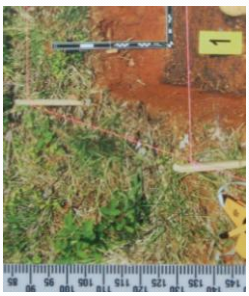
•ISO 100 produces better quality than ISO 1600

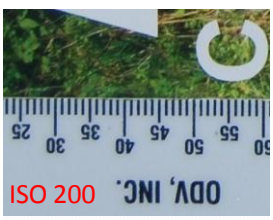
ISO Changes: How Much Does It Affect Quality

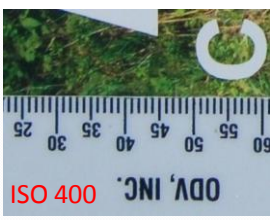
ISO 200

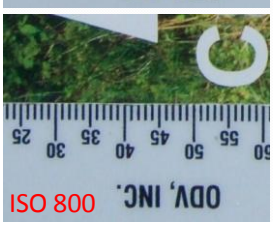


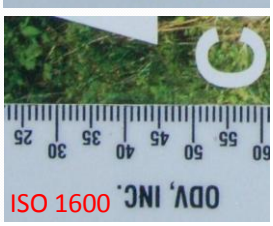
ISO 1600

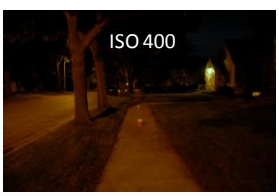




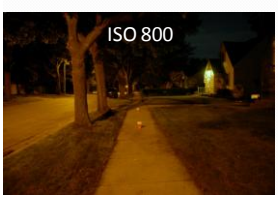


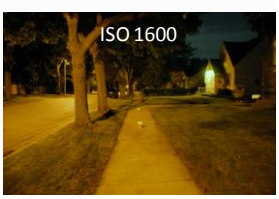






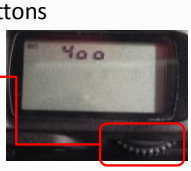
1 Second Shutter – No Flash



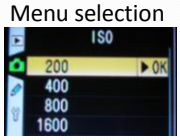


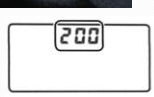
Changing ISO settings

External buttons



Menu selection





Top control panel

Rear control panel

Viewfinder

What is the Sum of the Equation?

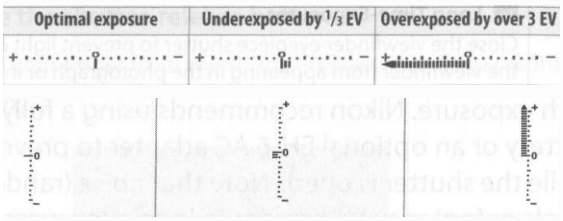
Exposure!

- Exposure is the combination of shutter speed, ISO and aperture (F-Stop) to allow the proper amount of light to strike the sensor. This is needed to properly record what you see for later reproduction

Exposure

- Determined by Through The Lens metering or "TTL"
- In camera (TTL) metering is accomplished by using the meter you see inside the camera's view finder (or on the monitor) to adjust exposure
  - May be a series of vertical or horizontal lines with a + or – at opposite ends.
  - May be a series of numbers such .3, .7, 1.0, 1.3 etc. with a + or - on the side or bottom of the view finder.

Control Panel, Viewfinder or Monitor



0.0 -.3 +3.0

Metering

- Camera may have different metering modes
  - Overall or Matrix
    - Meters 90-100% of the scene
  - Center weighted
    - Meters about 10-30% of the center of the frame
  - Spot
    - Meters about 1-9% of the frame
  - "Manual"
    - Camera operator moves to about one foot away from object of photography and sets the f/stop and/or shutter speed
    - Then moves away, composes and takes photos at that setting
    - Can be used to obtain proper exposure in darkened areas

Canon Metering Modes

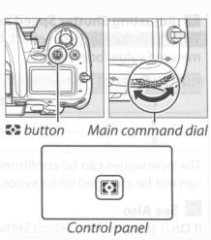
Evaluative: All around averaging

Partial: Good for backlighting

Spot: Specific small area

Center-weighted: Metered at center then averaged

Metering can be adjusted with an external button or in the menu



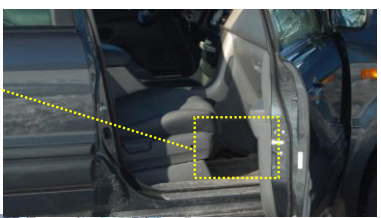
Nikon

Canon

1 Select [Metering mode].
- Under the [📷²] tab, select [**Metering mode**], then press <SET>.

2 Set the metering mode.
- Press the <◀▶> key to select the metering mode, then press <SET>.

Where's the gun?

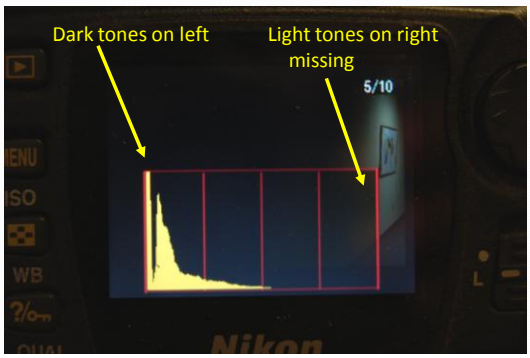


There it is!

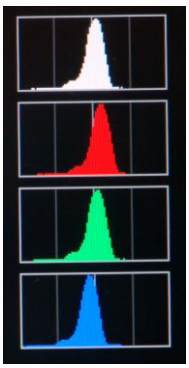
Camera used with automatic setting is fooled by the light sky in the background and creates a dark subject.

Instead, use the camera's meter to sense the area in the shadows for proper exposure

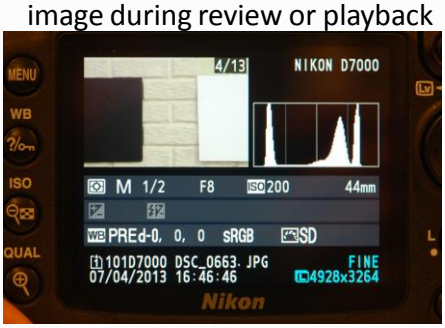
Some cameras have histograms viewed on the rear monitor



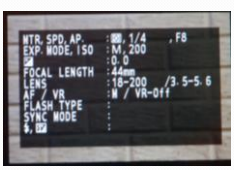
Some cameras will have only a brightness histogram shown in white. Others will have a histogram for each of the red, green and blue color channels

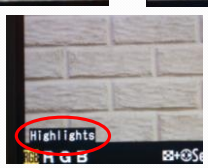


Information available about the captured image during review or playback



Metadata or shooting data and "Highlights"





White Balance

Computer generated settings to compensate for lighting conditions

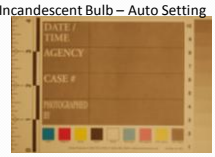
- Incandescent (approx. 2700 Kelvin)
- Fluorescent (approx. 4000 Kelvin)
- Sunlight – noon (approx. 5400 Kelvin)
- Cloudy or Shade (6500-8000 Kelvin)
- Flash
- Custom (preset)

Light Temperature

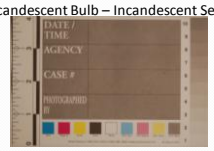
- Different sources of light have different light temperature
- Measured in degrees Kelvin
- Warmer temperatures are orange
- Cooler are blue

White Balance

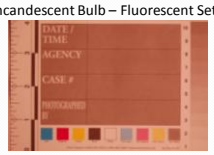
Incandescent Bulb – Auto Setting



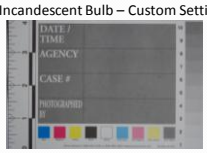
Incandescent Bulb – Incandescent Setting



Incandescent Bulb – Fluorescent Setting



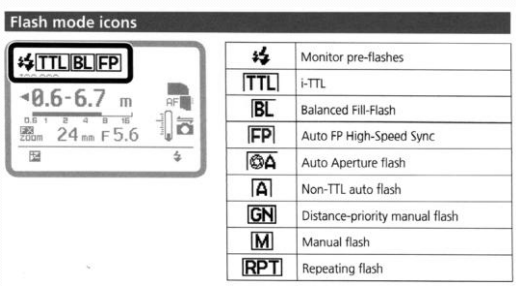
Incandescent Bulb – Custom Setting



Flash

- **Dedicated**
  - Is camera brand, make, model specific
    - Provides "automatic" exposure functions by **communicating with the camera** to find distance from subject and calculate amount of light for proper exposure.
    - Can need specific equipment such as flash synchronization cord
    - Generally more versatile but can be more expensive
- **Non-Dedicated**
  - Is brand generic and usually less expensive
    - Works with most camera's
    - May have to adjust settings manually

Nikon SB-900

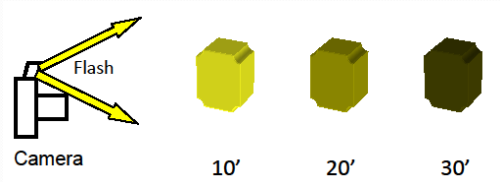


Flash Modes

- **Front-Curtain Sync:** used for most situations. In "P" and "A" modes, shutter will be set automatically between 1/250 and 1/60.
- **Slow Sync:** used with slow shutter speeds up to 30 seconds. Captures both subject and background at low light.
- **Rear-Curtain Sync:** Flash fires just before shutter closes.
- **Red-Eye Reduction:** Flash pre-flashes before main flash.
- **Red-Eye w/Slow Sync:** Combines both.

Flash

- The further an object is from the flash, the less light the object will receive to be properly exposed
- Light intensity drops off very quickly



Flash Technique

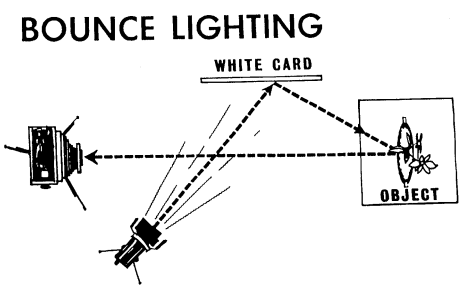
The angle of incidence is equal to the angle of reflection. If slightly angled, there is little or no glare or wash out reflection in the photograph. Bounce flash can also be used.

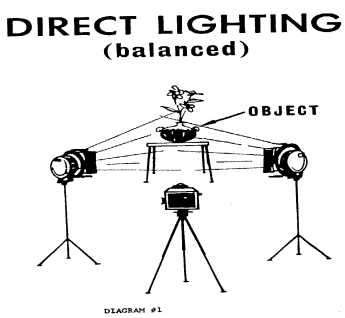
Direct - can result in wash out

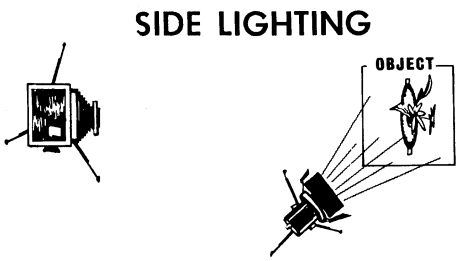
Best if flash is off camera

Flash Technique

- Bounce
  - May bounce off of ceiling, wall, floor, any object
- Must allow for one stop correction
  - Light fall off occurs due to the distance that the light has to travel. You will probably have to adjust by an F-Stop and or increase the power of the flash

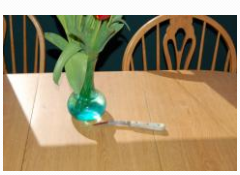


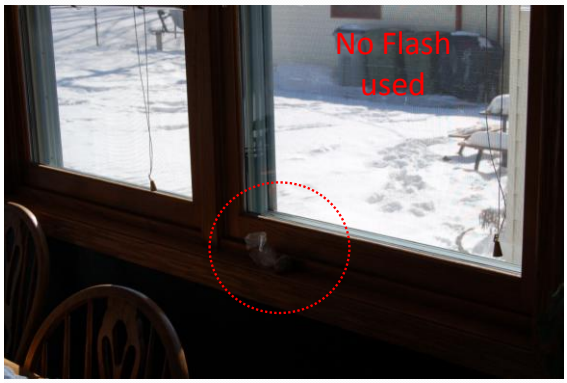


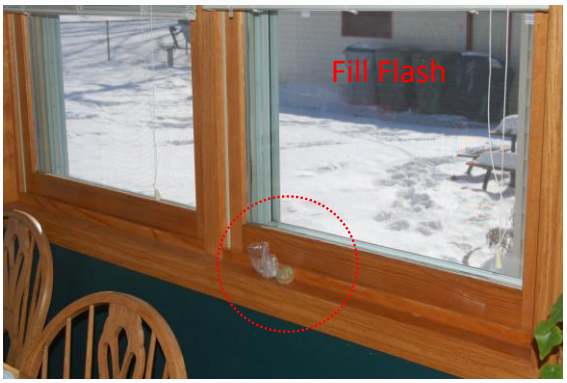


Flash Technique

- Diffused
  - A translucent filter is placed over the flash to diffuse or break up the light and give it a softer look
- Fill Flash
  - Used to add light to shadows

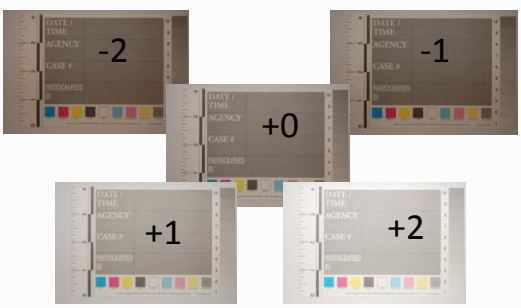






Flash Compensation

Flash power/output can be adjusted



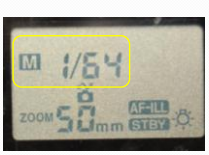
Adjusting Flash Power Levels

Menu

Adjusting Flash Power Levels

Adjusting Standard TTL exposure usually by 1/3 stops

Adjusting Manual mode exposure



Adjusting Flash Power Levels

Nikon SB-900 TTL

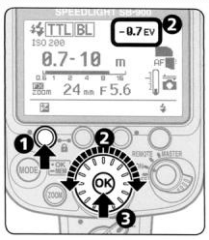
1) Press the Function button to highlight the Flash Output level

2) Rotate the sector dial by 1/3 steps up to +3.0 or down to -3.0

3) Press the "OK" button to set

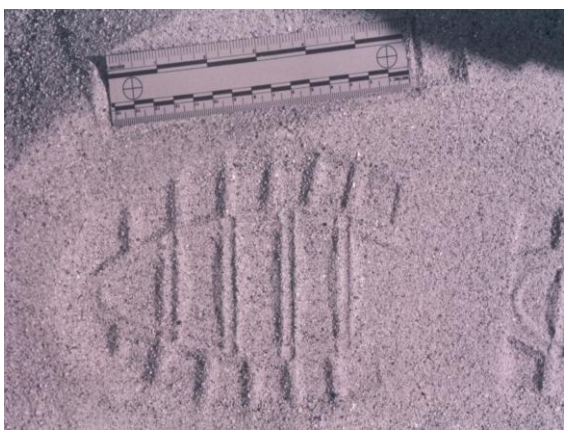
4) To cancel, turn the selector back to "0". It will not return just by turning it off.

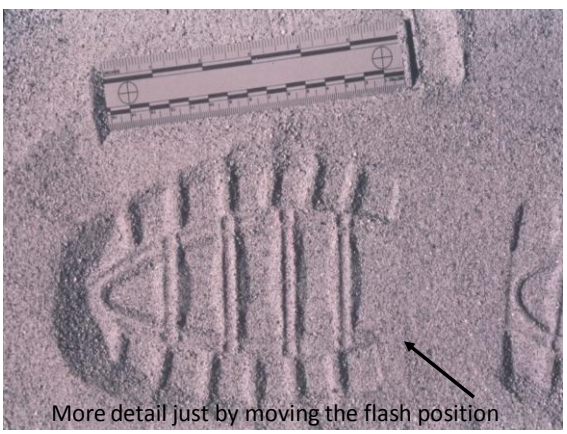
Adjusting Standard TTL exposure usually by 1/3 stops



Flash Technique – Impression Evidence

- Use flash at different angles/heights
  - 3 Dimensional footwear and tire impressions generally require from 0 to 45 degrees of angle
  - The deeper the impression, the higher the angle
  - Take multiple photos with low, medium and high flash positions from all four sides
  - Can be used for tool impressions, latent prints, bite marks and injuries





More detail just by moving the flash position

3 Dimensional Footwear

Flash directly above impression

3 Dimensional Footwear

Flash from bottom

3 Dimensional Footwear

Flash from top

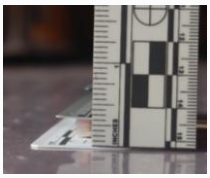
Heal section

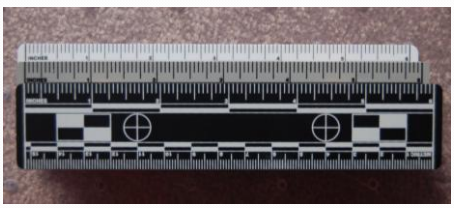
Front of shoe impression

Camera set up

How to create shade

Scale must be at the correct depth

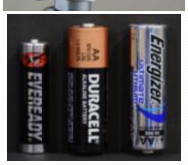




Camera set up

- Camera back parallel to the impression tread
- Fill the frame with impression and scale
- Scale placed at same depth as tread
- Add label/document impression information
- Use highest quality settings such as RAW
- Use a normal lens such as 35mm or 50mm
- Use flash from all four sides and three different heights: low, medium and high

Some equipment that can make it easier



Some equipment that can make it easier

2 Dimensional Footwear

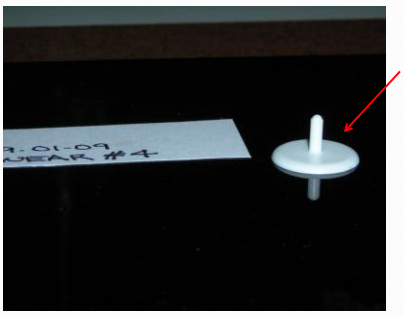
Flash directly above impression

2 Dimensional Footwear

Flash at very low angle from right

2 Dimensional Footwear - EDL

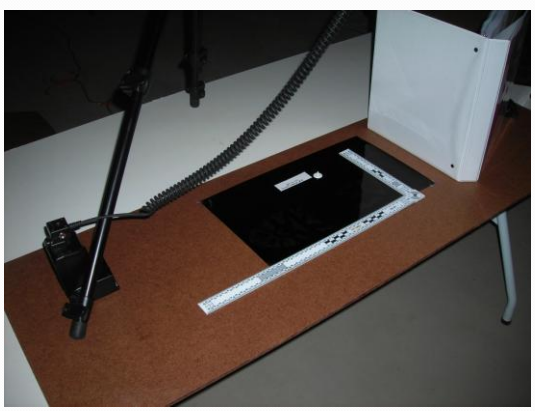
2 Dimensional Footwear



Add Golf Ball Marker

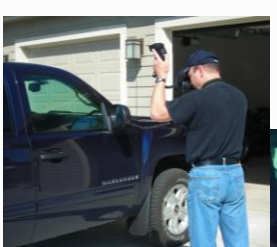
2 Dimensional Footwear

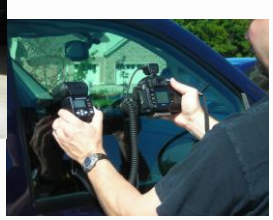
Notice shadow From marker



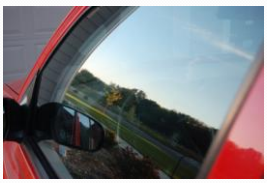
Photos through glass

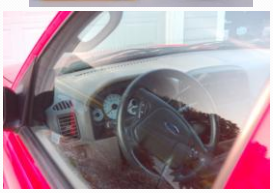
Position camera and flash on glass





Use of a polarizer filter

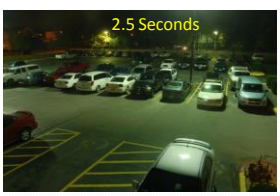




Bottom photos are better with no glare from flash

Time Exposure

- Equipment needed
  - Camera
  - Digital media
  - Lens
  - Shutter release cable (optional) or remote
  - Tripod
- Procedure
  - Focus 1/3 of the way through the scene
  - Take a metered reading and take a photograph as such
  - Next, take photographs of varying time lengths.
    - Good rule of thumb is 15, 30, 60 seconds
    - Time may vary depending on lighting
      - May need more or less time



All photos shot at ISO 200/F-5.6/18mm lens.

Scene using flash

Time Photography

F4.8/120 sec/ISO 1600

Time Exposure

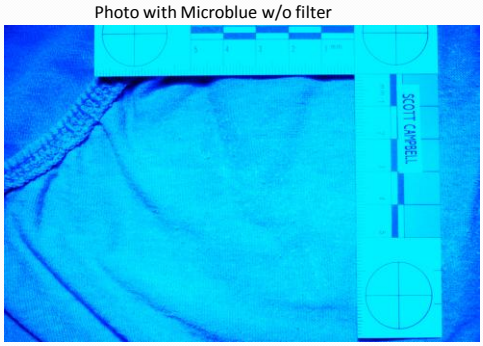
- Fluorescent photography
  - Same basic equipment and procedure
    - Times will vary
    - Use small f/stops
      - I.e.: f/11 or f/16
  - Use a scale that does not wash out, but shows in the photograph

Forensic light source

Normal flash photography

Forensic light source

Photo with Microblue w/o filter



Forensic light source

Photo with Microblue w/ filter

Exposure:

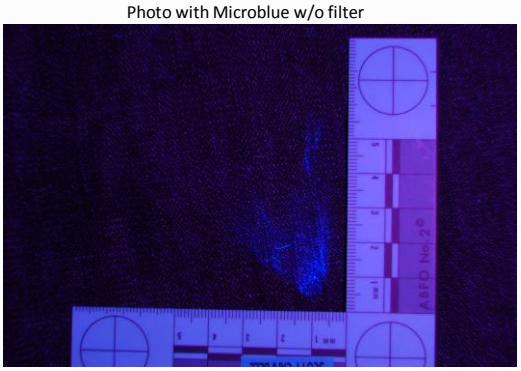
20 sec. @ F-11

Forensic light source

Normal flash photography

Forensic light source

Photo with Microblue w/o filter



Forensic light source

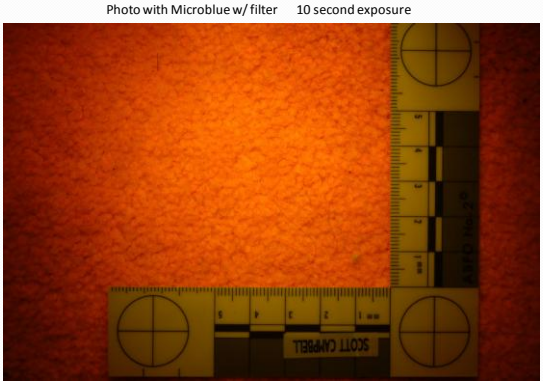
Urine with Microblue Exposure: 13 sec @ F-7.1

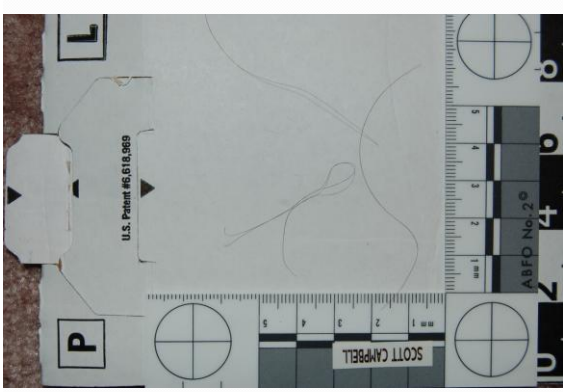
RSAI

Normal flash photography

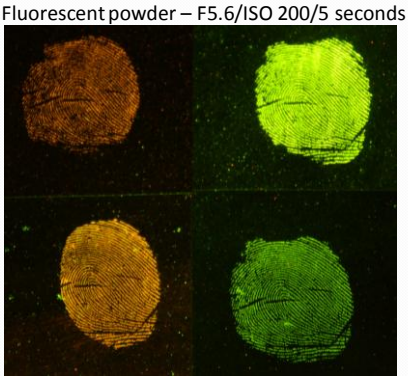
Forensic light source

Photo with Microblue w/ filter 10 second exposure





Fluorescent powder – F5.6/ISO 200/5 seconds

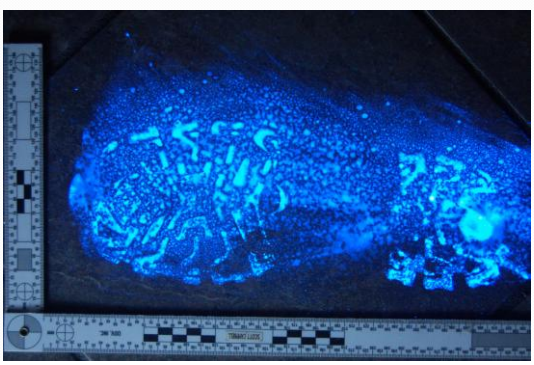


Time Exposure

- Luminol
  - Same basic Time Exposure set up
  - Exposures greatly vary depending on strength of "glow" from the suspected blood and how much you can cause it to fluoresce without diluting the sample
  - Photograph in "normal" light with and without a scale
  - Use caution and protective gear when using any luminol type chemicals
  - Use larger (more open) f/stops to gather more light
  - You may need to increase the ISO setting

Luminol

Luminol



Time Exposure

TV screens, monitors or even cell phones.

1/80th second

1/20th second

Painting with Light

- Procedure
  - Focus 1/3 of the way through scene
  - Set flash at highest power setting
  - Use a partner if possible
  - Set camera to "bulb" setting to lock shutter open
  - The person with the flash signals the camera operator to lock open the shutter.
  - The flash operator then holds the flash away from their body and at a slight angle away from the camera and into the scene.
  - The flash is then manually discharged about every fifteen to twenty feet for the length of the scene.
  - DO NOT flash back at the camera
  - The same procedure is then performed, only the flash operator comes back toward the camera on the opposite side of the scene

Single flash used with ISO 400, F-5.6, 1/60 second

ISO 400, F-8, 80 seconds – painted with multiple flashes

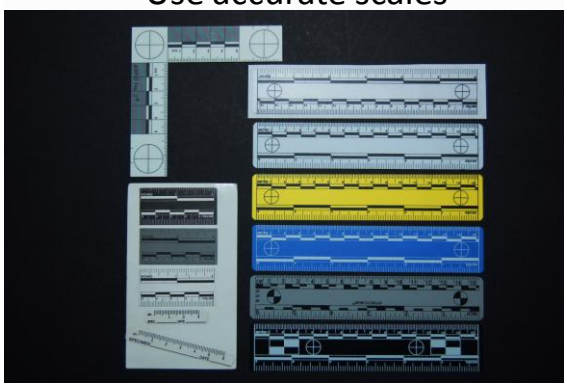
Painting with Light

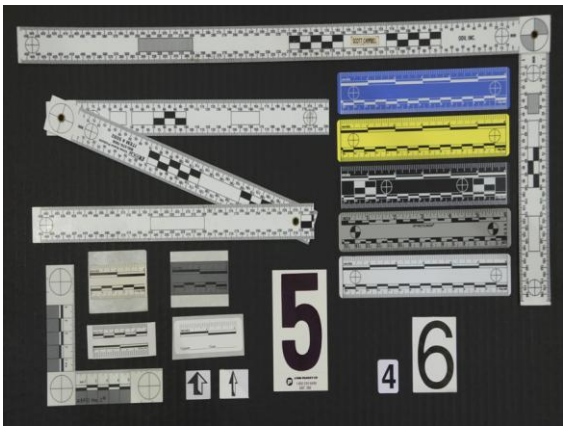
ISO 400, F-8, 30 seconds – painted with multiple flashes

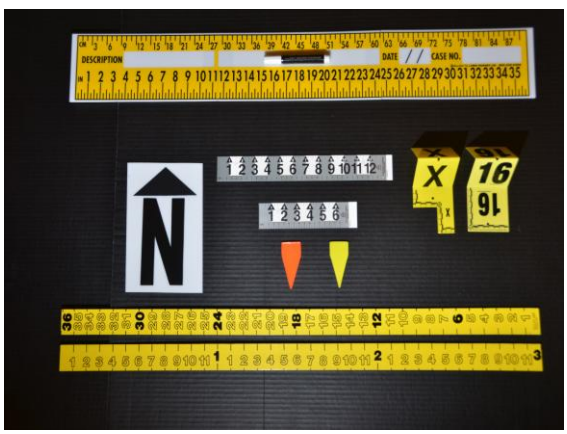
Scales

- Proper scales MUST be used for comparisons by the crime lab
  - Used for fingerprints
  - Tool marks
  - Foot and tire impressions
  - Bite marks
  - Blood spatter

Use accurate scales







Placards/Evidence Markers

- Numbered or lettered scene markers
  - Used to show items of evidence in the scene
  - May be "tent markers"
  - Cones
  - Paper cups if necessary
  - All placards should face the same direction in order to be viewed from the same direction

Lay out markers in a logical order

Fields of View/Scene Photos Use the "Rule of Three"

- **Overall Photos (orientation)** – establishes location
- **Medium Photos (relationship)** – relationship of evidence to location and other evidence
- **Close Up Photos (identification)** – of evidence

  Additional when needed:
- Macro Photo – examination quality

Fields of View/Scene Shots

Overall Photograph

- Shows a general overall view of the scene from the investigator's view starting in proper event sequence
  - May be used to show a witness viewpoint and confirm or deny their "eye witness account."
- Wide angle lens can be used if needed
- Overlap photos of walls, ceilings and floors to "stitch" or connect them together later

Fields of View

- Medium
  - Shows more detail of the scene and items while still being able to place them within the scene
- Close up
  - Shows great detail of specific items, not able to place it in the scene by the photograph alone
- Macro
  - Shows very fine details of wounds, tools, tool marks, impressions, fingerprints, bite marks
    - Scale required for comparison work

Medium Photograph

- Shows more detail of the scene and items within the scene
- Over-lapping of photos needed to show relationship of different pieces of evidence and their locations
- With and w/o scene marker if appropriate

Close up Photograph

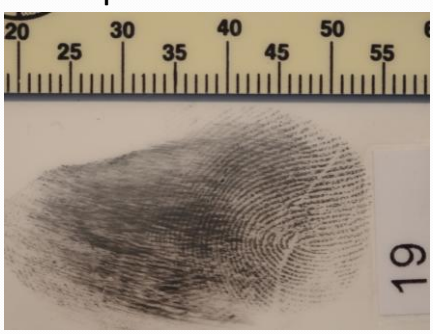
- Shows great detail of specific items, but not able to place item in the scene by the photograph alone
- Most likely with scene placard / marker
- Shows object of interest in great detail
- Accurate scale required for comparison work
  - Latent, footwear and tire impressions
  - Tool and bite mark impressions
  - Blood pattern evidence
  - Any small evidence to indicate actual size

VIN Through Glass – may shoot flash through the glass or put flash inside the windshield and point down

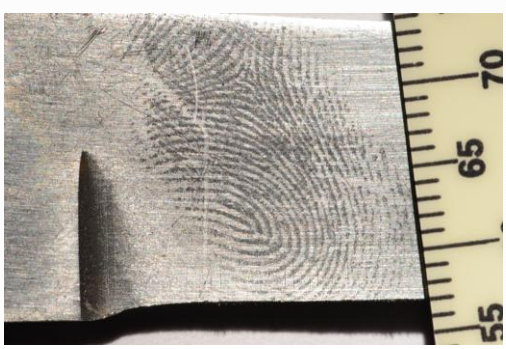
Close up - Macro

- Film plane should be parallel to object being photographed
  - Must be done for proper comparison by crime lab
  - Effective use of flash techniques is very important for macro work
  - Camera should be steady, a tripod helps
- Depth of field is very shallow
  - Must correct for this
    - Correct this by using a smaller f/stop
      - f/11, f/16, f/22

Macro photo of latent

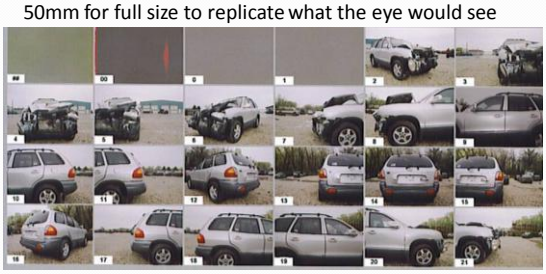


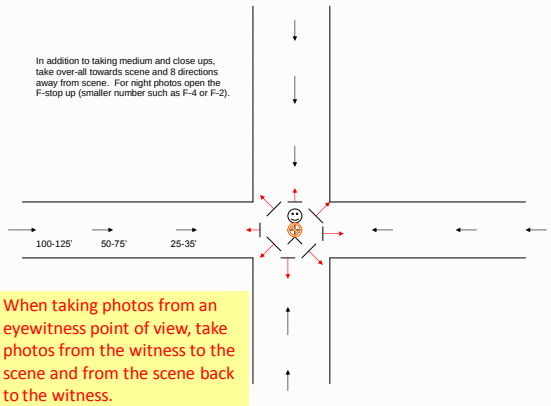
Latent on knife blade



Serious Accident Photos

Take photos down all sides of vehicles and at each corner. Use a 35mm lens for APS-C digital sensor or 50mm for full size to replicate what the eye would see





When taking photos from an eyewitness point of view, take photos from the witness to the scene and from the scene back to the witness.

Accident Scene

- Scene location identifiers
  - Street signs
  - Major identifiers
    - Landmarks
    - buildings

Accident Scene

- Contributing factors to accident
  - Snow / ice
  - Anything that blocks vision of drivers
  - Drug or alcohol usage
  - Roadway signage
  - Evidence of speed
    - Length of scene

Accident Scene

- Accident evidence
  - Gouges / scrapes
  - Skid / yaw marks
  - Roadway signage
  - Seatbelt usage
  - Interior damage or operation
  - Interior contents
  - Seat / Steering wheel positions

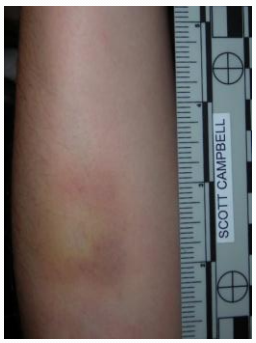
Yaw

Anatomy

- Treat injury photos just like any other evidence
- Photograph a sequence using all three views such as:
  - Person – overall view
  - Face and upper body with injury to elbow
  - Elbow injury with and without scale
- Knees and Elbows can look the same with only a close up photo
- Use caution so you don't over-expose or wash out with flash too close or too much power

Shin, calf, arm or ?

Flash positioning and power settings can make a difference with bruises.



Draping

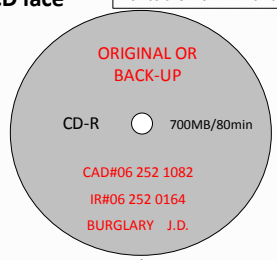
- The use of draping will allow you to take photographs of injuries near intimate parts of the body w/o exposing those parts.
  - Explain to the victim what photos you will be taking and why they are needed
  - Have hospital staff drape victim using a clean hospital bed sheet
  - It's a good idea to have a witness present such as someone from the hospital staff while photos are taken

Archiving Images

- Crime scene photos are evidence
- A standard operating procedure (SOP) should be used or established to ensure consistent integrity of photographic evidence
- SOP should spell out who takes the photos, by who and how the images are uploaded or burned, and responsibility for storage and retention
- Images should be archived or saved in a combination of locations such as CD, DVD, Hard Drive, Records Management System, etc.

Documentation on the CD face

One **Original** and one **Back-Up** CD-R can be created for each assignment. Burn each onto a CD or DVD and label each properly.

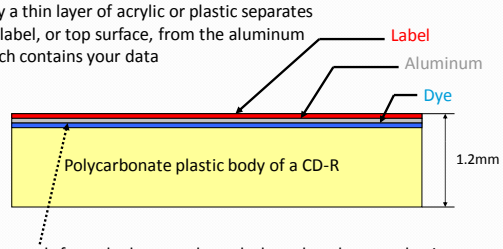


Other info that can be added:
CAD Number,
Incident Number,
Type of Case,
Your Initials

Only approved Sharpie CD/DVD markers should be used

Permanent markers and adhesive labels can deteriorate data on CD's. Only use markers designated safe for CD/DVD surfaces

Only a thin layer of acrylic or plastic separates the label, or top surface, from the aluminum which contains your data



Laser reads from the bottom through the polycarbonate plastic

Photographic ID Card

- Typically should be the first or last shot in the series of photos
  - Best if card is pre-made
- It is used to establish a connection/chain of evidence of the photos to your scene
  - Also helps if the photos or CD gets misplaced

Photographic ID Card

- ID Cards could show (whatever works best for your department)
  - Agency name
  - Photographer
  - Case number
  - Time
  - Date
  - Media card number
  - Location / Address
  - Case Type

POLICE DEPARTMENT NAME

PHOTOGRAPHIC RECORD SHEET

LOCATION:_____*Sample*_____

_____

DATE:_____/_____/_____TIME:_____

TYPE OF INCIDENT:_____

_____

PHOTOGRAPHER:_____

CAMERA BODY:_____ FLASH CARD:_____

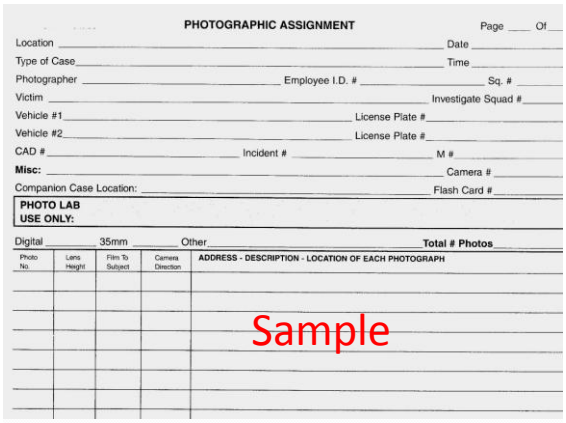
Records – Photographic log

- Record specific information about **each** photo (could include):
  - Address and/or location within the scene
  - Camera, lens, and flash used or not used
  - Photo or frame number
  - Describe item photographed, distance from camera and direction camera is pointing
  - Date, time
  - Any other information deemed appropriate by your department

You should document every photo!!!

Records – Photographic log

- Can assist those who review the photos to understand what your intent was, or for those that must use the photo evidence for reconstruction such as fire scenes, accident scenes or blood patterns
- Remember, you can't always collect all evidence from your scene such as a tire skid mark. It would be important to know which vehicle it came from, what direction it was going, and the sequence if more than one mark exists.



PHOTOGRAPHIC ASSIGNMENT

Page ____ Of ____

Location _____ Date _____

Type of Case _____ Time _____

Photographer _____ Employee I.D. # _____ Sq. # _____

Victim _____ Investigate Squad # _____

Vehicle #1 _____ License Plate # _____

Vehicle #2 _____ License Plate # _____

CAD # _____ Incident # _____ M # _____

Misc: _____ Camera # _____

Companion Case Location: _____ Flash Card # _____

PHOTO LAB USE ONLY:

Digital _____ 35mm _____ Other _____ **Total # Photos** _____

Photo No.	Lens Height	Film To Subject	Camera Direction	ADDRESS - DESCRIPTION - LOCATION OF EACH PHOTOGRAPH

Sample

Photography – Safety Issues

- Safety
  - Safe from suspects and crowds
  - Make sure you re-clear the house after patrol has done so
- Blood borne pathogens
- Structurally sound
  - Especially in cases of fire

Photography – Safety Issues

- Traffic
- General building construction
- Animals
- Downed wires / electrical hazards

Equipment Care

- Rain / Snow
  - Use 1 or 2 gallon zip lock bag to cover the camera and lens or flash
    - Cut holes for lens and operate camera from opening in the bag

• Digital equipment is much more sensitive to moisture than manual film cameras so use an umbrella or improvise with rain gear or a large piece of cardboard held overhead

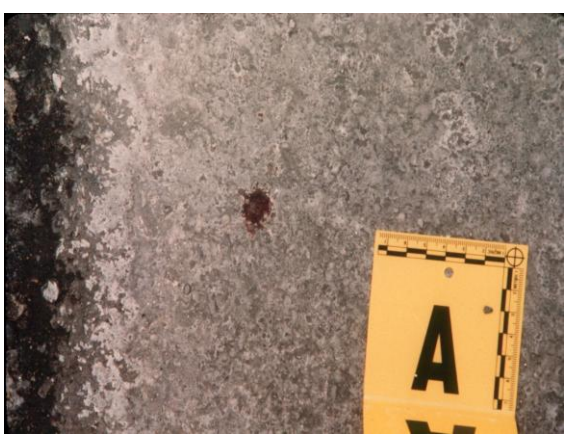
Digital

- Pro's
  - Able to see work immediately
  - E-mail other jurisdictions
  - Able to manipulate (correct mistakes)
  - Cost savings and environmentally friendly
- Con's
  - Able to manipulate
  - Must have STRICT chain of custody
  - Quality - Enlargements may not be as clear as film
  - Comparisons by crime lab are not always possible
    - Use uncompressed or lowest ratio of compression possible

Digital Terminology

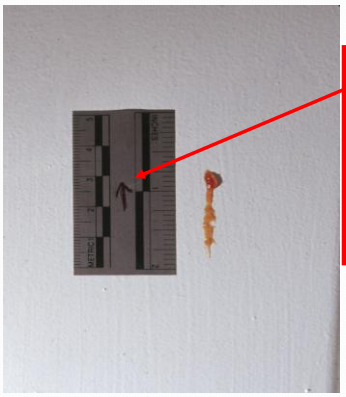
- Zoom
  - Optical
    - Enlarges or magnifies using the lens
    - Better option than digital zoom
  - Digital
    - Software (electronically enhanced) enlargement of picture
    - Distorts image causing poor quality

How large is the blood spot?



Hit & Run Accident Scene

WDK-710 OR WCK-710

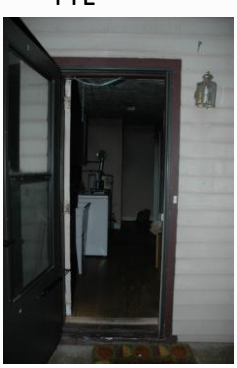


What does the black arrow indicate?

Which photo shows the right side next to the auto better?

Open the F-Stop and increase flash power manually.

TTL



Manual settings

When done manually, the results are much better!

Remember These

So you don't end up one of these

Questions or Clarifications?