TSS
Photography ★ ®

OUTDOOR

PHOTOGRAPHY

MANUAL

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<u>INTRODUCTION</u>

This guide is designed to assist with obtaining consistently exposed images OUTDOORS.

What Causes Over/Underexposed Images?

Reason #1: Failure to use a light meter

- "Metering" this way is very inaccurate and inconsistent
- In this case, the in-camera meter and the rear LCD screen are being utilized exclusively to judge the correct exposure
- The brightness setting on the rear LCD screen can vary, resulting in inaccurate lighting assumptions (over or underexposed)

Reason#2: Using Light Meter Incorrectly

- Not holding/pointing the light meter in the right direction
- Meter not on the right settings (ISO, Shutter speed or meter mode) when taking the reading
- Direct sunlight hitting the lumisphere (white dome) when metering outdoors

Reason #3: Inaccurate Camera/Light Meter Settings

- Not adjusting the camera to mirror the light meter readings (and vice versa)

Reason #4: Faulty equipment

- Camera not working properly
- Flash/Strobe not working properly
- Light meter not working properly

Reason #5: Inadequate equipment/lighting

- Flash/Strobe not powerful enough to eliminate shadows on subject(s)
- Improper fill lighting

Reason #6: Failure to utilize histogram to verify proper exposure

Reason #7: Failure to utilize camera loupe to verify proper exposure

Reason #8: Failure to utilize the camera "Highlights" option to check for overexposure

Reason #9: Failure to review the image after capture

Reason #10: Failure to discern proper exposure of image, after image has been reviewed

BASIC CAMERA FUNCTIONS

EXPOSURE:

- A camera utilizes the following three factors to expose an image:
  - **ISO** (How sensitive the camera is to light)
  - **Shutter Speed** (Length of time the camera shutter is open)
  - **F/Stop** (Internal lens opening that determines how much light is allowed into the camera)
- Exposure works in ratios. If you speed up the shutter (*less* time for light to hit the sensor); you can open up the lens to let more light in (smaller f/stop number).
- **Examples:**
  - If the correct exposure for a particular lighting condition is f/8 at 1/125, then f/11 at 1/60 will give you an equal exposure.
  - A shutter speed of 1/60 lets in twice as much light as a setting of 1/125.
  - An aperture setting of f/11 lets in twice as much light as f/16. The lens opening is larger (smaller the f/stop number, the larger the lens opening).
- When there is a proper combination of ISO, lens aperture and shutter speed, the image will be properly exposed.

ISO:

- ISO is the light sensitivity rating of the camera, or how sensitive the camera is to light.
- The lower the ISO number, the LESS sensitive the camera is to light and the MORE light is needed to properly expose an image.
- The higher the ISO number, the MORE sensitive the camera is to light and the LESS light is needed to properly expose an image.
- The lower the ISO number, the less digital noise (grain) in the image.
- The higher the ISO number, the more digital noise in the image.
- **The standard recommended ISO setting for outdoor photography: ISO 100**
- **Can adjust ISO up to 800 in low light situations (possibly higher with newer camera models)**

SHUTTER SPEED:

- Controls the length of time the camera shutter is open to expose light into the camera sensor.
- The faster the shutter speed, the less light that is allowed into the camera.
- Faster shutter speeds are utilized to stop or freeze action (best for action photography).
- The slower the shutter speed, the more light that is allowed into the camera.
- Slower shutter speeds are typically utilized in lower light situations.
- **The standard recommended shutter speed setting for outdoor photography: Between 1/60th and 1/250th of a second** (depends on lighting conditions)

F/STOP - APERTURE:

- F/Stop is also known as "Aperture".
- Aperture is the internal lens opening that determines how much light is allowed into the camera.
- The higher the f/stop NUMBER, the smaller the f/stop OPENING.
- The lower the f/stop NUMBER, the larger the f/stop OPENING.
- Controls depth of field in an image
    - Depth of field is the degree of focus in an image, from foreground to background.
    - The higher the f/stop number, the greater the depth of field.
    - The lower the f/stop number, the more shallow the depth of field.
- **The standard recommended f/stop setting for outdoor photography: F/10** (F/11 in NOT using a camera with a Nikon lens)

METERING:

- Most DSLR cameras contain an "In-Camera" light meter.
    - The in-camera meter is what allows the camera to set the exposure for an image when in an "auto" camera setting is being utilized.
    - It is NOT recommended utilizing the in-camera meter for most event types.
    - Best option when photographing "Party Pic" type events.
- Most events will require the use of a hand held light meter.
    - Works independently from the camera
    - Reads ambient (naturally occurring) light OR flash/artificial light
- Takes into account ISO rating and shutter speed to determine the correct aperture (f/stop) for a proper exposure.
- **The ISO and shutter speed settings of the light meter MUST be set to match the ISO and shutter speed of the camera. If not, exposure will be inaccurate**

CAMERA MODE:

- The "Mode" dial determines the camera's mode of operation.
- **M – Manual**: Photographer chooses the shutter speed, f/stop and ISO.
- **P – Program**: Fully automatic mode where the camera chooses both shutter speed and f/stop.
- **S – Shutter Priority**: Photographer chooses the shutter speed and ISO, the camera chooses the appropriate f/stop.
- **A - Aperture Priority**: Photographer chooses the f/stop and ISO, the camera chooses the appropriate shutter speed.
- **The standard recommended camera mode for outdoor photography: M - Manual**

WHITE BALANCE:

- White balance is the process of removing unrealistic color casts in an image, so that objects which appear "white" in person are rendered white in the image.
- DSLR cameras take into account the color temperature (relative warmth or coolness) of a light source in order to accurately render the final image.
- Most DSLR cameras have several pre-set white balance settings:
  - Flash
  - Sun
  - Shade
  - Overcast
  - Incandescent
  - Flourescent
  - Kelvin
  - Custom
  - etc….
- "Auto" white balance should NOT be used for most events, as it will produce the most inconsistent white balance results.
- It's always best to set the white balance setting to what the main source of light is exposing the subject.
- **The standard recommended white balance setting for outdoor photography**: **Flash**

IMAGE SIZE:

- Image size is the product of the width and height of a digital image in pixels.
- The larger the image size, the more pixels it will contain.
- **Example**: An image with the size 4608x3072px has a definition of 14,155,776 pixels, or about 14.2 MegaPixel.
- The larger the image size, the fewer the number of images that will fit onto the media card.
- The smaller the image size, the greater the number of images that will fit onto the media card.
- **The standard recommended image size setting for outdoor photography: Medium (or equivalent)**.
  - Usually produces a 6MP image size (Nikon D7000, D7100, D7200)

IMAGE QUALITY:

- Image quality is how much an image is compressed or "folded" into a smaller FILE size.
- Image quality determines how much space the image file size will occupy.
- The more an image is compressed, the smaller the image file size will be.
- The less the image is compressed, the larger the image file size will be.
- The image quality setting does NOT affect the image size (number of pixels) in an image.
- **The standard recommended image quality setting for outdoor photography: Basic** (high compression)

EXPOSURE GUIDELINES

IMPORTANT: ALL GUIDELINES REVIEWED IN THIS MANUAL WILL APPLY BOTH FOR INDIVIDUAL PHOTOGRAPHY AND FOR GROUP PHOTOGRAPHY.

EXPOSURE GUIDELINE: EXPOSURE MUST BE BALANCED

What is a balanced exposure?

A balanced exposure is when both the foreground AND the background are exposed evenly. It is when the flash/artificial light output in the foreground matches the ambient light in the background.

EXAMPLE: If the ambient light meter reading in the scene is at F/11, the flash output should ALSO be metered at F/11.

Examples of balanced exposure:

IMPORTANT: There are 2 metering zones in every image.

- **Foreground:** The subject, and everything located in front of the subject
- **Background:** Everything located behind the subject

What is an unbalanced exposure?

An unbalanced exposure is when there is a difference in exposure between the foreground and the background in an image.

Examples of Unbalanced Exposure

Example #1: Background exposed properly, subject underexposed.

Possible reasons for uneven exposure:
- Flash/strobe power output set too low
- Flash/strobe power output not adequate to match ambient light
- Capturing next image before the flash is fully recycled
  - low battery power
  - Shooting too quickly

Example #2: Background exposed properly, subject overexposed.

Possible reasons for uneven exposure:
- Flash/strobe power output set too high
- Direct sunlight covering 100% of the subjects face
  - Not backlighting with the sun
  - Subject positioned poorly
- Not utilizing shade tent or shade
- Shutter speed on camera set too low (if utilizing outdoor exposure chart)

Example #3: Subject exposed properly, background underexposed

Possible reasons for uneven exposure:
- Shaded trees/bushes in the background
  - This scenario MAY be unavoidable if photographing in direct sunlight with shaded areas in the background
- Subject standing in direct sunlight

Example #4: Subject exposed properly, background overexposed.

Possible reasons for uneven exposure:
- Did not meter for the brightest area in the image (the background in this case)
- Camera shutter speed set too low (if utilizing outdoor exposure chart)

Example #5: Subject overexposed, background underexposed

Possible reasons for uneven exposure:
Background:
- Shaded background area

Subject:
- Flash/strobe power output set too high
- Subject could be standing in direct sunlight
- Camera shutter speed set too low (if utilizing outdoor exposure chart)

Example #6: Subject Underexposed, background overexposed.
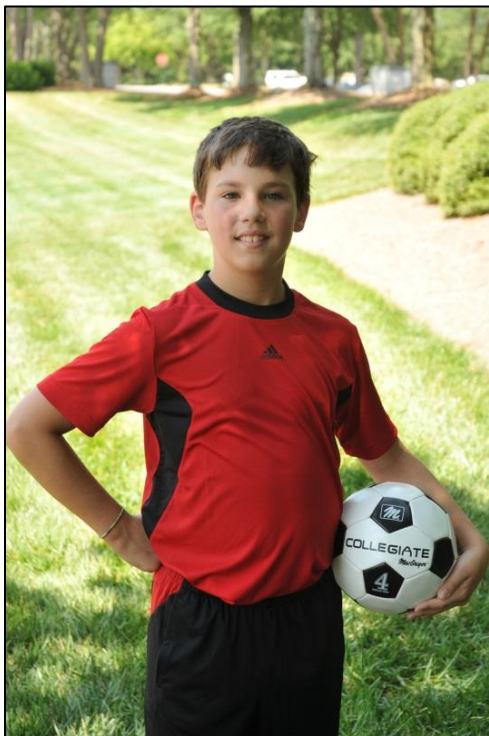
Possible reasons for uneven exposure:
Background:
- Did not meter for the brightest area in the image (the background in this case)

Subject:
- Flash/strobe power set too low
- Flash/strobe power output not adequate to match ambient light
- Capturing next image before the flash is fully recycled
    - low battery power
    - Shooting too quickly

OUTDOOR LIGHTING BASICS

IMPORTANT: The current outdoor lighting recommendation was designed to simplify the process of obtaining an image with a balanced/even exposure, when photographing in manual camera mode **AND** in manual flash mode.

IMPORTANT:
- **Even though both the camera and the flash are being utilized manually**, **the ONLY setting that is potentially adjusted is the shutter speed.**
  - The shutter speed is adjusted to accommodate the current lighting condition
  - Shutter speed options: $1/250^{th}$, $1/125^{th}$, $1/60^{th}$ and $1/30^{th}$
  - Utilize the, "**Shutter Speed Reference Chart**" to select shutter speed
- **The ISO, f/Stop and power output of the studio flash will ALL remain static.**
  - Once the power output of the studio flash is set, it is NOT adjusted (regardless of the lighting conditions)
  - Once the camera f/stop is set, it is NOT adjusted (regardless of the lighting conditions)
  - Once the camera ISO is set, it is NOT adjusted (**Unless in very low light situations**)

IMPORTANT: **Because of the static nature of the ISO, f/stop and flash power output, this recommendation is an easy process to learn AND an easy process to teach others**

IMPORTANT: A studio strobe/flash is required in order to properly execute the outdoor lighting recommendation. The power/light output of an on-camera/dedicated flash will not be enough to utilize this setup.

IMPORTANT: At minimum, an 18 inch silver reflector is required to properly execute the outdoor lighting recommendation. A smaller reflector will NOT project enough light to meet the F/stop, ISO and shutter speed settings and requirements (**unless a flash with more than 320ws of power is used**)

Recommended Photography Equipment:
- **DSLR Camera** (**Nikon D7200** currently recommended)
- **Camera Lens** (**Nikon 18-105mm Lens** currently recommended)
- **Studio Strobe/Flash** (**Alien Bee B800** currently recommended)
- **18 Inch Silver Reflector** (**Paul Buff 18" Omni Reflector** currently recommended)
- **Portable Battery/Power Pack** (**Vagabond Mini Lithium** currently recommended)
- **Light Meter** (**Sekonic 308s** currently recommended)
- **Radio Transmitter** (**Cyber Sync CST Transmitter** currently recommended)
  - Sync cord can be utilized in lieu of
- **Radio Receiver** (**Cyber Sync CSR Receiver** currently recommended)
  - Sync cord can be utilized in lieu of
- **Tripod** (**Manfrotto** tripod and head currently recommended)
- **Light Stand** (**Paul Buff 13ft Heavy Duty Light Stand** currently recommended)
- See, "**Outdoor Sports Checklist**" for a comprehensive list.

NON-NEGOTIABLE EQUIPMENT

STUDIO FLASH:
- A powerful light source is needed (minimum 300ws)
- An on-camera flash will <u>NOT</u> be powerful enough for recommendation
    - Most on-camera flashes are less than 100ws at full power
    - Minimum 300ws will be needed for recommendation
- **Recommended light**: Alien Bee B800 (or equivalent)
    - 320ws
    - Can be purchased from Paul Buff Inc.
    - $279 per light

18 INCH SILVER REFLECTOR (minimum):
- Larger reflector <u>GREATLY</u> increases the efficiency of the light
- 7 inch reflector will NOT work
- Recommended Reflector: 18" Omni Reflector
    - Can be purchased from Paul Buff Inc.
    - $80 per reflector
- **IMPORTANT**: Standard 7" reflector can be utilized **IF** using a more powerful light
    - Alien Bee B1600 (640ws)
    - Einstein (640ws
    - White Lighting X1600 (660ws)
    - All can be ordered from Paul Buff Inc.

LIGHT MODIFIER IMAGE COMPARISON:

Shutter Speed: 1/250th
ISO: 100
F/Stop: F/11
Modifiers Used: Bare bulb, 7" reflector, 18" reflector

Bare Bulb	**7" Reflector**	**18" Reflector**

OUTDOOR LIGHTING SETUP

Step One: **Determine and Mark Subject Position**
- Position subject where sun is over subjects shoulder
- Apply the 80/20 rule if possible (80% of subjects face is in the shade and 20% is in the sun)
- Position subject foot marks so they will be in the correct position once at the photo station (subject angled away from the sun)

Step Two: **Measure and Mark Position of Studio Light**
- **The distance between subject and light is 12 feet**
- The distance between subject and light MUST stay consistent in order to maintain proper exposure

Step Three: Set Up Studio Light
- Utilize Alien Bee B800 (or comparable light)
- Utilize 18" reflector (without diffusion sock)
- Utilize Vagabond Mini battery
- Utilize heavy duty light stand
- Bottom of reflector should be 5ft off of ground, pointed directly towards subject
- Plug radio receiver into Alien Bee B800 (both power cord AND sync cord)
- Plug light/radio receiver into Vagabond battery
- Power on battery and light and set light power output to ½ power
- Make sure modeling bulb has been removed

Step Four: **Meter Studio Light**
- Set light meter to "Flash" mode
- Set ISO to 100
- Set Shutter Speed to 125
- Stand in the subject position
- Verify NO direct sunlight is hitting the white meter dome
    - Meter dome can be shaded with hand to ensure no direct sunlight is in contact
- Verify hand is NOT blocking meter dome from strobe
- Point light meter directly towards studio light
- Meter studio light from subject position and adjust the power output until F/11 is achieved

Step Five: Set Up Tripod with Camera

- Set up tripod to desired height
- Mount camera to tripod
    - Verify tripod/camera plate is securely fastened to camera
- Verify camera settings
    - **ISO:** 100
    - **F/Stop**: F/11
    - **Shutter Speed**: 1/30th to 1/250th
        - Shutter speed will depend on lighting conditions
        - See, "**Shutter Speed Reference Chart**" to determine correct shutter speed (See Below)
    - **Shooting Mode**: Manual
    - **Image Size**: Medium
    - **Image Quality (Compression)**: Basic
    - **White Balance**: Flash or Kelvin (K) 5560
    - **Shutter Release Mode**: Single (S)
    - **Auto Focus (Camera)**: ON and set to "AF-S" (Single)
    - **Auto Focus (Lens)**: "A" or "MA" (auto), NOT "M"
    - **Auto Focus Points Area Mode**: Auto
- Mount Cyber Sync Transmitter on top of camera in hot shoe

Shutter Speed Reference Chart
(Lighting Condition Prior to Taking Picture of Subject)

1/250th - **If Subject Shadow <u>CAN</u> be Seen**
1/125th - **If Subject Shadow can <u>NOT</u> be Seen**
1/60th - **Low Light**
1/30th - **Very Low Light** (tripod recommended)

Step Six: Take Test Shot

- This is done to confirm exposure and to ensure all photography equipment is working properly

SHUTTER SPEED REFERENCE CHART

Shutter Speed Reference Chart
(Lighting Condition Prior to Taking Picture of Subject)

1/250th - If Subject Shadow CAN be Seen
1/125th - If Subject Shadow can NOT be Seen
1/60th - Low Light
1/30th - Very Low Light (tripod recommended)

IMPORTANT: Shutter speed reference chart is to be utilized in conjunction with the outdoor photography recommendation. It will assist in determining the appropriate shutter speed to be used, based on the current lighting condition. The chart refers to the lighting condition **PRIOR TO** taking picture of subject.

- **1/250th - If Subject Shadow CAN be Seen**: Bright, sunny day with direct sunlight hitting the subject.
- **1/125th - If Subject Shadow can NOT be Seen**: Overcast, Cloudy day
- **1/60th - Low Light**: Earlier or later in the day and/or with overcast clouds.
- **1/30th - Very Low Light**: Very early or very late in the day and/or with overcast/clouds.

| 1/250th | 1/125th | 1/60th | 1/30th |

IMPORTANT: **Some camera makes and models have a slower sync speed than 1/250th. Please consult owner's manual for specific maximum flash sync speed.**

- **Nikon:** 1/250th Max Sync Speed (most makes/models)
- **Canon:** 1/200th Max Sync Speed (most makes/models)

SETUP VERSATILITY

IMPORTANT: Lighting setup works regardless of the subject position relative to the sun, **even when standing in direct sunlight**.

Setup works when the subject is:
- Front Lit
- Side Lit
- Back Lit
- In Shade

| Front Lit | Side Lit | Back Lit | In Shade |

IMPORTANT: Even though lighting recommendation will work with multiple lighting condition scenarios, facing the subject towards the sun is NOT recommended. Doing so could cause the following issues:
- Harsh light on subject
- Subject squinting eyes

IMPORTANT: Also use caution when back-lighting subject (camera facing towards sun). Doing so could cause lens flare (sun spots on the image). **Always use a lens hood when photographing outdoors.**

PHOTOGRAPHING WITH A TENT/SHADER

IMPORTANT:
- Light positioned 12ft from subject
- Subject positioned in the middle of the tent
- Bottom of reflector is 5ft from ground
- **ISO**: 100
- **Shutter Speed**:
  - $1/125^{th}$ in bright/direct sunlight
  - $1/60^{th}$ in low light conditions
  - $1/30^{th}$ in very low light conditions
- **F/stop**: F/11

Posed in the Middle of the Tent

12ft

5ft
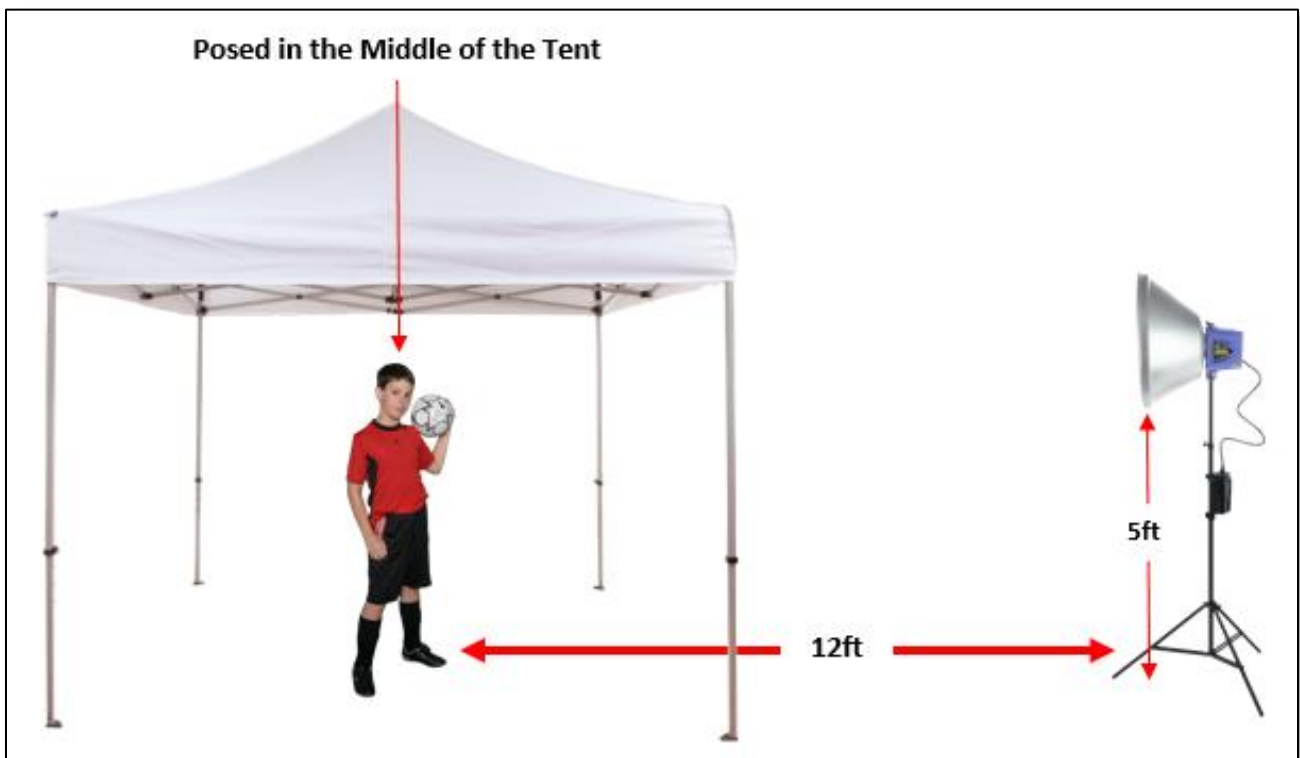
IMPORTANT: The above information applies also if utilizing a shader-diffuser on the subject.

PHOTOGRAPHING IN VERY LOW LIGHT

IMPORTANT: **Camera settings will need to be adjusted beyond shutter speed when dealing with very low light situations (very early morning or late evening). Utilizing a low shutter speed alone will not be enough to obtain a balanced exposure.**

When photographing in very low light:
- **Shutter Speed**: 1/30th
- **F/Stop**: F/11
- **ISO**: Increase ISO as high as necessary in order to obtain a balanced exposure (between 200 and 800)
  - Some newer camera models can utilize higher ISO's without negatively affecting image quality. In these cases ISO 1600 to 3200 would be perfectly acceptable
  - Be cautious of raising ISO higher than 800 on older camera models. Doing so could result in compromised image quality/artifacts/digital noise

Step One: **Adjust Camera Settings**
- Set shutter speed to 1/30th
- Set F/stop to F/11
- Set ISO according to current lighting conditions (200 to 800)

Step Two: **Meter Studio Light**
- Stand in subject position and meter light
- Adjust power output of flash until F/11 is achieved
  - The white diffusion sock that comes with 18 inch reflector may be necessary when dealing with higher ISO settings

Step Three: **Take Test Shot**
- Check both subject and background exposure
- If background is still too dark, increase ISO accordingly

IMPORTANT: If adjusting from a **LOWER** ISO to a **HIGHER** ISO, the power output of the flash will need to be **DECREASED** in order to obtain an F/11 exposure on the subject.

IMPORTANT: If adjusting from a **HIGHER** ISO to a **LOWER** ISO, the power output of the flash will need to be **INCREASED** in order to obtain an F/11 exposure on the subject.

| ISO: 100 | ISO: 200 | ISO: 400 | ISO: 800 |

## Outdoor Sports – Individuals & Little League Groups – 2017L

Case Inventory

Camera
- ☐ D7200 Camera Body
- ☐ 18-105mm Lens
- ☐ Lens Hood
- ☐ 3 Genuine Nikon Camera Batteries - Charged
- ☐ Camera Battery Charger

Lighting
- ☐ Heavy Duty Light Stand
- ☐ 2 Alien Bee B800's
- ☐ 2 Power Cords - Short
- ☐ Studio Lights Tested
- ☐ 2 ¼" Stereo Sync Cords
- ☐ 2 Hot Shoe Adapters
- ☐ 2 CyberSync Transmitters
- ☐ 2 CyberSync Receivers
- ☐ 2 CyberSync Sync Cords – Miniature to ¼"
- ☐ 18" Silver Reflector (Spill Kill)
- ☐ Vagabond Power Pack – Charged
- ☐ Extra Vagabond Battery - Charged
- ☐ Light Meter – Battery Checked
- ☐
- ☐
- ☐

Tablet Kit
- ☐ PhotoMatch Tablet - Charged
- ☐ Keyboard
- ☐ Power Cord
- ☐ Tablet Bracket to Mount on Stand
- ☐ Tablet Hood
- ☐ 2 D7100/7200 Camera USB Cables
- ☐ Double USB Adapter
- ☐ 2 Scanners
- ☐ Hot Spot Router
- ☐ Sales Table Tablets - Charged

Misc
- ☐ 4 Memory Cards
- ☐ Memory Card Envelopes
- ☐ Zippered Card Pouch
- ☐ Tape Measure
- ☐ Gaffer Tape
- ☐ Hoodman Viewer
- ☐ Sun Umbrella Kit
- ☐ Stool
- ☐ Sample Display
- ☐ Registration Tablets - Charged
- ☐ Photo Props
- ☐ BU Sequence Cards, Stringer, Pens
- ☐ Boundary Stakes
- ☐ Boundary Ribbon

Setup & Settings

Setup & Settings
- ☐ Setup with Sun Over Subject's Shoulder
- ☐ Mark spot for Studio Light
- ☐ Mark the spot for the subject and group at 12ft
- ☐ Feet marks should be spread apart
- ☐ Set marks at angle so subject faces away from sun
- ☐ Setup studio light w/ reflector bottom 5ft off ground
- ☐ Point reflector towards subject position
- ☐ Power up Studio Light plugged into Vagabond
- ☐ Modeling light/bulb is OFF (or removed)
- ☐ Modeling bulb has been removed
- ☐ Set top power slider to ½ Power
- ☐ Set Light Meter to "Flash", ISO100, 1/125 Shutter
- ☐ **Verify no direct sunlight is hitting meter dome**
- ☐ Verify hand is not blocking meter dome from strobe
- ☐ Meter Studio Light to F/11 (12ft from subject mark)
- ☐ Setup Tripod with Camera
- ☐ Verify Camera Settings
- ☐ Camera - Shooting Mode = M (Manual)
- ☐ Camera - Quality = S Basic (6MP on D7100)
- ☐ Camera - WB (White Balance) = K (Kelvin) 5560°
- ☐ Camera - ISO = 100
- ☐ Camera - Shutter Release Mode = S (Single)
- ☐ Camera - Auto Focus switch on body to AF
- ☐ Camera - Lens Auto Focus Switch = A or MA (NOT M)
- ☐ Camera - Focus Mode = AF-S (Single)
- ☐ Camera - Auto Focus Points Area Mode = Auto
- ☐ Front of Lens Clean & Lens Hood Properly Seated
- ☐ Camera - Image Review Settings –Focus Points On
- ☐ Camera – Review Mode – Focus Points Screen
- ☐ Camera - Aperture (f/stop) f/11
- ☐ Camera - Shutter Speed – 1/30 to 1/250
  See Chart Below

> **Shutter Speed Reference Chart**
> (Lighting Condition Prior to Taking Picture of Subject)
>
> 1/250th - If Subject Shadow **CAN** be Seen
> 1/125th - If Subject Shadow can **NOT** be Seen
> 1/60th - Low Light
> 1/30th - Very Low Light (tripod recommended)

-IMPORTANT-
If using a Non-Nikon Camera, check owner's manual for maximum flash sync speed. Some camera makes/models have a slower sync speed than 1/250th

- ☐ Mount CyberSync Transmitter on camera
- ☐ Setup Hot Spot
- ☐ Setup Tablet
- ☐ Verify Tablet, SNAP, PhotoMatch, DigiCam Settings

OUTDOOR SETUP: STANDARD

THIS SETUP WILL WORK FOR BOTH INDIVIDUALS AND/OR FOR GROUPS
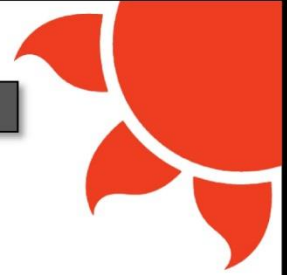
12ft

Shutter Speed Reference Chart
(Lighting Condition Prior to Taking Picture of Subject)

$1/250^{th}$ - If Subject Shadow <u>CAN</u> be Seen
$1/125^{th}$ - If Subject Shadow can <u>NOT</u> be Seen
$1/60^{th}$ - Low Light
$1/30^{th}$ - Very Low Light (tripod recommended)

SUBJECT

- Subject is Positioned 12ft from Light/Flash
- Subject Should be Angled Slightly Away from Camera and AWAY from the Sun
- 12ft Mark is Where the Individual Subject is Positioned AND Where the Front Row of the Group is Positioned

MAIN LIGHT

- 18" Silver Reflector Without Diffusion Sock
- Bottom of Reflector Should be 5ft from Ground
- Light is Positioned 12ft from Subject Position
- <u>Light Should be Placed on Opposite Side of Where Sun is Striking Subject</u>
- Light Metered at: F/11
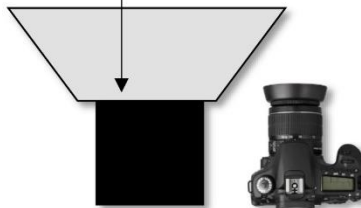
LIGHT METER

- Mode: Flash
- ISO: 100
- Shutter Speed: 125
- F/Stop: F/11
- Take Meter Reading from Subject Chin Position
- Point Light Meter Towards Camera Position
- Make Sure no Direct Sunlight is Hitting White Dome
- Make Sure White Dome is Not Covered

SETUP

STEP ONE: Mark Subject Position
STEP TWO: Mark Light/Flash Position
STEP THREE: Set Up Light/Flash
STEP FOUR: Meter Light/Flash
STEP FIVE: Set Up Tripod and Camera
STEP SIX: Take Test Shot

CAMERA SETTINGS

- ISO: 100
- F/Stop: F/11
- Shutter Speed: 1/30 to 1/250 (See Shutter Speed Reference Chart)
- White Balance: Flash
- Camera/Photographer is Positioned Directly Beside Light

HOW TO CHECK AN IMAGE FOR PROPER EXPOSURE

One: **Utilize the Histogram**

The Histogram is a graphical representation of the tonal values of an image. Black pixels are on the left side of the histogram and white pixels are on the right side of the histogram.

IMPORTANT: Having a lot of DARK pixels in an image doesn't necessarily mean that an image is underexposed. Having a lot of LIGHT pixels in an image doesn't necessarily mean that an image is overexposed.

EXAMPLE: In the image and histogram below, there are a lot of dark pixels in the image because the person being photographed is wearing a black jacket. The black jacket occupies a lot of space (pixels) in the image, thus the histogram is showing a lot of dark pixels on the left hand side of the graph. Even though there are a lot of dark pixels, the image is not underexposed.
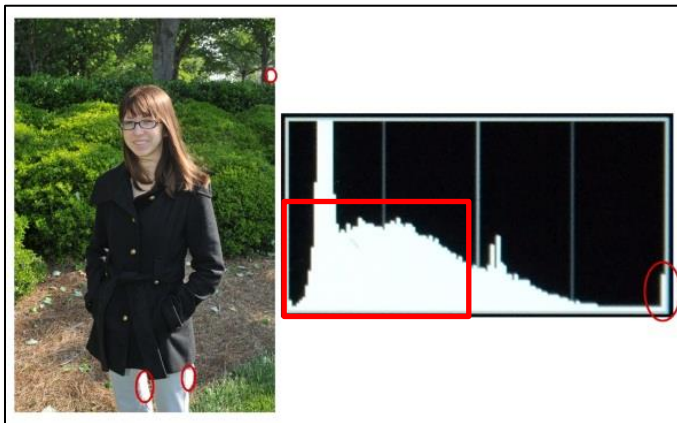
EXAMPLE: In the image and histogram below, there are a lot of light pixels in the image because the person being photographed is wearing a light colored shirt. The light colored shirt occupies a lot of pixels in the image, thus the histogram is now showing a lot of light pixels on the right side of the graph. Even though there are a lot of light pixels, the image is not overexposed.
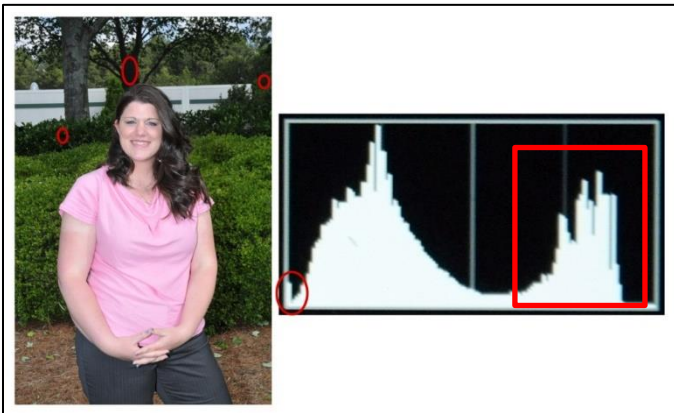
IMPORTANT: The easiest way to tell if an image is overexposed or underexposed is by looking at the VERY edge of either the left side (dark pixels) or the right side (light pixels) of the graph. If the histogram is "peaking" on the very end (either the dark side or the light side), it means you are losing detail in some area(s) of the photograph. This is especially true if there's a solid bar moving up either side.
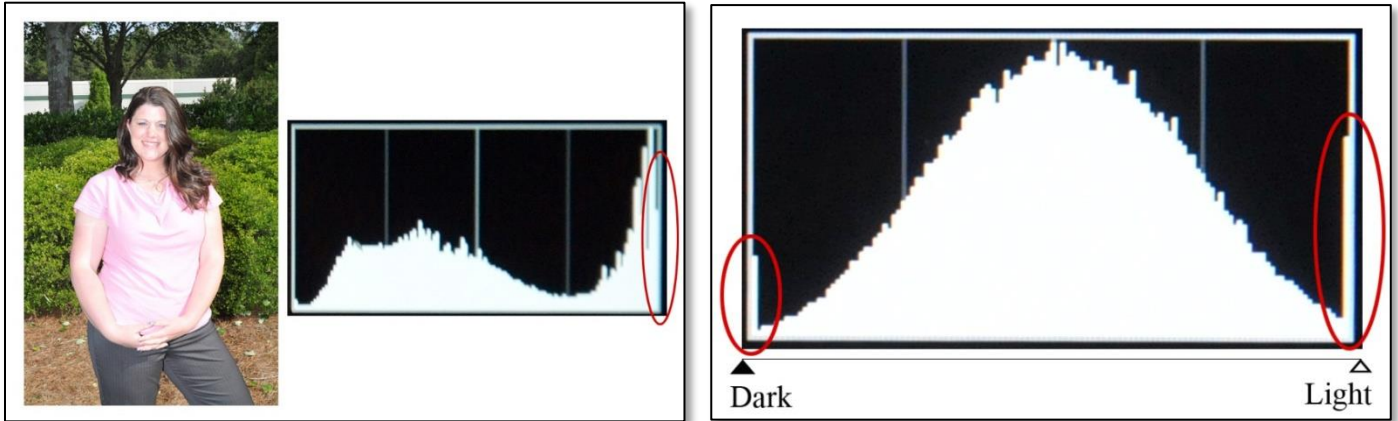
There is a LOT of variation when it comes to histogram displays, since there is a lot of variation in the intensity of light striking the camera's sensor.

More often than not, your histogram will produce peaks and valleys which represent areas of shadow and highlight in your photo.

The important thing to remember from an exposure standpoint, is to make sure that the bulk of the histogram falls between the two endpoints.

For a more complete explanation on the histogram, please see the "**Understanding the Histogram**" document.

Two: **Utilize the Camera Highlights Function**

This important function shows areas in the image that have lost image detail/information. If an important area of the image (face, skin, clothing) is being highlighted, the camera settings need to be adjusted until the highlighted areas have disappeared.

NOTE: Please see camera manual on how to activate the highlights function on your specific camera.

<u>Three</u>: Utilize a Camera Loupe

A camera loupe is a simple magnification device used to more accurately see an image on a camera display screen. It is a very effective tool for checking exposure due to the following reasons:

- Removes all ambient light (very important when photographing outdoors)
- Magnifies image

The most popular brand of camera loupe is the **Hoodman Loupe**, and can be purchased for around $80.

NOTE: **The use of a camera loupe is HIGHLY recommended.**

LIGHTING EXPLANATIONS

IMPORTANT: The recommended studio flash for outdoor photography is the **Alien Bee B800**
- 320 watt second light
- Powerful enough to be utilized both for groups and for individuals
- Can be used in conjunction with the **Vagabond Mini Lithium** portable battery for photographing outdoors
- Cost effective and scalable
- Light weight and easy to transport
- Manual power adjustment ONLY
- More than five times as powerful than most dedicated flashes
- MUST be used with the **Omni 18" Reflector** for maximum efficiency when photographing outdoors (pictured below)

WATT-SECONDS: "a derived unit of energy equivalent to the joule"

It is the energy equivalent to the power of one watt sustained for one second. This term is commonly used in the photographic industry to describe the power/light output of a flash.

IMPORTANT: The higher the watt-second rating of a flash, the greater the light output and distance coverage of that flash. For example, a 300 watt-second light is much more powerful (puts out more light and covers more distance) than a 100 watt-second light.

IMPORTANT: The higher the watt-second rating on a flash, the greater the potential it has of eliminating unwanted shadows on the subject(s).

CHEAT CARD: LIGHT METER

LUMISHPERE

ON/OFF BUTTON

CHANGES METER MODES

CHANGES ISO

PC SLOT FOR SYNC CORD

NEEDS TO BE SLID ALL THE WAY TO THE LEFT TO COVER SENSOR

RESET BUTTON: PUSH THIS BUTTON TO TAKE METER READING

THE ADJUSTMENT BUTTONS WILL ADJUST THE FOLLOWING: SHUTTER SPEED ISO METER MODE

AMBIENT METER MODE: USE WHEN METERING AMBIENT LIGHT OUTDOORS

FLASH METER MODE: USE WHEN METERING A STUDIO LIGHT/FLASH, EITHER INDOOR OR OUTDOOR

FLASH-CORDED METER MODE: USE WHEN METERING A STUDIO LIGHT/FLASH, EITHER INDOOR OR OUTDOOR IN TANDEM WITH SYNC CORD

BATTERY LIFE INDICATOR

SHUTTER SPEED INDICATOR

ISO INDICATOR

FULL F/STOP INDICATOR
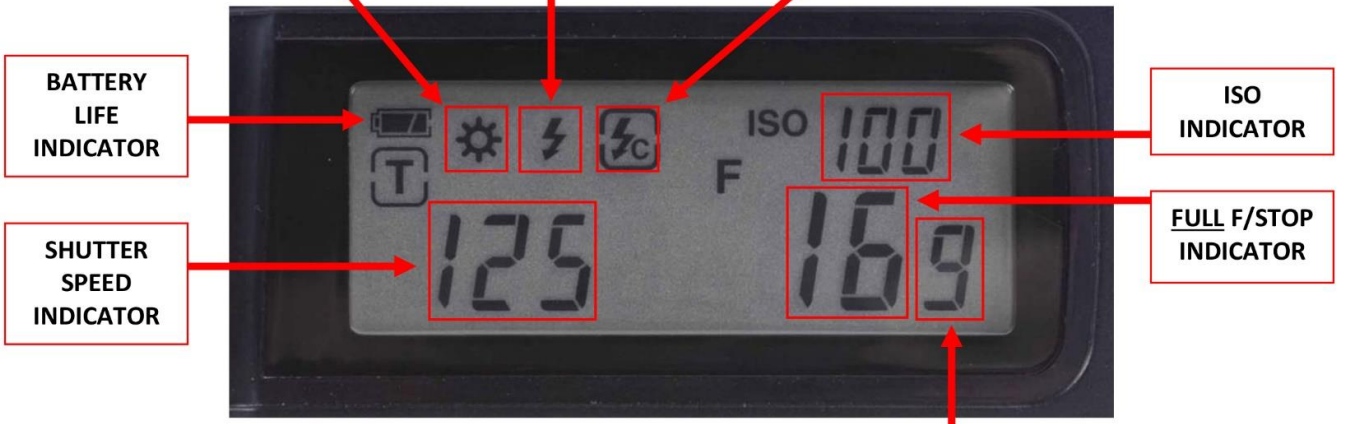
EXAMPLES:

8_0 (8 & 0 Tenths) = **F/8**
8_3 (8 & 3 Tenths) = **F/9**
8_7 (8 & 7 Tenths) = **F/10**
8_9 (8 & 9 Tenths) = **F/11**

TENTH F/STOP INDICATOR:

IMPORTANT: THE LARGER NUMBER TO THE LEFT WILL READ ONLY IN FULL F/STOPS. THE SMALLER NUMBER TO THE RIGHT INDICATES 1/10TH STOP INCREMENTS IN BETWEEN EACH FULL F/STOP. THE 1/10TH STOP READING IN CONJUCTION WITH THE FULL F/STOP READING WILL DETERMINE THE CORRECT F/STOP.

	F/STOPS	
HALVES	WHOLE	THIRDS
	1.4	
1.7		1.6
		1.8
	2.0	
2.4		2.2
		2.4
	2.8	
3.3		
	4.0	
4.8		4.5
		5.0
	5.6	
6.7		6.3
		7.1
	8	
9.5		9
		10
	11	
13		13
		14
	16	
19		18
		20
	22	
27		25
		29
	32	

Most Camera's Will Display & Adjust F/Stops in 1/3rd Stop Increments

f/16
f/11
f/8
f/5.6
f/4
f/2.8
f/2
f/1.4

F32 F22 F16 F11 F8 F5,6 F4 F2,8 F2 F1,4

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

ISO 50 ISO 100 ISO 200 ISO 400 ISO 800 ISO 1600 ISO 3200 ISO 6400 ISO 12800 ISO 25600

OUTDOOR PHOTOGRAPHY WORKFLOW

<u>IMPORTANT</u>: **Workflow is an extremely important aspect of ANY photography event**. It can often times make the difference between a successfully executed event and one that was executed unsuccessfully.

<u>What is Workflow</u>?

Workflow is simply a series of activities that are necessary to complete a task. In regards to event photography; it is how the customers and/or photography subjects are "processed" from the time they arrive at the event, until the time they leave the event.

Workflow can vary quite drastically depending on the type of event that is being executed. However, one workflow aspect that should be common among ANY event, regardless of the type, is the need for crowd control.

It should be clear to the customers and/or photography subjects when they arrive at the event, what the next step is. Do they go immediately to the camera station, or do they pay first? Do they NEED to pay first, or will they have the opportunity to view their images online prior to ordering? Does EVERYONE need to check in, or JUST those who are being photographed? Does EVERYONE need to be photographed, or JUST the customers who placed an order? If instructed to go to camera station number one, is that camera station clearly marked so the customers know exactly where to go?

<u>CRITICAL CROWD CONTROL FACTORS</u>:

<u>ONE</u>: Communication
- Clear communication with the organization on how the event will be executed
    - Some organizations have a preferred workflow that must be adhered too
    - Are there certain rooms/areas that are off limits
- Trained staff to give instruction when needed
    - This may require one or more staff members depending on the size and complexity of the event
    - ALL staff members should be aware of the proper event workflow AND be able to explain it if need be
- Uniform attire for staff members
    - It should be clear and obvious to customers/photography subjects who they can go to if they have questions
- If a large venue, marketing pieces that announce your presence at the event and where photo day will be taking place
    - Yard signs
    - Banners & Flags
    - Posters
- Signage that clearly states what the customer/photography subject should do or should NOT do upon arriving at the event
- Signage that clearly marks camera stations

TWO: Barriers/Stanchions

- **Having barriers/stanchions in place can be a VERY effective tool in controlling event traffic**
- Gives you the ability to effectively separate the check-in/sales area from the photography area
- Gives you the ability to isolate the individual and/or group camera stations
  - Greatly reduces or eliminates customers/parents being able to take photos at the camera station(s)
  - Greatly reduces or eliminates ordering and sales related questions being asked at the camera station(s)
  - Greatly reduces or eliminates unnecessary traffic at the camera station(s)
- Gives you the ability to have clearly defined camera station lanes
- Gives you the ability to have staging areas both for individual camera stations AND for group camera stations
- There are multiple barrier/stanchion options both for indoor AND for outdoor events
  - **Indoor**: **Mr. Chain Black Stanchion Kit**

  - **Outdoor: 4ft Electric Fence Posts**

- For outdoor barriers/stanchions, some form of barrier tape will also be required
  - Caution Tape
  - Landscaping Ribbon
  - Colored Rope

THREE: Staging Areas
- Staging area for individuals AFTER the sales/check-in process has been completed
- Staging area for the group station AFTER individuals have been taken
- Staging areas should be clearly marked
- Can utilize barriers/stanchions to mark staging areas

FOUR: Clearly Defined Entrance and Exit Points
- **It is imperative that there be clearly defined entrance and exit points at the event**
- Entrance and exit points will potentially be needed at the following:
    - Sales/display Area
    - Photography Area
    - Individual Camera Station(s)
    - Group Camera Station(s)

Below is an outdoor photography workflow example utilizing all factors listed above:

 Documents can be downloaded via the, "Photography & Operations Resource Guide"
(Bizhub/Library/Photography & Operations Resource Guide)
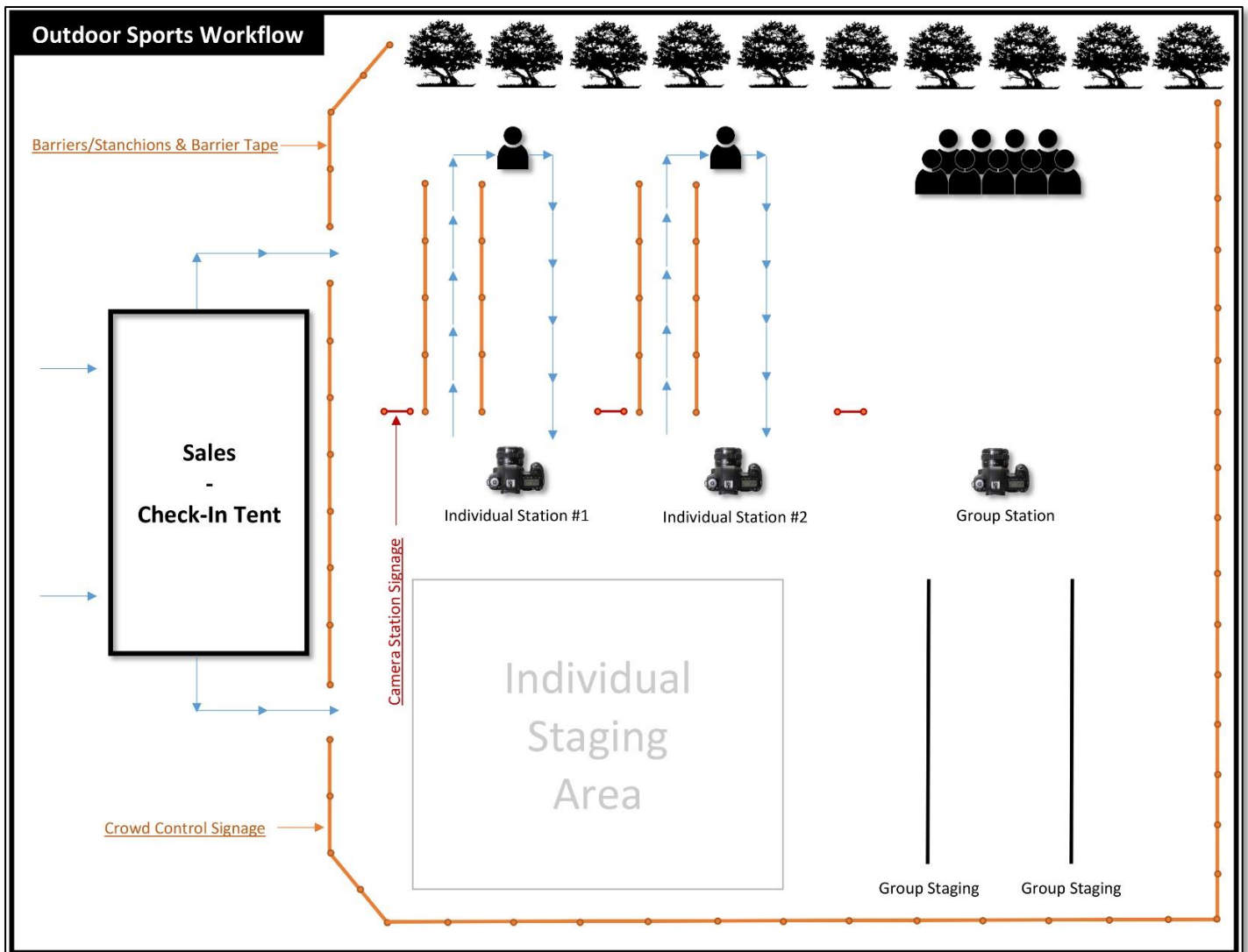
CAMERA STATION WORKFLOW OPTIONS
(Multi-Use vs. Dedicated)

IMPORTANT: There are two types of workflows that can be utilized at the camera station:

- Multi-Use Camera Station Workflow
- Dedicated Camera Station Workflow

MULTI-USE CAMERA STATION WORKFLOW: A camera station that is set up to accommodate BOTH individual photographs AND group photographs.
Pros:
- Potentially need less equipment
- A good option if dealing with a limited amount of space
- A good option if dealing with a limited amount of staff

Cons:
- Can potentially be a slower/less efficient workflow
- Photographer may not be proficient and/or comfortable photographing groups
- Takes extra time to change camera orientation
- May take extra time to potentially re-meter studio light/flash
- Takes extra time to change studio light/flash settings
- Takes extra time moving group posing benches (if applicable)

DEDICATED CAMERA STATION WORKFLOW: A camera station that is set up to accommodate individual photographs ONLY or group photographs ONLY, not both.
Pros:
- Potentially a quicker/more efficient workflow
- Allows you to staff the group camera station with someone who is proficient at photographing groups
    - Stronger personality
    - Good at arranging groups
    - Comfortable taking charge and giving instructions
    - Enjoys photographing groups
- Allows all photographers to focus on one type of photography (either individuals or groups), thus making them more efficient
- Saves time not having to change camera orientation
- Saves time not having to potentially re-meter the lights
- Saves time not having to change studio light/flash settings
- Saves time not having to move group posing benches

Cons:
- May potentially require more equipment
- May potentially require more space
- May potentially require more staff

OUTDOOR GROUP PHOTOGRAPHY

IMPORTANT: **Utilize the outdoor photography recommendation discussed previously to photograph most group photos (from 3 to 15 subjects). For 16 or more subjects, please refer to the, "Large Group" cheat card (see last page of manual)**

IMPORTANT: GROUPS MUST BE POSED IN A **RECTANGULAR-HORIZONTAL** FORMAT. DOING SO WILL FILL THE FRAME WITH THE GROUP AND ELIMINATE UNNECESSARY DEAD SPACE.

Dead Space: Empty or unused space within an image. It can also be referred to as "Wasted Space". In relation to group photography, dead space does nothing for the overall image.

IMPORTANT: The **MORE** dead space in a group image, the smaller the subjects will be. The **LESS** dead space in an image, the larger the subjects will be.

Group Photography Goal: Eliminate as much dead space as possible, thus increasing and maximizing the size of the subjects in the image.

THREE GROUP POSING FORMATS:
1. **Rectangular-Horizontal**: This is the goal when executing group photography. This format will be the most effective in eliminating dead space.
2. **Rectangular-Vertical**: Avoid this format when executing group photography. Since all group products are horizontal only products, this format will automatically produce an excessive amount of dead space in the image.
3. **Square**: Avoid this format when executing group photography. This format could potentially produce an excessive amount of dead space in the image, regardless of the orientation of the image. However, not quite as severe as when the "**Rectangular-Vertical**" format is utilized.

Rectangular-Horizontal Format:

Rectangular-Horizontal Format: Produces a limited amount of dead space in the image

Rectangular-Vertical Format   **Square Format**

Rectangular-Vertical Format: Produces and excessive amount of dead space in the image

Square Format: Potentially produces an excessive amount of dead space in the image

HOW TO ACHIEVE A TRUE "RECTANGULAR-HORIZONTAL" FORMAT:

1. Line subjects up from shortest to tallest.
2. Pose the shorter subjects in front and taller subjects in back.
3. **When posing, keep the rectangle shape in mind. Pose the rows "wider" rather than "taller".** (for example: this may mean having just 2 rows instead of 3 rows)
4. When dealing with younger/shorter subjects and taller coaches, **kneel the coaches as opposed to standing them.**

Coaches should be kneeling with younger/shorter subjects. Helps Eliminate dead space

Coaches Standing instead of Kneeling: Produces an excessive amount of dead space in the image

5. Pose some of the coaches on the ends of the row if possible, instead of behind the row and/or in between subjects. This will "widen" the group and help achieve the "rectangular-Horizontal" format. (note: this may not always be possible in some cases)
6. Utilize posing markers on the ground for the front row subject placement. This will help in obtaining a group pose where the composition is clean, consistent and symmetrical. Markers must be removed prior to the photo being taken.

<u>IMPORTANT:</u> Be sure to leave enough room on the ends of the image so that nothing important is cut off in the event the customer orders a product with an 8x10 crop ratio. **Utilizing the in-camera crop mask will greatly assist in achieving this goal.**

<u>IMPORTANT</u>: Do not build the group **TOO** wide. This will produce an excessive amount of space on the top and bottom of the image.

Posed too wide: Produces excessive amounts of dead space in the image on the top and bottom
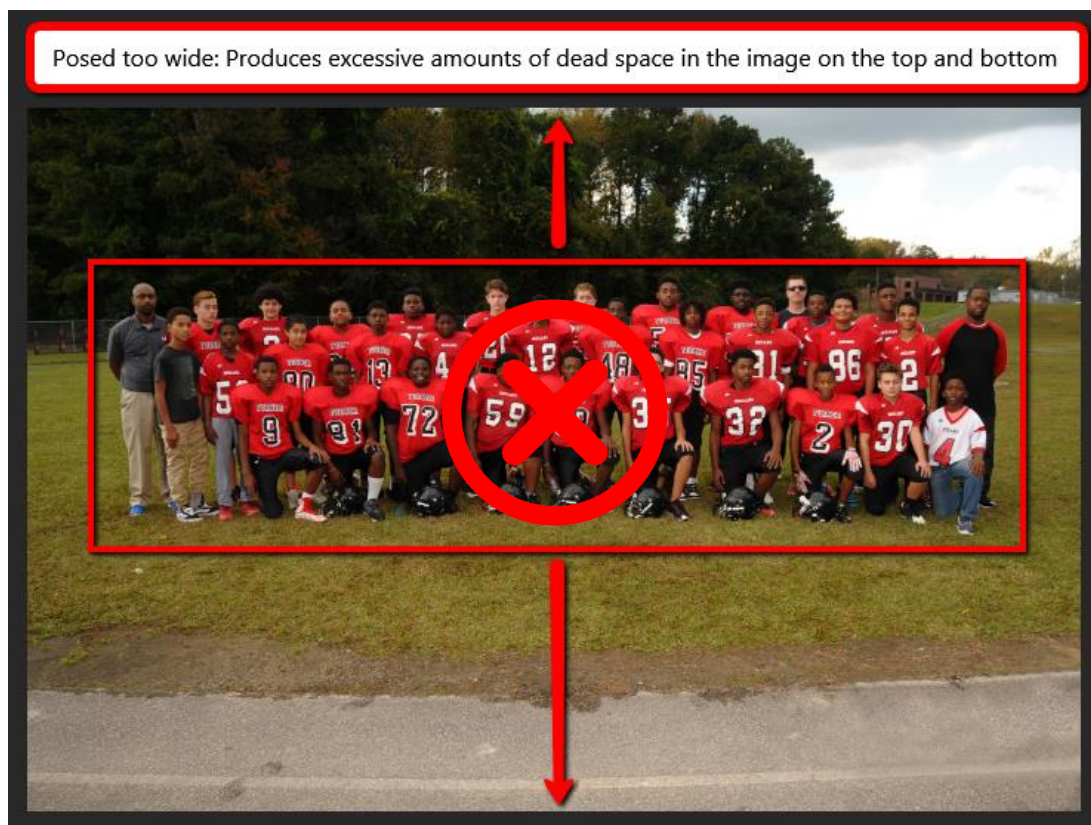
GENERAL GROUP POSING GUIDELINES

1. **Staff accordingly**:
   - The group photographer MAY need an assistant to help pose and assist in the general group station workflow. If working with a tight schedule, this could be crucial in staying on schedule and producing well composed group photos.
   - The group photographer MUST be able to take control of the group. **Always staff the group station with someone who has a stronger personality**. Someone who doesn't have a problem giving orders and commanding attention. Not all photographers will be well suited for this position.

2. **Utilize bullhorn or sound system if necessary when dealing with large groups (football, swim, etc)**

3. **Utilize group posing "Cheat Cards" if necessary.** (Guides can be downloaded by clicking the links below)

Documents can be downloaded via the, "Photography & Operations Resource Guide"
(Bizhub/Library/Photography & Operations Resource Guide)

(5 to 27 Subjects)

Group Posing Guide
5 to 27 Subjects

Key

S: Sitting   K: Kneeling Low   H: Kneeling High   T: Standing   R: Standing on Riser

Row 1	Row 2	Row 3	Row 4	Row 5	Total # of Subjects
3: S or H	2: T				5
4: S or H	2: T				6
4: S or H	3: T				7
5: S or H	3: T				8
5: S or H	4: T				9
6: S or H	4: T				10
6: S or H	5: T				11
5: S	4: H	3: T			12
6: S	5: H	2: T			13
6: S	5: H	3: T			14
6: S	5: H	4: T			15
5: S	6: H	5: T			16
7: S	6: H	4: T			17
7: S	6: H	5: T			18
8: S	7: H	4: T			19
8: S	7: H	5: T			20
8: S	7: H	6: T			21
9: S	8: H	5: T			22
9: S	8: H	6: T			23
9: S	8: H	7: T			24
8: S	7: K	6: H	4: T		25
8: S	7: K	6: H	5: T		26
8: S	7: K	8: H	4: T		27

(28 to 50 Subjects)

Group Posing Guide
28 to 50 Subjects

Key

S: Sitting   K: Kneeling Low   H: Kneeling High   T: Standing   R: Standing on Riser

Row 1	Row 2	Row 3	Row 4	Row 5	Total # of Subjects
8: S	7: K	8: H	5: T		28
8: S	7: K	8: H	6: T		29
9: S	8: K	7: H	6: T		30
9: S	8: K	9: H	5: T		31
9: S	8: K	9: H	6: T		32
9: S	8: K	9: H	7: T		33
10: S	9: K	8: H	7: T		34
10: S	9: K	10: H	6: T		35
10: S	9: K	10: H	7: T		36
10: S	9: K	10: H	8: T		37
11: S	10: K	9: H	8: T		38
11: S	10: K	11: H	7: T		39
11: S	10: K	11: H	8: T		40
11: S	10: K	11: H	9: T		41
11: S	10: K	11: H	10: T		42
10: S	9: K	10: H	9: T	5: R	43
10: S	9: K	10: H	9: T	6: R	44
11: S	10: K	9: H	8: T	7: R	45
10: S	9: K	10: H	9: T	8: R	46
11: S	10: K	11: H	10: T	5: R	47
11: S	10: K	11: H	10: T	6: R	48
11: S	10: K	11: H	10: T	7: R	49
11: S	10: K	11: H	10: T	8: R	50

4. **Utilize posing benches and/or posing risers if possible**:
   - **Utilizing posing benches will assist in maintaining a Rectangular-Horizontal format**
   - The posing benches can be utilized on smaller groups as well as larger groups.
   - The posing risers are traditionally utilized with larger group
   - Utilizing posing benches and risers can create and provide a consistent, symmetrical look to your group photos
   - Utilizing posing benches and risers can make posing groups much quicker, much easier and much more efficient
   - Posing Benches and risers can be purchased from **GPS Risers**.
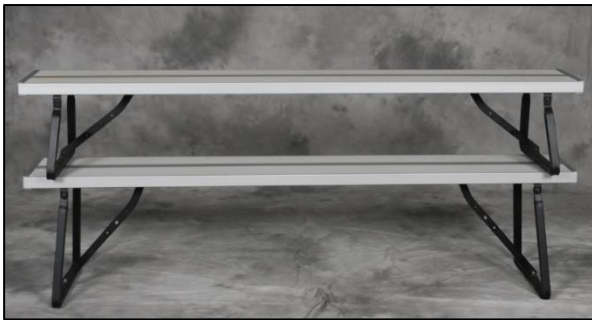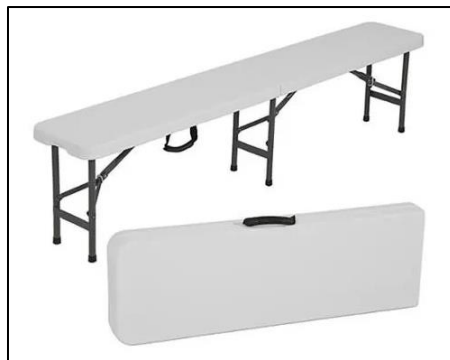

Metal Posing Benches

Posing Risers

IMPORTANT: A six foot, plastic, foldable picnic bench can also be utilized. This is a more cost effective alternative to the aluminum benches.

Plastic Posing Benches

Effective Use of Posing Benches and Posing Risers

5. **Avoid photographing groups at an "upward" angle/perspective**.
    - This often times occurs with football teams when they are posed in the stands/bleachers and the photographer is at lower angle/perspective than the team.
    - When photographing a football team in the stands/bleachers, the angle/perspective **MUST** be close to "even" with the team. Failure to do so will result in a skewed perspective. The subjects in the back row will seem unusually small and/or you will be unable able to see them altogether.
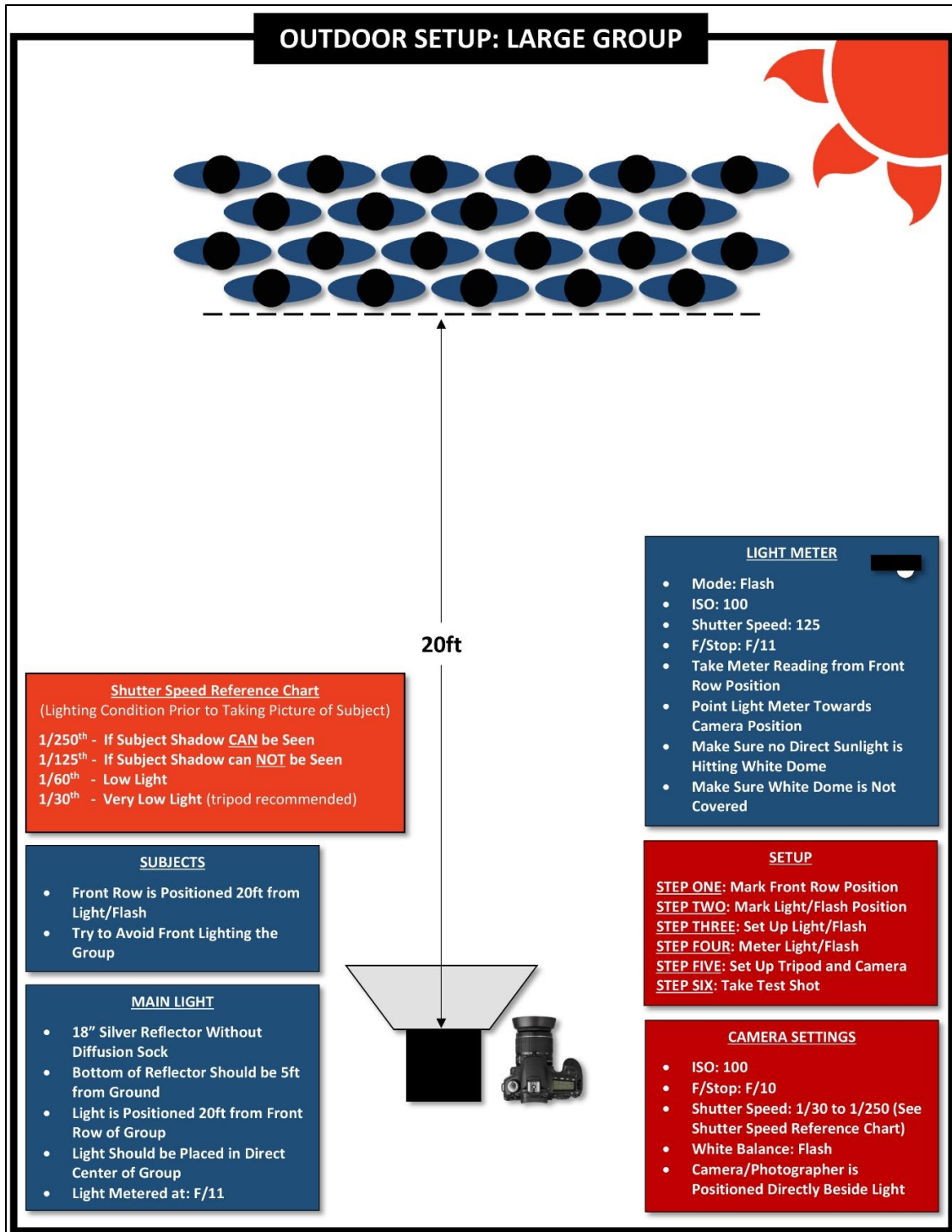

Perspective is too low: Produces a skewed/unnatural perspective

NOTE: Photographing the group at a "downward" angle/perspective can produce a much more desirable result. This can be easily accomplished by utilizing a ladder or stepladder.
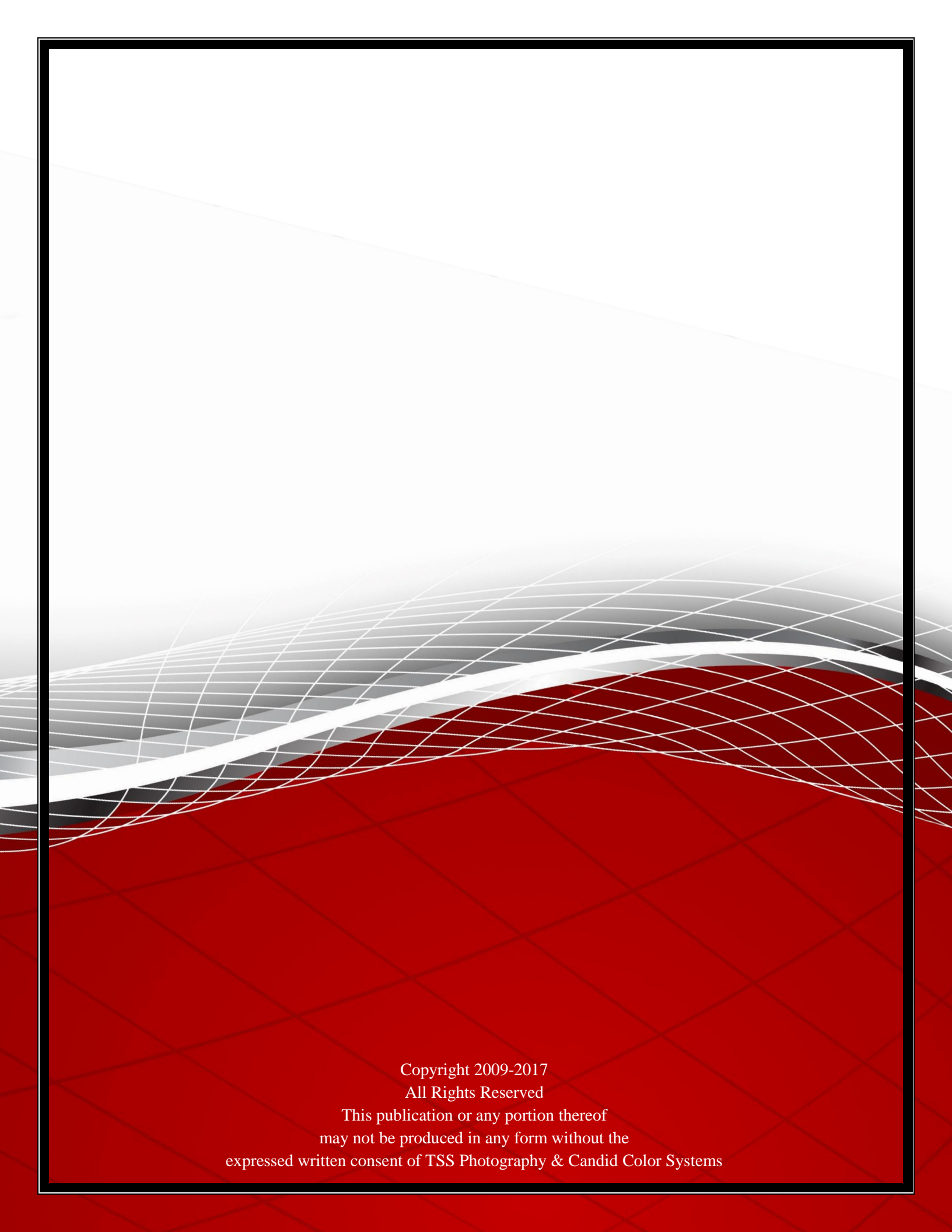
6. **Utilize a dedicated group camera station if possible**.
   - This will increase the efficiency in which you will be able to photograph the groups.
   - This will also allow you to staff the group camera station with the most suitable group photographer. Not all photographers have the personality to photograph groups. It takes a strong personality to do so. Someone who is comfortable taking charge and giving orders.

IMPORTANT: **Utilize the cheat card below if photographing larger groups (20 or more subjects)**

OUTDOOR SETUP: LARGE GROUP

20ft

LIGHT METER
- Mode: Flash
- ISO: 100
- Shutter Speed: 125
- F/Stop: F/11
- Take Meter Reading from Front Row Position
- Point Light Meter Towards Camera Position
- Make Sure no Direct Sunlight is Hitting White Dome
- Make Sure White Dome is Not Covered

Shutter Speed Reference Chart
(Lighting Condition Prior to Taking Picture of Subject)

1/250th - If Subject Shadow <u>CAN</u> be Seen
1/125th - If Subject Shadow can <u>NOT</u> be Seen
1/60th - Low Light
1/30th - Very Low Light (tripod recommended)

SUBJECTS
- Front Row is Positioned 20ft from Light/Flash
- Try to Avoid Front Lighting the Group

SETUP
STEP ONE: Mark Front Row Position
STEP TWO: Mark Light/Flash Position
STEP THREE: Set Up Light/Flash
STEP FOUR: Meter Light/Flash
STEP FIVE: Set Up Tripod and Camera
STEP SIX: Take Test Shot

MAIN LIGHT
- 18" Silver Reflector Without Diffusion Sock
- Bottom of Reflector Should be 5ft from Ground
- Light is Positioned 20ft from Front Row of Group
- Light Should be Placed in Direct Center of Group
- Light Metered at: F/11

CAMERA SETTINGS
- ISO: 100
- F/Stop: F/10
- Shutter Speed: 1/30 to 1/250 (See Shutter Speed Reference Chart)
- White Balance: Flash
- Camera/Photographer is Positioned Directly Beside Light

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