TSS
Photography ®

CHROMA-KEY PHOTOGRAPHY MANUAL

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WHAT IS CHROMA-KEY PHOTOGRAPHY?

Chroma Key (Green Screen) is the process of eliminating a single color from an image for the purpose of inserting a new background into that image. In this method, the background color is 'keyed out' and replaced with the desired image or graphic. Typically a green or blue screen is used for this purpose.

To achieve this, the principal subject is photographed against a background of a bright single color, usually blue or green. A digital software tool is used to extract the background color by making it transparent. Chroma-key, therefore, allows an alternative digital background to be inserted behind and around the subject.
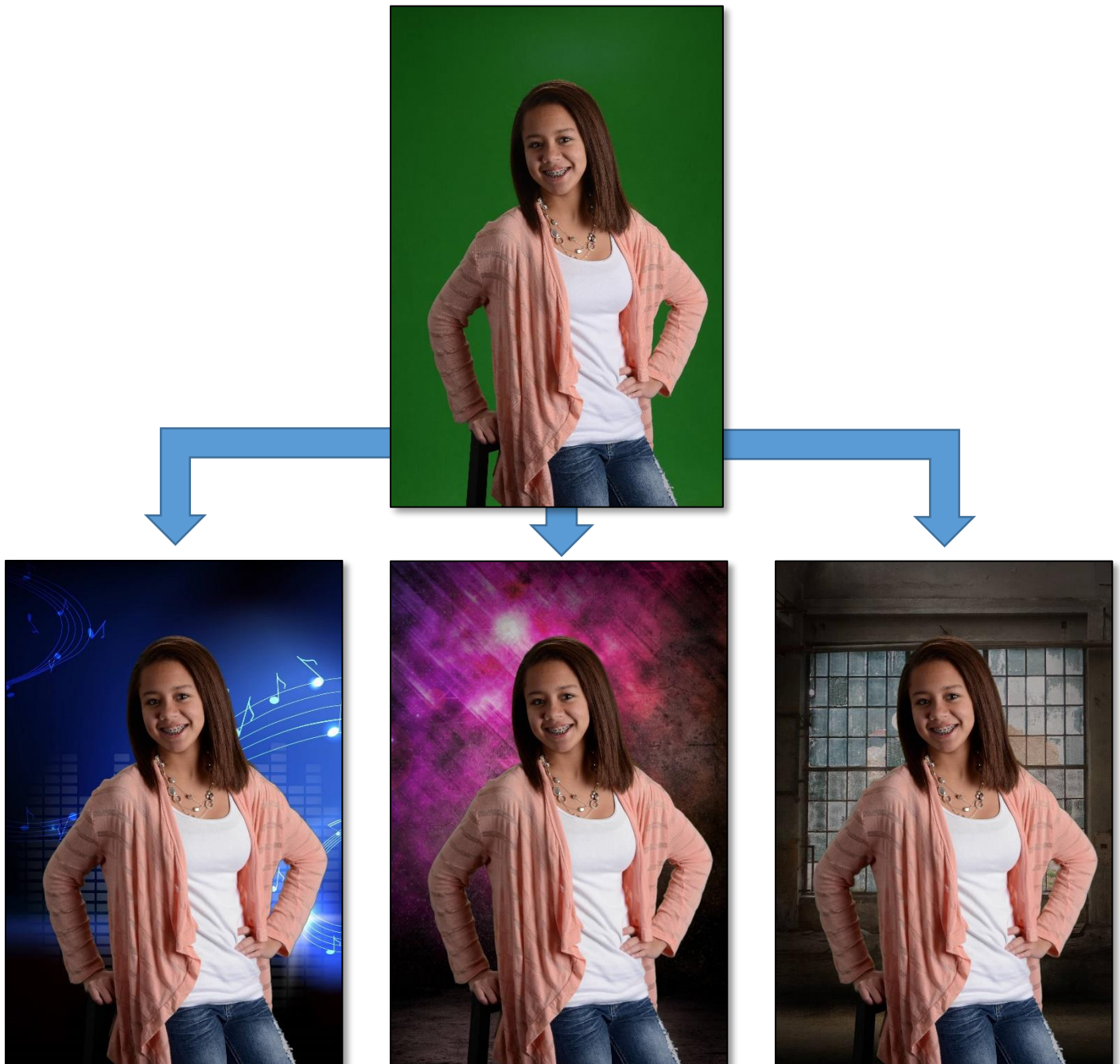
CHROMA-KEY TYPES

Two Different Types of Chroma-Key:

- **Dynamic**: where multiple chroma-key background image choices are offered/made available to an individual when ordering online.
- **Pre-Render**: where a chroma-key background image, or images, are pre-selected to be rendered behind the subject images.

Dynamic Chroma-Key Event: An event where multiple chroma-key background image choices are offered/made available to an individual when ordering online.
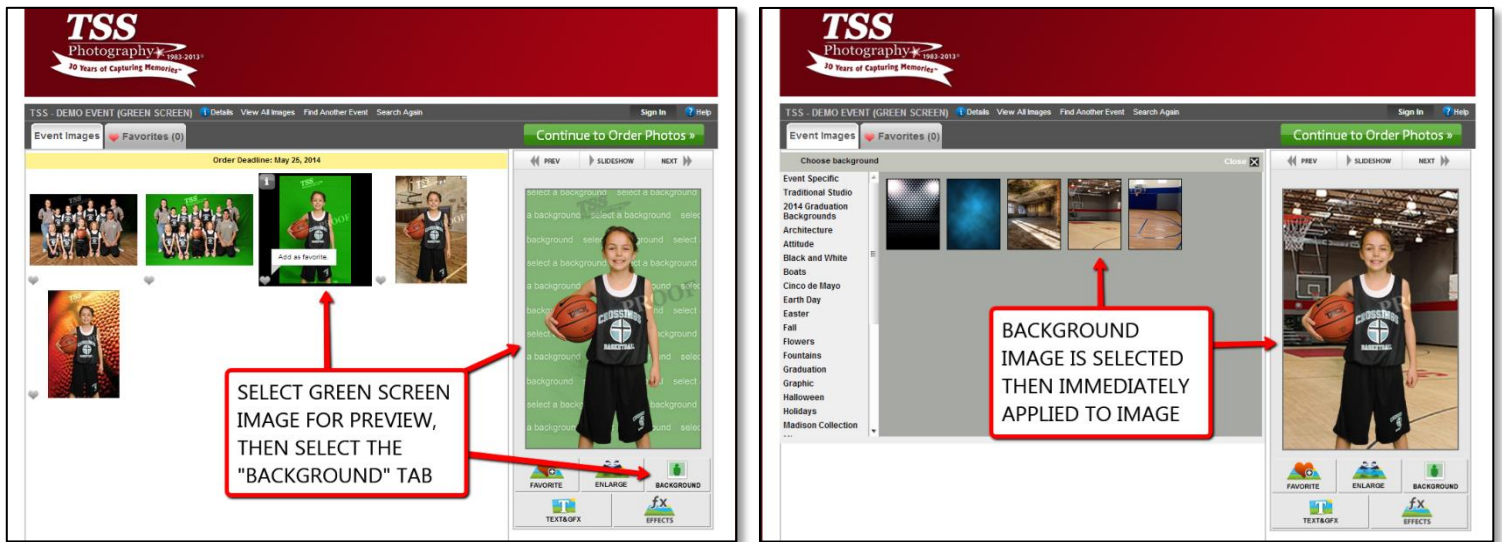
Pre-Render Chroma-Key Event: An event where a chroma-key background image, or images, are pre-selected to be rendered behind the subject images.
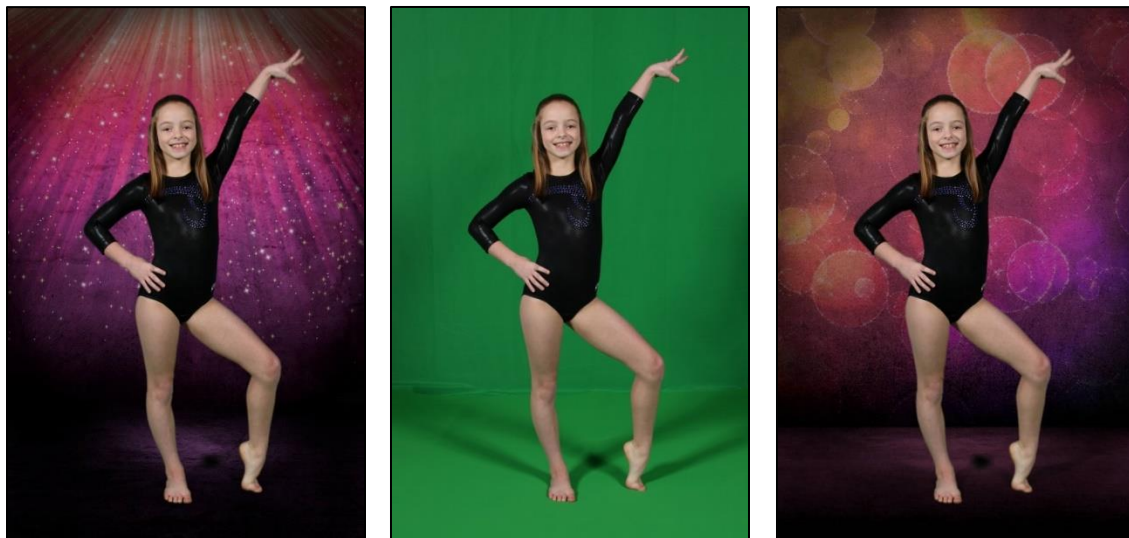
CHROMA-KEY PHOTOGRAPHY CHALLENGES

CHALLENGE 1: COLOR SPILL

What is color spill?

Color spill is when the color cast from the background (either green or blue) is reflected back onto the subject. This produces a blue or green hue or color cast on the edges of the subjects hair, skin and clothing.

What causes color spill?

Color spill can be caused by multiple variables:

1. Subject being posed too close to the background
    a. Standard recommended distance from subject to background is 4 feet
    b. Often occurs when executing full body photography where subject is standing on the chroma-key background
2. Too much light hitting the background
    a. Can be caused when power output of back light, main light or fill light is turned up too high
3. When photography subject is wearing white clothing and/or has light colored skin and hair

Why is it important to avoid color spill?

IMPORTANT: Correcting color spill will require custom retouching, in order to prevent poor background render. This will impact production time and result in additional lab retouch fees and/or additional chroma-key processing fees.

CHALLENGE 2: CLOTHING AND UNIFORMS OF LIKE COLOR

IMPORTANT: Avoid photographing green on green and/or blue on blue. Green clothing (no matter the lightness or darkness) will NOT work on chroma-key green screen. Doing so will require custom retouch charges and/or additional chroma-key processing fees.

NOTE: Train staff to watch for like colors **(green on green and blue on blue)** on clothing and/or props. This includes text on props and patches on uniforms.

NOTE: Green should be considered the standard background of choice as it works best during the production process. It will be necessary however to use a blue chroma-key background at times, whenever the subject is wearing green.

NOTE: If you are photographing a variation or shade that is CLOSE to green or blue, there is no guarantee of a "clean" render. A color shift in that particular color may occur.

Example:
Neon yellow tends to shift to orange when photographed on green screen
- Recommended Chroma-Key Background: Blue

Teal is close to both green and blue
- Recommended Chroma-Key Background: Green or Blue (Custom retouching may be required)

Examples: Photographing uniforms of like color
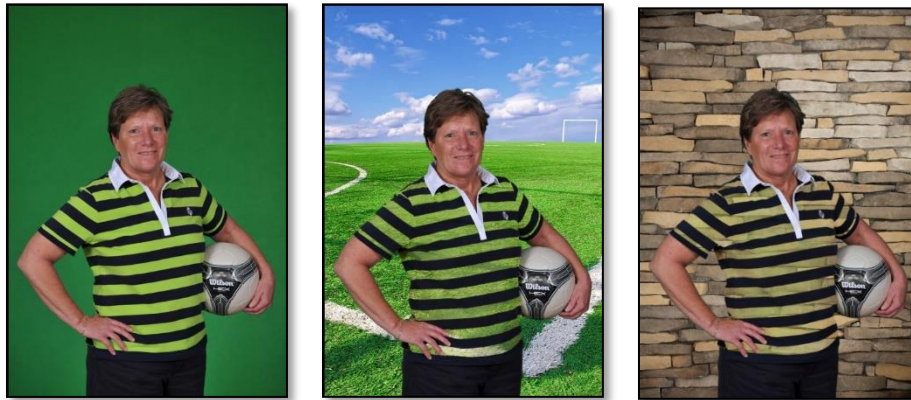
REQUIREMENT: Have both blue AND green chroma-key backgrounds at every chroma-key event.

Two Ways to Execute on Picture Day When Utilizing Both a Blue and Green Chroma-Key Background:
1. Have both a blue and a green chroma-key background at every camera station.
   a. The green chroma-key background should be used as the "base" background.
   b. The blue chroma-key background will be clipped on either side of the background stand and at the very end of the background crossbar.
   c. The blue chroma-key background is pulled over and across the green chroma-key background and clipped to the background pole on the opposite side.

TIP: Avoid hanging the blue chroma-key background so it has to be flipped over the background pole in order to access the green chroma-key background. Much easier to work with if clipped to the side.

Simply clip the background to one side then pull it across.
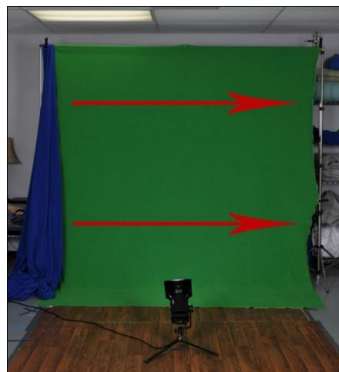
Clip to the opposite side. Make sure there are no wrinkles in the background after doing so.

CHALLENGE 3: LIGHTING THE BACKGROUND EVENLY & ELIMINATING SHADOWS

IMPORTANT: The chroma-key background must be evenly lit without any hot spots or dark spots.

What Causes Uneven Lighting/Shadowing on the Background?
- **Light modifier too small**
  - The larger the light modifier, the more effective it will be in eliminating hot spots on the background.
  - A minimum 60" white umbrella is recommended.
- **Not using a back light correctly**
  - Back light turned up too high will cause hot spots on the background.
  - Back light not turned up high enough could potentially cause dark spots on the background.
  - Not utilizing a light modifier and/or diffusion on the backlight could potentially cause the background to be lighter in the middle and darker around the edges.
  - Back light placed too close to the background will cause a hot spot on the background where the light is placed closest to the background.
- **Direct sunlight hitting the background**
  - This can be caused when the background is set up close to a window.
  - This can also be caused by a lack of side panels when utilizing the outdoor green screen setup.
- **Lack of light bounce, even when utilizing the proper/recommended light modifier**
  - This usually occurs in gyms or in rooms that have very high ceilings and/or when the photographer is not set up close to a wall.
- **Subject posed too close to the background**
  - Minimum distance from the background to the subject is 4 feet.
  - The closer the subject is to the background, the greater the chance of getting shadows on the background.
- **Deep wrinkles in the background**
  - Deep wrinkles will cause shadowing on the background.
  - Wrinkles in the background are easily eliminated.
    - Clip the TOP of the background to the background crossbar.
    - Clip the SIDES of the background to the background stands (If possible).
    - Tape the bottom of the background to the floor.
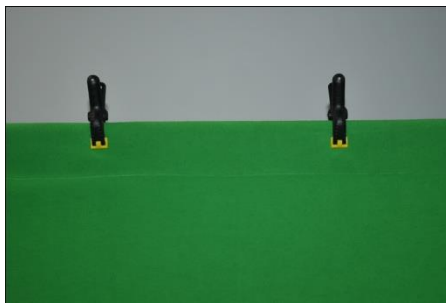
Top of Background is Clipped   Sides of Background are Clipped

SPECIFIC CHROMA-KEY SETUPS

STANDARD CHROMA-KEY SETUP:
- One Light Setup
  - Main Light
- One 60" White Umbrella
- Flat Lighting
- Half Body & Three/Quarter Body Posing
- Full Body Posing
  - Hybrid
  - Traditional
- Virtual Group Posing
- The Most Common and Easiest Chroma-Key Setup
- Requires the Least Amount of Equipment

STANDARD CHROMA-KEY WITH BACK LIGHT SETUP:
- One Light Setup
  - Main Light
  - Back Light
- One 60" White Umbrella
- One 7" Silver Reflector with Diffusion Sock(s)
- Flat Lighting
- Half Body & Three/Quarter Body Posing
- NO Full Body Posing
- Virtual Groups
- Most Effective Setup for Reducing Shadowing on the Background
- Background Shadowing Occurs in Larger Rooms Where Light Bounce is at a Minimum
  - Gymnasiums
  - Martial Arts Studios
  - Gymnastic Studios
  - Cafeteria's
  - Etc.
- Recommended Setup When Utilizing a Blue Chroma-Key Background
  - Prevents the Blue Background from Photographing Too Dark

ENHANCED CHROMA-KEY SETUP:
- Two Light Setup
  - Main Light
  - Fill Light
- Two 60" White Umbrellas
- 4:1 Lighting Ratio
  - Main Light is Metered 2 Stops Brighter than the Fill Light
  - Creates Shadowing on the Fill Side of the Subjects Face
- Half Body & Three/Quarter Body Posing

- NO Full Body Posing
- Best Setup to Utilize When:
    o Using More Dramatic Background Selections
    o Photographing High School Seniors and Older Subjects

DRAMATIC CHROMA-KEY SETUP:
- Two Light Setup
    o Main Light
    o Fill Light
- One 60" White Umbrella
- One 7" Silver Reflector with Diffusion Sock(s)
- 4:1 Lighting Ratio
    o Main Light is Metered 2 Stops Brighter than the Fill Light
    o Creates Shadowing on the Fill Side of the Subjects Face
- Half Body & Three/Quarter Body Posing
- NO Full Body Posing
- Best Setup to Utilize When:
    o Using More Dramatic Background Selections
    o Photographing High School Seniors and Older Subjects
- Produces a More Dramatic Look than the "Enhanced Chroma-key Setup"

SCHOOL CHROMA-KEY SETUP:
- Two Light Setup
    o Main Light
    o Hair Light
- One 60" White Umbrella
- One 7" Silver Reflector with Diffusion Sock(s)
- Flat Lighting
- Half Body & Three/Quarter Body Posing
- Waist Up & Close Up Posing
- Best Setup to Utilize when Photographing School Events
- Can be Utilized in Conjunction with the School Setup Floor Mat

OUTDOOR CHROMA-KEY SETUP:
- One Light Setup
    o Main Light
- One 7" Silver Reflector with Diffusion Sock(s)
- Flat Lighting
- Half Body & Three/Quarter Body Posing
- NO Full Body Posing
- Virtual Group Posing
- **NOT a Recommended Chroma-Key Setup Unless Absolutely Necessary**
    o Very Difficult to Control Lighting at Times
    o Prone to Producing Hot Spots on the Background If Correct Equipment is Not Utilized
    o A Lot of Equipment is Needed Per Camera Station to Execute Properly
        ▪ White Pop-Up Tent

- Side Panels
- Sand Bags
- Tarp(s)
  - o Photographer Will Need a Larger Vehicle in Order to Transport Equipment
- Best Setup to Utilize if an Indoor Chroma-Key Setup is NOT an Option
- Ambient Light is Used for the Primary Exposure

GROUP CHROMA-KEY SETUP:
- One Light Setup
  - o Main Light
- One 60" White Umbrella
- Group Posing
- Half Body & Three/Quarter Body Posing
- Full Body Posing
  - o Hybrid
  - o Traditional
- Can be Utilized with Either a Chroma-Key Floor piece OR a Non-Chroma-Key Floor Piece
- Best Setup to Utilize if Photographing Groups Indoors

STANDARD CHROMA-KEY SETUP

IMPORTANT: This particular set-up will encompass about 90 percent of all chroma-key photography events. It is mostly utilized with traditional sport poses and crops that include props.

NOTE: This is the "easiest" and least detailed of all of the chroma-key setups, and requires the least amount of equipment.

Recommended Camera Settings:
ISO: **400**
Shutter Speed: **125**
F/Stop: **f/8**
White Balance: **Flash**

STEP 1: *Set Up Background*

- The background is securely clipped to the top pole, is stretched straight across and as "tight" as possible. This will remove any wrinkles that could potentially cause shadows.
- Pull the background out at the very bottom, causing a slope at the bottom of the background.
- Secure with Tape once pulled out evenly. This will reduce the possibility of causing shadowing where the background meets the floor and provide additional "coverage" preventing the possibility of photographing off the background.
- Add the blue background by clipping to one side of the background pole. With the addition of the blue background, teams and/or individuals wearing green can be captured on the same camera station by simply pulling the blue background over the green and securing to the opposite background stand. Take a few seconds to make sure there are no wrinkles.

STEP 2: *Measure and Mark Placement of Subject & Camera Positions*

Use of Tape Measure Recommended

- **Subject Placement**: Measure (**4 feet**) from the background and mark position with blue painters tape or something similar.
- **Camera Placement:** Photographer is positioned 9ft directly in front of subject.
- **Main Light Placement**: Main light is positioned directly behind the photographer (approximately 10ft to 12ft from subject).

STEP 3: *Set Up Main Light*

- Main light is positioned directly behind the photographer (approximately 10ft to 12ft from subject).
- At least a 60" white reflecting umbrella with a black back is used for maximum light coverage.
- Spokes of umbrella are positioned at a MINIMUM of 22" from light (If possible).
- Silver reflector is removed from light for maximum light coverage/spread.
- Bottom of umbrella should be 5ft to 6ft from floor. This may not be possible in rooms with lower ceilings. If not, raise light to its maximum height.
- Light is angled down towards the subject at a slight angle. Stem of umbrella should be pointing towards the chest of the subject.

STEP 4: *Meter Main Light*

- Stand in the subject position and point light meter towards camera/Light
- Meter light and adjust power setting until **F/8** is achieved. (ISO 400, Shutter Speed 125)

STEP 5: *Set Up Tripod & Camera*

- Camera is set up 9ft from subject position
- Use of a tripod is recommended

STEP 6: *Confirm Camera Settings*

ISO: 400
Shutter Speed: 125
F/Stop: f/8
White Balance: Flash

STEP 7: *Take Test Picture of Subject*

- Check for under or over-exposure on the skin tone of the subject.
- Check for wrinkles in the background that would cause shadowing.
- Check for uneven lighting and/or hot spots on the background.

SETUP CAN BE UTILIZED WITH EITHER A CHROMA-KEY OR A NON-CHROMA-KEY BACKGROUND

4ft

9ft

BACKGROUND

- Position Background so that the View of the Subject is Minimized to Incoming Photography Subjects
- Raise Background to Approximately 8ft (if Possible)
- Bottom of Background Should be Sloped Where it Meets the Floor
- Slack Should be removed from Background then Clipped to the Background Cross Bar (Chroma-Key)
- Background Should be Taped to the Floor Once Completely Set Up (Chroma-Key)

SUBJECT

- HEELS of Subject Placed 4ft from Background

MAIN LIGHT

- Placed Directly Behind Camera/Photographer
- Minimum 60" (5ft) White Umbrella
- Reflector/Spill Kill Removed from Light
- Bottom of Umbrella 5ft from Floor
- Light Metered at: F/8

LIGHT METER

- Mode: Flash
- ISO: 400
- Shutter Speed: 125
- F/Stop: F/8
- Take Meter Reading from Subject Chin Position
- Point Light Meter Towards Camera Position
- Make Sure White Dome is NOT Covered

SETUP

STEP ONE: Set up Background
STEP TWO: Mark Subject and Camera Positions
STEP THREE: Set Up Main Light
STEP FOUR: Meter Main Light
STEP FIVE: Set Up Tripod and Camera
STEP SIX: Confirm Camera Settings
STEP SEVEN: Take Test Shot

CAMERA SETTINGS

- ISO: 400
- Shutter Speed: 125
- F/Stop: F/8
- White Balance: Flash
- Photographer: 9ft from Subject

STANDARD CHROMA-KEY WITH BACK LIGHT SETUP

IMPORTANT: This is the recommended setup if utilizing a blue chroma-key background. Prevents blue background from photographing too dark.

IMPORTANT: This is the most effective setup for reducing shadowing on the background. Background shadowing in increased when photographing in larger rooms where light bounce is at a minimum:
- Gymnasiums
- Martial Arts Studios
- Gymnastic Studios
- Cafeteria's
- Etc.

The Following Posing Types can be Executed with this Setup:

- Half Body & Three/Quarter Body Posing
- Virtual Groups
- NO Full Body Posing

Recommended Camera Settings:
ISO: **400**
Shutter Speed: **125**
Main Light F/Stop: **f/8**
Back Light F/Stop: f/4
White Balance: **Flash**

STEP 1: *Set Up Background*

- The background is securely clipped to the top pole, is stretched straight across and as "tight" as possible. This will remove any wrinkles that could potentially cause shadows.
- Pull the background out at the very bottom, causing a slope at the bottom of the background.
- Secure with Tape once pulled out evenly. This will reduce the possibility of causing shadowing where the background meets the floor and provide additional "coverage" preventing the possibility of photographing off the background.
- Add the blue background by clipping to one side of the background pole. With the addition of the blue background, teams and/or individuals wearing green can be captured on the same camera station by simply pulling the blue background over the green and securing to the opposite background stand. Take a few seconds to make sure there are no wrinkles.

<u>STEP 2</u>: *Measure and Mark Placement of Subject & Camera Positions*

<u>Use of Tape Measure Recommended</u>

- **Subject Placement**: Measure (**4 feet**) from the background and mark position with blue painters tape or something similar.
- **Camera Placement:** Photographer is positioned 9ft directly in front of subject.
- **Main Light Placement**: Main light is positioned directly behind the photographer (approximately 10ft to 12ft from subject).
- **Back Light Placement**: Back light is positioned 3ft from background, 1ft behind subject position.

<u>STEP 3</u>: *Set Up Main Light*

- Main light is positioned directly behind the photographer (approximately 10ft to 12ft from subject).
- At least a 60" white reflecting umbrella with a black back is used for maximum light coverage.
- Spokes of umbrella are positioned at a MINIMUM of 22" from light (If possible).
- Silver reflector is removed from light for maximum light coverage/spread.
- Bottom of umbrella should be 5ft to 6ft from floor. This may not be possible in rooms with lower ceilings. If not, raise light to its maximum height.
- Light is angled down towards the subject at a slight angle. Stem of umbrella should be pointing towards the chest of the subject.

<u>STEP 4</u>: *Meter Main Light*

- Stand in the subject position and point light meter towards camera/Light
- Meter light and adjust power setting until **F/8** is achieved. (ISO 400, Shutter Speed 125)

<u>STEP 5</u>: *Set up Back Light*

- Back light is positioned 3ft from the background.
- Back light can sit on floor (depending on the model), or a mini back light stand can be used.
- Back light needs to be as low to the ground as possible to avoid being seen in subject images.
- Standing the subject on a step stool can help alleviate seeing the back light in the subject images.
- Utilize 7" silver reflector with diffusion sock(s)
- May need multiple diffusion socks to reduce power output enough to achieve recommended f/stop: **F/4**
- Point back light towards the middle of the background.

STEP 6: *Meter Back Light*

- The ONLY purpose of the back light is to reduce/eliminate shadowing from the background.
- Back light must be metered separately from the main light.
- Main light should be turned off when taking the meter reading on the back light.
- Stand close to the background and position light meter in the center of the background.
- Meter light and adjust power setting until **F/4** is achieved. (ISO 400, Shutter Speed 125)
- Make sure back light is NOT metered too high. This will cause color spill on the subject AND potentially result in custom retouch fees, green screen repair fees or PNG cutout fees.

STEP 7: *Set Up Tripod & Camera*

- Camera is set up 9ft from subject position
- Use of a tripod is recommended

STEP 8: *Confirm Camera Settings*

ISO: 400
Shutter Speed: 125
F/Stop: f/8
White Balance: Flash

STEP 9: *Take Test Picture of Subject*

What to check for when reviewing the subject test image:
- Under or over-exposure of the subjects skin tone
- Wrinkles in the background that are causing shadows
- Uneven lighting and/or hot spots on the background
- Photographing off of the background

SEE CHEAT CARD BELOW

INDOOR SETUP: STANDARD with BACK LIGHT

RECOMMENDED SETUP IF UTILIZING A BLUE CHROMA-KEY BACKGROUND

4ft   **3ft**

9ft
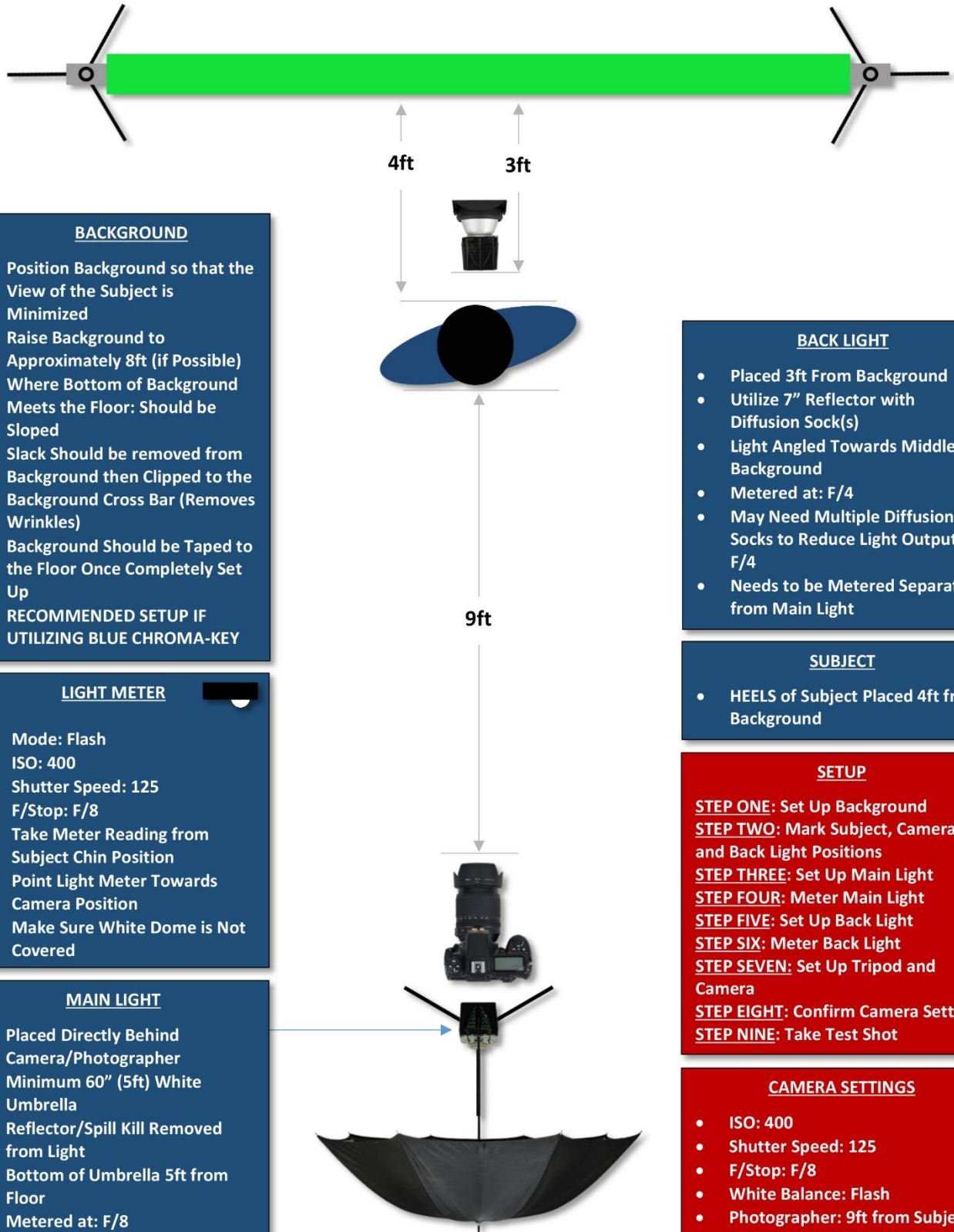
BACKGROUND

- Position Background so that the View of the Subject is Minimized
- Raise Background to Approximately 8ft (if Possible)
- Where Bottom of Background Meets the Floor: Should be Sloped
- Slack Should be removed from Background then Clipped to the Background Cross Bar (Removes Wrinkles)
- Background Should be Taped to the Floor Once Completely Set Up
- RECOMMENDED SETUP IF UTILIZING BLUE CHROMA-KEY

LIGHT METER

- Mode: Flash
- ISO: 400
- Shutter Speed: 125
- F/Stop: F/8
- Take Meter Reading from Subject Chin Position
- Point Light Meter Towards Camera Position
- Make Sure White Dome is Not Covered

MAIN LIGHT

- Placed Directly Behind Camera/Photographer
- Minimum 60" (5ft) White Umbrella
- Reflector/Spill Kill Removed from Light
- Bottom of Umbrella 5ft from Floor
- Metered at: F/8

BACK LIGHT

- Placed 3ft From Background
- Utilize 7" Reflector with Diffusion Sock(s)
- Light Angled Towards Middle of Background
- Metered at: F/4
- May Need Multiple Diffusion Socks to Reduce Light Output to F/4
- Needs to be Metered Separately from Main Light

SUBJECT

- HEELS of Subject Placed 4ft from Background

SETUP

STEP ONE: Set Up Background
STEP TWO: Mark Subject, Camera and Back Light Positions
STEP THREE: Set Up Main Light
STEP FOUR: Meter Main Light
STEP FIVE: Set Up Back Light
STEP SIX: Meter Back Light
STEP SEVEN: Set Up Tripod and Camera
STEP EIGHT: Confirm Camera Settings
STEP NINE: Take Test Shot

CAMERA SETTINGS

- ISO: 400
- Shutter Speed: 125
- F/Stop: F/8
- White Balance: Flash
- Photographer: 9ft from Subject

ENHANCED CHROMA-KEY SETUP

The enhanced chroma-key setup utilizes utilizes a 4:1 lighting ratio. This lighting ratio creates more depth and shadow in the image, thus making it more visually appealing.

This particular set up is ideal for capturing "attitude", personality, simulated action posing or with the TSS Impact Series.

1:1 Lighting
- 1:1 Lighting is when 2 main lights are utilized and both are outputting the same amount of power/light (metered the same).
- This is also called flat lighting.
- It exposes everything evenly with no shadows or highlights.

2:1 Lighting
- Both a main light and a fill light are utilized.
- The main light is metered **one** f/stop brighter than the fill light.
- Twice as much light is striking the highlight side of the subject than the shadow side of the subject.
- This creates more depth, shadows and highlights than the 1:1 lighting ratio.

4:1 Lighting
- Both a main light and a fill light are utilized.
- The Main light is metered **two** f/stops brighter than the fill light.
- This creates more depth, shadows and highlights than the 2:1 lighting ratio.
- Four times as much light is striking the highlight side of the subject than the shadow side of the subject.

Below are some examples of 1:1, 2:1 and 4:1 lighting:

1:1 Lighting   2:1 Lighting   4:1 Lighting

Flat   2:1   3:1   4:1   No Fill

Example: 2 Light Setup with Main Light at F/8

RATIO LIGHTING		
RATIO	**DIFFERENCE IN F/STOP**	**DIFFERENCE IN LIGHT**
Flat	None	None
1:1	None	None
2:1	1 F/Stop Difference	Twice as Much Light on Highlight Side than Shadow Side
3:1	1 ½ F/Stops Difference	Three Times as Much Light on Highlight Side than Shadow Side
4:1	2 F/Stops Difference	Four Times as Much Light on Highlight Side than Shadow Side

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

Fill Light

Fill Light

4:1 Ratio

2:1 Ratio

Main Light

Main Light

Recommended Camera Settings
ISO: 400
Shutter Speed: 125
Main Light F/Stop: F/8
Fill Light F/Stop: F/4
Camera F/Stop: F/stop indicated when the overall meter reading is taken
White Balance: Flash

STEP 1: *Set Up Background*

- The background is securely clipped to the top pole, is stretched straight across and as "tight" as possible. This will remove any wrinkles that could potentially cause shadows.
- Pull the background out at the very bottom, causing a slope at the bottom of the background.
- Secure with Tape once pulled out evenly. This will reduce the possibility of causing shadowing where the background meets the floor and provide additional "coverage" preventing the possibility of photographing off the background.
- Add the blue background by clipping to one side of the background pole. With the addition of the blue background, teams and/or individuals wearing green can be captured on the same camera station by simply pulling the blue background over the green and securing to the opposite background stand. Take a few seconds to make sure there are no wrinkles.

STEP 2: *Measure and Mark Placement of Camera, Subject and Light Positions*

Use of Tape Measure Recommended

- **Subject Placement**: Measure (4 feet) from the background and mark position with blue painters tape or something similar.
- **Camera Placement:** Camera is positioned 9ft directly in front of subject.
- **Main Light Placement**: Main light is positioned 6ft from subject, at a 45 degree angle.
- **Fill Light Placement:** Fill light is positioned 8ft from subject at a 45 degree angle, opposite the main light.

STEP 3: *Set Up Main Light*

- Main light should be raised to a position where the bottom of the umbrella is 4ft to 5ft from the floor, angled towards subject.
- At least a 60" white reflecting umbrella with a black back is used for maximum light coverage.
- Spokes of umbrella are positioned at a MINIMUM of 22" from light (if possible).
- Silver reflector is removed from light for maximum light coverage.

<u>**STEP 4**</u>**:** *Meter Main Light*

- Stand in the subject position and point light meter **towards MAIN light**.
- Light must be metered independently from the fill light.
     o Fill light will be turned off while metering the main light.
- Meter light and adjust power setting until **F/8** is achieved. (ISO 400, Shutter Speed 125)

<u>**STEP 5**</u>**:** *Set Up Fill Light*

- Fill light should be raised to a position where the bottom of the umbrella is 4ft to 5ft from the floor, angled towards subject.
- At least a 60" white reflecting umbrella with a black back is used for maximum light coverage.
- Spokes of umbrella are positioned at a MINIMUM of 22" from light.
- Silver reflector is removed from light for maximum light coverage.
- Meter light and adjust power setting until **F/5.6** is achieved. (ISO 400, Shutter Speed 125)

<u>**STEP 6**</u>**:** *Meter Fill Light*

- Stand in the subject position and point light meter **towards FILL light**.
- Light must be metered independently from the main light.
     o Main light will be turned off while metering the fill light.
- Meter light and adjust power setting until **F/4** is achieved. (ISO 400, Shutter Speed 125)

<u>**STEP 7**</u>**:** *Take an Over All Meter Reading (Combined Fill and Main Light Meter Reading)*

- Turn on all lights.
- Stand in the subject area and point light meter towards CAMERA position.
- Take meter reading.
- **F/stop indicated when the overall meter reading is taken**.
- **The indicated f/stop is what the camera f/stop will be set to**.

<u>**STEP 8**</u>**:** *Set up Tripod and Camera*

- Camera is set up 9ft from subject position
- Use of a tripod is recommended

<u>**STEP 9**</u>**:** *Confirm Camera Settings*

ISO: **400**
Shutter Speed: **125**
F/Stop: **F/stop indicated when the overall meter reading is taken**
White Balance: **Flash**

STEP 10: *Take Test Picture of Subject*

- Check for under or over-exposure on the skin tone of the subject.
- Check for wrinkles in the background that would cause shadowing.
- Check for uneven lighting and/or hot spots on the background.

INDOOR SETUP: ENHANCED

SETUP CAN BE UTILIZED WITH EITHER A CHROMA-KEY OR A NON-CHROMA-KEY BACKGROUND

4ft

MAIN LIGHT

- Placed 6ft from the Subject at a 45 Degree Angle
- Light Pointed Towards and Angled Towards Subject
- Utilizing Minimum 60" (5ft) White Umbrella
- Reflector/Spill Kill Removed from Light
- Bottom of Light Should be 4ft to 5ft from Floor
- Light Metered at: F/8

FILL LIGHT

- Placed 8ft from the Subject at a 45 Degree Angle
- Light Pointed Towards and Angled Towards Subject
- Utilizing Minimum 60" (5ft) White Umbrella
- Reflector/Spill Kill Removed from Light
- Bottom of Umbrella 4ft to 5ft from Floor
- Light Metered at: F/4

6ft   45 Degree Angle   45 Degree Angle   **8ft**

9ft

SUBJECT

- HEELS of Subject Placed 4ft from Background

LIGHT METER

- Mode: Flash
- ISO: 400
- Shutter Speed: 125
- F/Stop: Meter for F/Stop
- Meter Each Light Individually
- Take Meter Reading from Subject Position, with Meter Pointed Towards the Respective Position of Each Light
- Once Each Light is Metered Individually, Take an Overall Meter Reading with Meter Pointed Towards Camera

CAMERA SETTINGS

- ISO: 400
- Shutter Speed: 125
- F/Stop: Set to Match Overall Meter Reading
- White Balance: Flash
- Photographer: 9ft from Subject

SETUP

STEP ONE: Set up Background
STEP TWO: Mark Subject, Light and Camera Positions
STEP THREE: Set Up Main Light
STEP FOUR: Meter Main Light
STEP FIVE: Set Up Fill Light
STEP SIX: Meter Fill Light
STEP SEVEN: Take an Overall Meter Reading
STEP EIGHT: Set Up Tripod and Camera
STEP NINE: Confirm Camera Settings
STEP TEN: Take Test Shot

DRAMATIC CHROMA-KEY SETUP

The Dramatic Chroma-Key Setup utilizes a 4:1 lighting ratio. However, instead of using a 60" white umbrella as the light modifier on the main light, a silver reflector with diffusion sock is used instead. This creates dramatic/harsh light on highlight side of the subject.

Conversely, the fill light uses a 60" white umbrella to soften the light on the shadow side of the subject. Utilization of the 60" umbrella also serves to soften and potentially eliminate shadowing on the background.

The Dramatic Chroma-Key Setup can be Utilized if Doing Any of the Following;

- Seniors
- Portraits
- High School Sports
- Youth Sports with Older Subjects
- Impact Panos
- When using more dramatic background selections

The Following Posing Types can be Executed with this Setup:

- Half Body & Three/Quarter Body Posing
- Virtual Groups
- **NO Full Body Posing**

Recommended Camera Settings:
ISO: 200
Shutter Speed: 125
F/Stop: F/stop indicated when the overall meter reading is taken
White Balance: Flash

STEP 1: *Set Up Background*

- The background is securely clipped to the top pole, is stretched straight across and as "tight" as possible. This will remove any wrinkles that could potentially cause shadows.
- Pull the background out at the very bottom, causing a slope at the bottom of the background.
- Secure with Tape once pulled out evenly. This will reduce the possibility of causing shadowing where the background meets the floor and provide additional "coverage" preventing the possibility of photographing off the background.
- Add the blue background by clipping to one side of the background pole. With the addition of the blue background, teams and/or individuals wearing green can be captured on the same camera station by simply pulling the blue background over the green and securing to the opposite background stand. Take a few seconds to make sure there are no wrinkles.

STEP 2: *Measure and Mark Placement of Camera, Subject and Light Positions*

Use of Tape Measure Recommended

- **Subject Placement**: Measure (**4 feet**) from the background and mark position with blue painters tape or something similar.
- **Camera Placement**: Camera is positioned 9ft directly in front of subject.
- **Main Light Placement**: Main light is positioned 6ft from subject, directly to the side.
- **Fill Light Placement:** Fill light is positioned 6ft from subject at a 45 degree angle, opposite the main light.

STEP 3: *Set Up Main Light*

- Main light should be raised to a height of 5ft and pointed directly towards subject.
- Utilize 7" reflector with white diffusion sock.

STEP 4: *Meter Main Light*

- Stand in the subject position and point light meter **towards MAIN light**.
- Light must be metered independently from the fill light.
  - Fill light will be turned off while metering the main light.
- Meter light and adjust power setting until **F/8** is achieved. (ISO 400, Shutter Speed 125)

STEP 5: *Set Up Fill Light*

- Fill light should be raised to a position where the bottom of the umbrella is 4ft to 5ft from the floor, angled towards subject.
- At least a 60" white reflecting umbrella with a black back is used for maximum light coverage.
- Spokes of umbrella are positioned at a MINIMUM of 22" from light (if possible).
- Silver reflector is removed from light for maximum light coverage.

<u>**STEP 6**</u>: *Meter Fill Light*

- Stand in the subject position and point light meter **towards FILL light**.
- Light must be metered independently from the main light.
    - Main light will be turned off while metering the fill light.
- Meter light and adjust power setting until **F/4.5** is achieved. (ISO 400, Shutter Speed 125)

<u>**STEP 7**</u>: *Take an Over All Meter Reading (Combined Fill and Main Light Meter Reading)*

- Turn on all lights.
- Stand in the subject area and point light meter towards CAMERA position.
- Take meter reading.
- **F/stop indicated when the overall meter reading is taken**.
- **The indicated f/stop is what the camera f/stop will be set to**.

<u>**STEP 8**</u>: *Set up Tripod and Camera*

- Camera is set up 9ft from subject position
- Use of a tripod is recommended

<u>**STEP 9**</u>: *Confirm Camera Settings*

ISO: 400
Shutter Speed: 125
F/Stop: F/stop indicated when the overall meter reading is taken
**White Balance: Flash**

<u>**STEP 10**</u>: *Take Test Picture of Subject*

- Check for under or over-exposure on the skin tone of the subject.
- Check for wrinkles in the background that would cause shadowing.
- Check for uneven lighting and/or hot spots on the background.

SEE CHEAT CARD BELOW

INDOOR SETUP: DRAMATIC

SETUP CAN BE UTILIZED WITH EITHER A CHROMA-KEY OR A NON-CHROMA-KEY BACKGROUND
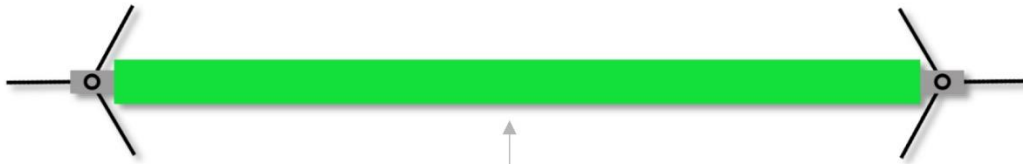
4ft

BACKGROUND

- Position Background so that the View of the Subject is Minimized to Incoming Photography Subjects
- Raise Background to Approximately 8ft (if Possible)
- Bottom of Background Should be Sloped Where it Meets the Floor
- Slack Should be Removed from Background then Clipped to the Background Cross Bar (chroma-key)
- Bottom of Background Should be Taped to the Floor Once Completely Set Up (chroma-key)
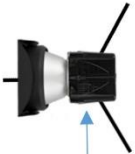
SUBJECT

- HEELS of Subject Placed 4ft from Background

6ft

MAIN LIGHT

- Placed 6ft from the Subject at a 90 Degree Angle
- Light Pointed Towards Subject
- Utilize Silver Reflector with Diffusion Sock
- Bottom of Light Should be 5ft from Floor
- Light Metered at: F/8

LIGHT METER

- Mode: Flash
- ISO: 400
- Shutter Speed: 125
- F/Stop: Overall Reading
- Meter Each Light Individually
- Take Meter Reading from Subject Position, with Light Meter Pointed Towards Respective Position of Each Light
- Take an Overall Meter Reading Once Lights Have Been Metered Individually, with Light Meter Pointed Towards Camera

45 Degree Angle

6ft

9ft

FILL LIGHT

- Placed 6ft from the Subject at a 45 Degree Angle
- Light Pointed Towards Subject
- Minimum 60" (5ft) White Umbrella
- Reflector/Spill Kill Removed from Light
- Bottom of Umbrella 4ft from Floor
- Light Metered at: F/4.5

CAMERA SETTINGS

- ISO: 400
- Shutter Speed: 125
- F/Stop: Overall Reading to Match Overall Reading of Light Meter
- White Balance: Flash
- Photographer: 9ft from Subject

SETUP

STEP ONE: Set up Background
STEP TWO: Mark Subject, Light and Camera Positions
STEP THREE: Set Up Main Light
STEP FOUR: Meter Main Light
STEP FIVE: Set Up Fill Light
STEP SIX: Meter Fill Light
STEP SEVEN: Take an Overall Meter Reading
STEP EIGHT: Set Up Tripod and Camera
STEP NINE: Confirm Camera Settings
STEP TEN: Take Test Shot

SCHOOL CHROMA-KEY SETUP

This is the recommended setup if photographing a school event. This setup utilizes one main light and one hair light.

The main light provides a flat exposure on the subject. The hair light provides highlight/rim lighting on the subject, and provides separation between the subject and the background.

There is an option floor mat that can be utilized with this setup:

- Streamlines the setup process
- Shows the exact placement of the background, subject, camera and main light
- No measuring required
- 3ft x 15ft canvas banner material
- Can be easily transported and stored in 38inch shipping tube
- Can be ordered directly from the TSS Marketing site
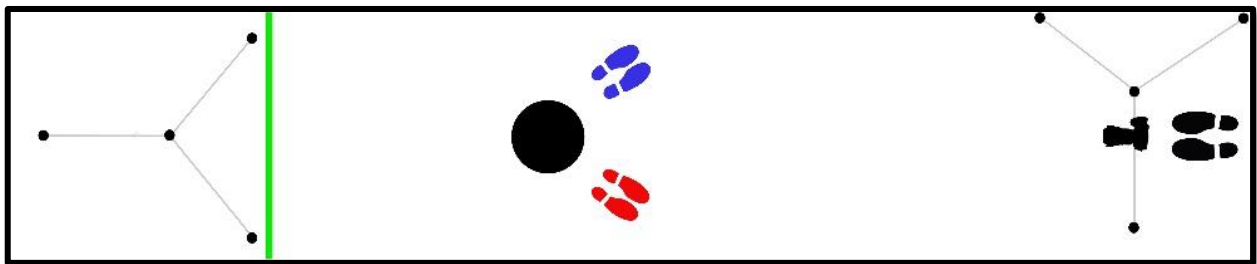
The Following Posing Types can be Executed with this Setup:

- Half Body & Three/Quarter Body Posing
- Close Up Posing
- **NO Full Body Posing**

Recommended Camera Settings:
ISO: 400
Shutter Speed: 125
F/Stop: F/8
White Balance: Flash

STEP 1: *Lay out Floor Mat (Optional Step)*

- This step only applies if utilizing the 3ft x 15ft school floor mat.
- Tape down floor mat once in position.
- Place background, subject stool, camera and main light on the designated areas.

STEP 2: *Set Up Background*

- The background is securely clipped to the top pole, is stretched straight across and as "tight" as possible. This will remove any wrinkles that could potentially cause shadows.
- Pull the background out at the very bottom, causing a slope at the bottom of the background.
- Secure with tape once pulled out evenly. This will reduce the possibility of causing shadowing where the background meets the floor. This will also provide additional "coverage" reducing the possibility of photographing off of the background.
- Add the blue background by clipping to one side of the background pole. With the addition of the blue background, teams and/or individuals wearing green can be captured on the same camera station by simply pulling the blue background over the green and securing to the opposite background stand. Take a few seconds to make sure there are no wrinkles.

STEP 3: *Measure and Mark Placement of Subject, Camera and Light Positions (this is an optional step if utilizing school floor mat)*

Use of Tape Measure Recommended

- **Subject Placement**: Measure (**4 feet**) from the background and mark position with blue painters tape or something similar.
- **Camera Placement**: Camera is positioned 7ft directly in front of subject.
- **Main Light Placement**: Main light is positioned 7ft from subject, directly beside camera position.
- **Hair Light Placement:** Hair light will be mounted to either the background stand cross bar or a light stand directly behind the background, angled down towards the subject.

STEP 4: *Set Up Main Light*

- Main light is positioned directly behind the photographer (approximately 10ft to 12ft from subject).
- At least a 60" white reflecting umbrella with a black back is used for maximum light coverage.
- Spokes of umbrella are positioned at a MINIMUM of 22" from light (If possible).
- Silver reflector is removed from light for maximum light coverage/spread.
- Bottom of umbrella should be 5ft to 6ft from floor. This may not be possible in rooms with lower ceilings. If not, raise light to its maximum height.
- Light is angled down towards the subject at a slight angle. Stem of umbrella should be pointing towards the chest of the subject.

STEP 5: *Meter Main Light*

- Stand in the subject position and point light meter towards camera/Light
- Meter light and adjust power setting until **F/8** is achieved. (ISO 400, Shutter Speed 125)

STEP 6: *Set Up Hair Light*

- Hair light will be mounted to either the background stand cross bar or a light stand directly behind the background, angled down towards the subject.
- Use silver reflector and diffusion sock(s) OR silver reflector and a honeycomb grid to achieve desired results.
- Multiple diffusion socks MAY be needed in order to attain F/4 reading.

STEP 7: *Meter Hair Light*

- Hold the meter on top of your head, pointing slightly towards the hair light (NOT towards the camera) when metering.
- A small step ladder may be needed to reach the hair light, in the event the power output of the light needs to be adjusted.
- Meter light and adjust power setting until **F/4** is achieved. (ISO 400, Shutter Speed 125)

STEP 8: *Set up Tripod and Camera*

- Camera is set up 7ft from subject position
- Use of a tripod is recommended
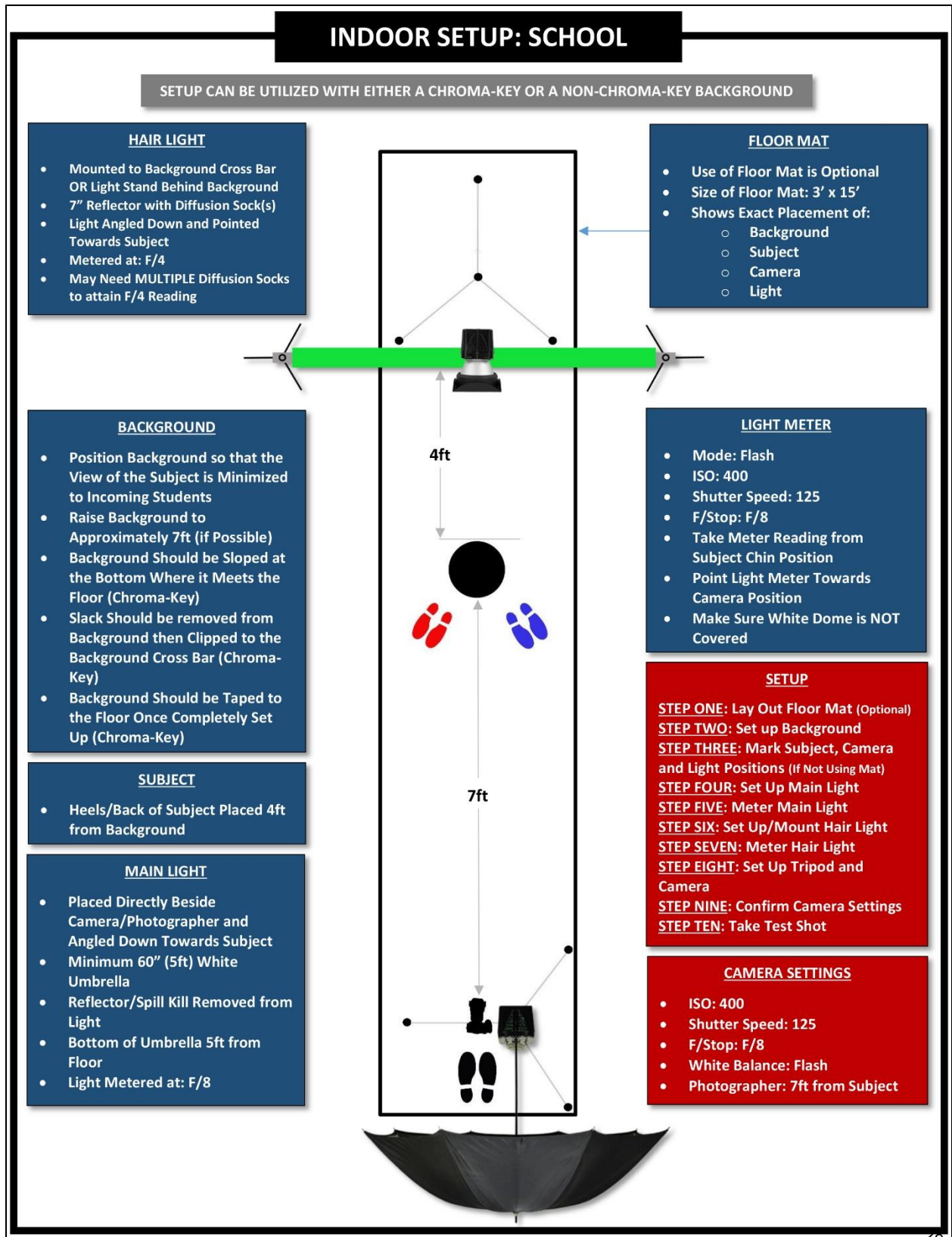
STEP 9: *Confirm Camera Settings*

ISO: 400
Shutter Speed: 125
F/Stop: F/8
White Balance: Flash

STEP 10: *Take Test Picture of Subject*

- Check for under or over-exposure on the skin tone of the subject.
- Check for wrinkles in the background that would cause shadowing.
- Check for uneven lighting and/or hot spots on the background.

INDOOR SETUP: SCHOOL

SETUP CAN BE UTILIZED WITH EITHER A CHROMA-KEY OR A NON-CHROMA-KEY BACKGROUND

HAIR LIGHT

- Mounted to Background Cross Bar OR Light Stand Behind Background
- 7" Reflector with Diffusion Sock(s)
- Light Angled Down and Pointed Towards Subject
- Metered at: F/4
- May Need MULTIPLE Diffusion Socks to attain F/4 Reading

FLOOR MAT

- Use of Floor Mat is Optional
- Size of Floor Mat: 3' x 15'
- Shows Exact Placement of:
  - Background
  - Subject
  - Camera
  - Light

BACKGROUND

- Position Background so that the View of the Subject is Minimized to Incoming Students
- Raise Background to Approximately 7ft (if Possible)
- Background Should be Sloped at the Bottom Where it Meets the Floor (Chroma-Key)
- Slack Should be removed from Background then Clipped to the Background Cross Bar (Chroma-Key)
- Background Should be Taped to the Floor Once Completely Set Up (Chroma-Key)

4ft

LIGHT METER

- Mode: Flash
- ISO: 400
- Shutter Speed: 125
- F/Stop: F/8
- Take Meter Reading from Subject Chin Position
- Point Light Meter Towards Camera Position
- Make Sure White Dome is NOT Covered

SETUP

STEP ONE: Lay Out Floor Mat (Optional)
STEP TWO: Set up Background
STEP THREE: Mark Subject, Camera and Light Positions (If Not Using Mat)
STEP FOUR: Set Up Main Light
STEP FIVE: Meter Main Light
STEP SIX: Set Up/Mount Hair Light
STEP SEVEN: Meter Hair Light
STEP EIGHT: Set Up Tripod and Camera
STEP NINE: Confirm Camera Settings
STEP TEN: Take Test Shot

SUBJECT

- Heels/Back of Subject Placed 4ft from Background

7ft

CAMERA SETTINGS

- ISO: 400
- Shutter Speed: 125
- F/Stop: F/8
- White Balance: Flash
- Photographer: 7ft from Subject

MAIN LIGHT

- Placed Directly Beside Camera/Photographer and Angled Down Towards Subject
- Minimum 60" (5ft) White Umbrella
- Reflector/Spill Kill Removed from Light
- Bottom of Umbrella 5ft from Floor
- Light Metered at: F/8

OUTDOOR CHROMA-KEY SETUP

IMPORTANT: OUTDOOR CHROMA-KEY IS GENERALLY NOT RECOMMENDED. USE AS A LAST OPTION.

IMPORTANT: Because of the precise nature of chroma-key lighting, it can be VERY challenging getting consistent exposures outdoors. This is due to the potentially constantly changing/inconsistent lighting conditions often experienced outdoors.

IMPORTANT: Inconsistent lighting will cause the following issues:

- Under-exposure
- Over-exposure
- Color Spill
- Hot Spots on the background
- Dark Spots on the background
- Potential lab retouch fees
- Potential green screen repair fees
- Potential PNG cutout fees

OUTDOOR CHROMA-KEY PHOTOGRAPHY GUIDELINES:

GUIDELINE #1: A White EZ-UP Tent, Including Side Panels, Must be Utilized.

IMPORTANT: Failure to do so could potentially result in severely uneven lighting and hot spots on the background.

UNEVEN LIGHTING & HOT SPOTS ON THE BACKGROUND

IMPORTANT: Once side panels have been attached, a dark colored tarp MUST be mounted to the tent BEHIND the chroma-key background.

- **The utilization of a tarp is required.**
- The tarp will reduce and/or eliminate sun hot spots from appearing on the back of the chroma-key background.
- Utilize bungee cords and clips to secure the tarp directly to the tent.

GUIDELINE #2: The Main Source of Exposure for the Subject is the Ambient Light, Not the Flash.

IMPORTANT: The flash provides fill light only. By utilizing the ambient light for the main source of exposure on the subject, it will greatly reduce shadowing on the background.

IMPORTANT: Utilizing a higher ISO and/or lower shutter speed will increase the ambient light exposure on the subject.

GUIDELINE #3: The More Diffused the Flash Light Source, the More Effective it will be in Eliminating Unwanted Shadows on the Background.

IMPORTANT: If utilizing a studio strobe, it can be mounted to the crossbars on the tent canopy, or mounted to a light stand directly beside the photographer, pointed towards the subject.

NOTE: If utilizing an on camera flash, it can be pointed directly towards the subject, but a diffusor is highly recommended.

Setting up the Tent and the Background:

- **Side panels and tarp MUST be utilized.**
- Secure side panels to tent.
- Secure tarp to tent.
    - Utilize bungee cords and clips
    - Goes BEHIND the chroma-key background
- Secure green chroma-key background to tent.
    - Utilize bungee cords and clips
    - Goes IN FRONT of tarp
- Secure blue chroma-key background to the side of the green chroma-key background.
    - Secure it to either the right or the left side
    - Pull it across the green chroma-key and clip it to the opposite side when necessary
- Stake tent down and/or utilize sand bags to secure tent.

Recommended Camera Settings:
ISO: 200 to 800 (Depending on lighting conditions)
Shutter Speed: 60 to 125 (Depending on lighting conditions)
Main Light: Meter the ambient light for the recommended F/stop, then underexpose f/stop by 1/3 of a stop
White Balance: Flash

STEP 1: *Set Up Tent and Background*

- **White canopy on tent is REQUIRED**. Colored canopies will cause an unnatural color cast on the subject, causing white balance issues.
- **Extend tent to full height**. This will be needed if photographing taller subjects.
- **Tent MUST be staked down**. Adding the side panels will greatly increase the possibility of the tent being blown away.
- **A darker cloth (such as a black muslin) MUST be hung behind the green screen/blue screen background**. Adding this will greatly reduce sun hot spots on the background, when the sun is hitting the back side of the background.
- Background will be clipped to the side posts of the tent. To avoid wrinkles in the background, utilize miniature bungee cords to secure the background to the side posts.

STEP 2: *Mark Subject and Camera Positions*

- Mark subject position 4 feet from the background. A stake or miniature caution cone can be used to mark position. Floor mats can also be utilized for this purpose.
- Mark photographer position 9 feet from subject.

STEP 3: *Mount Light to Tent or Mount to Light Stand Directly Beside the Photographer*

- If mounting light to tent, a clamp bracket will be required

- Position light directly beside camera position.
- Secure any cords (power and sync) to the cross braces of the tent. This will keep them out of the way when photographing and make it a safer environment when subjects are entering and exiting the tent.
- Use of silver reflector with heavy diffusion is recommended.

STEP 4: *Take ambient light reading*

- Set the light meter to the following settings:
  - **ISO**: 200 to 800 (Depending on lighting conditions)
  - **Shutter Speed**: 60 to 125 (Depending on lighting conditions)
  - **F/Stop:** Meter for the f/stop
- **After meter reading is taken, purposefully set the f/stop on the camera 1/3 of a stop underexposed.**

STEP 5: *Meter main light*

- Change the meter mode on the light meter to "Flash" (it was previously on ambient mode).
- Stand in the subject position to take the reading.
- Point the meter towards camera position and take meter reading.
- The goal is to match the flash output to the ambient light reading.
  - **Example**: if your ambient reading is F/11, increase or decrease power setting on light until F/11 is achieved.

STEP 6: *Set up Tripod and Camera*

- Camera is set up 9ft from subject position.
- Use of a tripod is recommended.

STEP 7: *Confirm Camera Settings*

ISO: **200 to 800 (Depending on lighting conditions)**
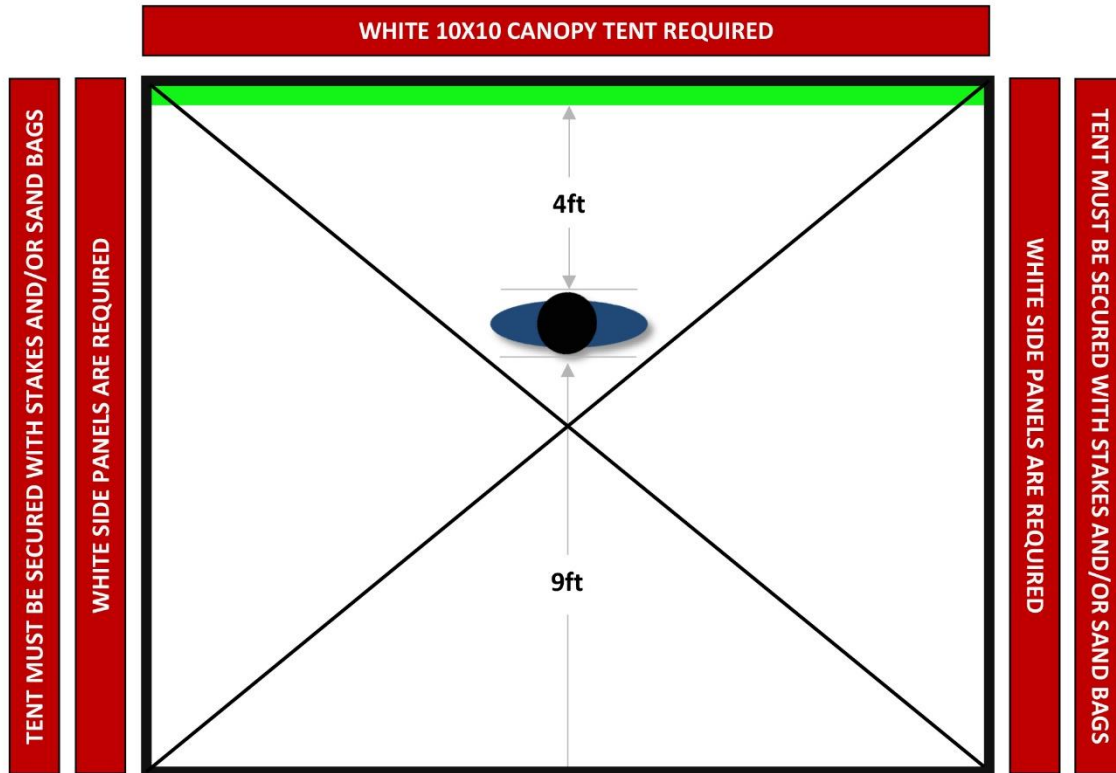Shutter Speed: **60 to 125 (Depending on lighting conditions)**
Main Light: **Meter the ambient light for the recommended F/stop, then underexpose f/stop by 1/3 of a stop**
White Balance: **Flash**

STEP 8: *Take Test Picture of Subject*

- Check for under or over-exposure on the skin tone of the subject.
- Check for wrinkles in the background that would cause shadowing.
- Check for uneven lighting and/or hot spots on the background.

OUTDOOR SETUP: CHROMA-KEY

WHITE 10X10 CANOPY TENT REQUIRED

TENT MUST BE SECURED WITH STAKES AND/OR SAND BAGS

WHITE SIDE PANELS ARE REQUIRED

TENT MUST BE SECURED WITH STAKES AND/OR SAND BAGS

WHITE SIDE PANELS ARE REQUIRED

4ft

9ft

BACKGROUND

- **Background Will be Attached to the Tent Utilizing Bungee Cords and Clips**
- **A Dark Colored Tarp Needs to be Attached to the Tent BEHIND the Chroma-Key Background**
- **The Tarp Prevents Back Lit Sun Spots & Hot Spots from Appearing on the Background**

SUBJECTS

- **HEELS of Subject Placed 4ft from Background**

LIGHT METER

- **Mode: Ambient/Flash**
- **ISO: 200 to 800**
- **Shutter Speed: 60 to 125**
- **F/Stop: Meter for F/stop**
- **Take Meter Reading from Subject Position**
- **Point Light Meter Towards Camera Position**
- **Make Sure White Dome is NOT Covered**

CAMERA SETTINGS

- **ISO: 200 to 800**
- **Shutter Speed: 60 to 125**
- **F/Stop: Meter Ambient Light for F/stop, Then INCREASE by 1/3rd of a Stop**
- **White Balance: Flash**
- **Photographer: 9ft from Subject Position**

MAIN LIGHT

- **Placed Directly Beside Camera Position – As Close to the Middle of the Subject as Possible**
- **Center Lighting the Subject Will Help in Minimizing Potential Side Shadows on the Background**
- **Utilize 7" Silver Reflector with White Diffusion Sock(s)**
- **F/Stop: Metered to Ambient Light Reading**

SETUP

IMPORTANT: Ambient Light is the Main Light Source for Subject Exposure

STEP ONE: Determine Shutter Speed & ISO based on Current Lighting Conditions

STEP TWO: Place Light Meter in "Ambient" Mode then Confirm Previously Designated ISO and Shutter Speed Settings on Light Meter

STEP THREE: Take Ambient Meter Reading

STEP FOUR: Adjust F/Stop on Camera until it is 1/3rd of a Stop UNDEREXPOSED
- **Example: If Ambient Reading is F/8, Set Camera F/stop to F/9**

STEP FIVE: Meter Main Light, then Adjust the Power Output of the Light until it Matches the Ambient Meter Reading
- **Example: If Ambient Reading is F/8, Meter and Adjust Light until F/8 is Achieved**

GROUP CHROMA-KEY SETUP

This setup can be utilized with either a chroma-key background OR a non-chroma-key background.

There are two different types of group chroma-key photography:

- **Standard**: Utilizes a chroma-key background both for the background AND for the floor piece.
    - This type increases the likelihood of color spill occurring on the photography subjects.
    - The group is posed directly on the chroma-key background.
    - The closer the subjects are to the chroma-key background, the greater the possibility of seeing color spill on the subjects.

- **Hybrid**: Utilizes a chroma-key background for the background, and a non-chroma-key piece for the floor.
    - The actual floor can be utilized if necessary.
    - Reduces the possibility of seeing color spill on the subjects.

IMPORTANT: The challenge in executing group chroma-key photography is not in the execution of the photography, but rather in the choosing of the correct background.

When utilizing HYBRID group chroma-key photography, a black drop cloth/backdrop on the floor works best to avoid shadows on the floor. This also helps to eliminate the tricky foreground perspective needed in the chroma-key background image.

Below are some examples of the hybrid group chroma-key photography method.

IMPORTANT GROUP CHROMA-KEY GUIDELINES:

Guideline #1: A minimum 10ft x 20ft chroma-key background will be needed to execute group chroma-key.

Guideline #2: **Make sure the line is as clean and as straight as possible where the chroma-key background meets the floor**.

Guideline #3: Make sure light is centered on group. This will help reduce and/or eliminate side shadowing on the background.

Guideline #4: Raise light as high as possible (bottom of umbrella 6ft from floor). This will help reduce and/or eliminate shadowing on the background.

Guideline #5: Use as large a light modifier as possible. A minimum 60" (5ft) white umbrella is required.

Guideline #6: Always make sure the back row of the team/group is at least four feet from the background. This will help to reduce and/or eliminate shadowing on the background.

Guideline #7: Utilize a darker background image if possible, as they will mask imperfections/shadows on the background.

Guideline #8: Add a black vignette to the background image file, if utilizing a dark floor piece. Doing so will help blend the image file with the floor, creating a more seamless effect.

Recommended Camera Settings
ISO: 400
Shutter Speed: 125
F/Stop: f/8
White Balance: Flash

<u>STEP 1</u>: *Set Up Background*

- The background is securely clipped to the top pole, is stretched straight across and as "tight" as possible. This will remove any wrinkles that could potentially cause shadows.
- Pull the background out at the very bottom, causing a slope at the bottom of the background.
- Secure with Tape once pulled out evenly. This will reduce the possibility of causing shadowing where the background meets the floor and provide additional "coverage" preventing the possibility of photographing off the background.
- If utilizing a floor piece (material or otherwise), make sure to tape down the floor material in order to minimize shifting.

<u>STEP 2</u>: *Measure Placement of Subject Back Row, Light and Camera*

- Back row is positioned **4ft** from background. Mark position with tape.
- Photographer is positioned **12ft** from back row position. Mark position with tape.
- Main light is positioned directly behind photographer (approximately 1 to 2ft).

<u>NOTE</u>: For larger groups 2 lights may be used. Both lights would need to be metered flat (1:1 ratio), with same power output on both lights. In this event, place one light to the right and one light to the left of the photographer position.

<u>STEP 3</u>: *Set Up Main Light(s)*

- Main light should be raised to a position where the bottom of the umbrella is 5ft to 6ft from the floor, angled towards group.
- At least a 60" white reflecting umbrella with a black back is used for maximum light coverage.
- Spokes of umbrella are positioned at a MINIMUM of 22" from light.
- Silver reflector is removed from light for maximum light coverage.

<u>STEP 4</u>: *Meter Main Light*

- Stand approximately a foot in front of the back row marker and point the light meter towards the light/camera position.
- Meter light and adjust power setting until **F/8** is achieved. (ISO 400, Shutter Speed 125)

<u>STEP 5</u>: *Set up Tripod and Camera*

- Camera is set up 12ft from back row marker.
- Use of a tripod is recommended.

STEP 6: *Confirm Camera Settings*

ISO: 400
Shutter Speed: 125
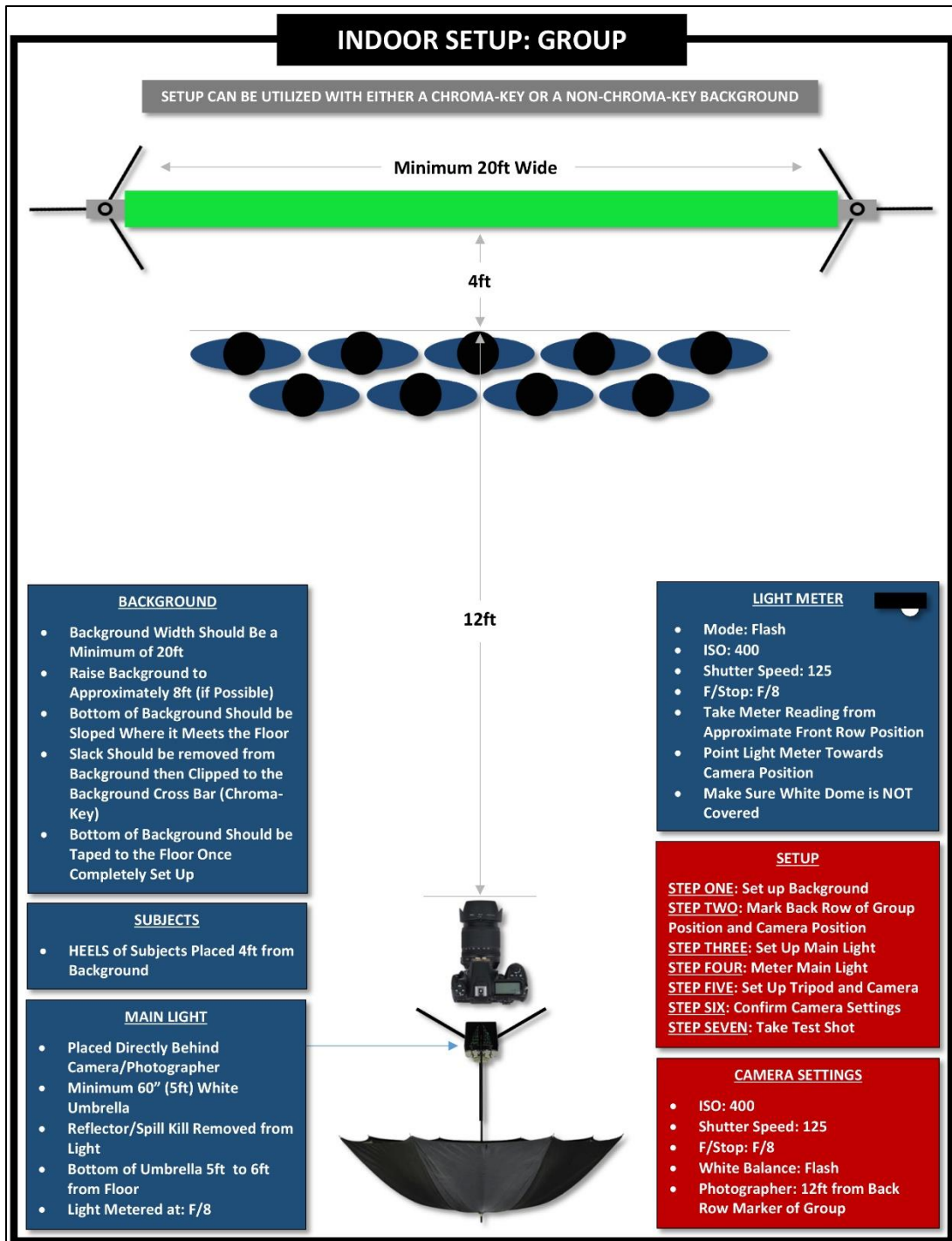**F/Stop**: f/8
White Balance: Flash

STEP 7: *Take Test Picture of Subject*

- Check for under or over-exposure on the skin tone of the subject.
- Check for wrinkles in the background that would cause shadowing.
- Check for uneven lighting and/or hot spots on the background.

INDOOR SETUP: GROUP

SETUP CAN BE UTILIZED WITH EITHER A CHROMA-KEY OR A NON-CHROMA-KEY BACKGROUND

Minimum 20ft Wide

4ft

12ft

BACKGROUND
- Background Width Should Be a Minimum of 20ft
- Raise Background to Approximately 8ft (if Possible)
- Bottom of Background Should be Sloped Where it Meets the Floor
- Slack Should be removed from Background then Clipped to the Background Cross Bar (Chroma-Key)
- Bottom of Background Should be Taped to the Floor Once Completely Set Up

SUBJECTS
- HEELS of Subjects Placed 4ft from Background

MAIN LIGHT
- Placed Directly Behind Camera/Photographer
- Minimum 60" (5ft) White Umbrella
- Reflector/Spill Kill Removed from Light
- Bottom of Umbrella 5ft to 6ft from Floor
- Light Metered at: F/8

LIGHT METER
- Mode: Flash
- ISO: 400
- Shutter Speed: 125
- F/Stop: F/8
- Take Meter Reading from Approximate Front Row Position
- Point Light Meter Towards Camera Position
- Make Sure White Dome is NOT Covered

SETUP
STEP ONE: Set up Background
STEP TWO: Mark Back Row of Group Position and Camera Position
STEP THREE: Set Up Main Light
STEP FOUR: Meter Main Light
STEP FIVE: Set Up Tripod and Camera
STEP SIX: Confirm Camera Settings
STEP SEVEN: Take Test Shot

CAMERA SETTINGS
- ISO: 400
- Shutter Speed: 125
- F/Stop: F/8
- White Balance: Flash
- Photographer: 12ft from Back Row Marker of Group

FULL BODY CHROMA-KEY

IMPORTANT: Utilize the standard chroma-key setup for all full body chroma-key photography.

NOTE: It is not difficult to photograph full body chroma-key. The difficulty is in finding a background image that will produce a natural looking (non-floating), final render.

There are two different types of full body chroma-key photography:

- **Standard**: Utilizes a chroma-key background both for the background AND for the floor piece.
- **Hybrid**: Utilizes a chroma-key background for the background, and a non-chroma-key piece for the floor.

Standard Full Body Chroma-Key:

Main Challenges When Utilizing Standard Full Body Chroma-Key:

Number One: *Color Spill*
- Standard full body chroma-key photography has the subject standing on the green screen background.
- This reduces the separation between the subject and the background, which could potentially create color spill.

Number Two: *Unmatched Perspective (see section on how to choose the best background)*
- Standard full body chroma-key photography requires that the background image and the subject are photographed from the same perspective and angle.
- If the two perspectives do not match, the render will look un-realistic with a "floating" effect.

What does it mean to photograph from the same perspective?
- Both the background image AND the subject image(s) need to photographed from the same camera height, focal length and camera angle.

EXAMPLE: The background images below were photographed from different perspectives than the subject images. This resulted in unnatural looking final renders.

Hybrid Full Body Chroma-Key:

- This is when the chroma-key background is utilized for the background, and a different material (black muslin, vinyl flooring, etc) is utilized for the floor.
- **When doing this type of chroma-key photography, make sure the chroma-key background is very clean and straight where it meets the floor. This will make the render look as natural as possible.**
- This can be a better option than Standard Full Body Chroma-Key:
  - Typically reduces and/or eliminates perspective issues.
  - Typically reduces and/or eliminates color spill issues.
  - A smaller chroma-key background can be utilized.

CHROMA-KEY IMAGE MANAGEMENT REQUIREMENTS

Recommended Image Size Setting: Medium
Recommended Image Quality (Compression) Setting: Basic (Normal for Canon)

REQUIREMENT #1: Image aspect ratio must be the same between the subject image and the chroma-key background image.

What is Image Aspect Ratio?
- Image aspect ratio is simply the proportion between the width and height of an image.

Most cameras capture images in a 3:2 Ratio: The width of the image is 1.5 times the height of the image (or reverse if the image is vertical/heads up).
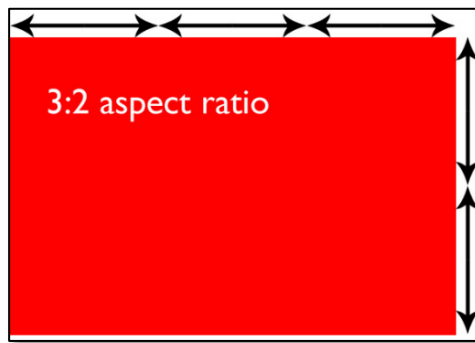
IMPORTANT: If the image proportions between the subject image and the background image do not match, you will be unable to upload the images into CORE.

NOTE: All TSS chroma-key background images are cropped to a 2:3 (4x6) aspect ratio.

How do You Determine the Image Aspect Ratio?

- Take the pixel dimensions of the image and divide the greater number by the lower number.
- If the final number is between 1.47 and 1.50, there will not be a problem when uploading the green screen background image.

Pixel Dimensions = 2197 x 3297

SIMPLY DIVIDE THE
GREATER NUMBER BY
THE LOWER NUMBER.
MUST EQUAL BETWEEN
1.50 AND 1.47

(1.50 EQUALS A 2:3 (4X6) ASPECT RATIO)

REQUIREMENT #2: Chroma-key subject images must be edited PRIOR TO uploading to CORE.

NOTE: The render process is an automated process.

- Subjects are NOT resized to fit the background.
- Subjects are NOT repositioned to fit the background.

Potential Issues When an Uncropped Image is Submitted:

- Too much dead space in final render
- Poor placement of subject in final render
- Subject appears to be "floating" due to poor placement in final render

When an Image is Cropped/Edited PRIOR TO Uploading into CORE:

IMPORTANT: Subjects feet must come below the horizon line of the background image.

IMPORTANT: MUST ALLOW FOR 8X10 AND 5X7 CROP RATIOS WHEN EDITING IMAGES (Do not crop/edit images too tight)

IMPORTANT: All images are center cropped (equal amounts of space are taken from both the top and bottom)

4x6

5x7

8x10

IMPORTANT: Proper use of the in-camera crop mask is the best tool to ensure accurate cropping.

THE DIGITAL CHROMA-KEY BACKGROUND IMAGE

The Digital Background is a key element in chroma-key photography. The ability to change and customize the background image is the reason for using this technique.

The TSS Chroma-Key Background Image Catalog:

All of the TSS approved background images can be viewed and downloaded via the Dropbox link below: (Copy and paste into your browser)

https://www.dropbox.com/sh/qde3czxu62ljcsq/AAAy3wbVAJpGxLrbRs5iigTya?dl=0
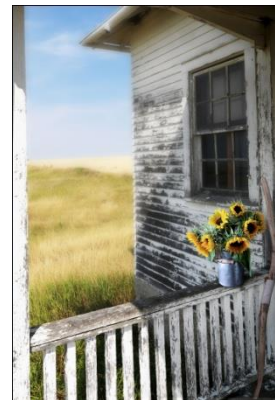
NOTE: There are more than 1000 chroma-key background images to choose from in the "TSS Chroma-Key Background Image Catalog".

- **No username and/or password needed to access the image files, as long as the provided link below is utilized.**
- **Easy thumbnail preview of all image files.**
- **Easy navigation, as all chroma-key background images have been separated into folders via sport type.**
- **Ability to download a single image, an entire image folder OR the entire chroma-key background image catalog with ease.**

SELECTING THE RIGHT CHROMA-KEY BACKGROUND

IMPORTANT: The most difficult and challenging aspect of chroma-key photography is not in the execution of the photography, but rather in choosing the right chroma-key background image.

THREE QUARTER & HALF BODY POSING:

IMPORTANT: It is much easier choosing a chroma-key background for three quarter body and half body posing than it is for full body and team posing.

GENERAL GUIDELINES WHEN CHOOSING A CHROMA-KEY BACKGROUND IMAGE:

1. **Avoid backgrounds that are too busy.**
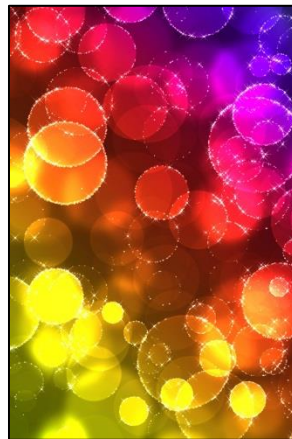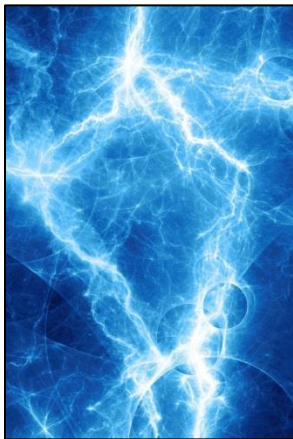
2. Avoid backgrounds where the subject will cover up key elements of the background.

3. Avoid backgrounds where objects are "coming out" of the subjects head.

4. Avoid images that are Trademarked.

5. Sometimes simple is better.

FULL BODY POSING:

IMPORTANT: It is much more difficult choosing a chroma-key background image when doing full body posing, than it is when doing half body and three quarter body posing.

IMPORTANT: Selecting the right background file is crucial in obtaining a "Natural" appearing final image.

GENERAL GUIDELINES WHEN CHOOSING A CHROMA-KEY BACKGROUND IMAGE FOR FULL BODY POSING:

1. **Avoid choosing an image that has an unmatched perspective from your subject file.**

   What is Unmatched Perspective?
   Unmatched perspective is when BOTH the background image AND the subject image are photographed at a different angle, height AND focal length.

What is Matched Perspective?
Matched perspective is when both the background image and the subject image are photographed at approximately the same angle, height and focal length.

2. Avoid using "scenic" type background images when doing full body chroma-key.

IMPORTANT: Graphics type background images usually work better in this case.

3. **Avoid using background images that make the subject look like they are "floating".**
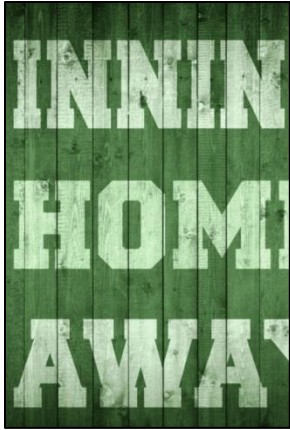
IMPORTANT: The subject always needs to be "grounded" in the final image render.

How to Make the Subject Look More "Grounded" in the Final Image Render:

ONE: Add shadow detail around the feet.
- **This must be done PRIOR TO uploading the images into CORE.**

TWO: Utilize chrome-key background images that are dark on the bottom, where the subjects feet meet the floor.

4. **Avoid using background images that are out of focus both in the foreground AND the background. If the subject is in focus and the ground underneath their feet is out of focus, it will look unnatural.**
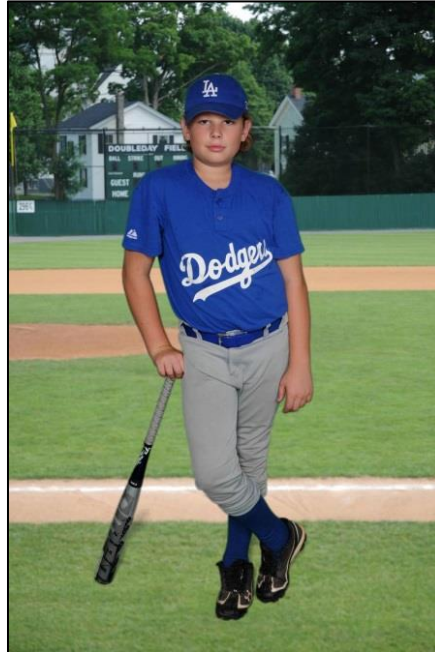
5. **Avoid choosing background images that provide an unnatural scale in relation to your subject.**
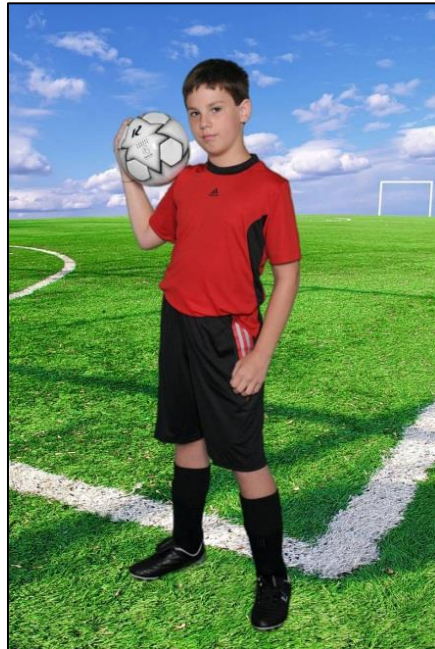
SELECTING THE RIGHT CHROMA-KEY BACKGROUND IMAGE FOR GROUPS:

IMPORTANT: Graphic type backgrounds tend to work the best when executing group chroma-key photography.

IMPORTANT: Scenic type background images usually do NOT work well when executing group chroma-key photography. **(Unless you are utilizing the "Team Impact" artwork in CORE)**

SUBMITTING YOUR OWN CHROMA-KEY BACKGROUND IMAGES

IMPORTANT: The Franchisee must own the rights to the image and the image must be free of any advertising or other trademarked or registered logos.

- Background Images submitted must meet TSS Photographic Quality Standards.

Purchase CD's of digital backgrounds.
Go to background vendor sites and search:
"digital backgrounds"

Vendors:
dreamstime.com
Denny Manufacturing, dennymfg.com
Owens Originals, owens-origionals.com
EZbackgrounds.com
Backdropoutlet.com

Create your own custom chroma-key backgrounds:
Photograph the league/organizations field on a day when an optimum exposure is possible, then use that to provide the look of their local venue.

Technical Specifications

- Use standard file size and quality settings.
    - 1mb to 3mb file size
    - Do not use a RAW file format unless able to locally convert to jpeg format.
- A shallow depth of field works well to add to the illusion of chroma-key.
    - Utilize an aperture of f/5.6.
    - Higher shutter speeds required on sunny days.
- Have an assistant stand in the subject position and create a reference point for where your subject would be positioned for the job. Keep the camera level with the average subject's chest height. Lock in the focus on the subject, and then have them step away. With the focus still locked, photograph the scene. This will maintain a realistic depth of field (range of focus).
- Do not use a flash.
- Do not over-expose the background. Use of a light meter or the in-camera meter to expose for the background is recommended. Under-expose slightly to gain more detail in a bright field or sky. Bracket exposures to ensure you have a properly exposed image with a lot of detail.

Quality:
- After adjusting the cropping for your desired background, zoom out and take a second image at this focal point. This is a 'safety' image to keep on file, in the event a background image with a looser crop is required.
- If unsure of background quality, submit the image to a member of the TSS Photography Team in advance for confirmation or recommendations to enhance.

Note: Self-rendered chroma-key image files:
- Color of background will be affected when image is adjusted for exposure and skin tone

Submitting a Chroma-Key Order:

NOTE: Please see the "**Chroma-Key Order Submission**" section of the CORE documentation for detailed instructions on how to submit a chroma-key order.

Chroma-Key Per Image Processing Cost:

	Dynamic	**Pre-Render**	**Pre-Render/Dynamic Together**
Chroma-Key Image Processing	$0.01	$0.25	$0.26
Chroma-Key Image Processing with review	$0.60	$0.60	$0.60
Manual Chroma-Key Repair	$2.00	$2.00	$2.00
For Each Background Pre-Rendered to Each PNG (.06 Each)	N/A	$0.06	$0.06
1% Additional Commission on Retail Orders	1%	N/A	N/A

Resources

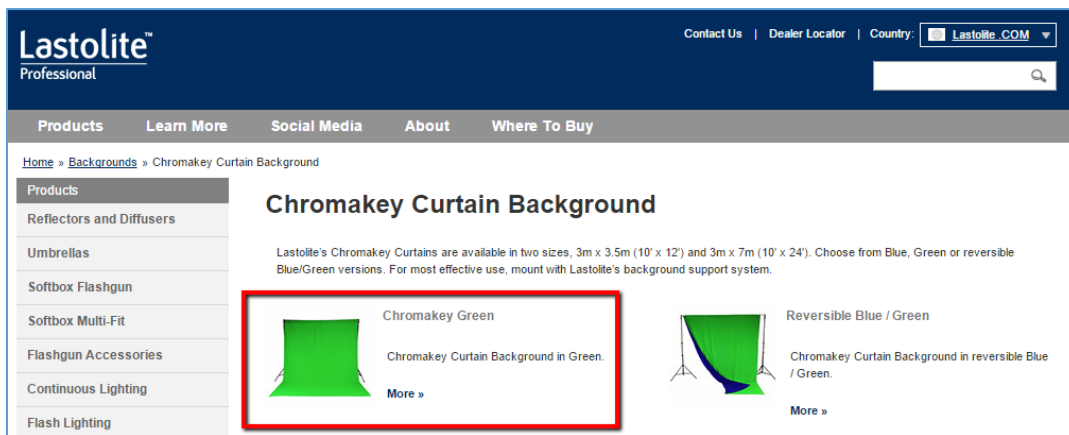**Recommended Chroma-Key Software**: Green Screen Wizard
www.greenscreenwizard.com

IMPORTANT: Recommended use of software is for previewing rendered chroma-key images PRIOR to offering selections to league/organization (for pre-render).
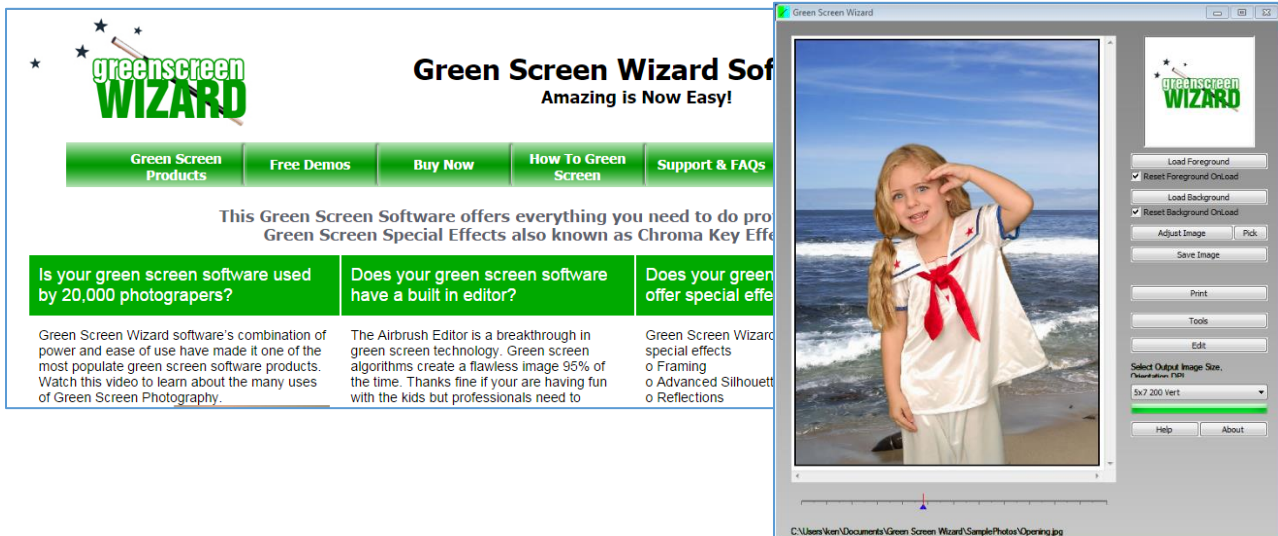
Recommended Chroma-Key Background: 10x12 Lastolite Chroma-Key
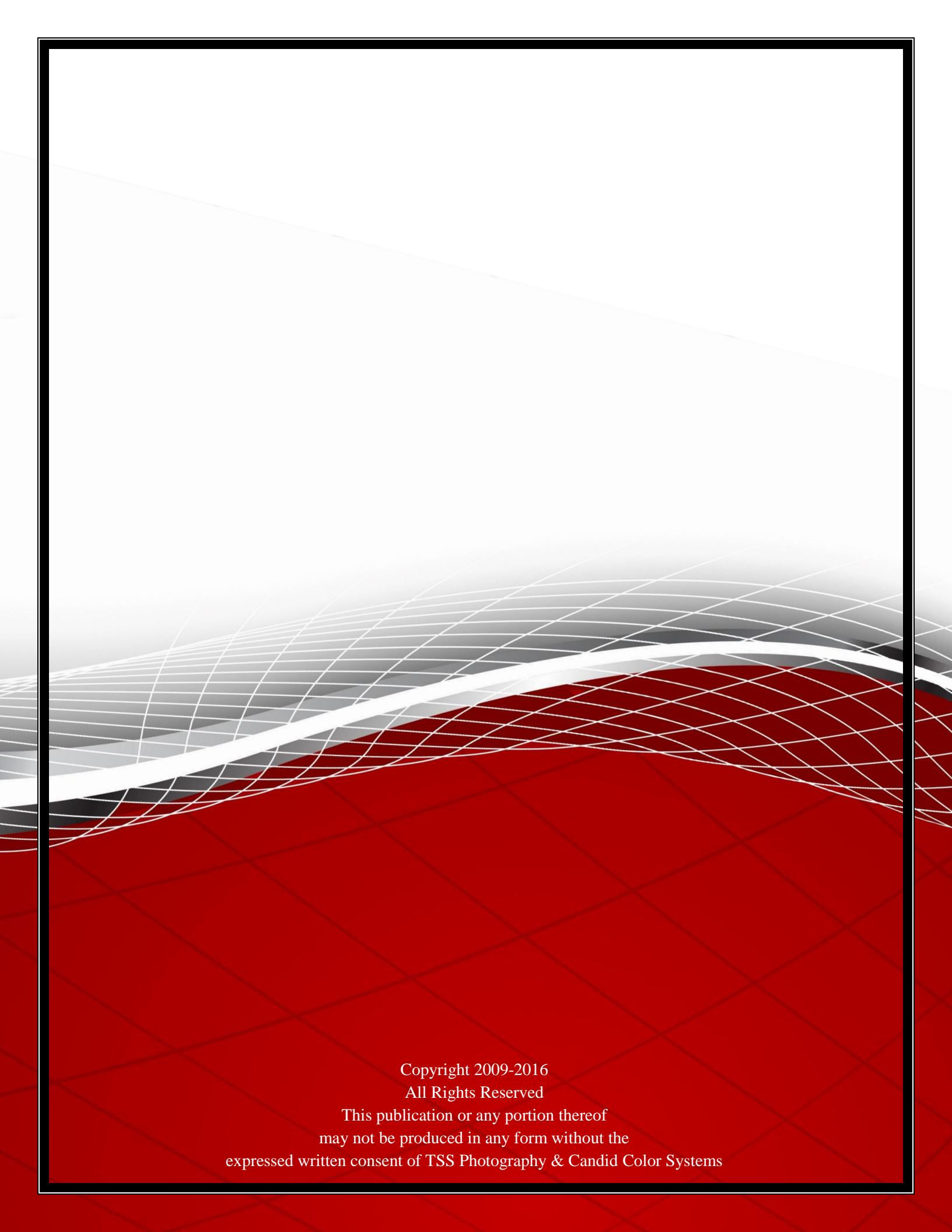- $112 from Showcase Photo & Video

Showcase Photo & Video:
Contact Bob Fitzgibbons (TSS Rep at Showcase)
1-800-886-1976
2323 Cheshire Bridge Rd NE
Atlanta, GA 30324
http://www.showcaseinc.com/