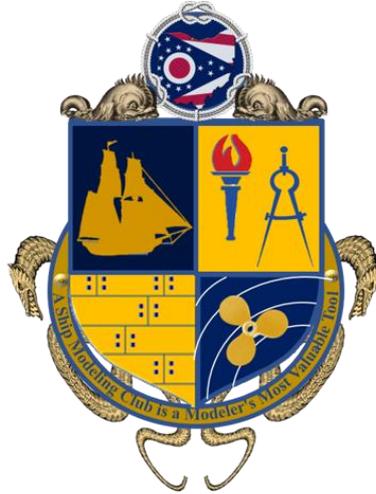


Photographing Model Ships



Shipwrights of Ohio

March 20, 2021

Alan Phelps

Photographing Model Ships

Overview

- 1 Intent**
- 2 Definitions**
- 3 Camera or Phone?**
- 4 Image size and resolution**
- 5 Backgrounds**
- 6 Light is Everything**
- 7 Shooting Techniques**
- 8 Q & A**

Intent of Images

Prints	size determines resolution
Web	med res, high contrast
Email	low res
Zoom	med. resolution
Power Point	med. for computer max for projection
Contest	max

Take images at highest resolution
can always reduce

Definitions

Cameras	Point and Shoot (P&S) Bridge Interchangeable Lens
Phone or P&S	single lens software driven
Image size	width pixels x height pixels
Resolution	PPI on long side
Aperture	Diameter of lens opening
Sensor	Converts light to electrical signal
ISO	sensitivity to light
Strobe	Studio light
Speed Light	On or off camera, lower power
Depth of Field	(DOF) in-focus part of image

Camera or Phone?

	Smart Phone	Point and Shoot	Bridge	Interc. Lens Camera
Sensor sensitivity	good-best	good - best	better	best
Focal Length	some	some	zoom limited	lots of lenses
Focus Control	auto	auto	auto	manual or auto
Shutter Control	indirect	indirect	yes	yes
External Flash Sync	no	no	yes	yes
Image Stability	no	no	some	yes
Depth of Field Control	indirect	indirect	some	yes
Shooting Options	many	many	many	many

Digital Image Size

Starts in the camera

Image size = width px x height px

Selection in **Phone** and P&S

Settings

Picture quality

Pixel Dimensions

MP (mega pixels)

Selection in **Cameras**

Settings

Image Size

Pixel Dimensions

Resolution

Definition: **Pixels per inch (PPI) on long side of image**

example: **Image is 3200 x 1950 px or 7 mpx (NOT MB)**

Printed at 4x6: **3200 Px/6 in = 533 PPI**

Printed at 8x10: **3200 px/10 in=320 PPI**

Printed at 12x18: **3200 px/18 in= 177 PPI**

For prints:

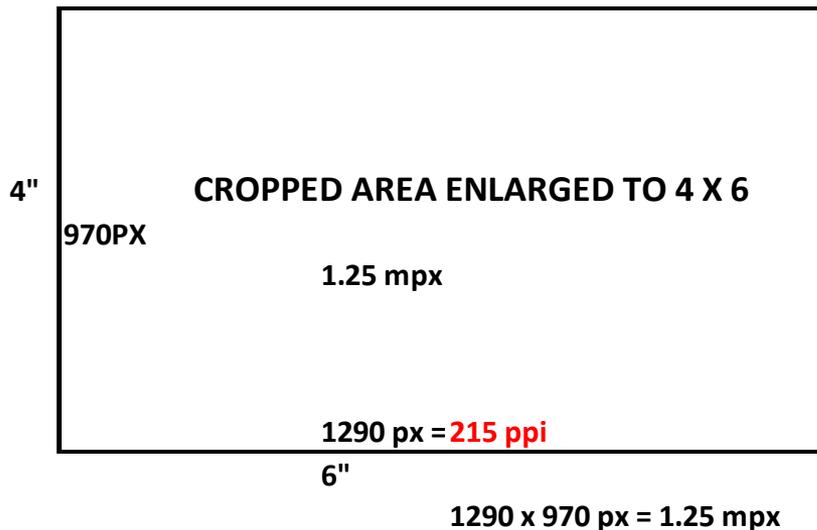
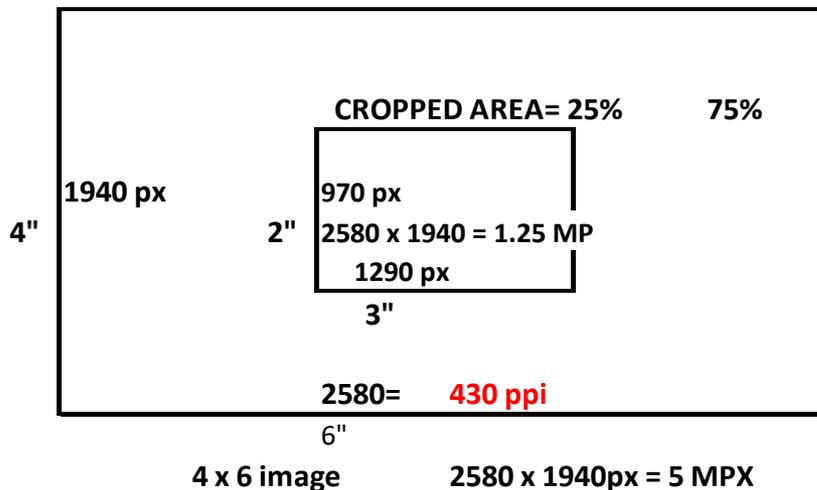
Direct close up view: 300 PPI is fine

Normal viewing distance of 12x18: 177 PPI is fine

For club website:

**min is 2580 x 1940 px or 5 mpx
(or approximately 2-3 MB)**

Why is the club website minimum so high?



Aspect Ratio

Aspect Ratio of Common Print Sizes and Sensor Settings

size H	X	Size W	print ratio W/H	sensor ratio	
8	X	8	1.00	1:1	square
8	X	10	1.25		more
16	X	20	1.25		▲
11	X	14	1.27		▲
8.5	X	11	1.29		▲
17	X	22	1.29		▲
6	X	8	1.33	4:3	▲
5	X	7	1.40		▼
9	X	13	1.44		▼
13	X	19	1.46		▼
17	X	25	1.47		▼
4	X	6	1.50	3:2	▼
			1.77	16:9	▼
6	X	13	2.17		longer
13	X	38	2.92		thinner

Backgrounds

eliminate distracting elements

shallow DOF can be used to blur background

increase distance from model to background

background paper is an economical solution

helps eyes focus on your model

provides contrast between model and background

no creases or fold marks



Light is Everything - Soft Light vs Hard Light

Lighting can make or break a photograph

Hard light

point source

straight line

defined shadows

harsh image

**Ex: direct sunlight clear day
direct flash (no modifier)**

Soft light

diffused source

scattered light

soft to no shadows

more pleasant image

**Ex: south window cloudy day
reflected light
indirect flash (bounce)
light panel with modifier
light through curtain
shoot-through umbrella
milk jug
available light**

Hard Light



Umbrella and Soft Box



Single Milk Jug Light with phone



Milk Jug with Phone – Dark BG



Soft Light for Models

no shadows of fine detail
more realistic appearance

Flash Light (cameras)

off camera flash
wrap flash head with gauze
use "soft box"
use umbrella
bounce light, diffusion panel
shoot through curtain
reflector panel
light tent

Constant Light (Phones/cameras)

gauze, bubble wrap
diffusion panel
reflector panel
move light away from model
turn off camera flash
light tent
milk jug

Why Turn off In-Camera Flash?

**flash is "hard" light
harsh lighting
strong shadows**

**flash is close to lens axis
light reflected back to lens**

**auto exposure may be affected
reflected light read as illumination**

light flares on case glass

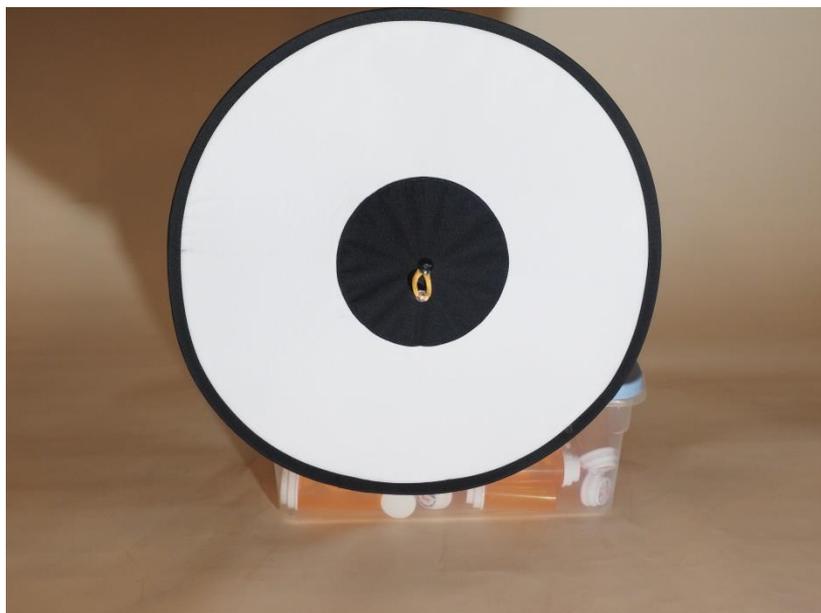
Color Distortion

- Bounced flash light will take on color of reflecting surface
- Constant light will impart color temp of source
- Diffusers will impart their natural colors
- Fluorescent lights impart a color that is difficult to correct
- Fluorescent light flicker may interact badly with some shutter speeds (1/60-1/120)

Shoot-through Umbrella



Round Soft Box



Speedlight with diffusers



Milk jug constant light



Jug light Components



Neewer 176 LED Panel about \$25 at Amazon



VIJIM Tabletop LED Video Lighting Kit (Double)

BH #VITTLVLK2 • MFR #2177

★★★★★ 3 reviews

10 Questions, 11 Answers



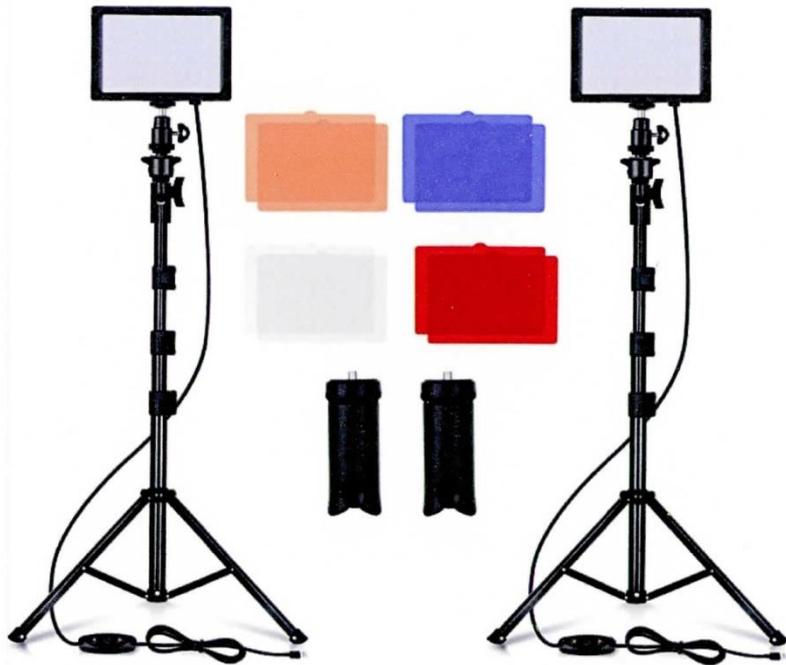
New Release

New Item - Coming Soon 

Request Stock Alert

\$59.95

 Save the Tax with the



Emart LED Video
Light 11 Brightness/4
Color Filters
Dimmable
Photography
Continuous Table Top
Lighting, Adjustable
Tripod Stand, USB
Portable Fill Light for
Photo Studio
Shooting

[Visit the EMART Store](#)

1,368 ratings

| 25 answered questions

Amazon's Choice  for On-Camera V...

\$39.99

& **FREE** Returns

FREE delivery: **Monday, March 22** [Details](#)

Fastest delivery: **Tomorrow**
Order within 2 hrs and 27 mins
[Details](#)

In Stock.

Qty: 1

[Add to Cart](#)

[Buy Now](#)

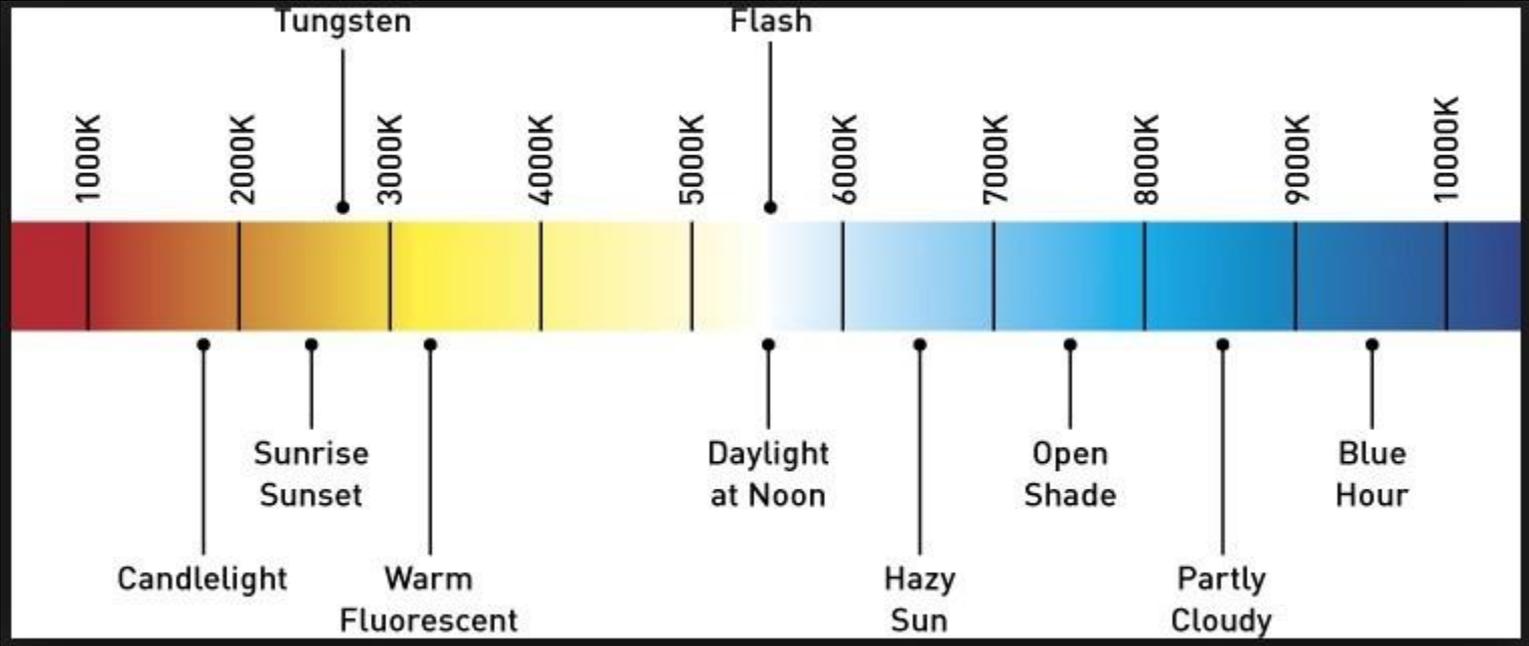
 **Secure transaction**

Ships from **Amazon**

Sold by **EMARTUS**



5500K is neutral white



WHITE BALANCE

Defines neutral white for **camera/phone**

Auto-corrects minor color shifts

Enable auto-white balance

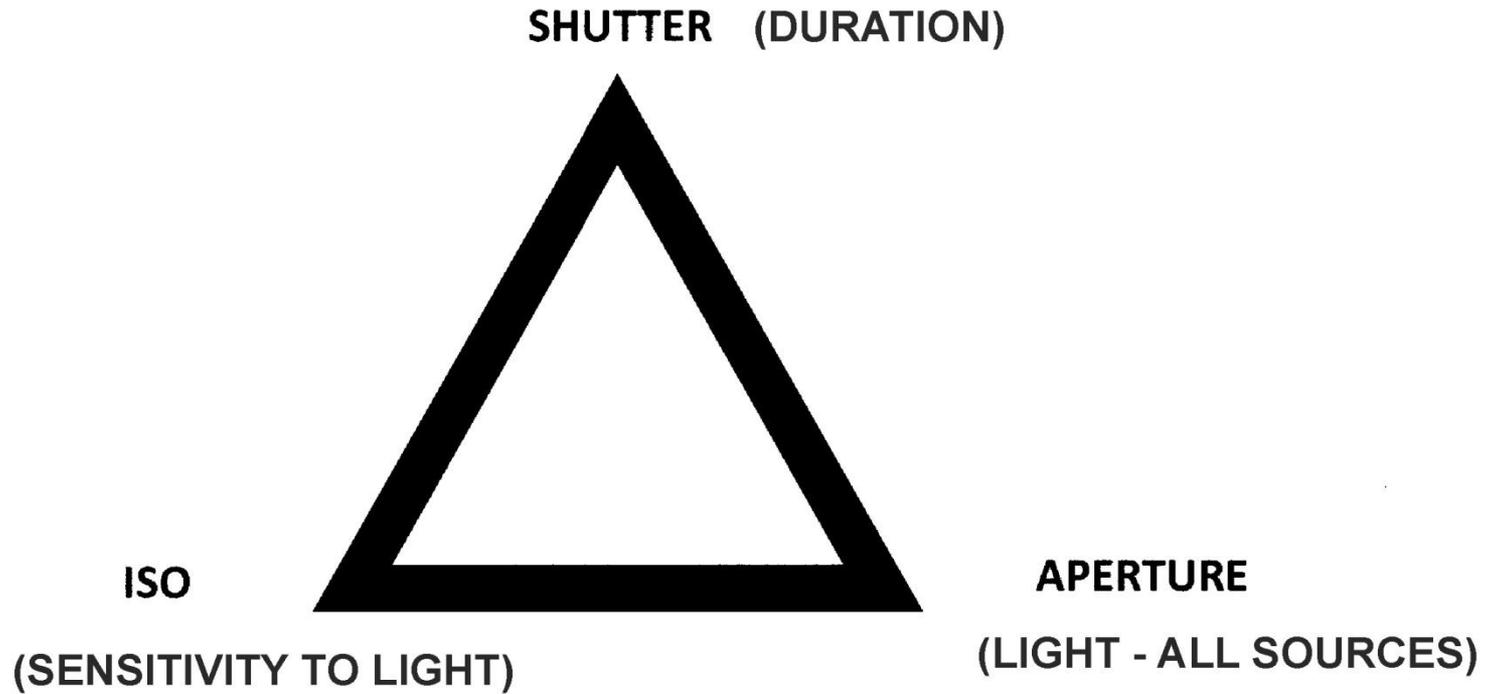
Collapsible 4' x 4' x 4' Light Tent



DIY Light Tent



EXPOSURE TRIANGLE



EXPOSURE TRIANGLE OFFERS MANY EXPOSURE SOLUTIONS

However there are some side effects at the extremes

Open Aperture >>>> Low DOF
below 3.5

Low Shutter Speed >>> Motion Blur
below 1/30

High ISO >>>>>>> Noise
above 2000

Exposure triangle with **phone and P&S**

processor balances 2 or 3 of triangle parameters
some phones have fixed aperture

specific characteristics vary widely by phone

algorithm influenced by:

- shooting mode

- amount of light and distance

- exposure presets ("brightness")

Control Options for Smart **Phone and P&S** cameras

Parameter

Indirectly Affects

***external light ↑**

ISO ↓, ** Aperture ↓, Shutter ↑

***"Brightness" ↑**

ISO ↑, ** Aperture ↑ Shutter ↓

zoom, man. focus

focal length (digital), DOF

night mode

ISO, shutter

sports mode

Shutter, ISO

portrait mode

focal length (digital), ISO, DOF

**** if available**

Viewing Photo Info in Windows

Right click on saved photo

Go to "properties" bottom of menu

Click on "details" tab

Pixel dimensions

F-Stop (aperture)

Exposure time (shutter speed)

ISO

File size MB

date taken

much, much, more

Lighting for Phone Camera (and P&S Cameras)

lighting is the most important parameter you can control

turn OFF camera flash, especially for ships in cases

use constant light(s) with diffusers

aim for "natural white" 5500° Kelvin

set key light first

set second light to chase shadows

if 2 lights, position 45° off lens axis

if 1 light, position high above phone on axis

Shooting Ships in Cases

position back of case away from background

turn off in-camera flash

turn off ceiling lights

use two constant lights, softened

position lights at wide angles to front

clean dust and finger prints

position camera perpendicular to front

use aperture of f5 to f8 if possible

Depth of Field

Aperture controls DOF as well as light

f/2.0 = shallow DOF, more light

f/10=longer DOF, less light

Make exposure corrections with

Sh speed

Flash or Light power

ISO

Depth of Field for **Phones**

most phones have fixed aperture (1.8)

use manual focus if available

focus on nearest feature

background out of focus

with auto focus, select focus area

use Portrait mode for shallow DOF

Shallow DOF



Longer DOF



Exposure Control Options

Increase exposure (lighten)

increase flash power

move constant lights closer

open aperture (lower f stop) shallower DOF

reduce shutter speed

increase ISO

increase "brightness" (phone)

Decrease exposure (darken)

decrease flash power

move constant light away

close down aperture (higher f stop) longer DOF

increase shutter speed

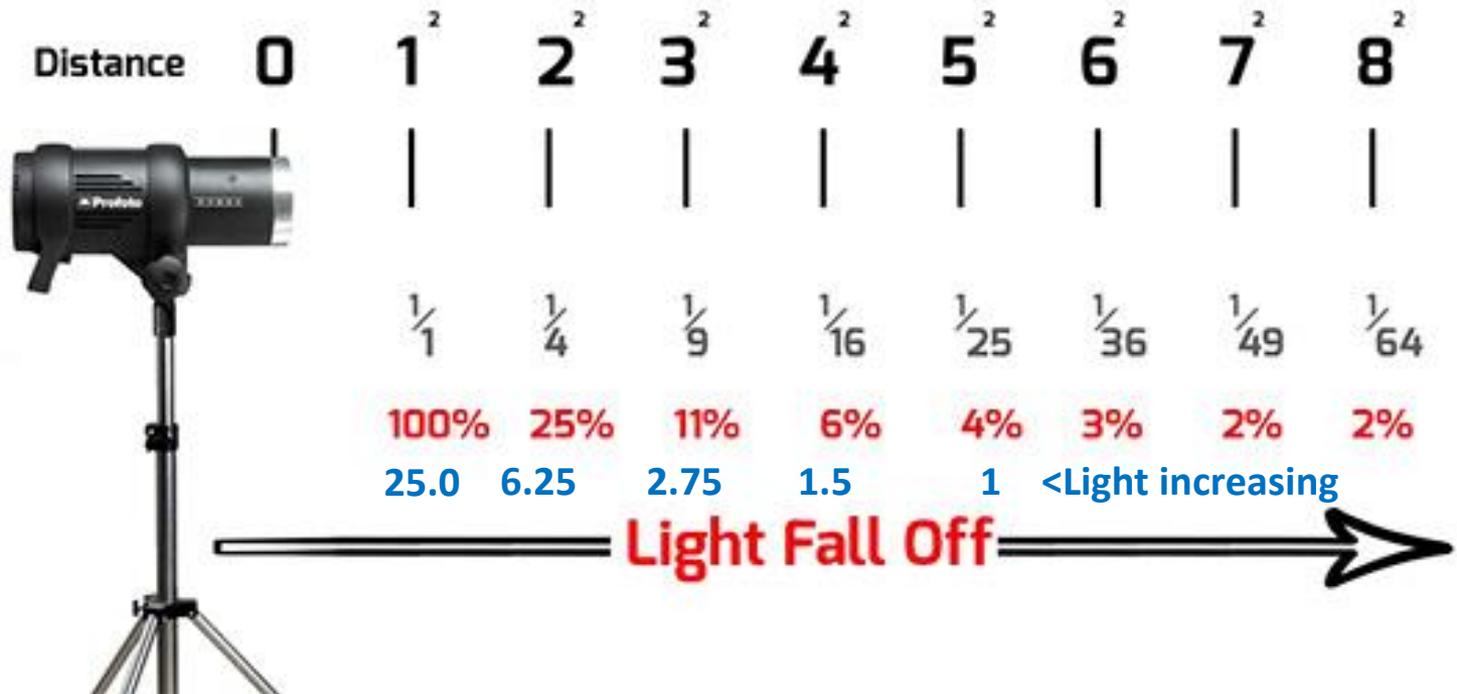
decrease ISO

decrease "brightness" (phone)

Shooting Modes for Cameras

Parameter	Fixed	Variable
Manual	nothing	ISO, Ap, Sh
Aperture Preferred	Ap	ISO, Sh
Shutter Preferred	Sh	ISO, Ap
Const. ISO	ISO	Sh, Ap
Program/Auto	nothing	all per program
Speed Lights	nothing	Flash Power, Ap, ISO

Inverse Square Law for Photography



Post Processing

Not always necessary

can be used creatively

Some problems can be corrected in post

focus and DOF are **NOT CORRECTABLE**

exposure

contrast

color saturation

sharpening

Easy, free programs

Fast Stone Image

Irfanview

Change parameters to suit intent

pixel dimensions (resolution)

aspect ratio, cropping

saturation

sharpness

Exposure correct



Under Exposed



Over Exposed



Correct Contrast



Low Contrast



High Contrast



Color Saturation correct



Low Saturation



High Saturation



Shooting Techniques

***Get lighting right first**

***Get focus and DOF right**

***Fill the frame**

Vary shooting angles

Try different perspectives

Take LOTS of images, toss 90%

Avoid bow-on shots

Record what works for future

Avoid Low Front Perspective



Single Direct Light



Umbrella and Soft Box



Wide Angle Lens



Single Flash Bounced Overhead



Telephoto Compression



Intentionally Under Exposed



Typhoon-Reflections



Typhoon-No Reflections



Typhoon - What Changed?

Position of model moved slightly

Flash power decreased

Exposure compensation increased

Lightened in post processing

Umbrella and Soft Box Dark Background



Profile Top Light



Single flash overhead bounce



Low Angle Perspective



Phone, avail light, max bright



Camera, available light, telephoto



Front $\frac{3}{4}$ View



TOP 10 SUMMARY

- 1 Select image size (px) for intent**
- 2 Use DOF to your advantage**
- 3 Get lighting right first**
- 4 Soften light sources**
- 5 Do not use fluorescent lights**
- 6 Use exposure triangle to manage exposure**
- 7 Turn off in-camera flash**
- 8 Remove background distractions**
- 9 Fill the frame to minimize crop**
- 10 Use post processing to correct or enhance**

We Need Your Photos

- With our web development moving forward we need to populate it with high quality photos of your models
- Now that you know how to do this it's time to practice
- Need help? Contact me or John

QUESTIONS?