**Flash-Fill & Speedlights**

**Dedicated Flash**
These flash units are brand-specific, i.e. dedicated to Nikon, Canon etc. The flash fires and the camera measures illumination at the film, or digital capture, plane. When the interior sensor has received enough light for proper exposure, the camera cuts the flash power -- settings TTL, I-TTL or E-TTL.

Guide Number (GN) indicates the power of flash. The higher the guide number the more powerful the flash and the smaller the f stop that can be used.

Sync Speed: When camera shutter and flash are synchronized, i.e. the fastest shutter speed for which the shutter is completely open at the time of exposure.

**Flash Placement**
Flash locations:
Camera "hot shoe"
Placing the flash on the hot shoe can cause undesirable shadows and red eye.
Bounce light if possible -- the larger the effective light source, the softer the shadows.
Use: reflector, ceiling or wall.
L bracket-- raises and offsets flash.

Move flash off camera, and use (in order of cost and convenience):
1. **Sync or PC cord ($)**
   allows the camera to electronically trigger the flash

   Switch flash from E-TTL to manual mode for the following:
2. **Optical slave ($)** (These can be external devices or built into some flash units.)
   flash signalled by another flash
   sometimes “fooled” by camera’s pre-flash
   can be inadvertently triggered by other photographers’ flashes.
3. **Infrared signal ($-$)**
   flash triggered by infrared device
   requires line of sight for both trigger and flash head
   works best indoors, sometimes “fooled” by sunlight
4. **Radio signal ($$$-$$$$$)**
   flash triggered by radio signal
   does not require line of sight between trigger and flash
   works at significant distances (depending on device)
   signals through walls

**Daylight Flash Fill**
a. Be sure sun is coming from behind subject.
b. In bright sun, set camera shutter speed to highest possible sync speed.
   (In this situation cameras with fast sync speeds are helpful.)
c. Determine f/stop based on subject/flash distance

**Night Flash with Background Detail**
a. First determine F/stop based on subject/flash distance
b. Meter background for shutter speed based on f/stop selected.

**Additional Settings**

**Rear-Curtain Flash Sync**
With normal flash synchronization, the flash fires when the shutter is tripped. With the rear-curtain setting, the flash fires at the end of the exposure, rather than the beginning.

**Slow Sync:** the shutter speed automatically slows to compensate for low-light level backgrounds.

**High Speed Sync (Canon) or FP Sync (Nikon)**
Camera sync speed is not a consideration for this flash setting.
Flash will synchronize at all shutter speeds.
Flash pulses thousands of times per second to produce a continuous beam of light.
Only certain flashes and cameras have this capability.