

Jim's Photo Cheat Sheet

This cheat sheet condenses Beecher's Handouts for review. The numbers (x) refer to pages in Beecher's Handouts.

1 - When You Pick Up Your Camera, Ask These Questions

- Is the light good?
 - What's the direction of the light? (Shape and texture)
 - How large is the light source? (Contrast)
 - What's the color of the light? (Set the white balance.)
- How much light is there? (Set the ISO.)
- Which letter do you use on the exposure mode dial? (For depth-of-field, motion, or none of the above)
- What you see is NOT what you get? (Color and contrast)
- When should you NOT depend on the light meter? (Tricky exposure situations)
- What's the best focal length? (Change the shape and compress/expand space)

Read on for the answers.

2 - Is the Light Good? (Pages 5 and 11)

This is the key question. Let's say you're photographing a country cemetery for the cover of a mystery novel—and—for a Connecticut travel brochure. Different light is needed for each photograph.

3 - What's the Direction of the Light?

The direction of the light determines the shape and texture we see.

From the Direction of the Camera

Light from the direction of the camera, such as pop-up flash, produces few shadows. The lack of shadows makes the subject look flat with little texture. An elderly socialite will have fewer wrinkles, for example.

Sidelighting

Sidelighting produces shadows. Shadows show shape and texture. An elderly lobster-boat captain will look more rugged, due to the shadows.

Backlighting

Backlighting, such as a sunset behind the subject, separates the subject from the background. The background is brighter, the subject, darker.

4 - How Large Is the Light Source? (30)

The size of the light source, relative to the subject, determines the contrast of the light in the scene.

Small Light Source

Relative to the subject, the sun is a small light source. Therefore, the sun produces contrasty light. The shadows are dark with sharp edges.

Large Light Source

The light from an overcast sky, and the light in the shade, are low contrast light. If there are any shadows, they're bright with fuzzy edges.

Flash (81)

A pop-up flash is a small light source, so it produces contrasty light. A separate flash, bounced off of a ceiling, produces low contrast light. That's because the light source, the ceiling, is large.

5 - What's the Color of the Light? (Page 74)

Our brains correct the color of light sources. When viewed with our eyes, a piece of white paper will look white in sunlight and indoors. When photographed, the white paper may be green or orange indoors. Use white balance to correct the color in photographs.

Most photographers leave the white balance set to automatic. You'll get better results if you set the white balance to match the color of the light source.

Your camera may use icons to represent the terms in the left column.

Daylight	Sets the color for sunlight
Shady	Reduces cyan (blue/green)
Cloudy	Reduces blue
Tungsten/Incandescent*	Reduces orange
Fluorescent	Reduces green
Flash	Reduces blue

* Old-fashion light bulbs and halogen lamps

Beginners should ignore preset or custom white balance settings. They're used when the colors of the light sources in a scene are different, and no single color predominates.

6 - How Much Light Is There? (Page 30)

ISO is how sensitive the camera sensor is to light. Your camera is probably set to Auto ISO. If so, your camera chooses the ISO setting. Auto ISO works well for most photographers. If you want to set the ISO manually, use the following settings.

Sun	100 or 200
Cloudy or shade	400
Indoors	800 or 1600

7 - Review Aperture & Shutter Speed (Pages 32 and 34)

Aperture is also called lens opening and f/stop. It's the "iris" in the lens.

DSLR apertures typically range from f/4 to f/22. Point-and-shoot apertures often range from f/2.0 to f/8, or from f/2.8 to f/8.

Shutter speed is the time that the shutter blades are open inside your camera. Some cameras display 1/8th as 8. The numeral 8 with quote marks (8") is eight seconds, not 1/8th of a second.

For clarity, the intermediate values, between the values below, have been omitted. The dots represent the amount of light reaching the camera sensor.

Wide open	f/2	1/8 th	Slow
	f/2.8	1/15 th	
	f/4	1/30 th	
	f/5.6	1/60 th	
Closed down	f/8	1/125 th	Fast
	f/11	1/250 th	
	f/16	..	1/500 th	
	f/22	.	1/1,000 th	

8 - Which Letter Do You Use on the Exposure Mode Dial? (Page 38)

The most important settings on the exposure mode dial are P, A or Av, and S or Tv.

P = Program

You'll use P for most of your photography. P stands for Program. You don't have to do anything. The camera does all of the work. It sets the aperture (lens opening, f/stop) and the shutter speed (40).

A or Av = Aperture Priority

Use A or Av when depth-of-field is important (see section 9 below). A appears on Nikons and other cameras. Av appears on Canon cameras. A stands for aperture, and Av for aperture value. They're both called aperture priority. Aperture has priority over the shutter speed. Because aperture is important, you choose it. The camera selects the shutter speed depending on which aperture you choose.

S or Tv = Shutter Priority

Use S or Tv when motion is important (see section 10 below). S appears on Nikons and other cameras. Tv appears on Canon cameras. S stands for shutter, Tv for time value. They're both called shutter priority. Shutter speed has priority over the aperture. Because shutter speed is important, you choose it. The camera selects the aperture depending on which shutter speed you choose.

Review

Letter	For	You Set	Camera Sets
P	—	Nothing	Aperture & shutter speed
A or Av	Depth-of-field	Aperture	Shutter speed
S or Tv	Motion	Shutter speed	Aperture

9 - A or Av: Depth-of-field (Page 63)

Your camera focuses on a spot in the scene. This spot is sharp. There's a zone in front, and behind, the focus spot. This zone is called depth-of-field. This depth-of-field zone is *acceptably* sharp. That is, objects in the depth-of-field zone look like they're in focus to our eyes.

Distant Subjects

If everything in the frame is further than about twenty feet, ignore depth-of-field. So, if you're photographing ONLY the top of the Empire State Building, depth-of-field doesn't matter. Set the exposure mode dial to P.

Closer Subjects

If you're photographing Lady Gaga with an Empire-State-Building hairdo—with the actual building in the background—depth-of-field is important. You want the hairdo *and* the building to be acceptably sharp.

Do the following.

- 1) Set the exposure mode dial to A or Av.
- 2) Then, turn the knob (or press the rocker circle) on your camera to set the aperture to a physically small aperture, such as f/22 (DSLR) or f/8 (point-and-shoot).

Here are the settings for digital SLR cameras (DSLR).

Amount of Depth-of-field	#	Physical Size	Amount of Light
Most	f/22	Tiny	Little
Less	f/8	Medium	Medium
Least	f/4	Big	Lots

Use the settings below for point-and-shoot cameras.

Amount of Depth-of-field	#	Physical Size	Amount of Light
Most	f/8	Tiny	Little
Less	f/4	Medium	Medium
Least	f/2.8*	Big	Lots

* f/2.0 on a few point-and-shoot cameras

Reality Intrudes

You can't always do what you want to do. If the light is bright, you can't use a physically large aperture, such as f/4 (DSLR) or f/2.8 (point-and-shoot). If the light is dim, you can't use a physically tiny aperture, such as f/22 (DSLR) or f/8 (point-and-shoot).

How Does Your Camera Tell You That There's a Problem?

If you're trying to do something that the camera can't do, the camera will let you know. Your camera will have one of the two alerts below.

Alert #1: Blinking Hi or Lo

You may see a blinking Hi or Lo on the LCD screen.

Hi means there's too much light. You can't use a physically large aperture, such as f/4 (DSLR) or f/2.8 (point-and-shoot). Choose a physically smaller aperture, such as f/8.

Lo means there's not enough light. You can't use a physically tiny aperture, such as f/22 (DSLR) or f/8 (point-and-shoot). Select a physically larger aperture, such as f/8 (DSLR) or f/4 (point-and-shoot).

Alert #2: Blinking Aperture Number

The aperture number may be blinking on the LCD screen.

If the light is too bright, select a physically smaller aperture.

If the light is too dim, choose a physically larger aperture.

Change the ISO

Advanced photographers can change the ISO setting. If you want to use f/4, a physically large aperture, and there's lots of light, lower the ISO to the lowest setting. If you want to use f/22 (DSLR) or f/8 (point-and-shoot), physically small apertures, with dim light, increase the ISO setting.

10 - S or Tv: Motion

Use S or Tv if motion is important. You can choose to freeze the motion or you can blur it.

Freeze Motion

If you want to freeze motion, generally, use a shutter speed of 1/500th of a second or faster (1/1,000th, 1/2,000th, 1/4,000th).

Do the following.

- 1) Set the exposure mode dial to S or Tv.
- 2) Then, turn the knob (or press the rocker circle) on your camera to set the shutter speed to 1/500th.

Blur Motion

If you want to blur motion, generally, use a shutter speed of 1/8th of a second or thereabouts.

Reality Intrudes, Again

As mentioned in the depth-of-field section, you can't always do what you want to do. If the light is bright, you can't use slow shutter speeds. If the light is dim, you can't use fast shutter speeds. Your camera will—blink Hi or Lo—or—the shutter speed number will blink. If the light is too bright,

select a faster speed. If the light is too dim, choose a slower shutter speed. Be mindful of camera shake (see below), though.

Change the ISO

Experienced photographers can change the ISO setting. If you want to use 1/8th of a second, and there's lots of light, lower the ISO to the lowest setting. If you want to use 1/1,000th of a second, and the light is dim, increase the ISO setting.

Camera Shake

If you're photographing in dim light, you or the camera may select a slow shutter speed. The shutter stays open for a long time to gather more light. You can't hold the camera steady. The photograph won't be sharp due to camera shake.

To prevent camera shake, generally, set the shutter speed to 1/60th or faster. If you're zoomed in on a distant subject, use a much faster speed, such as 1/1,000th. You can also use a tripod, or support the camera in some other way, to prevent camera shake.

11 - What You See Is NOT What You Get? (Page 10)

Contrast

Cameras increase the contrast in the scene. For example, let's say your subject is wearing a baseball hat in the sun. You can see her eyes. But, in the photograph, her eyes will be dark.

If contrasty light will be detrimental to your photograph, do the following.

- 1) Crop the brightest area, or the darkest area, in the scene.
- 2) Return to the scene when the light is less contrasty, such as dawn, twilight, overcast sky, or shade.
- 3) If the subject is close, use fill flash (83) to brighten the shadows, such as someone wearing a baseball hat.
- 4) A Polarizing filter (76) will darken blue skies.
- 5) A graduated neutral density filter (76) will darken bright skies.
- 6) Set your camera to a lower contrast setting.

Color

As discussed, light that appears white to our eyes may not look white in a photograph. To correct the color, we use white balance. There's another difference between human vision and camera vision.

12 - When Should You NOT Depend on the Light Meter? (Pages 25 – 26)

There's a light meter inside your camera. It measures the brightness of the light. You may want to override the decisions of your camera's light meter in the following situations.

Override #1 – Backlighting

When there's backlighting—such as a sunset behind the subject—add light with fill flash (83).

If the subject is more distant, the flash won't reach. Set the exposure compensation (47) to +1.0 and higher.

Override #2 - Richer Color

You can make the color richer in still lifes and landscapes by underexposing. Set the exposure compensation (47) to -1.0 and lower.

Override #3 - Bright or Dark Subjects in the Sun

Lights meters "think" everything is medium colored. Thus, when you photograph something that *isn't* medium colored, the exposure will be

wrong. For example, if you photograph a glacier in the sun, it will be too dark. If you do a close up of a black dog in the sun, the dog will be gray-black, not black.

Counter-intuitively, you must:

- Overexpose light-colored subjects in the sun.
- Underexpose dark-colored subjects in the sun.

Use exposure compensation (47).

In the Sun	You Need To	Set Exposure Compensation To
Glacier	Overexpose	+1.3 or more
Black dog	Underexpose	-1.3 or less

You can also point your camera at something in the scene that's medium colored, such as grass or pavement. Lock in this exposure with auto exposure lock (52). Then, swing your camera up to photograph the subject.

13 - What's the Best Focal Length? (Page 69)

Focal length is used for composition. You can do more with it.

Change the Shape of the Subject

If the subject has a shape that you'd like to highlight, consider using a wide-angle focal length (smaller mm's). For example, you can make a baby's cheeks pudgier by using a wider focal length (35 mm on most DSLRs, 7 or 8 mm on most point-and-shoots).

If you want to reproduce the subject's shape as accurately as possible, use a medium focal length (50 mm to 70 mm on most DSLRs, 12 to 16 mm on most point-and-shoots).

If you want to flatten the volume of the subject, use a telephoto focal length (100 mm or higher on most DSLRs, 16 mm or higher on most point-and-shoots).

Compress/Expand Space

By using different focal lengths, you can move the background closer or further away from the subject.

To bring a background closer to the subject, use a telephoto focal length. The telephoto focal length appears to compress space.

To make a background more distant, use a wide-angle focal length. The wide-angle focal length appears to expand space.

14 - After You Press the Shutter Release

Check the LCD screen. If there are blinking areas on your photograph, the areas are overexposed. If your camera doesn't display the blinkies, look for a spike on the right end of the histogram (page 44).

If the overexposed areas are large or distracting, use exposure compensation (page 41) to reduce the amount of light reaching the sensor.

15 - The Next Day (Page 26)

When you pick up your camera, be sure to check to see if any of the settings need to be changed. Let's say, last night, you photographed your friends around a camp fire. Today, you don't want to be photographing your best friend's wedding with camp-fire-light settings.

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