

EXPOSURE TRIANGLE

The one-page reference for aperture, shutter speed & ISO — fold it, bag it, shoot.

APERTURE — f-number		SHUTTER SPEED		ISO — sensitivity	
What it is: an iris inside the lens; small number = wide opening		What it is: how long the sensor collects light		What it is: digital amplification of the sensor signal	
Controls: depth of field (how much is sharp)		Controls: motion blur (frozen vs. silky)		Controls: brightness vs. grain (noise)	
f/1.4–2	portraits, low light — creamy blurred background	1/1000 s+	sports, wildlife, splashes — freeze action	100	base ISO — maximum quality
		1/125–250	everyday handheld shooting	200–400	clean — a free stop when needed
	f/2.8–4	1/60 s	hand-holding minimum — be careful	800–1600	fine grain — indoor working range
	events, street — subject pops, some blur	1/15–1/4	artistic blur — brace or tripod	6400+	clear grain — rescue shots, avoid for prints
f/5.6–8	everyday sharpness — most lenses' sweet spot				
f/11–16	landscapes — everything sharp front to back	1 s +	silky water, light trails — tripod		
Each full stop doubles or halves the light. Avoid going past f/16 — diffraction softens the image.		Hand-holding rule: shutter ≈ 1/focal length (50 mm lens → 1/60 s or faster).		Raise ISO last, after aperture and shutter run out of room. A sharp noisy photo beats a blurry clean one.	

SAME LIGHT, DIFFERENT LOOK — RECIPROCITY

$f/8 \cdot 1/250 \text{ s} \cdot \text{ISO } 100 = f/4 \cdot 1/1000 \text{ s} \cdot \text{ISO } 100 = f/16 \cdot 1/60 \text{ s} \cdot \text{ISO } 100$ — the same exposure, three very different images. Change one dial, compensate with another: every stop you give must be taken back.

LIGHT BY SCENE — METER IT IN YOUR HEAD

Scene	Light (EV)	Starting point
Sunny day	15	f/16 @ 1/ISO — “sunny 16”
Overcast	12	f/8 @ 1/250 · ISO 200
Golden hour	10	f/4 @ 1/250 · ISO 100
Indoor	7	f/2.8 @ 1/125 · ISO 800
Night street	5	f/1.8 @ 1/60 · ISO 3200
Concert	3	f/1.4 @ 1/60 · ISO 1600

TROUBLESHOOTING

Problem	Fix (in this order)
Photo too dark	aperture ↓ · shutter ↓ · ISO ↑
Moving subject blurry	faster shutter (1/500 s+), then raise ISO to compensate
Everything blurry	camera shake — shutter faster than 1/focal length, or stabilize
Grainy / noisy	lower ISO; add light or put the camera on a tripod
Background too sharp	wider aperture (f/2.8 or lower), get closer, zoom longer

Order of operations: aperture for look → shutter for motion → ISO for rescue. · Photo Basics interactive tutorial — aperture, shutter speed, ISO & the exposure triangle.