SmartCook project

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Photoexposure

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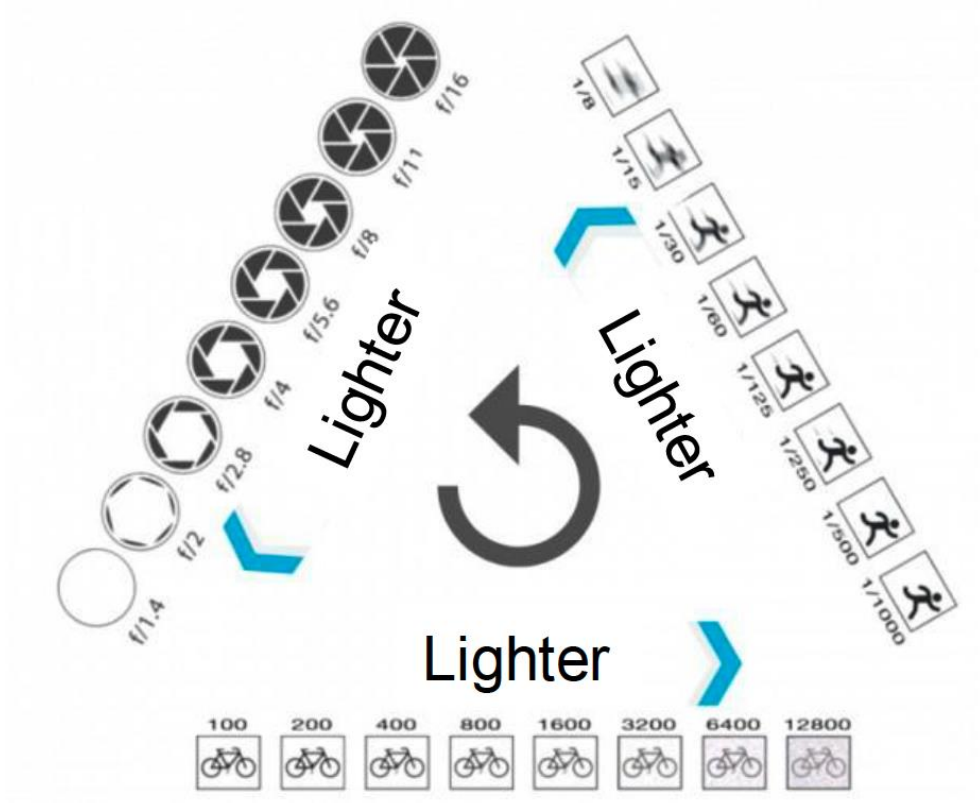
Exposure triangle



For example, if you reduce the depth of field by setting a smaller aperture number, more light will hit the sensor and the photo will be brighter. Therefore, you may need to adjust the exposure time or sensitivity (ISO) in the opposite direction.

Exposure time

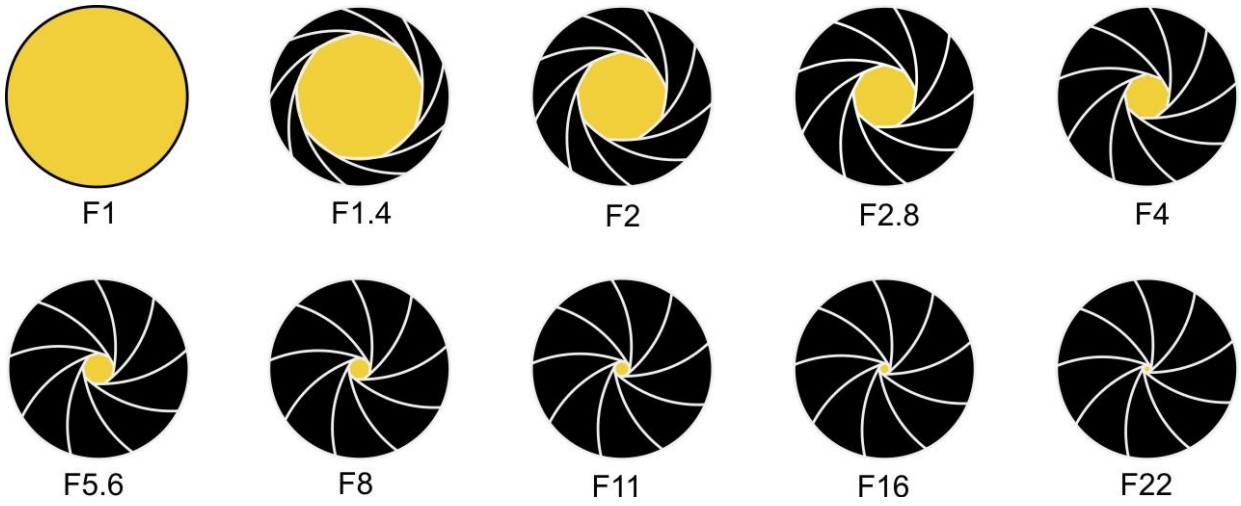
- The longer the light hits the sensor, the brighter the photo you get.
- For motion capture, the exposure time setting is very important: the shorter the time, the sharper the motion captured.

Aperture

- the size of the aperture is indicated by the aperture number F
- The aperture number affects the depth of field
- the smaller the aperture number, the smaller the depth of field

Aperture

- **The amount of light that passes through the lens can be controlled by the aperture - a circular hole in the centre of the lens.**
- **The larger the diameter of the aperture, the more light will pass through the lens and hit the sensor.**
- **In practice, the aperture in the lens is constructed from thin metal blades that form an approximately circular shape.**
- **In addition to exposure, the aperture also affects the depth of field.**



Depth of field

- Zone of focus before and after the focus distance. Anything outside the depth of field (further or closer) will be evaluated as out of focus in the resulting photo
- Short focal lengths (e.g. 28 mm) have a naturally large depth of field, while long focal lengths (e.g. 200 mm) have a very small depth of field.
- Closed apertures (high aperture numbers e.g. 16) increase depth of field, while open apertures (low aperture numbers e.g. 2.8) produce shallow depth of field.
- When shooting at short distances (macro) there is always a shallow depth of field.
- The front depth of field is always shorter than the rear depth of field.

Exposure modes

- **P - Program Auto: sets the time and aperture automatically, so you have no control over how the image is captured**
- **A (or Av) - aperture priority: you manually set the aperture number and the camera's automatic system calculates the exposure time needed based on the light you're shooting in. This is useful whenever you want to influence the depth of field.**
- **S (or Tv) - Time priority: you manually set the desired exposure time and the camera's automatic system calculates the aperture needed according to the light you are shooting in. It's useful when you want to be in control of capturing motion.**
- **M - manual: you manually set the time and aperture, the camera's automatic is switched off.**

Luminosity

- Aperture refers to the largest possible aperture diameter that a lens is capable of.
- The aperture is usually written in the form of an aperture number, e.g. f/2.8.
- A good aperture will allow you to shoot in low light conditions.
- Zoom lenses often specify their aperture for the start and end focal lengths - for example, 28-105mm/3.5-4.5. This means that at 28mm the lens has an aperture of 3.5, whereas at 105mm it has an aperture of 4.5.
- Conversely, the 28-105mm/2.8 marking means that the lens maintains its aperture throughout the zoom range. However, these lenses are more expensive, larger and heavier.

The lens aperture is usually revealed by looking at the diameter of the rear (exit) lens. On the left is an f/1.2 lens, on the right an f/4 lens.

Thank you

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