

How Cameras Work

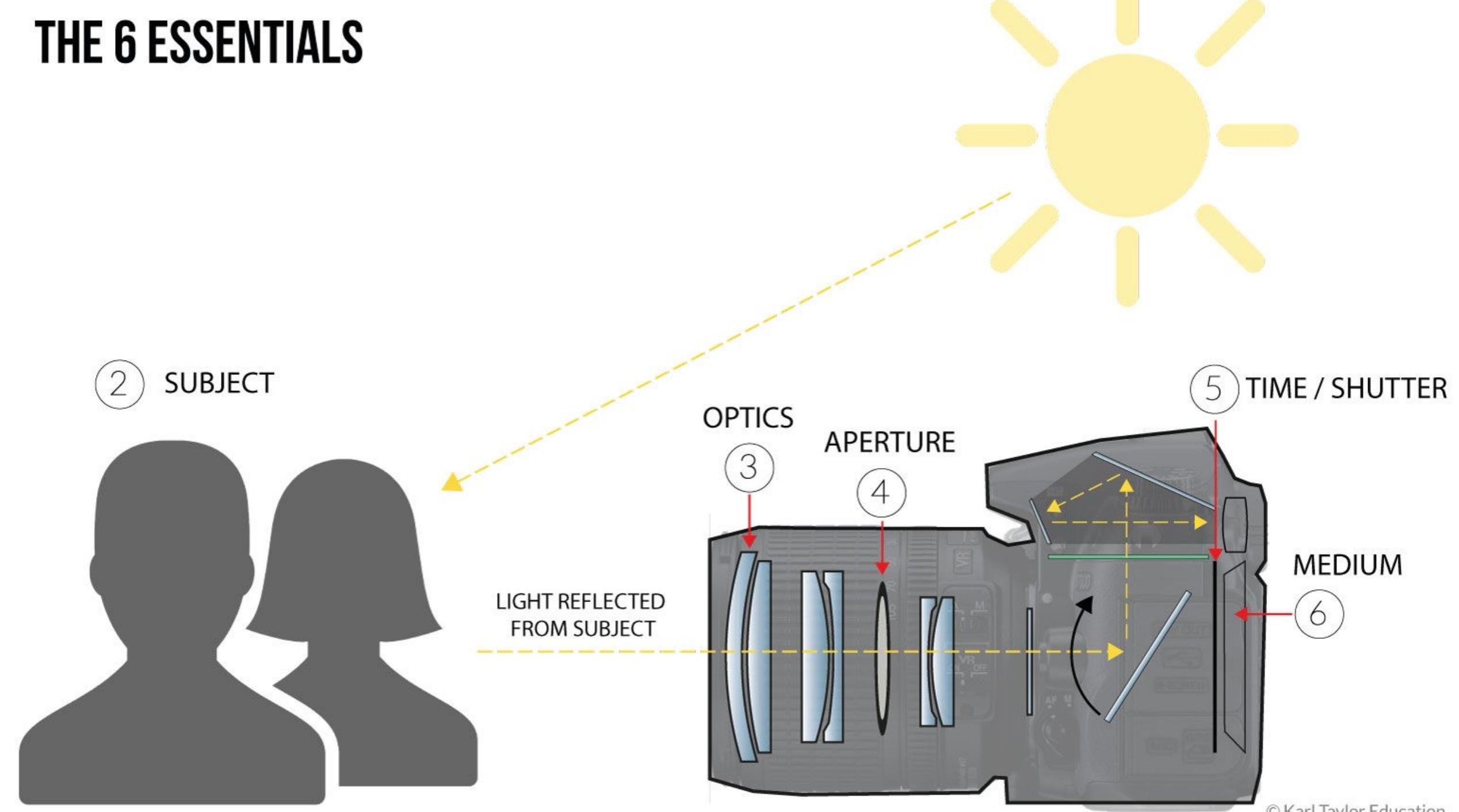
Photography 11 & 12



The Constants

- Regardless of the type, brand, or style of camera, they all work in roughly the same way.
- In its simplest form, we can breakdown the workings of a camera into **6 key requirements**.
 - Light
 - Subject
 - Optics
 - Aperture
 - Time
 - Medium

THE 6 ESSENTIALS



Light

- There are two types of light that we can use to create images:
 - Natural light (the sun or daylight reflected off buildings)
 - Artificial light (candlelight, car headlights and even studio lights).

Each of these types of light produce either hard or soft light. This refers to the strength and density of the shadows.

- Soft light results in soft, very light shadows.
- Hard light results in strong, dark shadows.

When taking photographs, it's very important to think about and identify the type of light as this can have a big impact on the result.

Subject

- The subject is the thing that we take the photograph of.
- This relates closely to composition, which is how we arrange, or compose, certain elements within the frame.
- The subject(s) can be anything – from insects to landscapes, people to products.



Optics

- This is also referred to as Lenses.
- Lenses help to control things such as the focal length of an image, the angle of view, magnification, etc.
- When working with cameras lenses tend to be the most versatile, and most expensive part of the equipment.

CAMERA LENSES



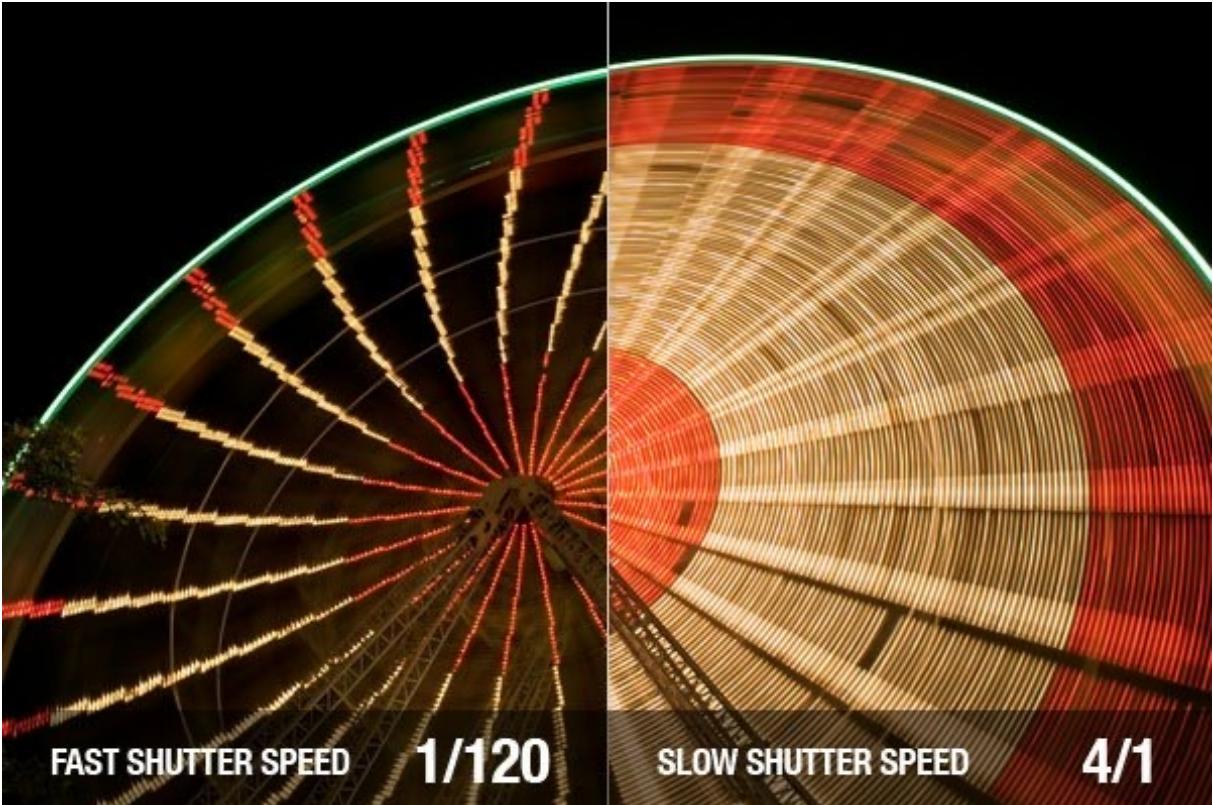
Aperture

- This controls the amount of light that gets into the camera and controls the depth of field in an image.
- Aperture refers to the size of the opening in the lens that light passes through before hitting the sensor (or film).
- It is measured in f-stops and is shown on your camera by the symbol 'f' (for example, f1.2, f5.6 or f22).
- *The lower the number, the larger the aperture creating a lighter image.*
- By controlling the aperture, we can control not only the amount of light recorded in an image, but also the depth of field in an image (the sharpness range either side of the point of focus).



Time

- This is often referred to as Shutter Speed.
- The shutter speed refers to the duration that the shutter remains open to record an image.
- This is recorded in tenths or hundredths of a second (1/10, 1/250 or 1/1000) or seconds (1", 10" or 30").
- The slower the shutter speed, the longer the shutter stays open and the lighter the image.
- Faster shutter speeds freeze movement, while slower shutter speeds allow for motion blur.



Medium

- This is what we record the image to.
- Most modern methods involve digital sensors; however, film was the most popular method for many years.
- In the past, photographers have used materials ranging from metals to semi-precious medals, to filament paper, and so on.



Conclusion

- When capturing and imaging our own photos, it is important to keep these *6 Essentials* in mind.
- Throughout this course, we will be looking at how these essentials are used in the process of taking photos.
- In this course, we will be looking at...
 - Aperture
 - Shutter Speed
 - ISO
 - Depth of Field
 - Light
 - Histograms
 - White Balance

