Geek Squad Academy

BEST BUY | **Geek SQUAD**

**GEEK SQUAD ACADEMY
PICTURE PERFECT MOBILE
ONLINE GUIDE**

Welcome to Picture Perfect Mobile!
For best results, please read the full guide before you get to work!

Did you know you can take amazing photos, even from a mobile device? Picture Perfect Mobile was created to show you how to fully utilize the camera features on a smart phone or tablet, as well as show you some easy picture taking techniques. Experimentation is key, and you will get a chance to discover, change things, and make mistakes! This is going to be awesome!

WHAT YOU'LL LEARN:
- Different elements of exposure: Aperture, Shutter Speed, ISO
- Various techniques to compose a photograph: Rule of Thirds, Landscapes, Portraits
- How to use mobile editing software to enhance a photo

MATERIALS NEEDED:
- ❑ Fully charged mobile device (smartphone or tablet)
- ❑ Downloaded and installed photo apps:
  - ○ 'Manual Cam' for an Apple device, and 'ProCam X- Lite' for Android
  - ○ Snapseed to edit photos
- ❑ Find a couple of photographs you like and set them aside. Let's see if you can identify how they took the picture at the end!

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MODULE 1: ELEMENTS OF EXPOSURE

APERTURE

The aperture is used to adjust how much light comes in through the lens in a given moment. Aperture settings on smartphones are usually fixed, as the smaller sensor and lenses leave less room for a variable aperture.

There are two common uses for aperture – to adjust how blurry the out of focus region of the picture is in front of and behind a subject, and to adjust how bright an image is. The visual quality of the out-of-focus (or blurry) areas of a photo are referred to as "bokeh".

Using portrait mode on a smartphone will also help you get the effects of a more open aperture setting on a larger camera.

As you can see here, aperture is measured by how wide the ring opens inside the lens.
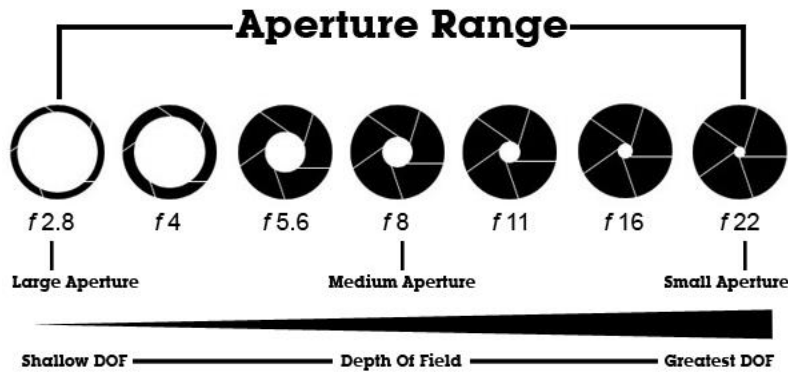

A good way to remember how the aperture blurs images is to imagine that setting the lens to f2 would make two things be in focus. Setting the lens to f22 would make twenty-two things be in focus!

SHUTTER SPEED

The shutter speed on a camera or cell phone is how long light can get to the image sensor, measured in fractions of a second. On some cameras, this is a physical shutter that opens and closes, and on others it's how long the sensor is active.

Why would you change your shutter speed? There are two reasons! Using shutter speed, you can change how much motion is present in an image by changing how long light is gathered. You can also use shutter speed to change how bright an image is.

Slow Shutter ⟶ Fast Shutter
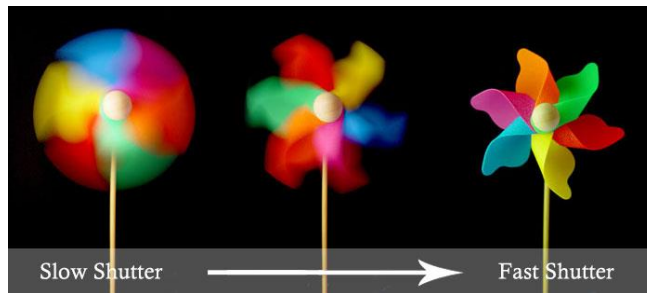
ACTIVITY: Get Started

1. Download the manual camera app for your device (Manual Cam or Pro-Cam X-Lite).
2. Open the manual camera app.
1. Find the shutter speed on the app. HINT: It's the "S".
2. Once you tap on the shutter speed (S), a dial will appear. The camera will try to keep the exposure as balanced as possible.
3. Experiment!
   a. Shoot a photo with a fast shutter speed (e.g. 1/250 or 1/60)
   b. Shoot a photo with a slow shutter speed (e.g. 1/2 or 1/4)

What are the differences between the two photos? What does a fast shutter speed do, compared to a slow shutter speed?
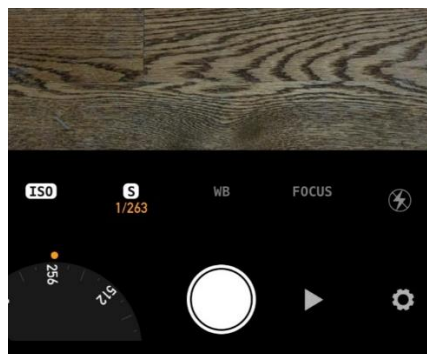
ACTIVITY: Take a Shot
1. Adjust your shutter speed to 1/200.
2. Have someone (or a pet!) move across the room quickly, and take a photo.
3. Change your shutter speed to 1".
4. Have someone (or a pet!) move across the room quickly, and take another photo.

PRO TIP:
- Generally, 1/60 is fast enough to stop a walking person (if you're not too close!) 1/500 for a car, and 1/1000 for a plane.
- A handy trick for reducing blur from camera shake is to use a faster shutter speed the more you zoom in!

ISO

ISO adjusts how sensitive the camera is to light. While there aren't many creative uses for ISO, it makes it possible to take the picture you'd like in a variety of different locations. Making your ISO higher means it's more sensitive to light, but it also makes the photo grainier (see below for an example).
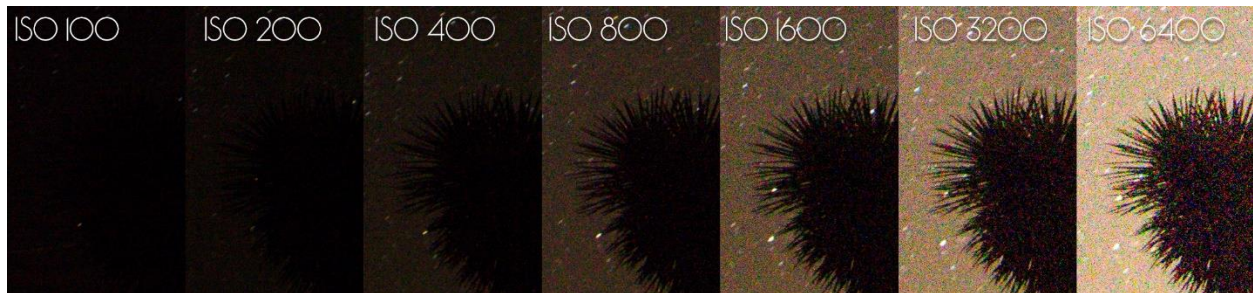

Why would you want to change the ISO settings? A more sensitive setting (6400) makes it possible to shoot in lower light, but also introduces digital noise (speckles of random colours, or a low-quality looking image). Less sensitive settings (100) will be dark and require lots of light, but will produce a cleaner image. But if everything else is how you like it, you can use ISO to make an image brighter or darker.

ACTIVITY: Experiment with ISO
- Take a picture in a shadow or a dark space, and set a fast shutter speed. This will show you the noise at a higher ISO.
- Change the value of the ISO a few times. What happens each time?

THE EXPOSURE TRIANGLE

Using all three of these settings (Aperture, ISO, and Shutter Speed), you're able to get a properly exposed picture. Exposure is the balance of all three settings, and the key to making sure your picture isn't too bright or too dark. The relationship between all of them is called the exposure triangle. From there, it's up to the photographer to choose how they want to creatively apply each setting!
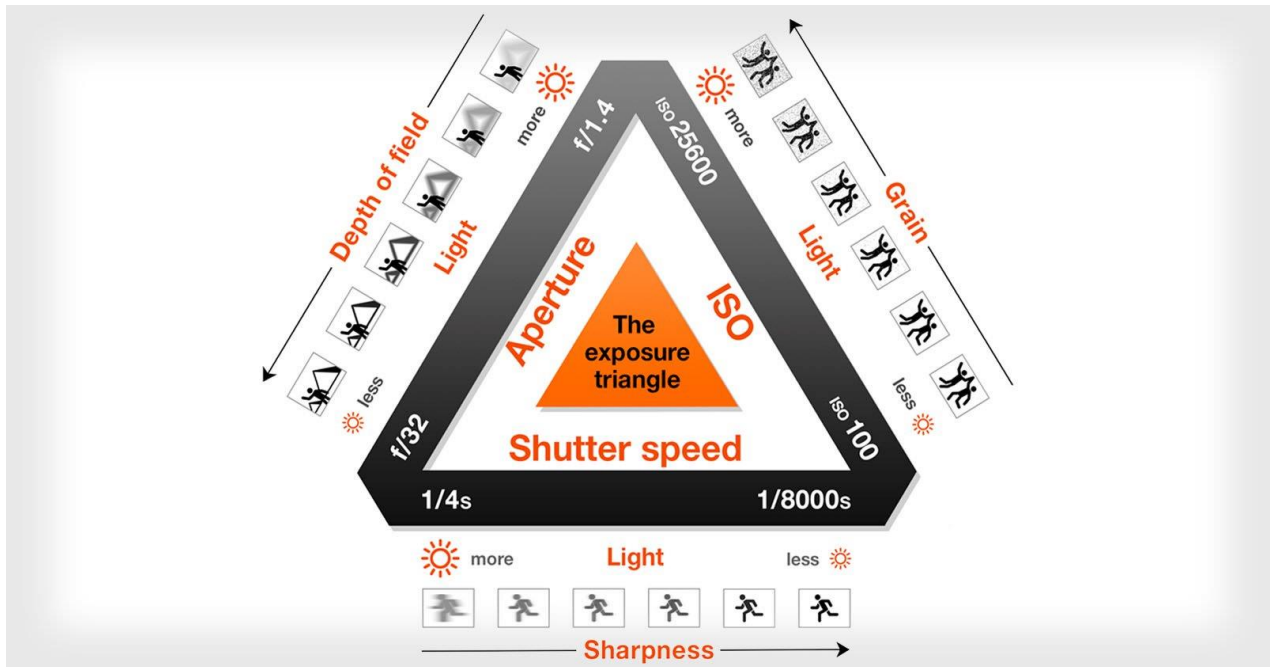
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