

How to read a Histogram

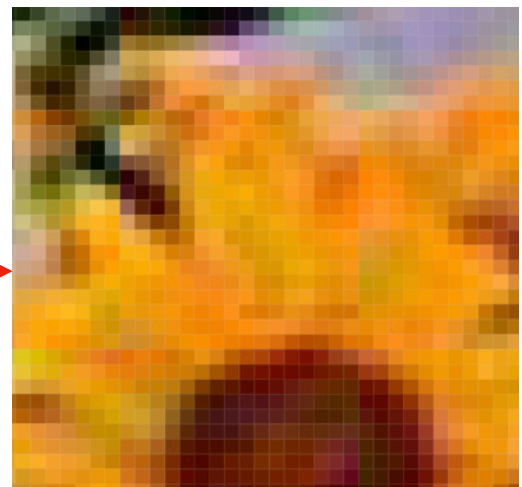
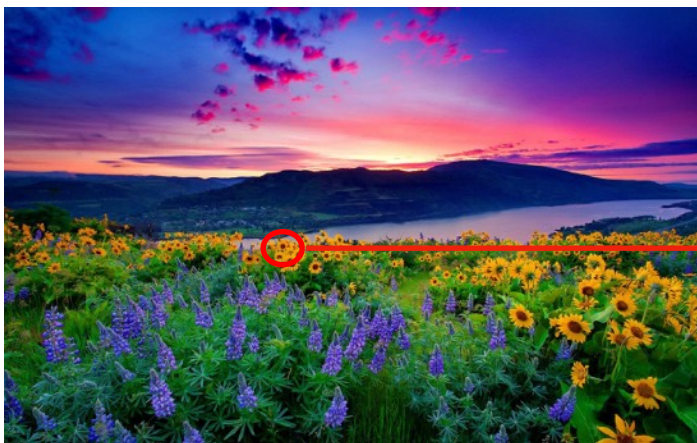
Histograms are a fundamental part of any video or photo based workflow. It is a necessary tool in a professional's skill base.

A histogram looks confusing, but it's actual quite easy to get the hang of.

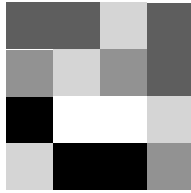
Imagine a mosaic made of a million pieces of tiles. Each tile is a solid colour.



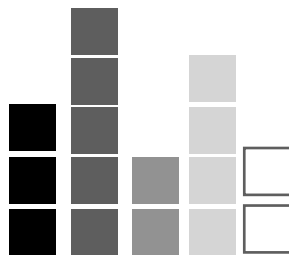
That, in effect, is what a digital image is: many little solid coloured tiles (pixels) arranged in a grid to make up a full colour image.



Here is a mini mosaic with 16 tiles:

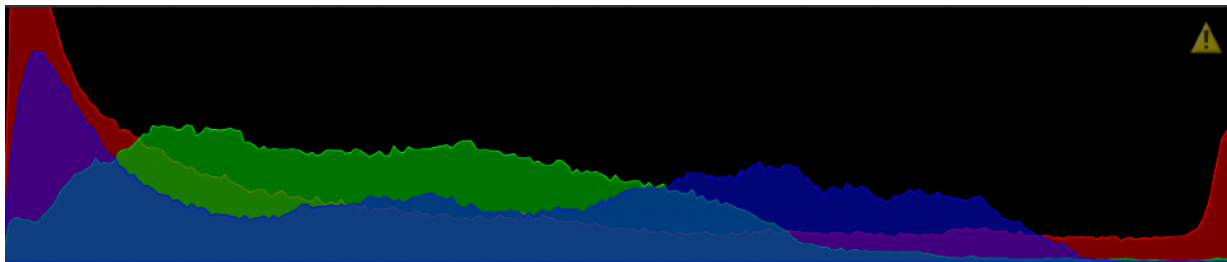


Now, imagine deconstructing this mosaic into individual tiles (pixels) and stacking them from left to right by colour in order of brightness. You would get a pattern like this:



This is exactly how a histogram works. It tells you how many pixels are dark (left zones), how many are midtones (middle) and how many pixels are bright (right zones).

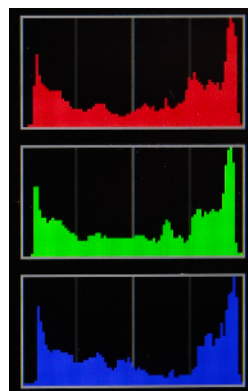
For the above field of flowers photo, with millions of pixels with thousands of shades, the histogram would be a bit more complex:



Notice too, that there are three colours: Red, Green, and Blue. *All colour digital images are made of shades of these three colours mixed together.* They are referred to as “channels”: Red Channel, Green Channel, Blue Channel.

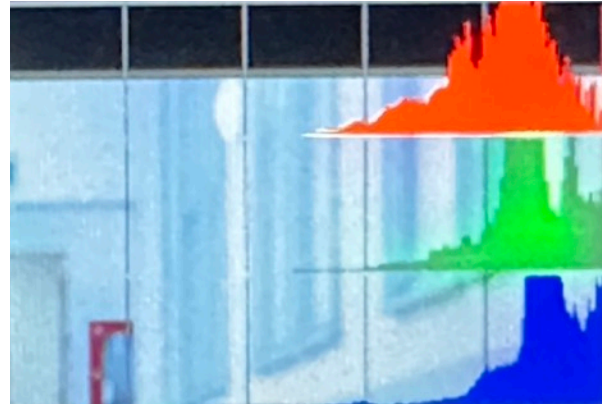
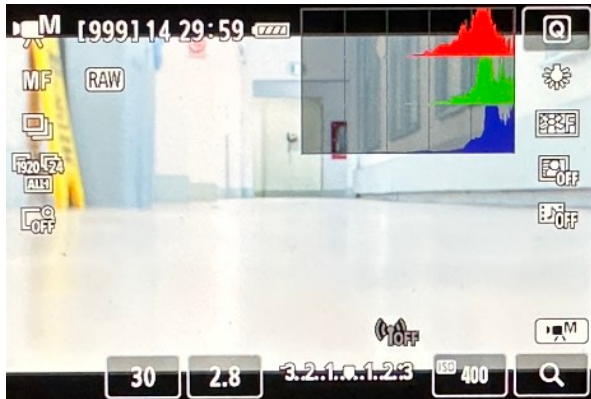
On your camera, it will look something like this:

Each channel has its own histogram, indicating what the exposure levels are for each of the Red, Green, and Blue channels.

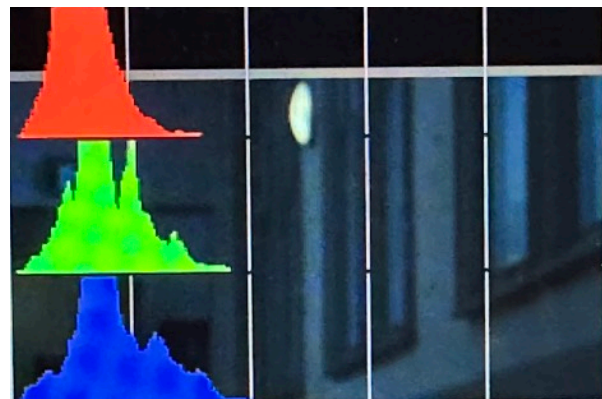


Now that you know how a histogram is created, you can use it to judge your photo or videos exposures.

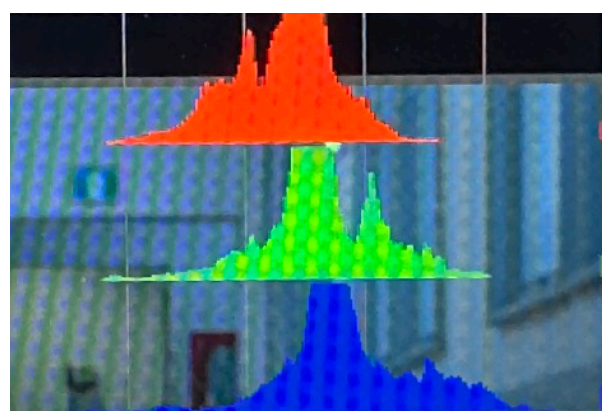
Here is an example of an **overexposed** image. The histograms show a lot of the pixels are in the right (bright) zones.



Here is an example of an **underexposed** image. The histograms show a lot of the pixels are in the left (dark) zones.



Here is an example of a **properly exposed**. The pixels are spread out across all zones and are centred in the middle:



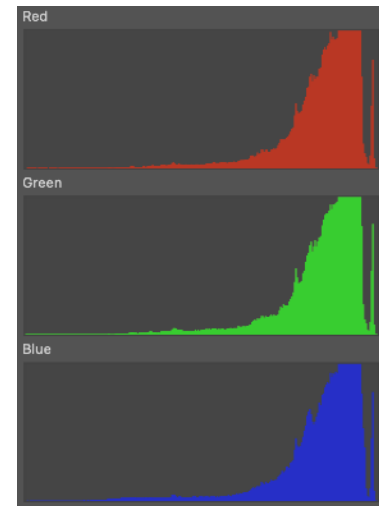
In an ideal exposure, your histogram would spread from the first to the last exposure zones, from left to right, covering all brightness levels, and would preferably not go over the left or right edge.

Clipping

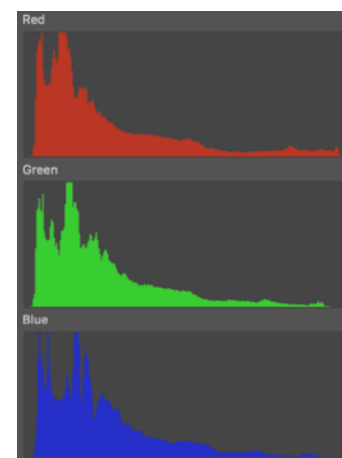
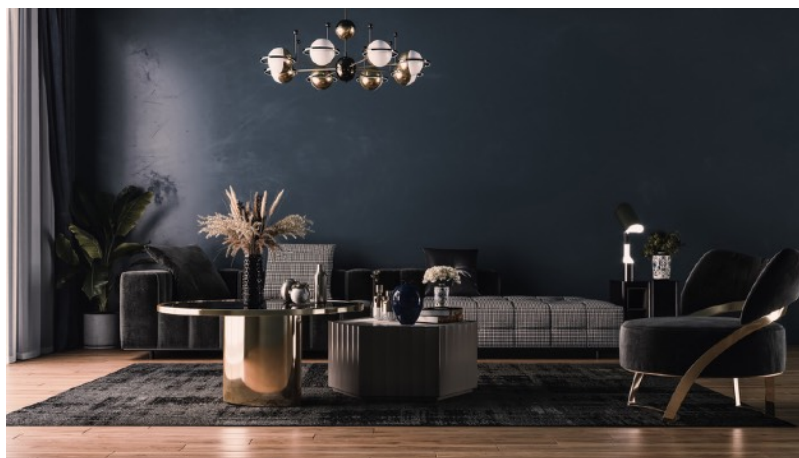
When histogram data goes past the left (min dark) or right edge (max bright), this is referred to as **clipping**. It means a form of under or over exposure that cannot be corrected in photo or video software afterward. It will mean a black “clumping” for underexposure, and a white “clumping” for overexposure.

Context is important though.

If you are recording a bright subject, with very little dark in the frame, expect a proper exposure to have a histogram that is weighted to the right.



If you are recording a dark subject, with very little light in the frame, expect a proper exposure to have a histogram that is weighted to the left.



As you develop as a digital artist, your ability to read and interpret histograms will become more attuned to the meaning of histograms as they apply to the exposure of your content.