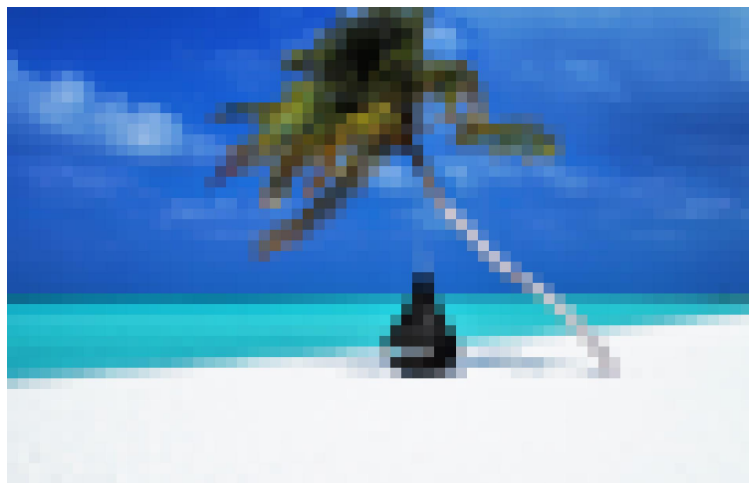


Pixels - Pixels (short for *picture element*) describes the smallest element of a digital picture. The more pixels, the greater the "resolution", or clarity of image. What we see is that each pixel is effectively a single block of colour within a greater image, like a tile within a mosaic. The more pixels there are, the more detailed the image appears to our eyes.

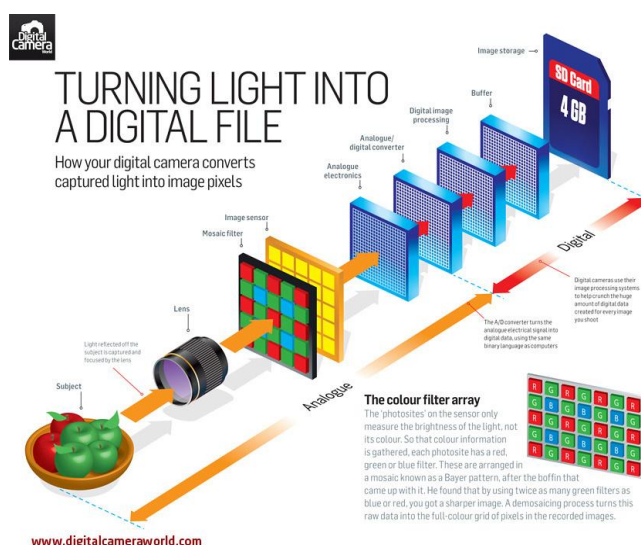


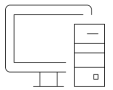
Pixel - the word pixel It is often used in three different contexts:

Firstly - Cameras capture images in pixels and the greater the number of pixels, the more detail the camera can 'see'. As digital cameras have developed, the number of pixels they can record has increased.



Behind the lens, the camera has a pad/array of individual light sensors. Each sensor will record one pixel of data. It records a code for a colour by quantifying the unique mixture of red, green and blue (RGB) light it detects (so, in effect, there are three sensors, a red light sensor, a green light sensor). This information is then turned into a code. The camera then takes this data and turns the RGB code into a binary code for transfer or storage.



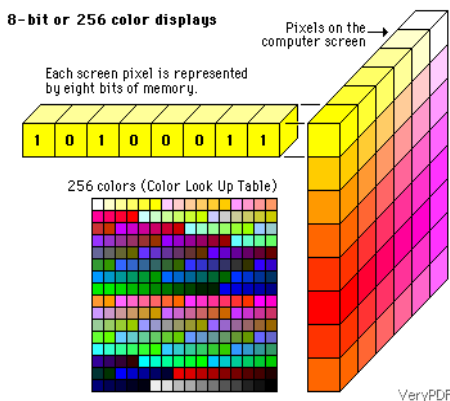


Secondly - to describe the size of the image's data as it is stored or transferred between computers. If a computer were to transfer all the data it receives from the camera (eg. each individual light sensor's RGB data) it would take up too much memory. Instead, binary is used to help encode the data. It is far easier for a computer to transfer and store anything using a Boolean (yes/no, on/off, 1/0) system.

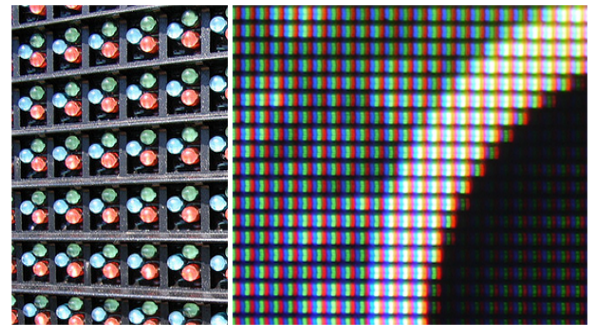
Each Pixel of data is turned into a binary value, depending upon its colour. The RGB values are represented as an array of standardised colours (look at the table below).

For example, black (which is Red = 0, Green = 0, and Blue = 0) is represented as 00000000 or zero, which appears in the bottom right of the chart.

This system means that an image can be stored or transferred with far fewer "bits", which is essential when transferring data back from another planet such as Mars. But as always, both the transmitting and receiving computer have to be using the same standard code.



Thirdly - digital display devices (monitors/screens/TV). Each screen will have a certain number of pixels, each of which is made up of three tiny lights (one red, one blue and one green) which receive the binary code.



They then take this code and translate it back into the original mixture of red, green and blue light, as received by the original camera. So, for example, if they were to receive the code 00000000, then none of the three little lights would come on - as 00000000 represents the code for black. If they receive any other binary signal, then each would shine to a different degree.

As there are so many pixels on our modern screens, it can be hard to see this at work, but if you stand close to a huge outdoor-type screen, you can see the individual RGB lights which made up each pixel.