

Unit 19 Task 4

Pixels

Picture element

A pixel is what an image or picture is made up of. This is in thousands and thousands of different pixels. Pixels are shown and produced as different squares horizontally and vertically, they are all joined together like a square grid. Each and every square has a different colour, you will never get a pixel with two or more colours inside.

Image resolution

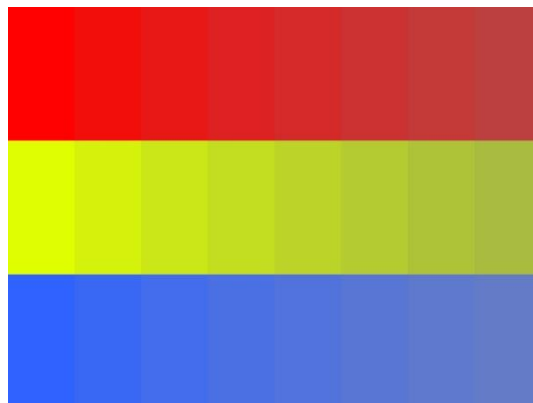
Each photo or image has a different resolution which is the total number of pixels, so if you had an images with a low resolution it will be easier to see the pixels, whereas if you had a high resolution image it would be harder to see the pixels. The image resolution can change as you edit and stretch the image, but you will definitely see the pixels clearer.

As you can see from the left picture it is very pixelated and unrecognisable. Whereas the right photo isn't and you can see it.



Colour Intensity

The intensity in pictures has three colour channels and these are; yellow, blue and red. You will use these different colours to create different atmospheres like bright, light and dark. You will be able to change the intensity of your picture by yourself through bundles of colour. The more intense you make the colour the sharper the photo will be.



Raster images

Data compression

Data compression is a techniques that is used for reducing a file size of different images, so it allows it to be stored onto something like a disc. The quality of an image is reduced so some of the information is lost and this

makes the file size a lot smaller. The high resolution can't be scaled on raster images as it leads to disadvantages of the image losing quality in the picture being a high resolution. On the other hand lossless is when images can be undone and can be a result of in the picture being in a high resolution, this is used for vector graphics this is because the size will be same quality. Raster images are used in paint programs such as Photoshop. A raster image is also called a bitmap. Raster images can take a whole range of formats.

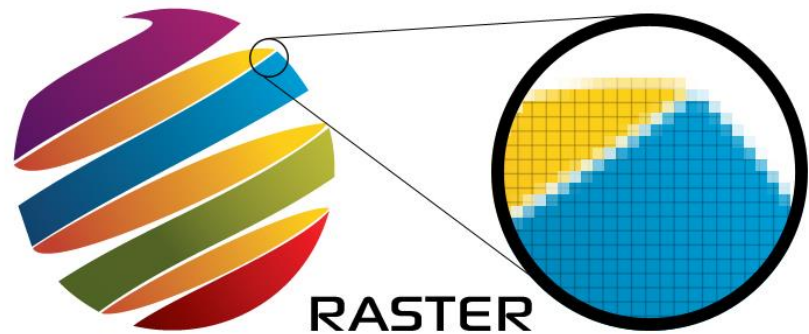


Image formats

BMP – (Best Management Practices). This is an image format used to store bitmap digital images for Microsoft Windows and OS operating systems.

PNG – (Portable Network Graphics). This is raster image file format that can support lossless data compression. A PNG was created as an improved and as a replacement for GIFS

GIF – (Graphics Interchange Format). This is a bitmap image format that has been used on the World Wide Web and its wide support and portability.

TIFF – (Tagged Image File Format). This is used to store grey-scale data, it is the normal format for scanned images, and exporting grey-scale and colour images to other programs.

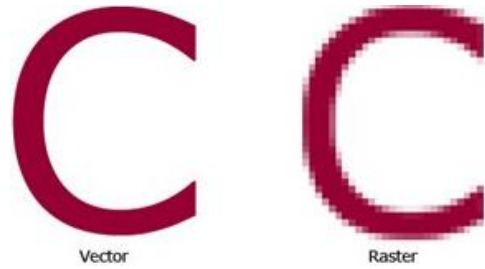
JPG – (Joint Photographic Experts Group). This is the same as a GIF but can contains more colours, and usually results in loss of quality.

PSD – (Photoshop Data File). This is used on Photoshop which is a graphics editing program. It is a file format that are made up from layers which are joined together.

ANI · ANIM · APNG · ART · BMP · BPG · BSAVE · CAL · CIN · CPC ·
CPT · DDS · DPX · ECW · EXR · FITS · FLIC · FPX · GIF · HDRi ·
HEVC · ICER · ICNS · ICO / CUR · ICS · ILBM · JBIG · JBIG2 · JNG ·
JPEG · JPEG 2000 · JPEG-LS · JPEG XR · MNG · MIFF · NRRD ·
PAM · PBM / PGM / PPM / PNM · PCX · PGF · PICTor · PNG ·
PSD / PSB · PSP · QTVR · RAS · RBE (JPEG-HDR · Logluv TIFF) ·
SGI · TGA · TIFF (TIFF/EP · TIFF/IT) · WBMP · WebP · XBM · XCF ·
XPM · XWD

Vector images

Vector images are more flexible than Raster images because they can be recognised more easily as they can be resized and stretched. Vector images are known to look better on devices like monitors and printers better as they change depending on the device resolution. Vector images are created on software's like Adobe Illustrator, Corel draw and many others

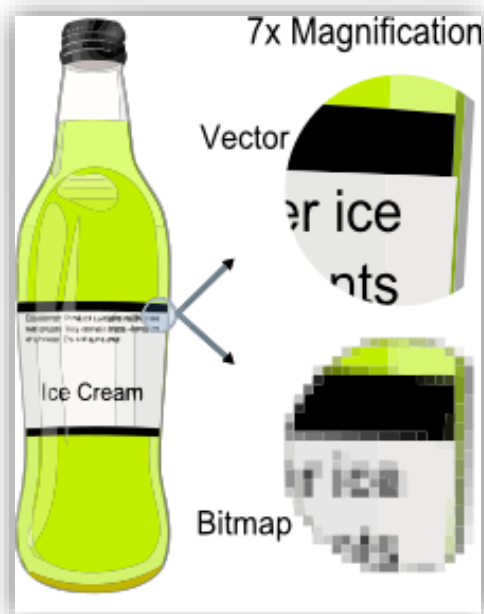


EPS – (Encapsulated Postscript Vector Graphics). This is a file extension that contains text as well as graphics. It will also contain a bitmap version of the image for simpler viewing.

AI – (Adobe Illustrator Artwork). This is the file extension for adobe illustrator, it is used to represent single- page vector-based drawings in EPS or PDF.



FLA – (Flash Document). This is a file that can be edited, but when you convert it or export the flash document it becomes a SWF document that you will be able to see in most browsers through a Flash plugin.



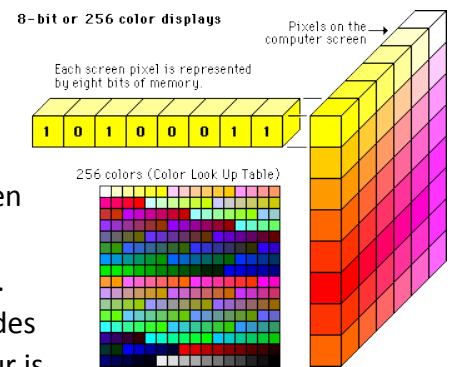
Vector images have line segments which comes between two different anchor points, a main image is made up of lots of smaller individual lines. Theses line segments are what makes up a Vector image.

Vector images also have polygons to allow any paths on the image to create three or more line segments to join together. A curve will be calculated and drawn by knowing the position of two end points and the central point.

A vector image will stay the same when being moved around, this will also not have a background but a transparent background. A Raster image will have a background and this will mean you will have to crop it down and resize. A vector image is easier to use.

Bit depth

Bit depth looks at how many different colours there are in a colour palette, this is determined by how many bits are in an image. Images with a high bit rate will have more shades of colours as they have more zeros and ones in the code, for example 10100011. The bit depth will also have a high level of precision when it tries to specify the colour, inside each single pixel. These primary colours are red, green and blue these are from the colour channels. Monochrome is black, white or greyscale. This allows different shades of a colour to be stored on the computer's memory. The High colour is a way of making different colours brighter. The true colour is a way of storing information about a big bunch of colours and shades.



Colour space

Colour space is also known as colour model, this is a system that is put in place to help you show colour in a specific order.

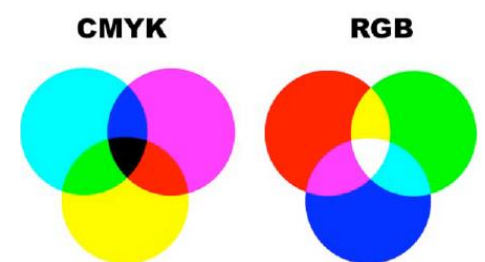


Greyscale

Greyscale are different shades of Red, Green and Blue (RGB) to make up a different shades of colour. These colours have the same intensity space, this means that there is less information for each pixel. The intensity of these colours will be the same as the RGB image because there is less pixels needing less information.

RGB

RGB is colour made up of Red, Green and Blue. These are colours that when put together make a colour that can be seen on a displayed device. These colours can also be used in changing the colour on an image, it is popular in game graphics.



YUV

YUV is used for video and TV. The colour information is used for things like luminance, The Y is used of bandwidth or chrominance and the U V is used to reduce the chrominance. They are used when the colour is full resolution while the U and V are not good quality.

HSV

HSV stands for Hue, Saturation and Value. The Hue stands for colour. Saturation is the richness or vibrancy of the colour. The Value is the light that comes of an object.

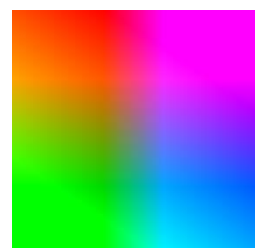


Image capture

Cameras

Compact (point and shoot) £60 - £400: A compact camera is what people use if they are going on an adventure or a holiday, it is easy as it can be placed into your pocket. This is often the best choice for everyday snapshots. The problem is that it is not a high quality, it can't work within low light so it has a built-in flash. One main problem is that you can't change the lenses.



Bridge Camera £150 - £800: A bridge camera is the cross between a compact camera and a DSLR camera. The camera has the same manual controls as a DSLR but has a higher quality than a compact camera. A bridge camera has a good lens as they can reach 35x, this has a big problem as it can't be changed. This means you can't take it around with you as it is less portable.



DSLR £550- £3000+: These cameras are used for professional photographers as they have the best quality for taking images, The DSLR Cameras are easily changeable as you can change over the lenses and you get a larger quality of resolution. The problem is that they are more expensive, with this it means that you have to have money to get additional parts.



Phone camera Free - £500: Everybody has a phone that comes with a camera and this is very portable. The phones in this day in age are getting better, the new iPhone 6S has full HD 1080P and the video shoots in 4k. This is means that they are better than some DSLRS. Phones can have low quality.



Scanners

3D scanners: A 3D template can only read by 3D scanner. They are mostly used for cataloguing and archiving objects, the only problem is that you have to glue different point of reference.

Book scanners: A book scanner is used for reading script bound documents. This has special version for scanning records and maps.

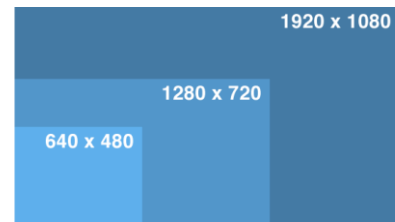
Document scanners: These are for placing real life documents onto a computer, this is then for you to print of or to edit a document, the scanner produces the file as an ADF document, this stands for Automatic Document Feeder.



There are many more.

Resolution

There are different sizes of resolution there is 320P which is very low to 720p and 1080P these are high resolution and are in HD quality. The main image resolution on a computer is about 72 to 96 DPI, but the print size is usually set to about 300 DPI. You can usually enlarge or adjust this through graphic software such as Photoshop. You can change to resolution through a camera's settings to get a better quality. A cheap camera will be produced at 256x256, a mid-ranged camera is 640x580 and 1216x912 and finally the best quality camera is 2240x1680.



Storage

There are many different types of storage devices for different devices, every piece of electronics needs a storage type, and this is to store different types of data.

SD cards: SD cards stand for Secure Digital. You can get different sizes of them, you can also get SDHC and SDXC. These both stand for Secure Digital High Capacity and also Secure Digital eXtended Capacity. These were created so that you can fit more data on them.

Standard- up to 2GB

High capacity- 2GB to 32GB

Extended capacity – 32GB to 2TB



Memory sticks: A memory stick is also known as removable flash memory card that came out in 1998 by Sony. The memory stick is something that people will carry around with them on a day to day basis.









Hard drives: A hard drive can be internally inside a computer and an external hard drive is something that you can carry around but it is not too easy to do so.

Online: You can store items on the cloud, this can be done through OneDrive, iCloud, Dropbox, etc. The items you can store photos, music, documents. People can even access your account and copy the files across to their own computer.

Optimising

Optimising is used every day in the worldwide web (WWW), this happens when you get an image that is too large for the webpage, this is then resized and made sure it fits for the webpage. A disadvantage is that people won't wait for a long time for the webpage images to load in, they will just find another website to get a picture. You can use software's such as fireworks that will help to reduce the file size but then won't reduce the quality. If a computer size resolution is 72ppi, then the images on the worldwide web will usually then be set to 72ppi. Some computer screens can be set to 96ppi, but the internet will just

produce the images at 72ppi. The size of the image that is being viewed on the worldwide web wouldn't make any difference because it's to do with how it's been viewed.

Name	Date modified	Type	Size
 Koala	07/10/2015 13:08	BMP File	2,305 KB
 Koala	06/10/2015 12:03	GIF image	619 KB
 Koala	06/10/2015 12:04	JPEG image	204 KB
 Koala	06/10/2015 12:04	Adobe Fireworks PNG File	1,483 KB
 Koala	06/10/2015 12:03	Adobe Photoshop Image 12	2,337 KB
 Koala	07/10/2015 13:09	TGA File	2,305 KB

These are the Different file formats, the biggest file size is a .TIFF and a .BMP. The smallest file size is a .GIF and a .JPEG. You can use software's such as Adobe Photoshop to generate these other file extensions.