**P1 - Hardware and Software for Graphics**

**Hardware**  
Multiple pieces of hardware are used when editing images, both for processing and displaying the results.

* Graphics Processing Unit

The GPU renders and sends image output to the monitor. It is also used for graphics-related processing, such as applying effects to images. More powerful GPU’s can render effects faster.

* CPU

The CPU may be used for image processing in some image editing software. A faster/multicore CPU will reduce processing times, particularly for vector graphics

* Hard drive

The Hard Drive is needed to store images to edit, and the edited results. Image files can be large, so high storage capacity is needed when editing lots of files or making backups. A fast hard drive can load or save large files quickly.

* Monitor

The monitor displays the software and images to the user. A high resolution monitor with accurate colours and wide viewing angles can help with ensuring the images are displayed the same way they will be printed.

* Printer

A printer is used to produce physical copies of the image, and some models can also scan in images to edit. Standard printers have limited quality, so a professional printer, such as those used in printing factories, can be used for higher quality professional editing.

**Software**  
There are many different types of image editing software, and some are better suited to specific tasks.

**Raster vs Vector Graphics**

Raster graphics are the most common, they are made up of pixels and have a fixed resolution. They are used for photos and other images.  
Vector graphics are made up of nodes and lines notated by complex mathematical formulae, and have no fixed resolution, making them ideal for logos and fonts as they can be resized without losing quality.

Raster images tend to have larger file sizes, as the value of every pixel must be stored, and larger or higher resolution images will be bigger files.

Vector images, on the other hand, have smaller file sizes as they only store the formula, and the images can be resized without changing anything.

Editing raster images uses the GPU more, while vector images use the CPU more.

Most software can be used to edit both Raster and Vector graphics, but as Raster is by far the more common type (most people are editing photos) this is what most software is primarily used to edit.  
For example, while most of Photoshop’s tools are intended for use with Raster graphics, it can also be used to edit vector images.  
Some applications, such as MS Paint, can only edit raster images, while others such as Adobe Flash or Autodesk are intended for use with vector graphics.

**Other software**  
Some software, while technically image editors, have very specific or limited uses. An example of this is Pixlr, which has a variety of tools for applying effects to images, but it does not support image manipulation at the same level as, say, Photoshop. For example, it does not have an Airbrush or Heal tool for applying effects to a specific area of an image.

Another example is Adobe Flash, which deals primarily with vector graphics and is used to create animations. It has tools aimed towards animating, such as Tween shapes and tools for adding sound.