BIT-MAPPED VS VECTOR GRAPHICS NATIONAL 5

BIT-MAPPED & VECTOR

- Graphics packages can be **bit-mapped** or **vector**. Both types of packages store graphics in a different way.

- Bit mapped packages (paint packages) work by changing the colour of the pixels that make up the graphic.

- Vector graphics packages (draw packages) work by storing only the attributes of the object for example:
  - length of side
  - line thickness
  - fill colour
  - angle etc.

When 2 shapes overlap in a bit-mapped package, the shape which is on top rubs out the shape underneath.
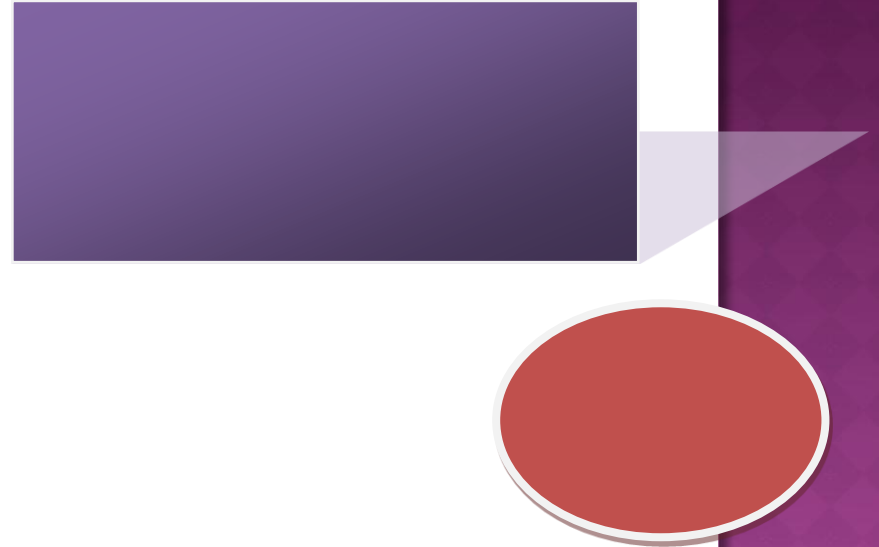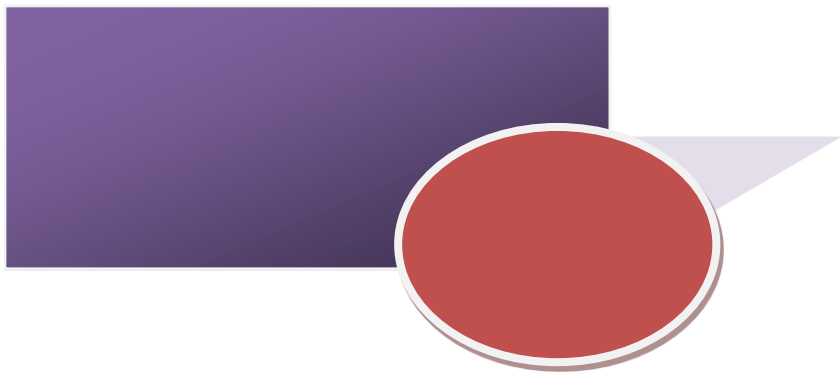
When the same thing is done in a vector graphics package, the shapes remain as separate objects. They can be separated again and both shapes stay the same.

RESOLUTION

- This is how many pixels make up the image for example 1960x1200

- This would have 1960 pixels horizontally times 1200 pixels vertically

- **Resolution Dependent** : the size of the file is directly linked to the resolution i.e. the more pixels the bigger the file

- **Resolution Independent** : where elements on a computer screen are created at sizes free from the pixel grid restraints

FILE SIZE

When a bit-mapped graphic is saved, the whole screen is saved whether or not it contains any images. This results in a relatively large file size.

Graphic files produced by a vector package are smaller because only the object attributes are saved.

FILE EDITING

This is a
vector object
Design Gallery
j0217426.wmf

It can be
un-grouped

It can be
re-colored

It can be
re-sized

It can be
re-shaped

When editing a bit-mapped picture, it is possible to edit it at pixel level.

When editing a vector graphic, it is only possible to edit the attributes which make up the picture such as line width, fill pattern etc.

FILE ENLARGING

- Enlarging a bitmap can lead to it becoming pixelated and 'blocky' looking

- Whereas enlarging a vector does not cause this problem
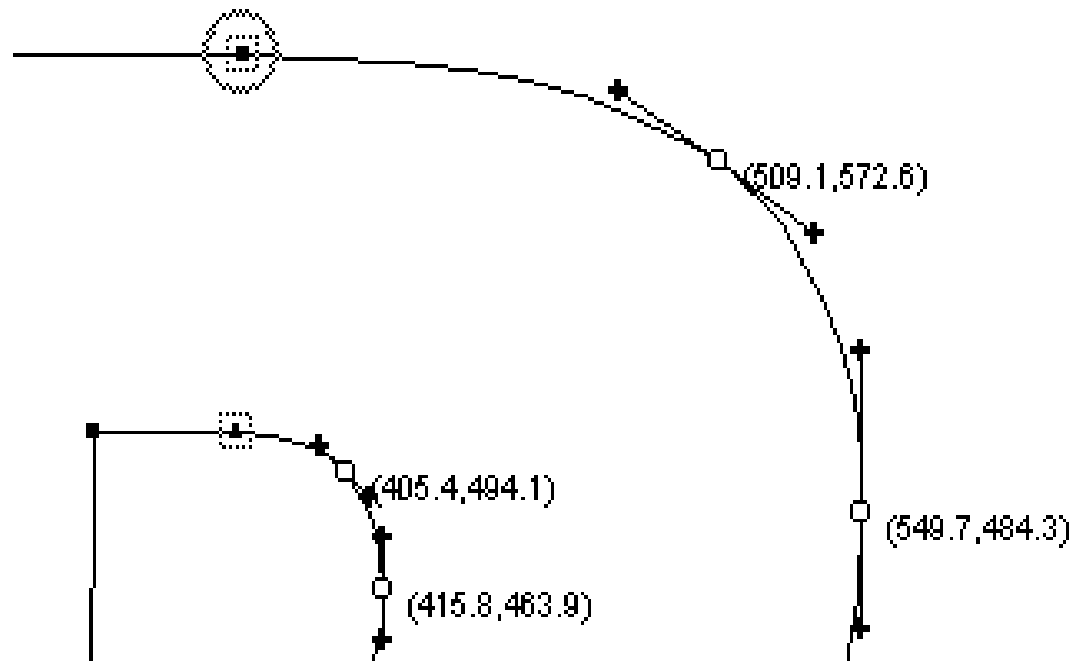
I'm a bitmap.   I'm a vector.

- The image above is a bitmap.

- All photos and scans are made of pixels. With a paint program you can do artistic editing to images.

- Vectors can be converted to bitmaps; bitmaps cannot be converted to vectors.

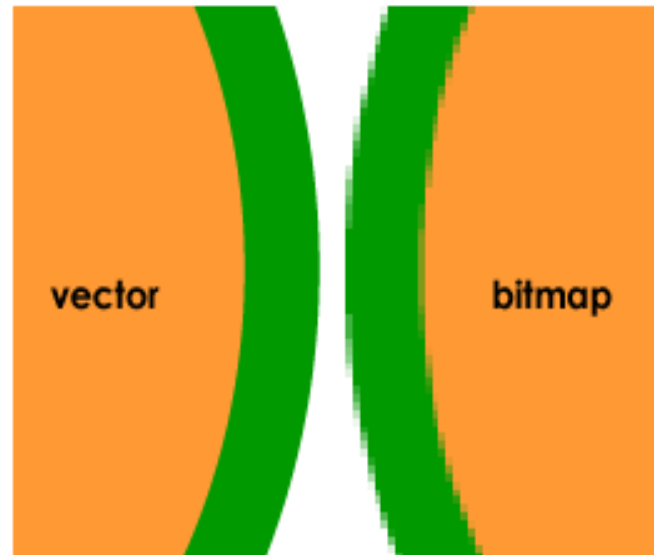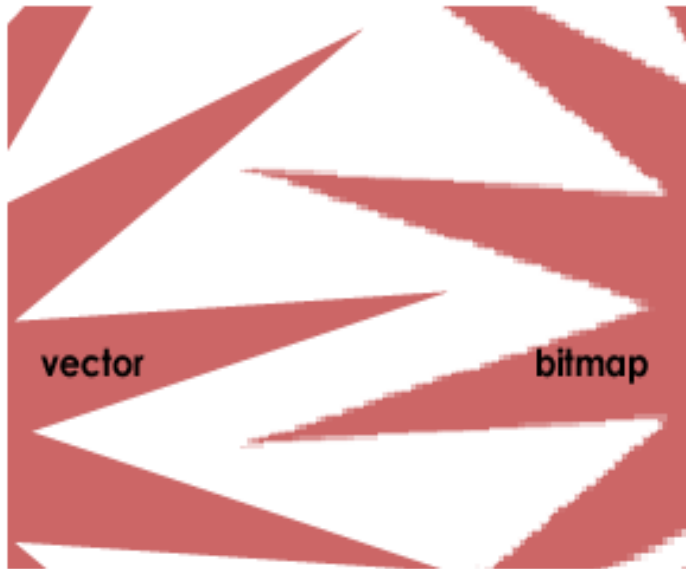- You can use a trace application on a bitmap and get various results; line art can be a success.

DEFINING A BIT-MAPPED
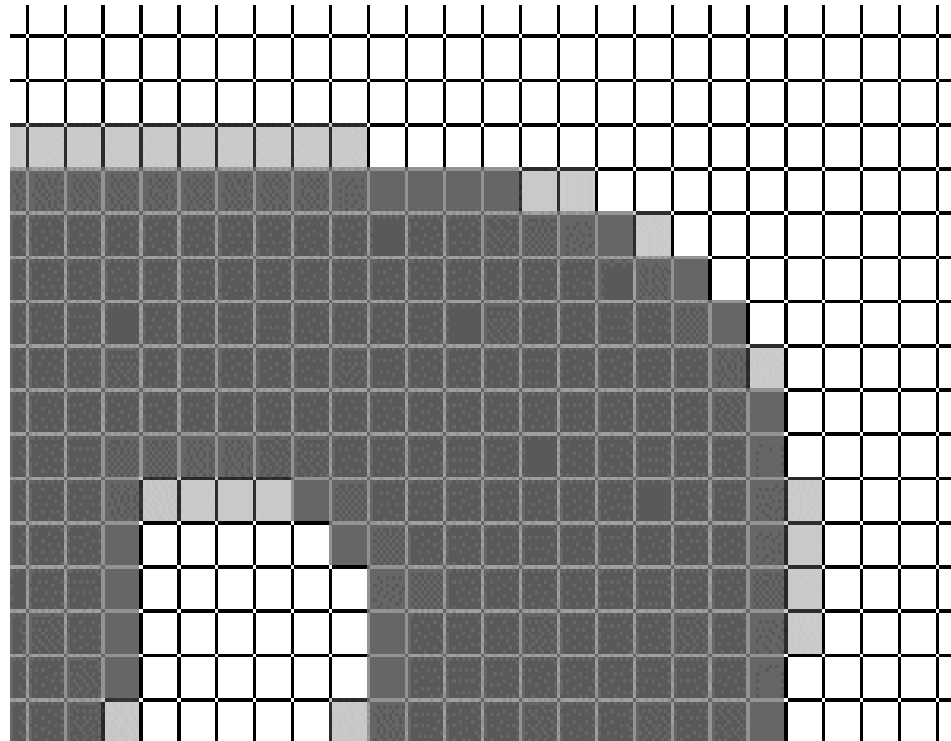
DEFINING A VECTOR

VECTOR AND BIT-MAPPED COMPARED

REMEMBER - BITMAP

- Programs like Paint and PhotoShop are both bitmap applications, as the images you work with are made up of a fixed number of pixels.

- Once a line or curve or piece of text has been added to the canvas you cannot go back and change it without undoing and starting over again.

- As the information in a bit-mapped picture is represented by pixels, you cannot enlarge the image without exaggerating the effect of the pixels and making the picture look jagged or blocky.

- Photographs are always represented as bitmaps - the detail in the average photograph is way too complex to be represented as vectors.

REMEMBER - VECTOR

- Vector based applications such as Corel Draw and Adobe Illustrator treat images as collections of shapes.

- A line would have a starting point, direction and length, a rectangle would have a starting point, width and height, circles would have a centre and radius, and so on.

- After drawing a rectangle you can go back and change its width and height, bring it to the foreground or send it to the background, even after other shapes had been drawn on top of it later.

- Vector images also take up less storage space when you save the file.

- An advantage of Vector graphics is that you can re-size the final image to be as large or as small as you like and never get jagged or blocky edges.