


## **QUESTIONS:**


- **Do you think we need computer graphics?**
  - **In which areas do we use computer graphics?**
  - **What kinds of computer graphics do you know?**
  - **What do you think is the difference between vector and bitmap graphics?**
  - **Where vector graphics are used?**
  - **Where bitmap graphics are used?**
- 

**TYPES OF GRAPHIC. BITMAP GRAPHICS.  
DIFFERENCES BETWEEN JPEG, GIF AND  
BITMAP.**

# LEARNING OBJECTIVES

Summarise the selection of generic application software for a range of tasks e.g. word processor, spreadsheet, desktop publisher (DTP), presentation software, graphics packages (bit mapped and vector graphics), and justify the choices

## **EXPECTED RESULTS (SUCCESS CRITERIA)**

- Knows types of graphics
  - Knows and understands the purpose of vector and bitmap graphics
  - Are able to compare the advantages and disadvantages of vector and bitmap graphics
  - Are able to explain the advantages and disadvantages of graphic formats BMP and JPG
- 

# BITMAP

## S

Bitmaps are made up from individual pixels

Bitmaps can be compressed to reduce the file size, although this may result in a loss of detail

Each pixel represents a colour.

Pixelation occurs when the image is enlarged

Bitmaps take a lot of storage space as the information needs to be stored for every pixel

Large bitmap images can take a long time to open and load

The more pixels, the better the resolution and the quality of the image.

# VECTORS

Vector graphics are created by mathematical equations and calculations

Points in a vector graphic are described by a relative distance from the origin

Vector graphics can be resized, made larger or smaller without losing any clarity

Every line in a vector graphic is described by its features i.e. length, thickness, colour of line etc

Objects in a vector graphic can be grouped together e.g. clipart

the individual elements that make up the vector graphic can be edited independently, for example, moving, resizing, rotating, recolouring

**Bitmap Graphics** - a collection of pixels from an image mapped to specific memory locations holding their binary colour value.

**Pixel** - the smallest possible addressable area defined by a solid colour, represented as binary, in an image.

**Image Resolution** - how many pixels an image contains per inch/cm.

**Screen Resolution** - the number of pixels per row by the number of pixels per column.

**Colour depth** - The number of bits used to represent the colour of a single pixel.



# BITMAPS VS VECTORS

Bitmap graphics	Vector graphics
<ul style="list-style-type: none"><li>• Use less processing power than vectors</li><li>• Made up from pixels</li><li>• Individual elements cannot be grouped</li><li>• Images are less precise than vectors</li><li>• Take up more memory than vectors</li><li>• Take up more storage space than vectors</li></ul>	<ul style="list-style-type: none"><li>• Use more processing power than bitmaps</li><li>• Made up from lines equations and calculations</li><li>• Individual elements can be grouped</li><li>• Images are more precise than bitmaps</li><li>• Take up less memory than bitmaps</li><li>• Take up less storage space than bitmaps</li></ul>



- What are the graphic formats used for?
- Why do you think we use different formats for image storage? What is the difference?

**BMP**

**TIFF**

**PNG**

**PSD**

**JPEG**

**GIF**

**EPS**

**PCX**



# DIFFERENCES BETWEEN JPEG, GIF AND BITMAP

# LEARNING OBJECTIVES

Summarise the selection of generic application software for a range of tasks.



## **EXPECTED RESULTS (SUCCESS CRITERIA)**

- Are able to compare the advantages and disadvantages of vector and bitmap graphics
- Are able to explain the advantages and disadvantages of graphic formats BMP and JPG

# ***INDIVIDUAL PRACTICAL WORK***

Work with a graphical editor Paint.

You save the same image in different graphic formats BMP, GIF, JPEG.

Then calculate the volume of the image using a formula and compare it to the file sizes that are specified in the file properties.

Then answer the questions of the assignment.



# CONCLUSION

- For BMP format, a formula is used to calculate the image volume and this type of format does not compress the image volume.
- For GIF, JPEG formats, the formula is not applicable and these types of formats compress the image volume.



# TASK

You fill out a comparative table between the graphic formats BMP, JPEG.

After completing the assignment, you in pairs are checked, using the success criteria.



# BMP VS JPEG

	<b>.BMP</b>	<b>.JPEG (.JPG)</b>
<b>Advantages</b>	<ul style="list-style-type: none"><li>• BMP format gives an uncompressed file</li><li>• You can open and re-save the image without degrading the integrity</li></ul>	<ul style="list-style-type: none"><li>• high and controlled compression ratio.</li><li>• small file size;</li><li>• recognition by all browsers, graphic editors,</li><li>• with a small compression ratio, the image quality remains high enough.</li></ul>
<b>disadvantages</b>	<p>BMP files require more memory</p>	<ul style="list-style-type: none"><li>• With a strong compression, the image can "crumble" onto blocks of pixels 8x8 in size.</li><li>• worse than other formats is suitable for working with graphic images with clear boundaries;</li></ul>