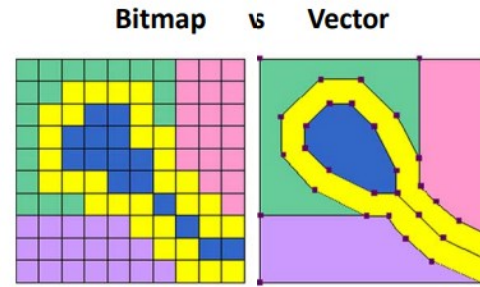# Computing Year 8 Unit:
Media—vector graphics

Threshold concept—

- Understand what a real-world problem is.
- Draw basic vector shapes
- Understand what the purpose of a vector graphic is

Keyword	Definition
Manipulate	To change
Path	A connecting line between two paths
Node	A point that can be changed in a
Vector	Mathematically based pictures. Made up of lines, shapes etc (objects). Easily scalable (as they are not pixel
Graphic	A graphic is an image or visual representation of an object. Therefore, computer graphics are simply images

Bitmap vs Vector

Bitmap or Vector image?

- Will the image need to be resized?
- Will the image need to be drawn to scale?
- Will the image need to be realistic?
- Are there any restrictions on file size?

Common **vector image** file types

File Type	Advantages	Disadvantages
.EPS (vector)	Most common vector type. Standard for sharing in print publishing industry	Not widely supported in editing software. Generally Adobe only software
.SVG (vector)	Scalable without image quality reduction. International standard for vector graphics. High quality printing possible	Not widely supported in software. Files sizes can be large wit many elements
.PDF (vector)	Widely supported by many devices. Free to view PDF files. Small file size	Not free to edit PDF files. Text difficult to edit, text is treated as images

Vector Drawing

- Vector drawings are computer graphic images that are made using 2-D shapes.

- The drawings are connected by lines and curves to form polygons and other shapes, forming a complete picture.

- There are lots of different apps and programs that can help us to complete vector drawings, including Google Drawings and Adobe Illustrator.

- Many techniques, e.g. zooming, rotating, resizing & duplicating, can help to create accurate images.

Types of compression

LOSSY Lossy compression removes some of the detail. The quality of the digital image will be reduced. Great for digital images you intend to post online, but no so great if you intend to print your digital image to put in a photo album or photo frame.

LOSSLESS Lossless compression doesn't remove any of the detail. The quality of the digital image will be really good. Great for digital images you intend to print, to put in a photo album or photo frame, but no so great if you intend to post your digital image online.

Editing tools

Zoom in/out
Allows you to enlarge an area of the graphic (*zoom in*) to see it more clearly. Zoom out to see the whole graphic.

Layers
Allows you to separate parts of a graphic into different layers, making it much easier to edit the graphic.

Brightness/Contrast
Brightness will lighten/darken the image. Contrast makes the lights lighter and darks darker.

Desaturate
Desaturation turns colour photos black & white. Try 'colour splash' to enhance a desaturated photo.

Crop
Allows you to chop off parts of an image you don't want to see. This will also change the dimensions of the image.
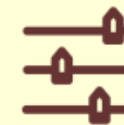
Resize
Allows you to change the dimensions of an image. You can also resize parts of the image if layers are used.

Rotate
Allows you to turn your images clockwise/anti-clockwise by a certain degrees.

Filters
You can apply different filters to your photo, such as Mosaic Tiles, Stained Glass and Chalk & Charcoal.

Computing Year 8 Unit:
Mobile App Development

Keyword	Definition
Sequence	Placing a set of instructions in an order
Event	An action that occurs as a result of the user
GUI	A visual way of interacting with a computer
Programming	The process or activity of writing computer programs.
Decomposition	When we break a problem or task down into smaller parts to make it easier to tackle
Abstraction	The process of filtering out – ignoring - the characteristics of patterns that we don't need in order to concentrate on those that
Algorithmic thinking	A way of getting to a solution through the clear definition of the steps needed
Variables	Value that can change, depending on conditions or on information passed to the program
Selection	Selection is a decision or question.
Operators	+, -, *, / =, =>, =

DECOMPOSITION
Breaking down a problem into smaller chunks. This makes it more manageable and easier to understand.
1

PATTERN RECOGNITION
Looking carefully in lines of code for patterns, similarities and trends.
2

ABSTRACTION
Filtering out and focusing on what is important. Ignoring what is not important.
3

ALGORITHM DESIGN
A plan and step by step instructions on how to solve the problems.
4

DEBUGGING
Looking through your program to find errors and then fixing them.
5

USER INPUT

Text boxes – allowing the user to input a string.

Checkboxes - allowing for the user to indicate a yes or no response.

Button – linked to an event that will capture and process the data when it is clicked

EVENT HANDLER

You can use an **event handler** to determine when to collect the data and what to do with it once it has been collected and linked with a variable.

```
onEvent("login", "click", function() {
  var username = getText("username");
});
```

GETTEXT

getText ("id") is a built-in subroutine that collects the text entered into a textbox; "id" is to be replaced with the name given to the text box.

```
var x = getText("id");
```

SELECTION – BOOLEAN LOGIC (IF/ELSE/ELIF)

Selection is the process of making a **decision** based on a **condition**. Selection allows you to add more avenues and routes to your coding.

```
if (score > 10) {
  setText("feedback_label", "Great Work");
} else if (score > 6) {
  setText("feedback_label", "Not Bad");
} else {
  setText("feedback_label", "Hard Luck");
}
```