**Bitmap Images**

Bitmap images, also known as raster images, are made up of pixels arranged in a grid. Each pixel has a defined color, and the image quality depends on the resolution (the number of pixels per inch).

**File Formats:**

JPEG

PNG`

GIF

BMP

**Advantages:**

* Bitmap images are easily converted to different formats
* Bitmap images are easy to import into different software applications

**Disadvantages:**

* Uncompressed BMP`s can have much larger file sizes than JPEGS and PNGS,Making it more difficult to share them.
* They can also be too big to use on websites.

**Use Cases:**

Photographs

Detailed illustrations

Web graphics that need rich detail

**Vector Graphics**

**Definition:**

Vector graphics are created using mathematical formulas to define shapes, lines, and curves. They are not made of pixels but paths, which makes them resolution-independent.

File Formats:

SVG (Scalable Vector Graphics)

AI (Adobe Illustrator)

EPS (Encapsulated PostScript)

PDF (Portable Document Format)

Advantages:

Scalability: Vector graphics can be scaled to any size without losing quality. This makes them ideal for logos, icons, and other graphics that need to be resized frequently.

File Size: Vector files are generally smaller in size compared to high-resolution bitmap images, making them easier to manage and quicker to load.

**Disadvantages:**

Complexity: Creating highly detailed images like photographs is challenging with vectors. They are better suited for simpler designs.

Use Cases:

Logos

Icons

Illustrations that require scalability

Typography

**1. Artboards**

Function: Artboards are similar to pages in a document and serve as the workspace for your illustrations.

Working Procedure:

Create new artboards via the Artboard tool or during the document setup.

Adjust the size and position of artboards using the Artboard tool.

Export or print each artboard separately.

**2. Pen Tool**

Function: The Pen tool is used to create paths, which are the foundation of vector graphics.

Working Procedure:

Click to create anchor points and straight lines.

Click and drag to create Bezier curves.

**3. Shapes and Shape Tools**

Function: Illustrator provides a variety of shape tools like Rectangle, Ellipse, Polygon, and Star.

Working Procedure:

Select a shape tool from the toolbar.

Click and drag on the artboard to create the shape.

Use the Properties panel to adjust dimensions, fill, and stroke.

**4. Type Tool**

Function: The Type tool is used for adding text to your designs.

Working Procedure:

Select the Type tool and click on the artboard to start typing.

Use the Character and Paragraph panels to adjust font, size, spacing, and alignment.

Convert text to outlines for custom typography effects.

**5. Brush Tool**

Function: The Brush tool allows you to draw freehand paths that can be stylized with different brush strokes.

Working Procedure:

Select the Brush tool and choose a brush from the Brushes panel.

Draw on the artboard to create stylized paths.

Customize brush strokes and settings via the Brush panel.

**6. Appearance Panel**

Function: The Appearance panel lets you manage the styles and effects applied to an object.

Working Procedure:

Add multiple strokes, fills, and effects to a single object.

Reorder, hide, or delete appearance attributes.

Save complex appearances as Graphic Styles for reuse.

**7. Image Trace**

Function: Image Trace converts raster images into vector paths.

Working Procedure:

Place a raster image into your document.

Select the image and choose Image Trace from the toolbar.

Adjust tracing settings to control the level of detail and color complexity.