# Year 8 Topic 4 – Vector graphics

| Lesson | Can you? |
|---|---|
| 1 Get into shapes | Draw basic shapes (rectangle, ellipse, polygon, star) with different properties (fill and stroke, shape-specific attributes)<br>Manipulate individual objects (select, move, resize, rotate, duplicate, flip, z-order) |
| 2 Paths united | Manipulate groups of objects (select, group/ungroup, align, distribute)<br>Combine paths by applying operations (union, difference, intersection) |
| 3 Icon challenges | Convert objects to paths<br>Draw paths<br>Edit path nodes |
| 4 What will you make? | Combine multiple tools and techniques to create a vector graphic design |
| 5 Under the hood | Explain what vector graphics are<br>Provide examples where using vector graphics would be appropriate |
| 6 Showcase | Peer assess another pair's project work<br>Improve your own project work based on feedback<br>Complete a summative assessment |

## Useful websites

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INKSCAPE 1.1
Draw Freely.
BY : OZANTLIUKY

## KNOWLEDGE ORGANISER
## Key Stage 3 - COMPUTING



INKSCAPE
draw a wallpaper

Inkscape has four versatile *shape tools*, each tool capable of creating and editing its own type of shapes. A shape is an object which you can modify in ways unique to this shape type, using draggable *handles* and numeric *parameters* that determine the shape's appearance.

For example, with a star you can alter the number of tips, their length, angle, rounding, etc. — but a star remains a star. A shape is "less free" than a simple path, but it's often more interesting and useful. You can always convert a shape to a path (`Shift` + `Ctrl` + `C`), but the reverse conversion is not possible.
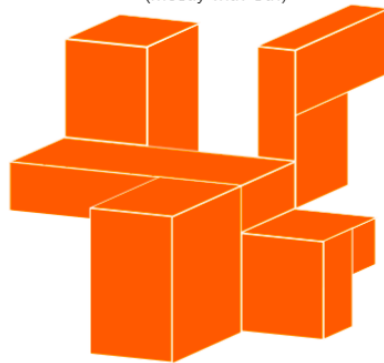
By slanting and rotating a rectangle, then duplicating it and resizing with its resize handles, 3D compositions can be created easily:

3 original rectangles

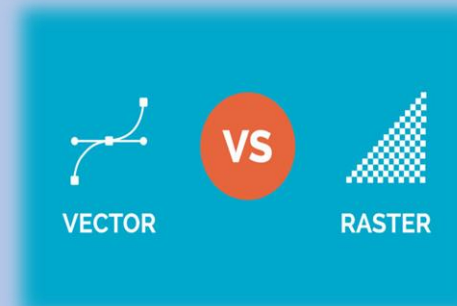Several rectangles copied and resized by handles
(mostly with Ctrl)

Unlike shapes created by shape tools, the Pen and Pencil tools create what is called *paths*. A path is a sequence of straight line segments and/or Bezier curves which, as any other Inkscape object, may have arbitrary fill and stroke properties. But unlike a shape, a path can be edited by freely dragging any of its nodes (not just predefined handles) or by directly dragging a segment of the path. Select this path and switch to the Node tool (`F2`):

### What are vector graphics?

Vector graphics are computer images created using a sequence of commands or mathematical statements that place lines and shapes in a two-dimensional or three-dimensional space.

In vector graphics, a graphic artist's work, or file, is created and saved as a sequence of vector statements. A vector graphic file describes a series of points to be connected.

VECTOR **VS** RASTER

There are many uses for vector graphics.

- Advertising campaigns.
- Animations.
- App or website interfaces.
- Band illustrations and t-shirt designs.
- Brand collateral like logos and signage.
- Embroidery.
- Event promotions.
- Fonts.