

<p>Subject: Computing</p>	<p>Year: 5 – Summer 1 – Creating Media 2 – Vector Drawing</p>
<p>National Curriculum objectives</p> <ul style="list-style-type: none"> Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information. 	
<p>To begin this unit, the children should have already learnt:</p> <p><u>Digital Painting – Year 1</u> Digital devices – and specific programs – can be used to draw and create media: we can draw in different ways and use various tools to create unique effects.</p> <p><u>Digital writing – Year 1</u> Word processors (e.g. Microsoft Word) allow digital writing. The user can change the look of text and easily edit and make changes to bodies of text.</p> <p><u>Digital Photography – Year 2</u> Digital devices can be used to take photographs and edit them after capture; this means that not all images children see are real and they will begin to recognise what features might be changed in photographs they encounter.</p> <p><u>Year 3</u> Digital publishing is when we create documents (like newsletters, brochures, magazines and newspapers) using page layout software.</p> <p><u>Year 4</u> Digital devices help us to take and edit photographs. To edit a photo we could use cropping, rotating, flipping, and changing colours and styles. It is important to recognise not every photo we see is real and could have been edited.</p>	<p>The learning in this unit will prepare the children to learn these things in the future:</p> <p><u>Year 6</u> 3-D modelling involves using computer software to create 3-D shapes, in order to produce models of real-world objects. It allows us to view designs from different angles and experiment with various designs. 3-D modelling is used in many industries, e.g. in interior design, architecture and making video games.</p>
<p><u>Key Enquiry Question</u> What are used to create vector drawings? How are they different to hand drawings OR photos you captured and edited in Y4? What tools can you use to edit an object? How can layering be beneficial when creating vector drawings? Why have you grouped these objects? What is the purpose of your vector drawing and do you think it is successful?</p>	<p><u>The Big Idea:</u> Vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Objects be grouped, layered and duplicated, which helps produce more complex artwork. Vector drawings can be enlarged and the quality of the drawing will not change.</p>

To achieve ARE, pupils will need to be secure in the following knowledge:

By the end of this unit, children will know:

- A vector drawing comprises separate objects;
- Each object in a drawing is in its own layer;
- Vector images can be scaled without impact on quality;
- Objects can be modified in groups;
- Alignment and size guides can help create a more consistent drawing;
- The possible impact of certain artistic choices.

Vocabulary:

Word processor; text; font; keyboard; text cursor; enter; spacebar; toolbar; icon (introducing in Y1 *Digital Writing* unit).

Photography; editing; digital; portrait; software; landscape; scene; subject; lighting (introduced in Y2 *Digital Photography* unit).

Rotate; enlarge; reduce (introduced in Y4).

Vector; handles; layering; alignment; grouping; gradient; zoom.

By the end of this unit, children will be able to do:

- Add an object to a vector drawing;
- Select one object or multiple objects;
- Delete objects;
- Move objects between the layers of a drawing;
- Duplicate objects using copy and paste;
- Modify and reposition objects;
- Group and ungroup selected objects;
- Combine options to achieve a desired result;
- Create a vector drawing for a given purpose.

Useful Resources:

Online, live remote and Face-to-face courses

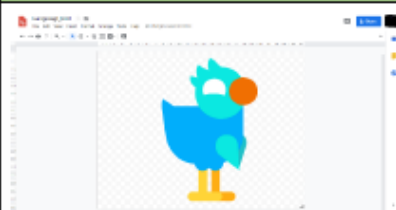
[National Centre for Computing Education face-to-face training courses](#)

Vectr: A vector drawing program.



Overview

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.

More Complex Vector Drawings

Google Drawings has been used in these examples, but lots of other vector drawing software uses the same tools and functions.



When dealing with small and intricate objects, it is important to use the zoom tool. Zooming in allows you to work with more precision. Zooming out allows a wider view.



The line tools can be used to help you change the colour and weight (thickness) of the line, and to make dotted lines.



Coloured lines can be drawn, and colours can be used to fill shapes.

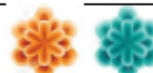


Gradient colours can be used to colour the same object in different colours.



The Alignment guides pop up as you move objects around, and help you to align and size objects.

Remember to that vector drawing is all about layering. By gradually adding layers of basic shapes, you build up something far more complex.

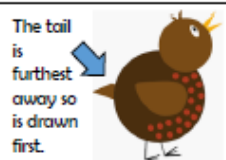


Creating Simple Vector Drawings

Vector drawings use lines and shapes to create bigger and more detailed images.



Plan your drawing by thinking about what shapes it is made up of. Each shape is called an object.



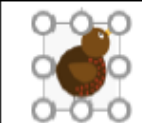
The tail is furthest away so is drawn first.

When vector drawing, the shapes overlap, so start with the objects that are the furthest away.

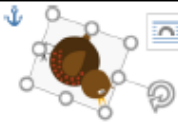


Copy and paste has been used to make the red spots the same size.

You can save a lot of time and effort doing the same thing over and over by duplicating shapes. This is done most easily by copying the object that you want to duplicate (hold ctrl + c) and pasting (hold ctrl + v) a new one.



You can enlarge/reduce an object by clicking on it and dragging the handles to the desired size.



You can rotate an object by dragging the circular handle at the top.

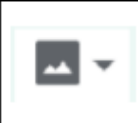
Advanced Tips



Grouping: 1. Select all images. 2. Right-click 3. Choose 'group.' All of the objects can now be moved and changed at the same time.



Advanced Layering: Right-click on objects and use the 'send to back' and 'bring to front' tools (in 'order') to ensure that your layering is in the correct order.



Backgrounds: You can create backgrounds by uploading images (using this icon). Remember to 'send to back' after it has been inserted.

Selecting Multiple Objects

This allows you to perform tasks with the whole drawing, rather than individual objects:

-Click, drag and drop a box around all of the objects in an image. This allows you to select all of the objects.

-When you perform an action (e.g. copy and paste) it will now apply to all.

Important Vocabulary

Vector

Object

Handles

Rotate

Enlarge/ Reduce

Layering

Gradient

Zoom

Alignment

Grouping