

Year 5 – Vector drawing

Unit introduction

In this unit learners will find out that vector images are made up of shapes. They will learn how to use the different drawing tools and how images are created in layers. They will explore the ways in which images can be grouped and duplicated to support them in creating more complex pieces of work. This unit is planned using the Google Drawings app other alternative pieces of software are available.

Overview of lessons

Lesson	Brief overview	Learning objectives
1 The drawing tools	In this lesson learners will be introduced to vector drawings and begin to have an understanding that they are made up of simple shapes and lines. Learners will use the main drawing tools within a software package. This unit is written assuming the use of Google Drawings (docs.google.com/drawings/) but other packages such as Microsoft Publisher, or Microsoft PowerPoint can be used if preferred. Learners will discuss how vector drawings differ from paper-based drawings.	To identify that drawing tools can be used to produce different outcomes <ul style="list-style-type: none">● I can recognise that vector drawings are made using shapes● I can identify the main drawing tools● I can discuss how a vector drawing is different from paper-based drawings
2 Create a vector drawing	During this lesson learners will begin to identify the shapes that are used to make vector drawings. They will be able to explain that each element of a vector	To create a vector drawing by combining shapes

	<p>drawing is called an object. Learners will create their own vector drawing by moving, resizing, rotating, and changing the colours of a selection of objects. They will also learn how to duplicate the objects to save time.</p>	<ul style="list-style-type: none"> ● I can identify the shapes used to make a vector drawing ● I can explain that each element added to a vector drawing is an object ● I can move, resize, and rotate objects I have duplicated
3 Being effective	<p>During this lesson learners will continue to increase the complexity of their vector drawings by using the zoom tool to help them add detail. They will begin to understand how grids and resize handles can be used to improve consistency in their drawings and use tools to modify objects, creating different effects.</p>	<p>To use tools to achieve a desired effect</p> <ul style="list-style-type: none"> ● I can use the zoom tool to help me add detail to my drawings ● I can explain how alignment grids and resize handles can be used to improve consistency ● I can modify objects to create different effects
4 Layers and objects	<p>During this lesson learners will gain an understanding of layers and how they are used in vector drawings. They will learn that each object is built on a new layer and that these layers can be moved forward and backward to create effective vector drawings.</p>	<p>To recognise that vector drawings consist of layers</p> <ul style="list-style-type: none"> ● I can identify that each added object creates a new layer in the drawing ● I can identify which objects are in the front layer or in the back layer of a drawing ● I can change the order of layers in a vector drawing
5 Manipulating objects	<p>During this lesson learners will be taught how to duplicate multiple objects. They will learn how to group objects to make them easier to work with, how to copy and paste these images, and then make simple alterations.</p>	<p>To group objects to make them easier to work with</p> <ul style="list-style-type: none"> ● I can copy part of a drawing by duplicating several objects

		<ul style="list-style-type: none"> ● I can group to create a single object ● I can reuse a group of objects to further develop my vector drawing
6 Get designing	During this lesson learners will understand how digital images can be made from shapes or pixels. They will suggest and implement improvements to vector drawings and complete the unit by creating their own labels for the classroom using the skills they have learned.	<p>To evaluate my vector drawing</p> <ul style="list-style-type: none"> ● I create alternatives to vector drawings ● I can suggest improvements to a vector drawing ● I can apply what I have learned about vector drawings

Progression

This unit progresses students' knowledge and understanding of digital painting and has some links to desktop publishing in which learners used digital images. They are now creating the images that they could use in desktop publishing documents.

Please see the learning graph for this unit for more information about progression.

Curriculum links

National curriculum links

- 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.

Education for a Connected World links

Copyright and ownership

- I can explain why copying someone else's work from the internet without permission can cause problems.

Assessment

Formative assessment

Assessment opportunities are detailed in each lesson plan. The learning objective and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end. Learners are invited to assess how well they feel they have met the learning objective using thumbs up, thumbs sideways, or thumbs down.

Summative assessment

- Learners are invited to assess how well their videos met the objectives of the unit. Please see the assessment rubric document for this unit.

Subject knowledge

This is supported in the slides for each lesson:

Lesson 1: Teachers will need an understanding of the tools available in the chosen software such as shape and line drawing tools: undo, redo, select, fill, and delete.

Lesson 2: Teachers would benefit from knowing that vector drawings are created using shapes and that each shape used is called an object. It would be helpful to know how to move, resize, rotate, duplicate, and change the colour of objects within Google Drawings.

Lesson 3: Teachers would benefit from an understanding of the tools within Google Drawings, including the ability to add colour effects to shapes and lines. Sharing Google Drawing files with the learners will be required for this lesson.

Lesson 4: Teachers need to understand that each added object creates a new layer in the drawing. It would help to know how to move shapes to a different layer using 'bring to front' or 'send to back'.

Lesson 5: Teachers would benefit from understanding that objects can be grouped. Knowing how to group objects and copy/paste or duplicate them using keyboard commands would be an advantage.

Lesson 6: Teachers would benefit from an understanding of how digital images can be made, either using shapes or pixels. It would be an advantage for teachers to have an understanding of the drawing tools available in Google Drawings to support learners in showcasing their skills in this lesson.

Enhance your subject knowledge to teach this unit through the following training opportunities:

Online training courses

- [Raspberry Pi Foundation online training courses](#)

Face-to-face courses

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

Resources are updated regularly — please check that you are using the latest version.

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