

TEACHER GUIDE

Unit

Graphics.

Unit Description

Using software to create vector and bitmap images.

Career

I'm a graphic designer.

Every unit is based on a career to help students see the relevance of what they are learning to the real world and to help schools achieve Gatsby benchmarks by linking curriculum learning to careers.

Career overview

As a graphic designer, I use digital tools to create vector and bitmap images for clients. This includes creating branding elements for a visual identity and other media assets. My goal is to produce high-quality designs that stand out across different online platforms.

Key question

How can we use digital tools to create images to meet a client's needs?

Every unit is designed to help students answer one over-arching key question relating to the units four knowledge statements.

Unit objectives: knowledge statements

1. **Know** how to use software such as Provector to manipulate vector shapes.
2. **Know** how to use tools like shape, add, subtract and points to create vectors.
3. **Know** how to use software such as Pixlr to edit bitmaps.
4. **Know** how to make effective compositions with text and images.

Unit outcomes

1. Learn it workbooks evidencing the learning journey.
2. Make it workbook evidencing application of learning with an artefact.
 - a) Two graphics for a client.
 - i) A vector logo.
 - ii) The image combines many shapes.
 - iii) A bitmap thumbnail for a video.
 - iv) A composition that creates a brand identity.
3. Review it workbook evidencing assessment and review.

Prior learning / spiral curriculum

No previous learning is necessary because all units have been developed in a modular way to allow you to plug them into your existing scheme of learning.

However, if you are following our recommended pathway for curriculum 2028 here is how this unit fits into the year 7 → 9 progression pathway.

The big picture: a three-year progression

Once the national curriculum programme of study has been released, we will update this section with how this unit fits into a progressive pathway across Key Stage 3.

How the three units connect

Once the national curriculum programme of study has been released, we will update this section with how this unit fits into a broader theme of units.

Contents

In addition to this teacher guide this unit also includes the following resources:

- Folder: Extension work. Use these activities to extend any lesson or for 7–8-week terms.
 - 1 teacher extension answers.
 - 1 student extension workbook.
- Folder: Homework. Use these activities for work outside of the lesson. They are independent of the lessons and can be set at any time.
 - 1 teacher presentation.
 - 3 videos.
 - 3 video scripts.
 - 3 worksheets.
- Folder: Lesson 1 – Learn it. This lesson addresses the key question and first knowledge statement.
 - 1 lesson plan.
 - 1 introduction video.
 - 1 teacher presentation.
 - 1 student workbook.
 - Any associated resources required for the lesson.
- Folder: Lesson 2 – Learn it. This lesson addresses the key question and second knowledge statement.
 - 1 lesson plan.
 - 1 teacher presentation.
 - 1 student workbook.
 - Any associated resources required for the lesson.
- Folder: Lesson 3 – Learn it. This lesson addresses the key question and third knowledge statement.
 - 1 lesson plan.
 - 1 teacher presentation.
 - 1 student workbook.
 - Any associated resources required for the lesson.
- Folder: Lesson 4 – Learn it. This lesson addresses the key question and fourth knowledge statement.
 - 1 lesson plan.
 - 1 teacher presentation.
 - 1 student workbook.
 - Any associated resources required for the lesson.
- Folder: Lesson 5 – Make it. This lesson provides an opportunity for students to evidence their learning.
 - 1 lesson plan.
 - 1 teacher presentation.
 - 1 student workbook.
 - Any associated resources required for the lesson.

- Folder: Lesson 6 – Review it. This lesson provides an opportunity for students to check their understanding of the key vocabulary and knowledge statements plus dedicated improvement and reflection time.
 - 1 lesson plan.
 - 1 teacher presentation.
 - 1 student workbook.
- Folder: Reading. Use these activities to support reading initiatives in your school.
 - 3+ two-page reading passages with 5 questions.

PowerPoint format is used for workbooks as it allows for easy sharing on displays, animations, simultaneous collaboration and pasting without disrupting content on other pages. All PowerPoints have been checked for compatibility with Google Slides.

Differentiation

Differentiation should be provided through “adaptive teaching”. This is defined as, “The opportunity for all pupils to experience success, by adapting lessons, whilst maintaining high expectations for all, so that all pupils have the opportunity to meet expectations”. This also meets the expectations of Deborah Eyre’s [High Performance Learning](#) strategy. Differentiation is provided by instruction and support rather than by task.

Vocabulary

Term	Definition
Airbrushing	Heavily retouched or unrealistically altered images, especially of people.
Anchor	The control square used to select a point on a line or shape.
Aspect ratio	The relationship between an image's width and height.
Bitmap	An image made up of lots of tiny, coloured dots called pixels arranged in a grid. Sometimes called a raster.
Clickbait	A catchy or shocking headline or thumbnail that tries to make people click on something online, often by exaggerating or being misleading.
Cloning	Copying part of an image and painting it somewhere else in the image.
Composition	How all the different parts of an image are arranged together, usually for a high impact.
Fill	The inside colour of a shape.
Handle	The control circle attached to an anchor point that you drag to change the direction of a curve.
Layer	One level of an image where parts of the image can be stacked above or below others.
Path	A line or shape made by connected points.
Photoshopping	When a digital photograph is edited, often by retouching areas of the image.
Pixel	A picture element. A single dot in a bitmap image.
Point	A place on a line or shape that marks a position, usually in a place where the shape changes.
Retouching	Editing or improving an image, such as removing blemishes, adjusting lighting, or enhancing colours.
Scalable vector	When an image can be resized without losing quality. A vector graphic is scalable, photographs are not.
Stroke	The outline or edge of a shape.
Thumbnail	A smaller version of an image or video used as a preview.
Union	Adding shapes together to make a single shape and path.
Vector graphic	An image made from shapes and lines using maths, so it can be resized without losing quality.
Visual identity	The graphical elements such as shapes, fonts, colour schemes and composition that make a brand recognisable.

Lesson overview

Detailed lesson plans for each lesson are provided in the relevant lesson folder.

Lesson	Lesson Type	Phase 1	Phase 2	Phase 3
1	Learn it	Career overview	Use tools to manipulate shapes. E.g. fill, stroke, group, rotation and layers.	Use tools to create shapes. E.g. circle/oval, square/rectangle, triangle/star, line/arc and flip.
		Students consider what a graphic designer does and what skills / knowledge they need.	Students use Provector to combine and colour shapes to make a rocket ship motif.	Students use Provector to draw animal faces for a sticker book.
2	Learn it	Retrieval	Use tools to make new vectors by adding shapes together.	Use tools to change vector shapes with subtraction and moving points.
		Students decode anagrams, identify 3 key words and write definitions of each key term.	Students use Provector to draw a picture of a fish.	Students use Provector to draw a picture of a cookie and cookie jar.
3	Learn it	Retrieval	Use tools to edit bitmap photographs to retouch selected areas.	Use tools to edit bitmap photographs to replace selected areas.
		Students decode anagrams, identify 3 key words and write definitions of each key term.	Students use Pixlr Express to remove crumbs from a table in 3 images.	Students use Pixlr Express to remove text from a chalkboard and add new text. Class discussion about AI transform tools.

4	Learn it	Retrieval	Investigate what gives an image high impact.	Use tools to combine graphic elements.
		Students decode anagrams, identify 3 key words and write definitions of each key term.	Students use a checklist to evaluate the impact of 2 images.	Students use Pixlr Express to create a video thumbnail.
5	Make it	Retrieval	Make a logo.	Make a video thumbnail.
		Students decode anagrams, identify 3 key words and write definitions of each key term.	Students use Provector to draw a picture of a leaf.	Students use Pixlr Express to create and retouch a video thumbnail.
6	Review it	Assess	Self/Peer review.	Reflect and improve.
		Students complete a multiple-choice quiz.	Student's mark each other's answers to the quiz and self-assess or peer-review work from lesson 5.	Students RAG rate themselves against a series of "I can" statements. Students improve their work or undertake extension activities.

Homework

3 activities provided.

Students watch up to a 5-minute video about the hinterland (discovering), real-world application (exploring) or consolidation (revisiting) related to the unit. Students complete a simple sheet, with all the information required to complete it included within the video.

Homework is designed to require no parental support and is independent of any lesson.

Homework	Title
1	The story of digital graphics.
2	Creating a brand identity.
3	Vectors vs bitmaps.

Extension activities in the student extension workbook could also be used for homework with some adaptation. For example, not providing the stimulus images and asking students to sketch a wireframe and annotate it to explain the tools they would need to use to achieve the outcome. This could also include a mood board of chosen colours.

Assessment

Students are graded intern, junior, associate and senior to reflect the careers-oriented approach.

Artefact

It is recommended that the Learn it workbook is used for students to record their development in learning, new knowledge and skills. They may need help with these activities in order to make progress, and therefore it is not the best work for assessment.

Instead, assess the Make it artefact workbook. This should be the best work the student can produce and will allow you to judge their independence.

 Intern	- At least one knowledge statement is achieved. - Use more than one element to create a recognisable image.
 Junior	- At least two knowledge statements are achieved. - Modify vector shapes by combining, subtracting or using their points. - Modify an existing bitmap image to enhance it.
 Associate	- At least three knowledge statements are achieved. - Make a vector logo that combines many modified shapes. - Make a thumbnail for a YouTube video that combines more than one element with text.
 Senior	- All four knowledge statements are achieved. - Consider the purpose of a logo by ensuring it is relevant, simple, timeless and scalable. - Consider the purpose of a video thumbnail by ensuring it is the correct size, is relevant, has impact and attracts the audience to click it. - Select the most appropriate tools in the vector and bitmap applications to make very effective image compositions.

Tick the statements that best apply to the student when making their artefact. Award a best-fit mark of intern, junior, associate or senior.

Multiple-choice quiz

A 24-question multiple-choice quiz assesses the 4 knowledge statements and vocabulary of the unit. Award intern for 0-9 marks, junior for 10-16 marks, associate for 17-21 marks and senior for 22-24 marks.

You may choose to put the quiz into Microsoft Forms or equivalent for automatic marking.

Students should not open their Learn it workbook or Make it artefact workbook when completing the quiz.

Reflection

Lesson 6 provides an opportunity for students to review the work of their peers, identify and carry out improvements to their own work. It may not be necessary for teachers to mark the artefact for every unit for every student. Instead, you could take a moderation approach instead, sampling just a few pieces of work.

It is suggested that peers highlight statements on the assessment grid in yellow and teachers highlight in green to distinguish the two markers.

Grading

Consider both the mark for the artefact and the mark for the quiz to award a best-fit judgement.

National curriculum links

These will be populated when the new National Curriculum is released.

Applications of AI

Extension 9 includes a simple [interactive app](#) to demonstrate how AI image creation works. There are two supporting documents for teachers:

- How AI image creation works.docx
- How to use the stable diffusion simulation (for teachers).docx

Students could use AI image creation applications such as [DaVinci: Best AI Art Generator](#) to explore the capabilities and limitations of AI image creation. This will require free accounts to be set up, which could also be Google, Apple or Microsoft accounts if you use SSO.

Extension 10 explores the question of whether AI generated art is art and the ethical considerations about the use of copyright images in training data.

These two extensions could provide the foundation for a seventh lesson in longer terms.

Software

PowerPoint or equivalent for students to complete the workbook and teachers to show class presentation.

Web browser to provide them with access to the online tools required for completion of this unit.

The following site is used to host our homework videos for this unit:

- <https://www.tella.tv>

Online and unfiltered sites required

Provector for vectors: <https://provector.app>

We have chosen to use Provector because it is online making it very lightweight and has a good range of essential vector tools without it being too complex for younger students.

None of the activities in this unit require the use of the pen tool to draw Bezier curves.

Note, if you export images in SVG the white canvas will also be included. This can be deleted if you import the image into another application, e.g. PowerPoint, ungroup the objects and delete the white background.

Pixlr for bitmaps: <https://pixlr.com/editor>

Stable diffusion simulation: https://app.craigndave.org/stable_diffusion.html

Note, the free version of Pixlr limits students to a maximum of 3 saves per day. We suggest that students only save their work once when they have completed it, or at the end of the lesson.

Extension activities

These can be used as additional activities in 7–8-week terms, for alternative homework, or for additional activities in lessons.

Extension activities are included in a separate workbook for students “Student Extension workbook.pptx”

Extension answers are included in a separate presentation for teachers “Teacher Extension answers.pptx”

Extension 1	Draw images for an animation
Activity	“Playbooks” publish children’s books. They are making a sticker book for pre-school children. Using Provector and “Bird parts.json”, recreate the three images shown by filling, layering and copying the shapes provided.
Extension 2	Draw stickers for a book
Activity	“Playbooks” publish children’s books. They are making a sticker book for pre-school children. Using Provector create the range of animal faces that can be used as stickers for the book. These images are more complex than the activities in lesson 1.
Extension 3	Draw images for merchandising
Activity	“The Cookie Jar” is a new, small independent coffee shop. They are extending their range of cookies to also include gingerbreads and doughnuts. Using Provector create a scalable image of a doughnut and gingerbread that can be used on their merchandising.
Extension 4	Draw images for a leaflet
Activity	“Little green men” is an astronomy club that need a range of graphics for their leaflets. Using Provector and the file, “Little green men.json”: Create the UFO from the shapes provided. Create a scalable image of an alien. Using layering and the fill of the window dome to be semi-transparent, put the aliens inside the UFO.

Extension 5	Draw images for a window display
Activity	“Urban dough” is a pizza restaurant who need graphics for their window display and menu. Using Provector create scalable images of a pizza base and a range of toppings such as chorizo, pineapple, bacon, pepper, olive, mushroom, basil, tomato. Students could also make a range of pizzas using the graphics they create.
Extension 6	Draw images for a window display
Activity	“Busy Beez” is a wildlife conservation group of beekeepers who are setting up a website. Their aim is to protect and promote healthy bee populations. They work to preserve habitats, support biodiversity, and encourage sustainable practices that benefit both pollinators and the wider environment. Using Provector create scalable images of a bee and honey jar.
Extension 7	Draw images for a window display
Activity	“Busy Beez” is a wildlife conservation group of beekeepers who are setting up a website and social media sites. Their aim is to protect and promote healthy bee populations. They work to preserve habitats, support biodiversity, and encourage sustainable practices that benefit both pollinators and the wider environment. Using Pixlr Express create a thumbnail for a video titled, “How bees make honey” using any of the “Busy bees” photographs provided.
Extension 8	Remove blemishes from a photograph
Activity	Using Pixlr Express and the retouch / heal / repair / clone stamp, remove the skin blemishes in the “Cosmetics\Person 1.jpeg” image.
Extension 9	How AI image creation works
Activity	Use the stable diffusion interactive app to understand how AI creates images from a prompt. The model is limited to creating 16x16 pixel art fruit like you might find in simple computer games. Enter “green apple” into the text box and click “Generate”. Watch how the simulation starts with random coloured noise and slowly creates a recognisable image every time you click “Step”. You should see patches of colour and edges start to form after a few steps.

Extension 10	The AI art debate
Activity	Prompt a large language model to help you research the opinion that, “AI generated art is art”. Find arguments both for and against this statement.

Reading

This unit includes a folder titled, “Reading”. The files in this folder contain passages of text about scenarios related to the topic and each include five questions. These resources can be used in many ways. For example:

- Guided reading and oracy activities in terms of more than six weeks.
- Cover work.
- Work for students disappplied from the lesson.
- Alternative homework.

Guided reading is where the teacher reads the text to the students who follow along with a ruler on the line being read. To support literacy, it is important that students are both supported and challenged with text that is accessible and in places more demanding. The text has been checked that it meets these criteria and is suitable for a reading age of 11–14.

The associated questions go beyond simple comprehension using a framework that provides progression from basic understanding to deeper analytical thinking. Either moving students through increasingly demanding reading skills—retrieval, vocabulary, connection, inference and evaluation or encouraging students to identify and critique the structure of an argument or explanation.