

Unit 2.3: We are photographers

Taking, selecting and editing digital images



Software: Camera and Photos apps, Snapseed (alternatives: Pixlr, Windows Photos)

Hardware: iPads (alternatives: Android tablets, laptop/desktop/Chromebook computers and digital cameras)

Overview

In this unit, pupils take, review and edit digital photos. In:

- **Session 1** they browse some online collections of photographs to help them understand what makes a good photo
- **Session 2** they learn how to use a digital camera, and start to experiment with these
- **Session 3** they practise taking effective photos
- **Session 4** they review the photos they have taken, selecting their best for further work
- **Session 5** they edit and enhance their photographs
- **Session 6** they use selective editing tools.

Alternatives

The unit sessions give step-by-step guidance on carrying out this unit using iPads, the Camera app, the Photos app and Snapseed. However, this unit could also be carried out using traditional digital cameras, Windows Photos for image management, and basic **adjustments** and an online photo editor such as Pixlr for more sophisticated adjustments. Guidance on how to use Snapseed as an alternative to the Photos app for Session 5 is given in the online resources.

Knowledge, skills and concepts

In this unit, pupils will learn to:

- consider the technical and artistic merits of photographs
- use the iPad camera app
- take digital photographs
- review, reject or pick the images they take
- edit and enhance their photographs.

Progression

In Key Stage 1:

- In **Unit 2.5: We are animators** pupils learn how

to make simple animations by showing a fast-moving sequence of still images.

- In **Unit 2.6: We are zoologists**, pupils use digital cameras to take photographs of insects and other invertebrates to gather evidence for a research project.

In Key Stage 2:

- In **Unit 6.6: We are AI developers**, pupils learn more about the technologies that underpin facial and image recognition, making use of this technology in their own projects.

Assessment – by the end of the unit:

All pupils can:

- take photos using a digital camera or device
- review, reject and pick photos
- apply global **adjustments** and effects to photos
- let you know if they find images they are concerned about.

Most pupils can:

- review the technical merits of others' photos
- take focused, sharp photos
- **crop** and straighten digital photos
- apply selective adjustments to part of an image.

Some pupils can:

- review the artistic merits of others' photos
- apply compositional guidelines such as the '**rule of thirds**' to images
- take effective and artistic photos
- use image editing software to create artistic, effective images
- explain how they produced their final images.

Background information

- Digital cameras are commonplace, with many teachers using them to record day-to-day life in class and evidence of pupils' work. Many pupils will have used cameras on smartphones or tablets, and will appear in many photos taken by family members.
- Photography is an art and the near ubiquitous nature of digital photography has (some might argue) been at the expense of the careful, thoughtful composition of a beautiful image. This unit provides some opportunity to address this balance, with pupils browsing online image galleries to find stunning pictures and thinking carefully about guidelines for their own photographic compositions.
- Pupils consider ideas such as the '**rule of thirds**', of pattern and symmetry and of the use of colour, as well as important technical skills such as framing their image, the need for focus and the importance of lighting.
- Digital photographs are made up of many, many small dots (**pixels**), each of which can take one of 16 million or so different colours. The colour information is recorded by the camera **sensor**, and subsequently stored on the device as a set of three values in the range 0–255 for red, green and blue. Editing a digital photograph involves performing mathematical operations on the large array (table) of these numeric values – the speed of modern digital technology allows these operations to be performed almost instantly.
- The iPad Camera and Photos apps store images on a '**camera roll**' directory on the iPad. Depending on how this has been configured, photos stored there are typically uploaded to remote **iCloud** storage via the Internet. Machine learning algorithms will process photos to recognise and group together faces and to identify other components shown in the photos that have been taken.

Key vocabulary

Adjustment: operation performed on the colour values of all or some pixels in an image, for example increasing or decreasing brightness, contrast or colour saturation

Camera roll: dedicated directory on iPads in which all images are stored; can be shared across multiple devices depending on how these have been configured

Colour value: the combination of red, green and blue values, each on a 0–255 scale, which represents the colour of any given pixel

Crop: to reduce the size of an image to a smaller, rectangular region, e.g. to remove large areas of uninteresting background

Filter: standard set of adjustments applied to all the pixels in an image, e.g. 'dramatic' or 'silvertone'

iCloud: Apple's cloud-based (i.e. Internet connected) storage solution: typically only the most recent photographs will be stored in full resolution on the iPad itself, with others archived to the cloud, from where they can be downloaded if and when needed

JPEG: common, 'lossy' format for image compression, in which the data for some inconspicuous detail in an image is discarded to allow more images to be stored in available memory

Pixel: picture element – one of the small, square dots that makes up a digital image

Rule of thirds: compositional guideline that suggests the horizon should be one-third or two-thirds of the way up a photograph, with the subject matter placed one-third or two-thirds of the way across

Sensor: means of getting data from the real world into a computer

Differentiation

See each session (pages 33–38) for ways to increase support and add challenge to this unit.

Cross-curricular opportunities

Art and design: Compositional principles and understanding of light and colour can be applied to art and design.

Science: How reflected light is focused by the camera lens and how red, green and blue light is split and combined to represent the image. Nature would be an excellent theme for photos.

Maths: Pattern, symmetry and position in taking and editing photographs. Geometrical shapes could be an interesting theme to explore here.

Geography: The local area would be an excellent theme for pupils' photos.

Other: Other subjects could similarly suggest a theme for photographs taken by pupils in this unit.

Preparation for teaching the unit



Things to do

- Check you have access to enough iPads (or see *Alternatives* on page 30) with Snapseed installed.
- Make sure the iPad camera is saving photos in compatibility mode, for Snapseed editing.
- Read pages 30–31 to get an overview of the unit.
- Choose a theme for the unit.
- Read the steps in the unit sessions (pages 33–38) and look at the associated online resources, printing out the worksheets as required.
- Work through the unit yourself so you know what is expected of the pupils.
- Make sure you know and follow the school's policies about taking and storing photographs.



Resources needed

- **Software:** Camera app, Photos app, Snapseed
- **Hardware:** iPads
- See *Alternatives* on page 30



Online resources provided

Session resources

- Worksheet 2.3a: Prompt sheet of criteria for what makes a good photo
- Worksheet 2.3b: End-of-unit quiz
- Worksheet 2.3c: Pupil self-assessment
- Teaching slides: 2.3a–2.3g
- Walkthrough videos: 2.3a–2.3g
- Interactive end-of-unit quiz 2.3

Additional resources

- CPD video: How a digital camera works
- Step-by-step guide to using Snapseed as an alternative in Session 5



Online safety

- Ensure Internet filters are in place and that Safe search is turned on, set to strict filtering and locked in place (check your school policy).
- If pupils encounter inappropriate material, ensure they know what to do (turn the screen off/turn the tablet over and tell an adult).
- Check through the sites you suggest using keywords related to your theme, to make sure that nothing inappropriate is likely to be seen.
- Most schools require parental consent to take photos of pupils and only allow them to be stored on school devices. Pupils should be aware

of the school's rules, the importance of asking permission to take photos and respecting individuals who do not want their photos taken or where parental consent has not been given.

- Talk to pupils about where the photos are stored – this may include Apple's **iCloud** Internet-connected storage, as well as school servers and the devices themselves. What do they think about this?



Collaboration

Pupils might do these activities with a partner or in a small group. Pupils should discuss the photos they have taken, getting and giving feedback.



Useful links

Software and tools

- Snapseed: available in the App Store
- Pixlr: www.pixlr.com

Online tutorials

- Camera app:
www.support.apple.com/en-gb/HT207260
and: www.support.apple.com/en-gb/HT205659
- Photos app:
www.support.apple.com/en-gb/explore/taking-managing-photos
- iCloud photo storage:
www.support.apple.com/en-gb/HT204264
- Snapseed support:
www.support.google.com/snapseed#topic=6155507

Information and ideas

- iPad photography: www.ipadforphotographers.com
- Thirteen lessons to teach your pupils about digital photography: www.digital-photography-school.com/13-lessons-to-teach-your-child-about-digital-photography
- How a digital camera works:
www.youtube.com/watch?v=Ey6S3rKH_o4

Image galleries

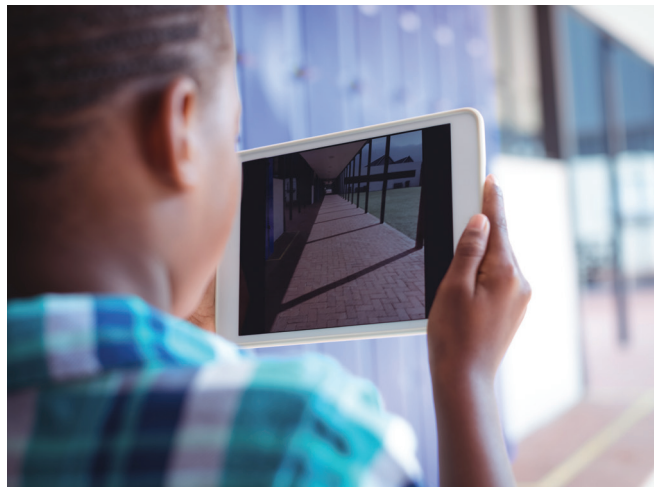
- Flickr: www.flickr.com
- Openclipart: www.openclipart.org
- Wikimedia Commons:
commons.wikimedia.org/wiki
- Pixabay: www.pixabay.com/en
- NEN Gallery: www.gallery.nen.gov.uk
- Swiggle: www.swiggle.org.uk

Unit outcomes

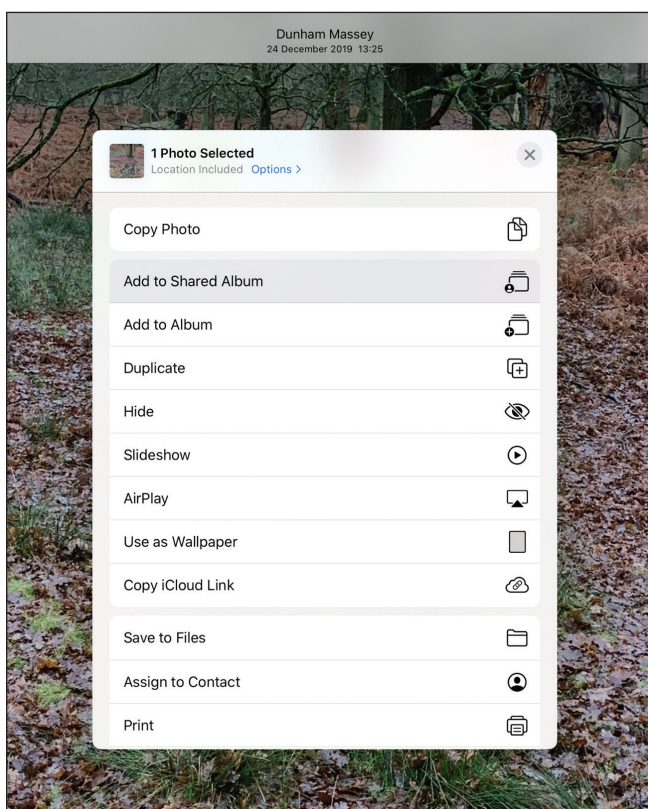
Below are some examples of the outcomes you could expect from this unit.



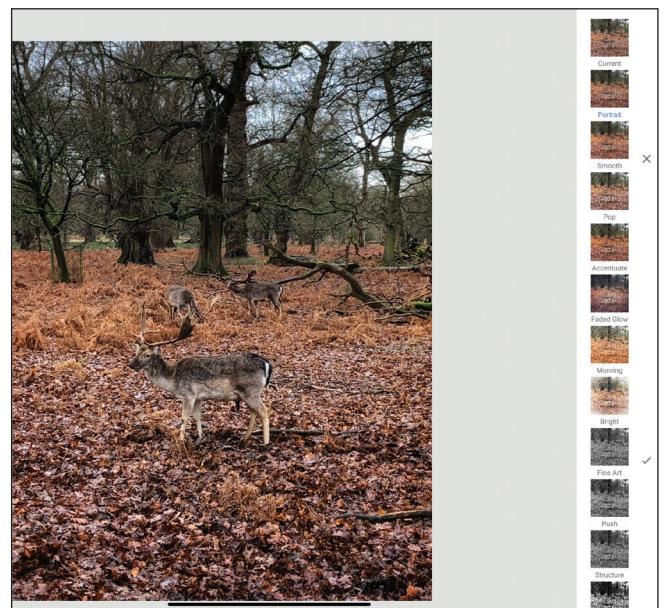
Session 1: Researching photos related to the theme



Sessions 2 and 3: Taking images with an iPad



Session 4: Adding photos to a shared album



Sessions 5 and 6: Editing an image