Unit 2.5: We are animators
Creating a stop-motion animation

Software: Stop Motion Studio (alternatives: iStopMotion, Zu3D, Stop Motion Animator)
Hardware: iPads (alternatives: Android tablets, laptop/desktop/Chromebook computers and digital cameras)

Overview

In this unit, pupils work in small groups to plan, film and add audio to a short 'stop-motion' animation. In:

- **Session 1** pupils plan their animations
- **Session 2** pupils create original media to use in their animations
- **Session 3** pupils start filming their animations
- **Session 4** pupils continue to film their animations
- **Session 5** pupils add audio to their animations
- **Session 6** pupils watch one another's animations and provide feedback.

Alternatives

Sessions 3–6 give step-by-step guidance using Stop Motion Studio on iPads. An alternative app is iStopMotion. If working with digital cameras and laptops/desktops, Zu3D can be used. If using Chromebooks, Stop Motion Animator could be used.

Knowledge, skills and concepts

In this unit, pupils will learn:

- how **animation** works
- to use storyboards to plan an animation
- to create their own original **characters, props** and **backgrounds** for an animation
- to film, review and edit a **stop-motion** animation
- to record audio to accompany their animation
- to provide constructively critical feedback to their peers.

Progression
In Key Stage 1:

- In **Unit 1.2: We are TV chefs** pupils planned videos and used storyboards.
- In **Unit 2.3: We are photographers** pupils took photos using iPads and digital cameras.

In Key Stage 2:

- In **Unit 3.1: We are programmers** pupils return to animation to create a scripted animation in Scratch.
- In **Unit 3.3: We are presenters** pupils develop their video editing skills through learning green screen video techniques.

Assessment – by the end of the unit:

All pupils can:
- contribute ideas to a group **storyboard**
- help make **characters, props** or **backgrounds**
- use the iPad/digital camera to capture **frames** for the **animation**
- move characters or props between frames
- contribute to the **soundtrack**
- say what they liked about an animation.

Most pupils can:
- create a group storyboard
- create characters, props or backgrounds
- understand the need to keep the camera and **stage** fixed

- make small movements for characters and props between frames
- perform as a character in the soundtrack
- give constructively critical feedback on an animation.

Some pupils can:
- create a **flipbook animation**
- design characters, props or backgrounds
- explain how a series of frames makes an animation
- use **onion-skinning** when shooting frames
- edit the soundtrack and ensure it matches the frames of the animation
- use agreed criteria to evaluate an animation.

Background information

- Pupils need to plan and create a **storyboard** before they start making the **animation**. This corresponds to the idea of an algorithm as a sequence of steps in their programming work.
- Making an animation is a complex problem: tackling it involves decomposing the problem into smaller, more manageable tasks, such as storyboarding the plot, creating **characters** and **backgrounds**, shooting the individual **frames**, adding audio and editing.
- Animations are typically of two types: **stop-motion** and scripted. In stop-motion animation, a camera takes photographs of 2-D or 3-D scenes, with the photos replayed very quickly (typically 25 frames per second for cinema or broadcast quality) to create the illusion of movement. 2-D stop-motion animation was pioneered by Walt Disney's studio. Some of the best 3-D work is produced by Aardman Animations. Scripted animation involves programming characters in 2-D or 3-D to perform actions: Disney Pixar adopts this approach.
- Digital animation involves assigning colour values to each pixel in each frame of the animation, together with sound levels for each sample of the accompanying sound track.

Key vocabulary

Animation: motion picture made by creating each frame separately, then playing these back in quick succession to create the illusion of movement

Background: scenery and other unchanging elements in an animation

Character: person (or anthropomorphic animal) taking a role in an animation

Flipbook animation: an animation technique where a stick figure (or similar) is drawn in a sequence of poses on the corner of sheets in a pad of paper, which can then be flipped through to create the illusion of movement

Frame: a single photograph of the background, characters and props

Media assets: graphics, videos, audio, animations, etc. that go into media

Onion-skinning: animation tool in which the previous frame is overlaid on the current camera image to facilitate small adjustments from one frame to the next

Prop: inanimate object needed in an animation

Soundtrack: audio to accompany a film, including dialogue, sound effects and sometimes backing music

Stage: the physical area photographed for each frame in the animation, on which background, characters and props are positioned

Stop-motion: approach to animation in which each frame is photographed individually, with these frames then played back in quick succession

Storyboard: planning tool in which each scene of an animation is drawn out

Differentiation

Ensure that all groups have a good range of familiarity with technology and confidence in them so that more confident pupils can help their less confident peers. See each session (pages 53–58) for ways to increase support and add challenge to this unit.

Within the groups, pupils can take on different roles, with some pupils contributing more to the planning of the **animation** and scripting of dialogue; others looking after technical aspects such as shooting individual **frames**, and recording and editing the audio; and others creating or moving the individual **characters** or **props**.

Cross-curricular opportunities

Most subjects in the Year 2 curriculum can provide a context and theme for pupils' **animations**.

Art and design: Pupils can create their own 2-D or 3-D **characters, props** and **backgrounds**.

English: Pupils could base their animations on fiction they have been reading, and draw on ideas of plot, character and dialogue from English lessons.

Maths: Some calculations need to be done to work out how many **frames** per second are needed to match the dialogue recorded. Pupils might also think about the relative position and angle of camera and **stage** and of the scale used for any models or artwork.

Preparation for teaching the unit

⬆ Things to do

- Choose a topic for pupils to work on for their **animations**, ideally linked to something else they are studying. For the step-by-step activities, we have chosen to base the animation on *The Tin Forest* by Helen Ward and Wayne Anderson.
- Decide whether pupils will work in 2-D or 3-D and organise the materials needed. 2-D typically involves cut-out drawings, 3-D could use modelling clay or Lego.
- Check you have access to Stop Motion Studio on the iPad (see *Alternatives* on page 50). The app is free, but additional features may be bought – these are not required for the unit.
- Read pages 50–51 to get an overview of the unit.
- Read the steps in the unit sessions (pages 53–58) 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.
- If pupils are going to share or save their work online, make sure they have accounts set up, that necessary permissions have been obtained and that these are integrated with the iPads.

❓ Resources needed

- **Software:** Stop Motion Studio
- **Hardware:** iPads
- See *Alternatives* on page 50
- Drawing/painting materials and, if working in 3-D, modelling materials, Lego blocks or similar
- If working in 2-D, butterfly clips can be useful for animating the parts of a figure
- Tripods or brackets to keep iPads stable (other solutions can be improvised)
- Notebooks for creating a **flipbook animation**

🖱 Online resources provided

Session resources

- Worksheet 2.5a: Storyboard template
- Worksheet 2.5b: End-of-unit quiz
- Worksheet 2.5c: Pupil self-assessment
- Teaching slides: 2.5a–2.5f
- Walkthrough videos: V2.5a–2.5c
- Interactive end-of-unit quiz 2.5

↖ Online safety

- Pupils do not need to access the Internet, but they could source **character** designs or view animations. If they do, ensure necessary filters and monitors are in place and remind pupils what to do if they encounter content that is inappropriate or makes them feel uncomfortable (turn the screen off/turn the tablet over and tell an dult).
- If pupils upload their work to share with a wider audience, do so in accordance with your school's policy, typically ensuring that pupils are not shown or identified in the videos. Ensure no copyrighted content is included.
- If pupils use third-party content in their animations, this should be acknowledged.

🤝 Collaboration

The unit makes extensive use of collaborative group work. Remind pupils of their responsibility to help all members of their group learn how to make an animation. You could establish ground rules for working together, discussing ideas at the start of the unit.

www Useful links

Software and tools

- Stop Motion Studio: **www.cateater.com**
- Zu3D: **www.zu3d.com**
- Stop Motion Animator on the Chrome Web Store

Information and ideas

- Andymation has a YouTube channel with several flipbooks: **www.youtube.com/channel/UCJbg_yirB5vm9VKn5yLGCKw**
- Tinkerlab: **www.tinkerlab.com/easy-stop-motion-animation-kids**
- Modern Met: **www.mymodernmet.com/stop-motion-animation**
- Aardman Animations: **www.aardman.com/work**
- *The Tin Forest* animation: **www.youtube.com/watch?v=AP5PNOlU4ns**
- Pivot animator: **www.pivotanimator.net**
- *Farmageddon* trailer: **www.youtube.com/watch?v=-DH8TShEgdA**
- Walt Disney's MultiPlane: **www.youtube.com/watch?v=YdHTlUGN1zw**
- Credits for *Farmageddon*: **www.imdb.com/title/tt6193408/fullcredits/?ref_=tt_ov_st_sm**

Unit outcomes

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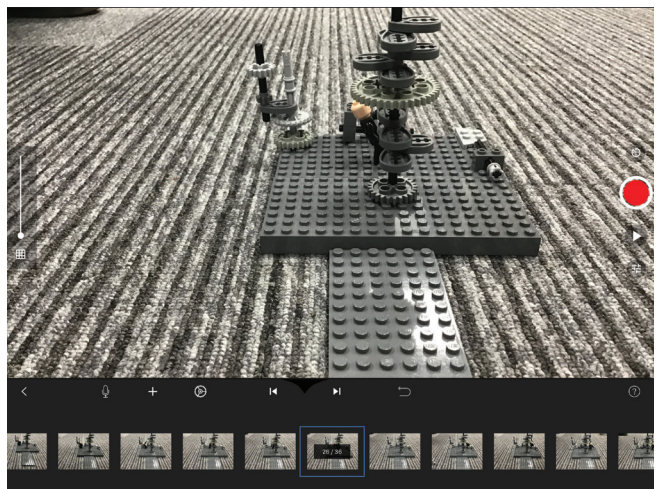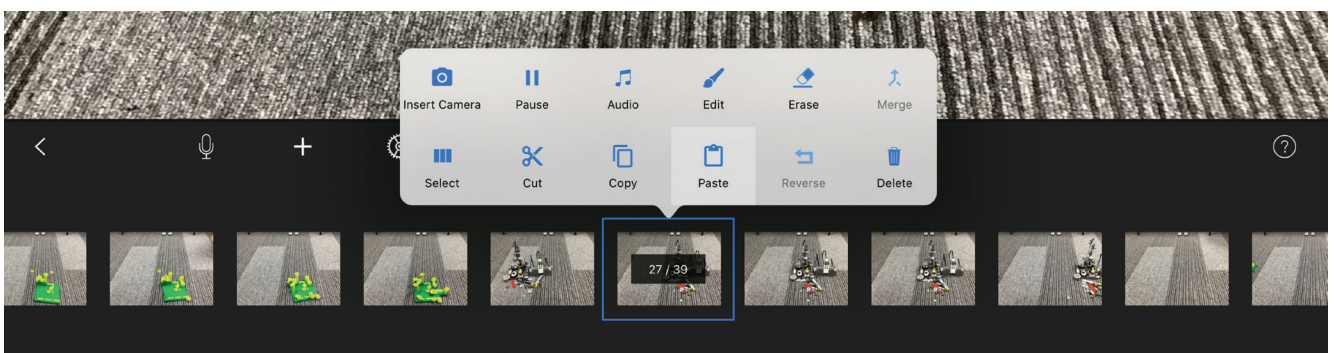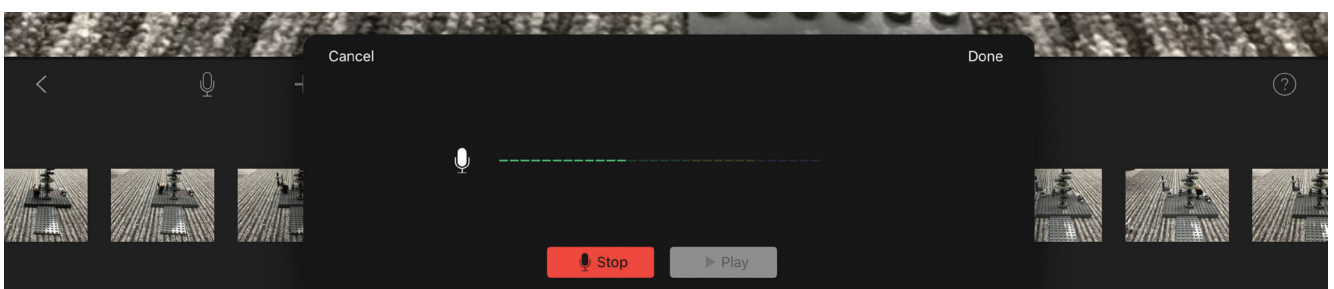

Session 1: Exploring how flipbooks work

Session 2: Creating props for the animation

Session 2: Creating props for the animation

Sessions 3 and 4: Filming the stop-motion animation

Session 5: Recording the audio and editing the frames to make sure the timings work