

Pendulum Swing

60 minutes

Introduction to Animation

WHAT THIS LESSON DOES

In this lesson, you'll create a pendulum animation using Wick Editor. Follow step-by-step instructions to draw and animate a swinging pendulum, learning to use frames, onion skinning, and timing for a smooth, realistic motion.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand the principles of creating smooth animations using timing and arcs.
- Develop skills in using animation tools like frames and onion skinning for fluid motion.
- Master the process of drawing and animating a pendulum's swinging motion.
- Apply techniques to replicate symmetrical movements efficiently.
- Evaluate and refine animations to achieve natural and rhythmic effects.

BEFORE THE LESSON

- Open <https://www.wickeditor.com/> on the board and click Launch Web Editor to confirm the site loads and is not blocked by the school filter.
- Devices for one pupil each, or paired if numbers are tight, since this is hands-on drawing throughout.
- Know where exported GIFs land on your devices (usually the Downloads folder) so pupils can find their finished file at the end.

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HOW THE LESSON RUNS

Introduction
Create a New Project
Drawing Your First Frame
Using Onion Skinning
Using Layers to Add a Path
Adding your Frames
Coping Frames to Reverse
Repeating to the Right
Previewing Your Animation
Save and Exporting

TEACHING MOVES

- 1. Introduction. Act out a pendulum with your arm: slow at each end, fast through the middle. Ask pupils to watch a clock or your hand so they picture the arc before drawing.
- 2. Create a New Project. Have everyone launch the web editor and start a fresh project at the same time. Leave frame rate on the default so no one gets stuck in settings.
- 3. Drawing Your First Frame. Check everyone is on frame one before they draw. Remind them to hold Shift for a round bob and keep the line to the top centre so there is room to swing.
- 4. Using Onion Skinning. Point out the layered-frames icon at the bottom right. Explain the faint ghost outlines are earlier and later frames, used only as a placing guide, not part of the drawing.
- 5. Using Layers to Add a Path. Model adding the Guide layer, drawing the light grey arc, then locking it. Stress that this circle is scaffolding only and gets deleted before export.
- 6. Adding your Frames. Show copy and paste of the bob onto each new frame, nudging it along the arc each time. Aim for four to six frames to the furthest left point.
- 7. Coping Frames to Reverse. Demonstrate copying frames backwards to build the return swing, so pupils do not redraw the whole arc. Emphasise this keeps both sides symmetrical.
- 8. Repeating to the Right. Have pupils repeat the build and reverse to the right, matching the number of frames they used on the left so the swing stays even.
- 9. Previewing Your Animation. Remind pupils to delete the guide layer and turn off onion skinning first, then press play. If the swing jerks, add or remove frames rather than redrawing.
- 10. Save and Exporting. Walk through Export, renaming with the lesson and pupil name, then Export GIF. Warn that the file takes a moment to download before it appears.

WHAT TO WATCH FOR

- Pupils treat the grey guide arc and the onion-skin outlines as part of the finished animation and leave them showing. Before previewing, have them delete the Guide layer and toggle onion skinning off, then confirm only the pendulum remains on screen.
- Pupils move the bob equal distances between every frame, so the swing looks mechanical instead of slowing at the ends. Point back to the real pendulum: small nudges near the far edges, bigger steps through the middle. Ask them to adjust two or three frames and preview again.
- Pupils redraw the pendulum on every frame instead of copying and reversing, running out of time and creating uneven sides. Show the copy and paste of an existing frame once more and have them reverse the frames they already have for the return swing.

DIFFERENTIATION

- Emerging: Pre-set one project on the board and pause after each step so slower starters stay with the group. Reduce the target to three frames per side so they still complete a full loop without redrawing everything.
- Developing: Ask them to talk you through why the bob moves less at the ends before they add the next frame. Have them use onion skinning to self-check spacing rather than asking whether each frame looks right.
- Proficient: Challenge them to add more in-between frames so the swing looks smoother, then compare the preview with a lower frame count. Ask them to add a second swinging object, such as a clock hand, timed to the pendulum.