Animation: Stick Figure Animation

Aim:	Success Criteria:	Resources:
Use a variety of software to design and create content that accomplish given goals in the context of a computer animation of a stick figure. I can create a short computer animation using one or more moving stick figures.	I can create a series of linked frames. I can make slight changes to an image, using onion skinning. I can edit and refine still images to improve my animation. I can add a second figure and animate them interacting with each other.	**Lesson Pack** Computers/laptops with **Pivot Animator Software** installed
	Key/New Words: Frame, onion skinning, loop, frame rate.	**Preparation:** **Beginner's Guide to Pivot Animator Activity Sheet** - as required **Advanced Guide to Pivot Animator Activity Sheet** - as required

Prior Learning: Children will have found out about the history of animation, particularly the history of flip books in lesson 1.

Learning Sequence

Using a Computer? Compare the flip book idea from previous lesson. How was it made? How can a computer make it easier?

Using Pivot Animator: Pivot Animator is an example of computer software that allows you to create your own short animations, based on a stick figure. You don't have to redraw the figure every time and you can see how much you are moving or changing the position. You can change and edit individual frames as much as you like before playing the final sequence. Open software and demonstrate moving the figure and adding frames. A pre-made animation can be opened from the File menu to show a complete working example.

Onion Skinning: Professional animators refer to the term onion skinning. Has anyone ever peeled an onion? Under the top outer layer, is another layer, then another. In animation, the term describes seeing the top frame you are working on, with one or more previous frames shown underneath. This allows the animator to decide how much of a change to make based on the previous image in the sequence.

Your First Animation: Children open the Pivot Animator software and use activity sheets to create their own stick figure animation. Can children create a stick figure animation using the software?

★ Children create an animation including at least 6 frames, using the **Beginner's Guide to Pivot Animator Activity Sheet** to help.

★★ Children create an animation including at least 9 frames, using the **Advanced Guide to Pivot Animator Activity Sheet** to help.

★★★ Children create an animation including at least 12 frames using the **Advanced Guide to Pivot Animator Activity Sheet** to help. Children then create a new animation featuring two stick figures interacting.

Advanced Features: After a short time to experiment and begin animations, some children may benefit from extra input to demonstrate further possible features of the software. Show children how to use the following: click on Edit and Options to change the number of onion skin layers; click File and Load Figure Type to add another different figure; click on the Edit button to change the appearance of the current stick figure.

Trading Tips: Before the end of the session, ask children to think of good tips they have picked up from using the software, which could be passed on to others. Afterwards, share tips either in pairs, groups or with the whole class.

Task*it*

Animate*it*: Create a new animation to make your stick figure appear to be running, dancing, doing star jumps, or break-dancing!

Scene*it*: Draw an image using Paint which can be a background scene for your stick figure, e.g. featuring grass and sky. Save it then add it to Pivot Animator to enhance your animation.

Advanced Guide to Using Pivot Animator

To begin using the software, position the stick figure in a starting position. This could be left as it is, or edited by dragging any of the red pivot points.

When a desired starting position has been chosen, click Add Frame. This will create a thumbnail of the first frame in the animation sequence at the top of the screen.

The stick figure can then be moved slightly. As this is being done, a shadow layer of the previous frame remains visible in order to see how much of a change is being made. This process is known as onion skinning. When the desired changes have been made, click Add Frame to add a second frame. Continue to repeat the process, making slight changes each time.

When the number of desired frames are complete, save the file.

1. Play the current frames.
2. Stop the animation.
3. Check or uncheck to loop or repeat.
4. Add another figure to the animation.
5. Delete selected figure.
6. Centre the figure.
7. Raise (bring forward one layer).
8. Change colour.
9. Join figures together.
10. Resize the figure.
11. Add a new frame.
12. Slide the scroll bar to change the speed (frame rate).
13. Select a background (must be pre-loaded first).
14. Edit the figure (add new joints or limbs).
15. Flip the figure.
16. Lower (send back one layer).
17. Duplicate the figure (make a copy).
18. Change the opacity. Make more transparent.
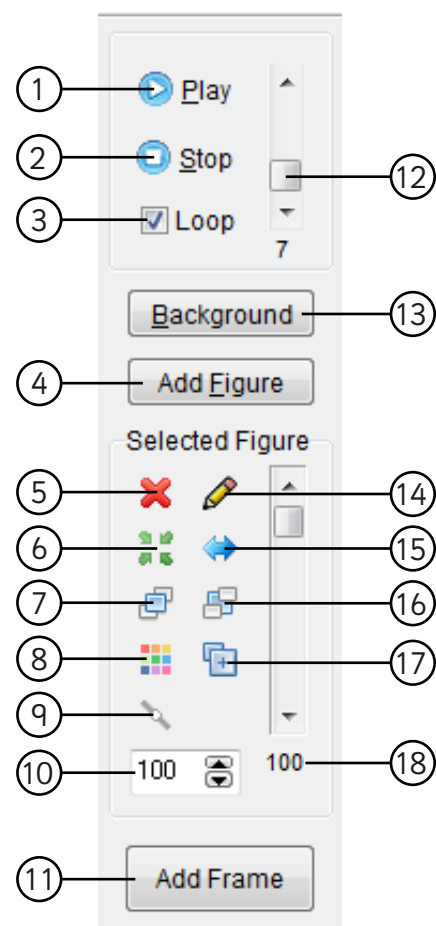
Advanced Features

Speed: to change the speed of the animation, use the small scroll bar next to the Play/Stop/Loop options. This is the frame rate and refers to the number of frames shown per second.

Background: Before you can use a background, you need to load it using the File menu and selecting Load Background. Any standard image can be used or created. You can then select the Background button and choose the background you have loaded. This must be done at the start of the animation to take effect in any subsequent frames that are created.

Beginner's Guide to Using Pivot Animator

Can you make the stick figure move?

Decide whether your animated stick figure is going to run, jump or even perform some gymnastics!

Step 1: Use the handles on the stick figure to move it into your choice of starting position (or just leave it where it is to start) then click the Add Frame button. This is the first frame of your animation.

Step 2: Use the handles again to move the figure slightly. You will see a grey version of its previous position in the background, so you can see how much you've changed (onion skinning). If you can't see the onion skinning when moving the stick figure, go to Edit and select Options, then increase the setting for the number of Onion Skins.
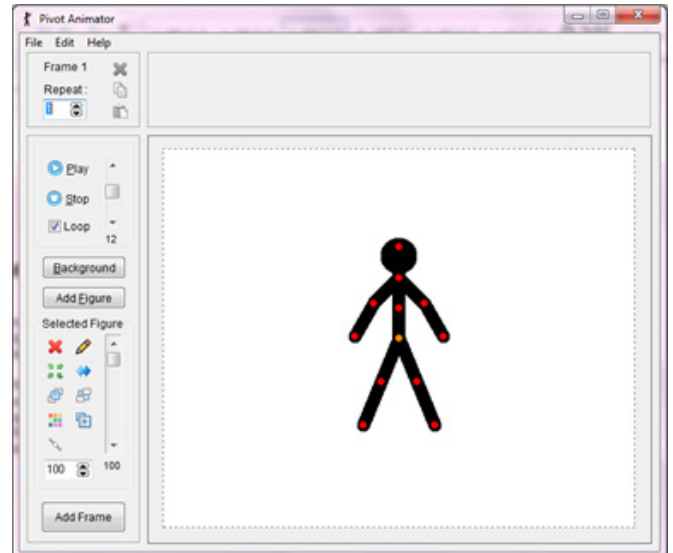
Step 3: Keep making slight changes to make your stick figure appear to move and each time, adding a new frame.

Step 4: When all frames are complete, click on Play to test the animation. This will play all frames in sequence. Click on the File menu and save the animation with a suitable filename.

Step 5: Adjust the speed scroll bar to change how fast the frames are played.

More Options:

- To keep the animation playing on repeat, tick the Loop checkbox, or untick to play just once through.
- Click Add Figure to add another identical stick figure.
- Change the colour of your stick-figure(s) with this button.
- Use your new expertise to start a new animation – what else can you make the stick figure(s) do?
- Use Paint to create a background picture. Save it and then select File and Load Background.

**Congratulations – you are now an animator!**

Animation: Lesson 2

Introduction to Pivot Animator

Pivot Animator is a free software package that can be used for creating short animation sequence of a stick figure. It is a great introduction to animation and follows on well from children being given the opportunity to draw a stick-figure flip book (see lesson 1).

As there are many different ways to achieve computer animation solutions, this unit takes the approach of using 3 different software packages (all freely available) which give a variety of insights and techniques. This lesson can be delivered as a one-off lesson or extended to make further use of the particular software. In the context of the unit, this lesson is a single lesson which introduces and covers a summary of the Pivot Animator software. However, the activities can easily be extended to cover 2 lessons if children are encouraged to experiment and create more advanced animations after becoming familiar with the software.

This software should be downloaded and installed in advance of being used.
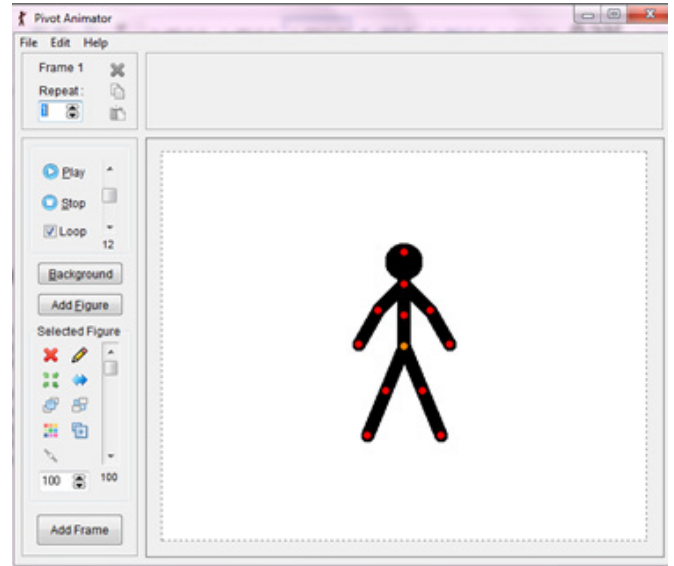
Getting Started With Pivot Animator

To begin using the software, position the stick figure in a starting position. This could be left as it is, or edited by dragging any of the red pivot points.

When a desired starting position has been chosen, click 'Add Frame'. This will create a thumbnail of the first frame in the animation sequence at the top of the screen.

The stick figure can then be moved slightly. As this is being done, a 'shadow' layer of the previous frame remains visible in order to see how much of a change is being made. This process is known as 'onion skinning'. Once again, when the desired changes have been made, click 'Add Frame' to add a second frame then continue to repeat the process, making slight changes each time.

When the number of desired frames are complete, save the file.

To view the animation, click Play. This can be set to Loop by ticking the checkbox or play once through by unticking.

Advanced Features

For more advanced features and a guide to the toolbar, see the

Animation: Lesson 2

Add Figure

By clicking the Add Figure button, a new figure will be added that looks the same as the first, in the same place. If at first, it appears that nothing has happened, it may be that the new figure is exactly over the top of the first figure and just needs to be dragged to a new position to make both visible.

Additional Figure Types

By clicking on the File menu and selecting Load Figure Type, a new figure can be added from a range of pre-existing designs (including a cowboy, a horse and an elephant).
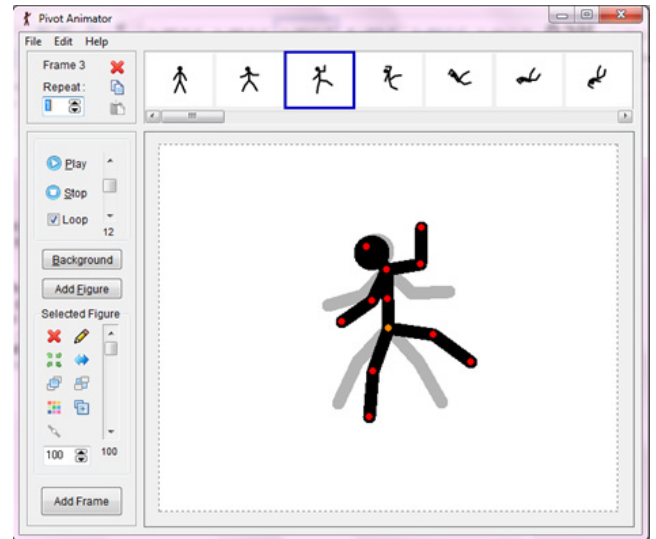
Background

Any image can be loaded as a background, or an image created in paint software. This should be done first and saved as a file, then selected from the saved file location by clicking on File and Load Background.

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