

Animation

Challenge Cards



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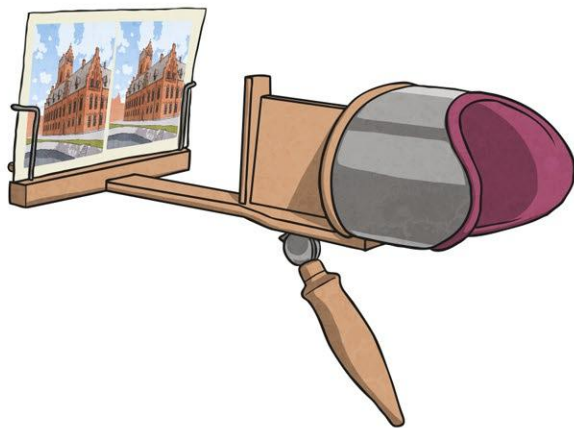
Can you create your own design for a new cartoon flip book?



Can you write a set of instructions on how to make a thaumatrope?



Can you remember what a stereoscope is?
Could you draw or describe how it works?



Can you remember what a zoetrope is?
Could you draw or describe how it works?

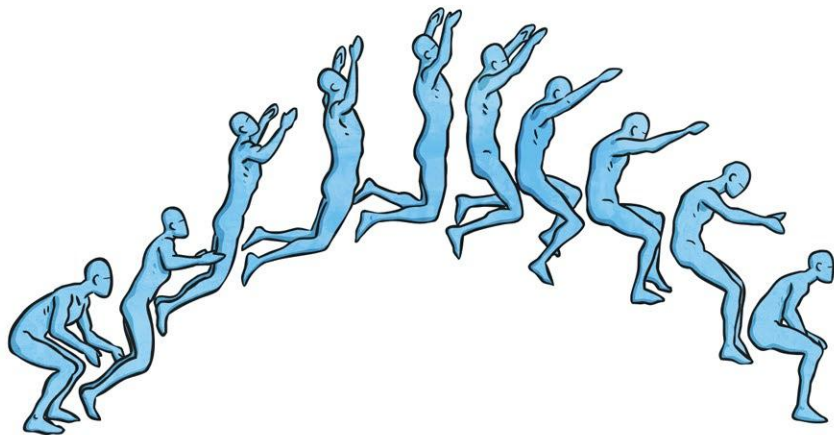


Write a beginner's guide to the software you have been using.

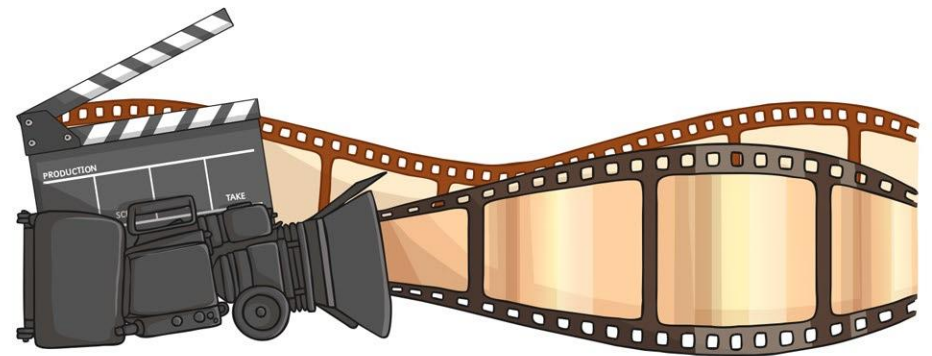


Use Pivot Animator to make an animated stick figure that spells the letters of your name.

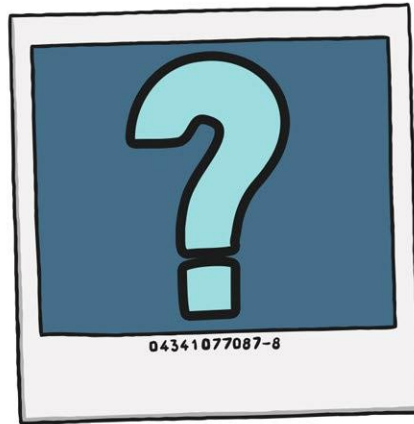
Find out about a famous animator such as Walt Disney, Hanna and Barbera or Nick Park.



Research Pixar and see how many animated Pixar films you can find and recognise.



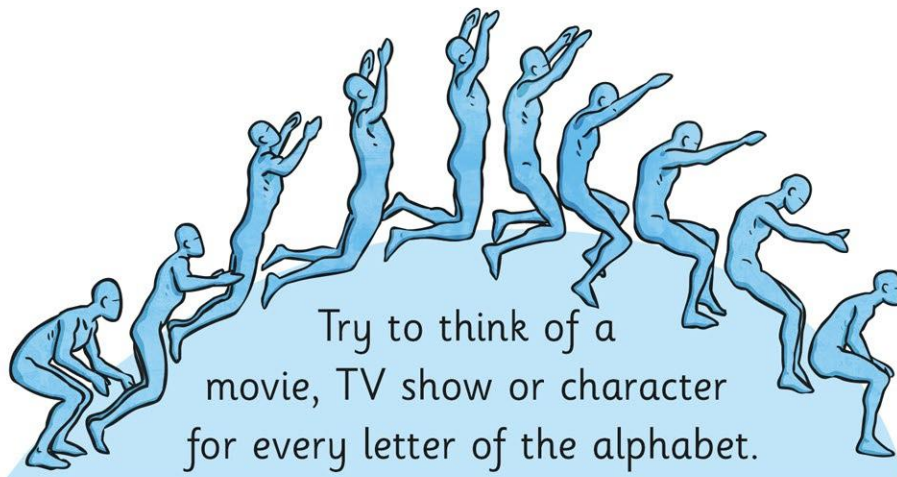
Use your knowledge to create a quiz based on either animation or animated movies. Write 10 questions and answers.



Use MovieSoup to animate a scene where one sea creature is chased by another.



Write an A-Z of animation.





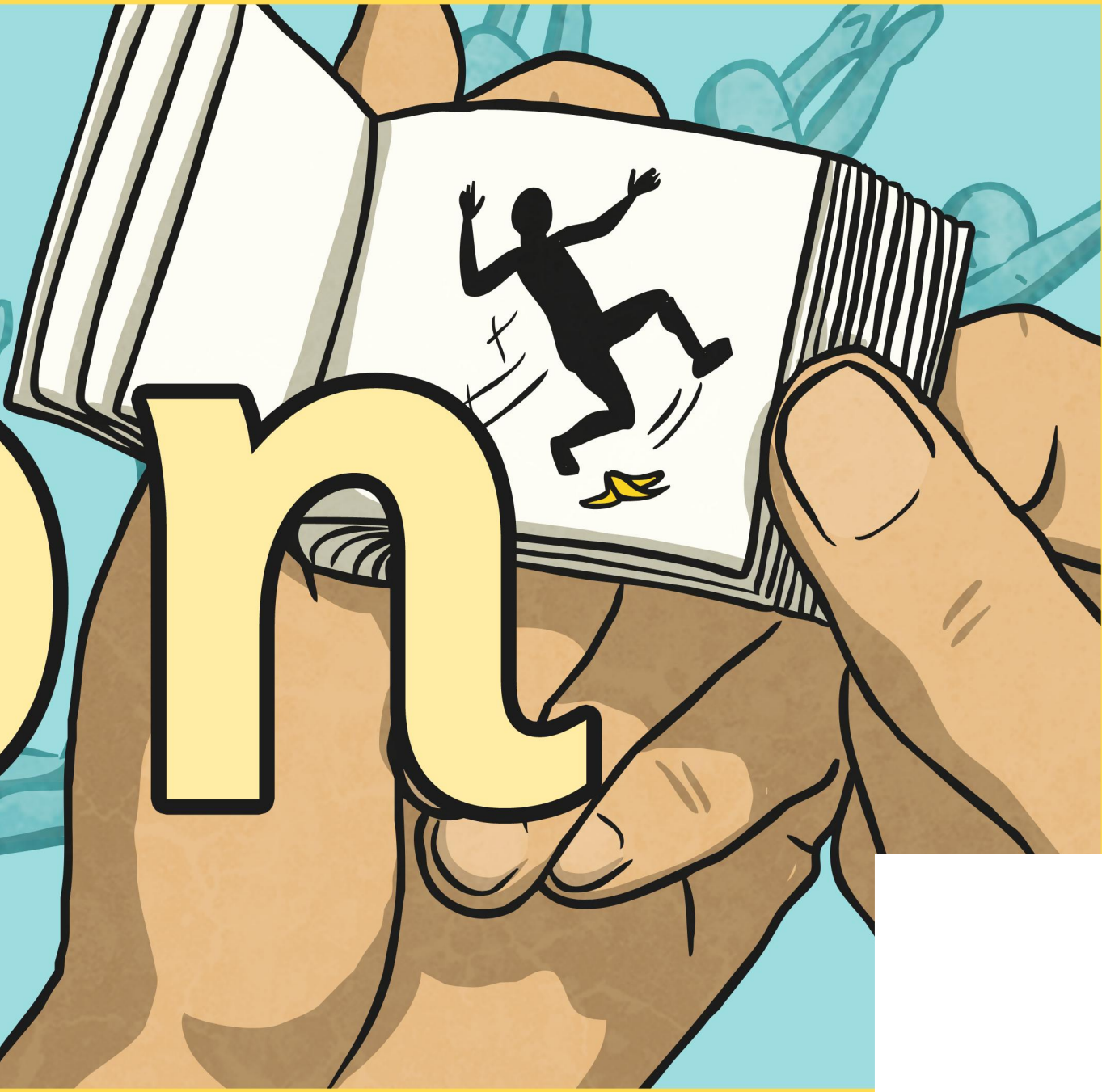
innout





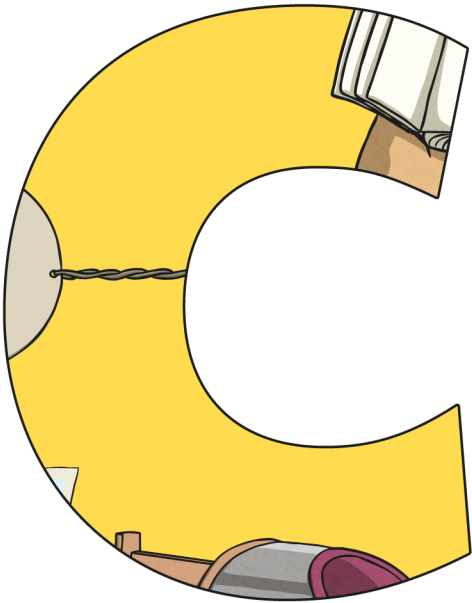
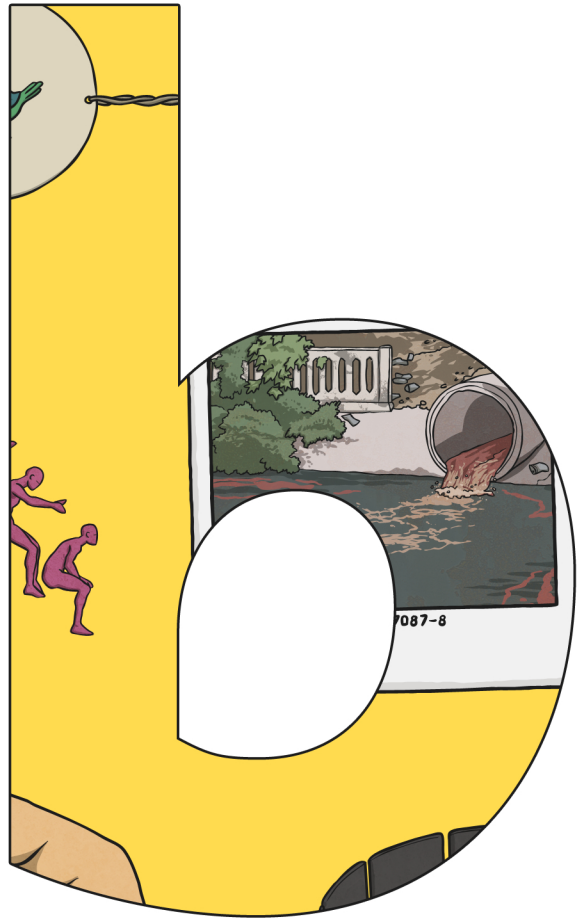
imati

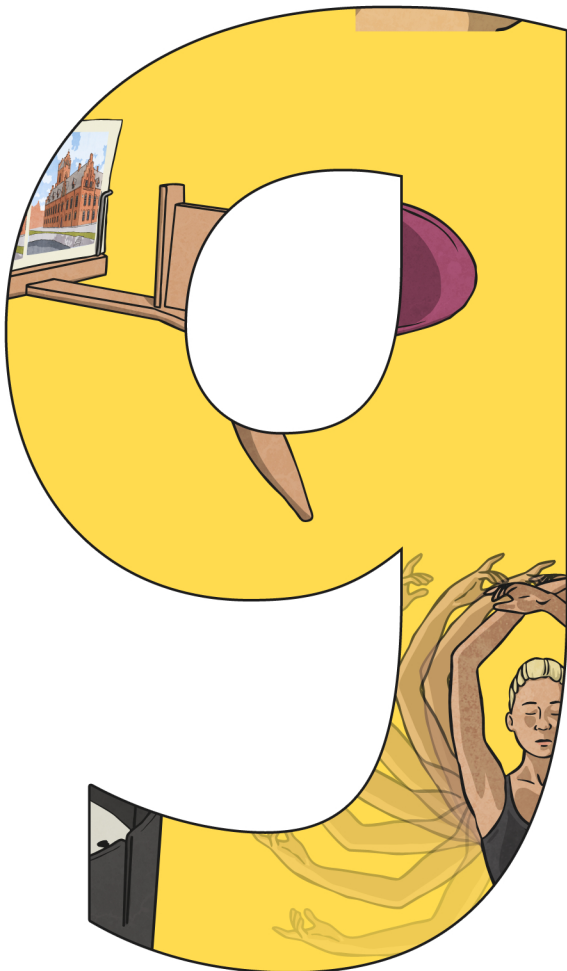
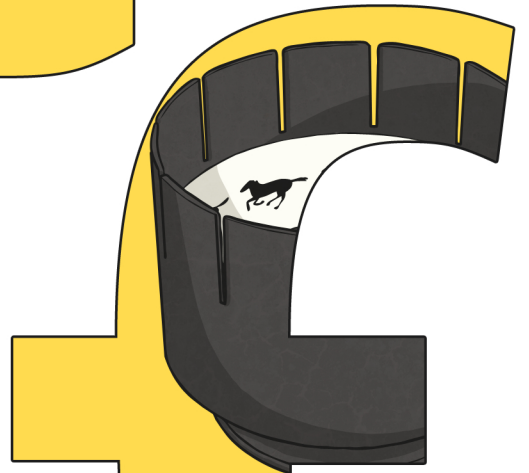
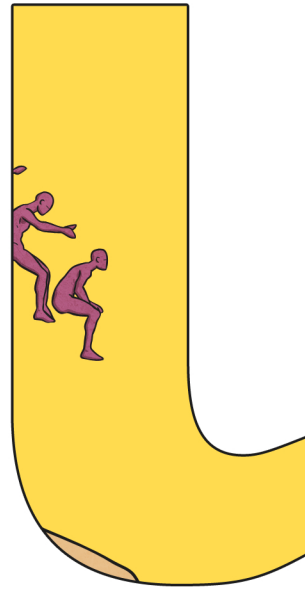
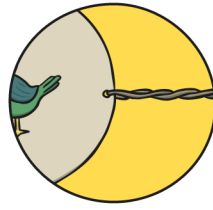
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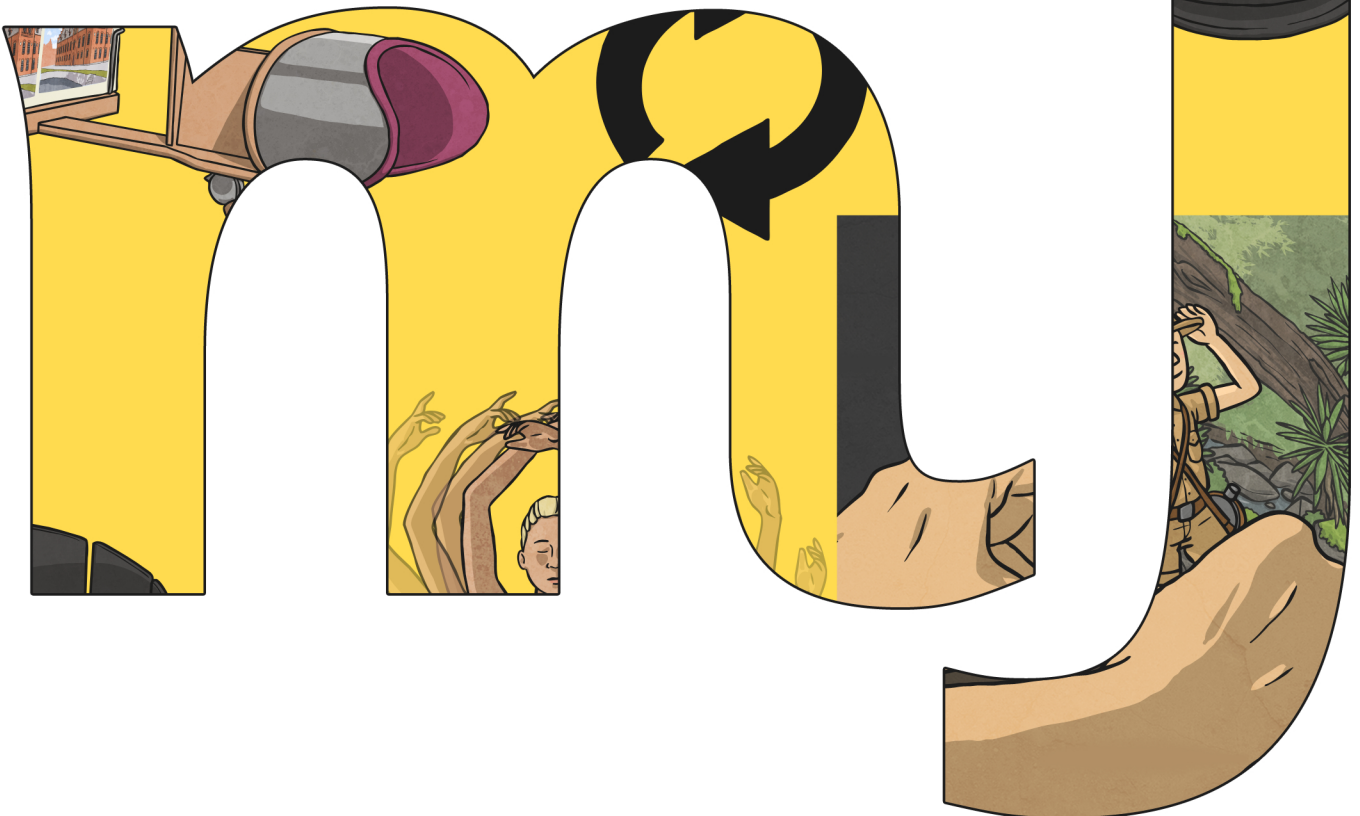
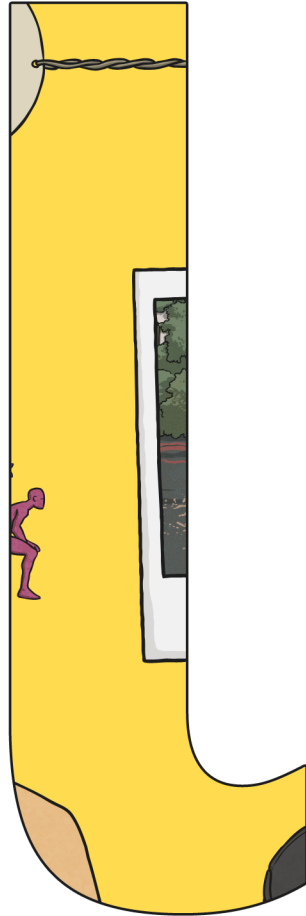


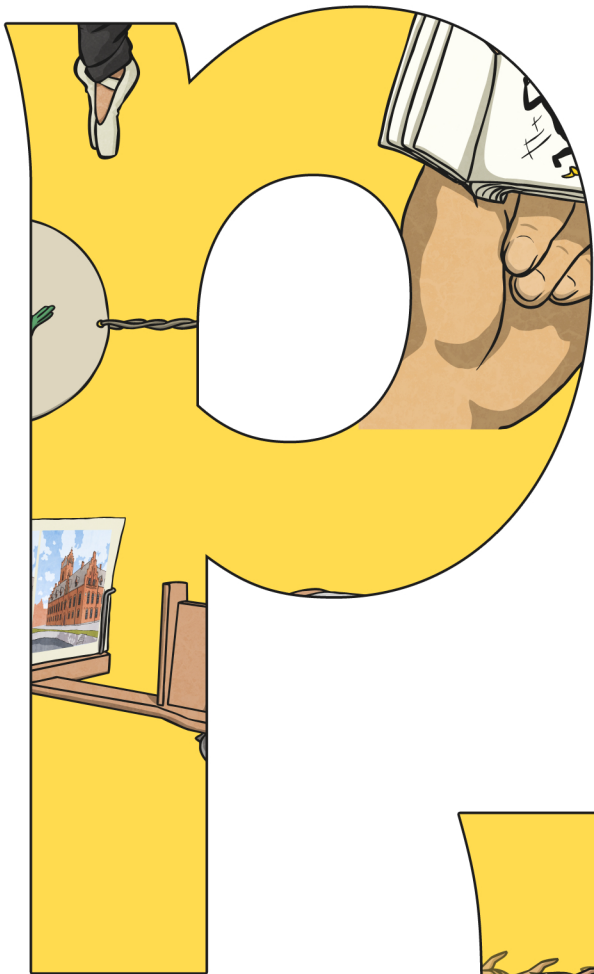


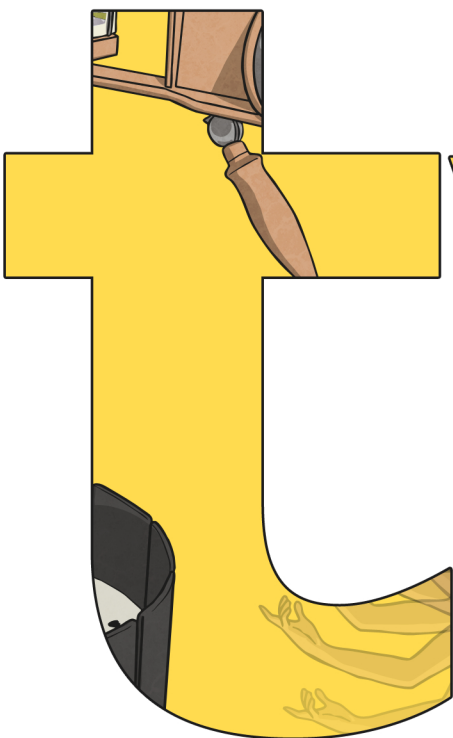
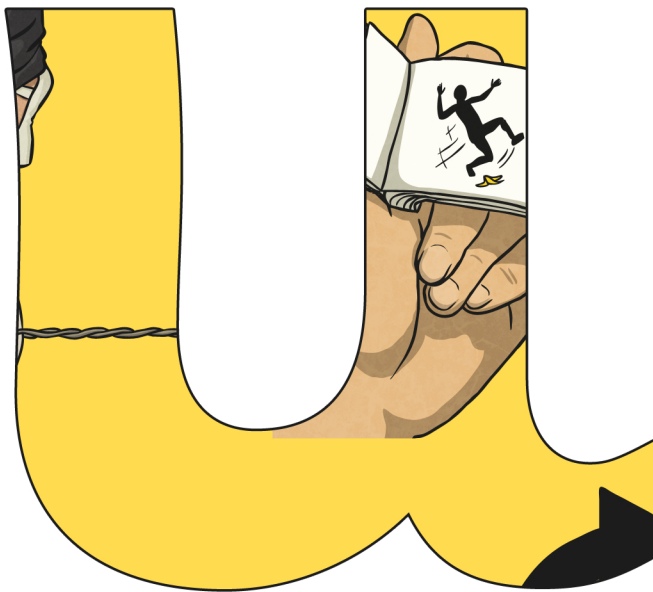


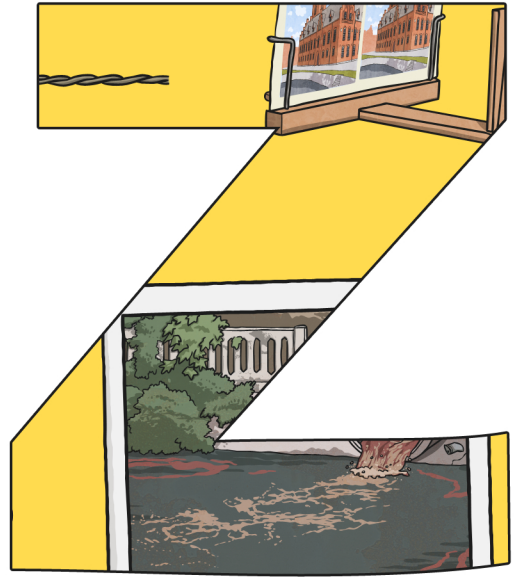
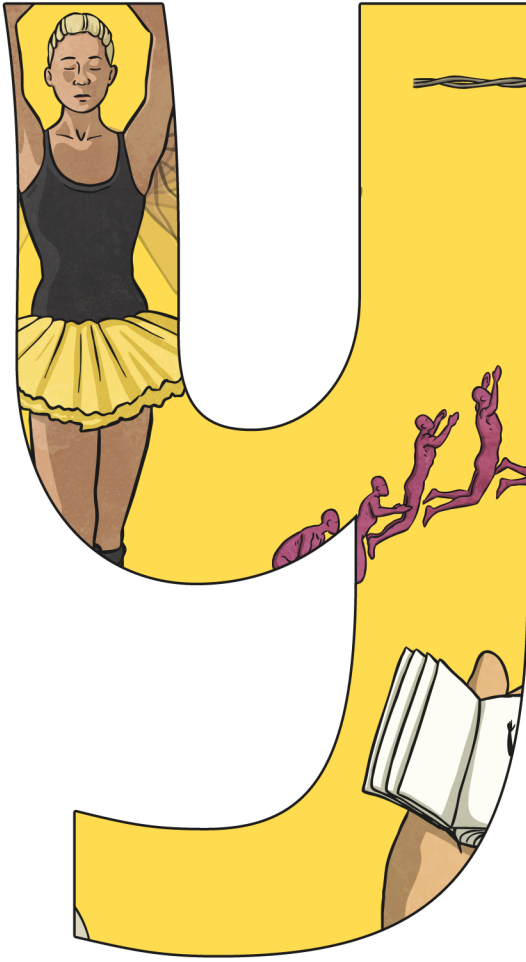


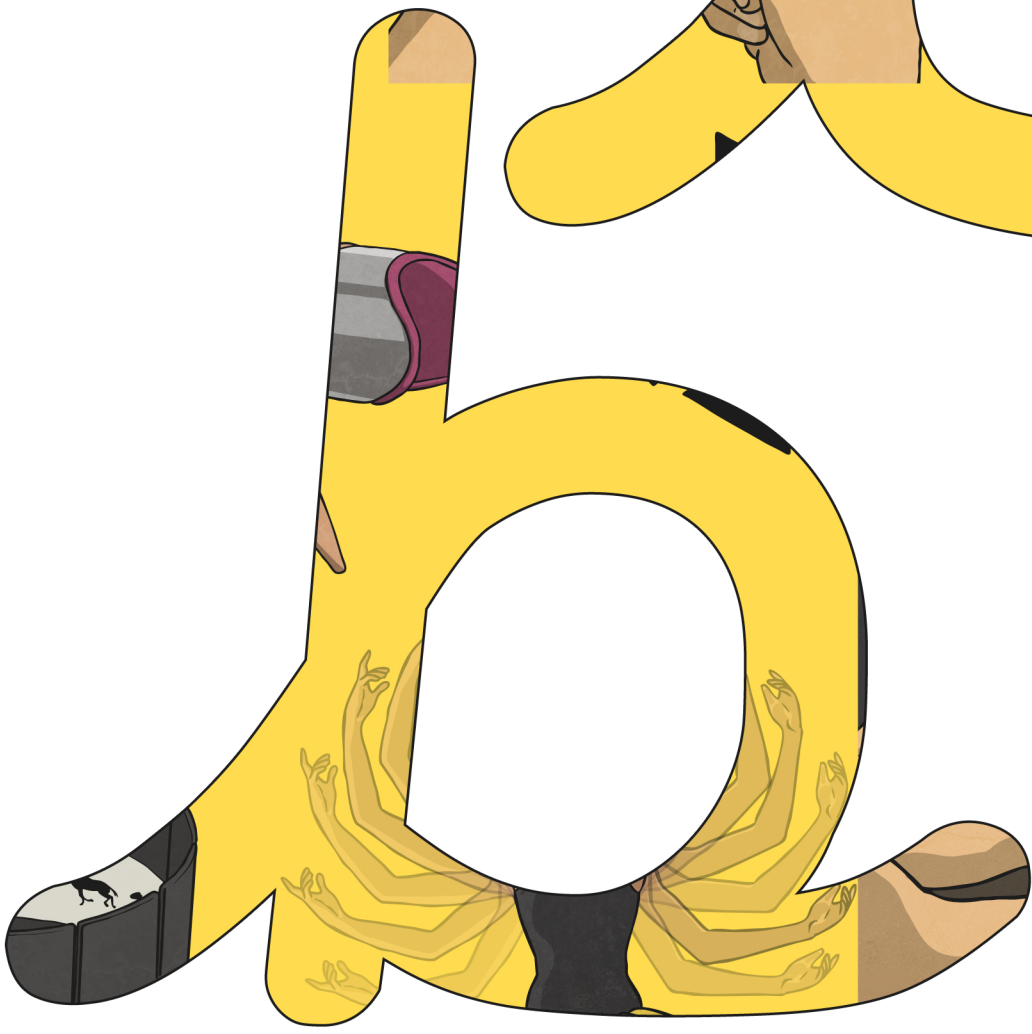
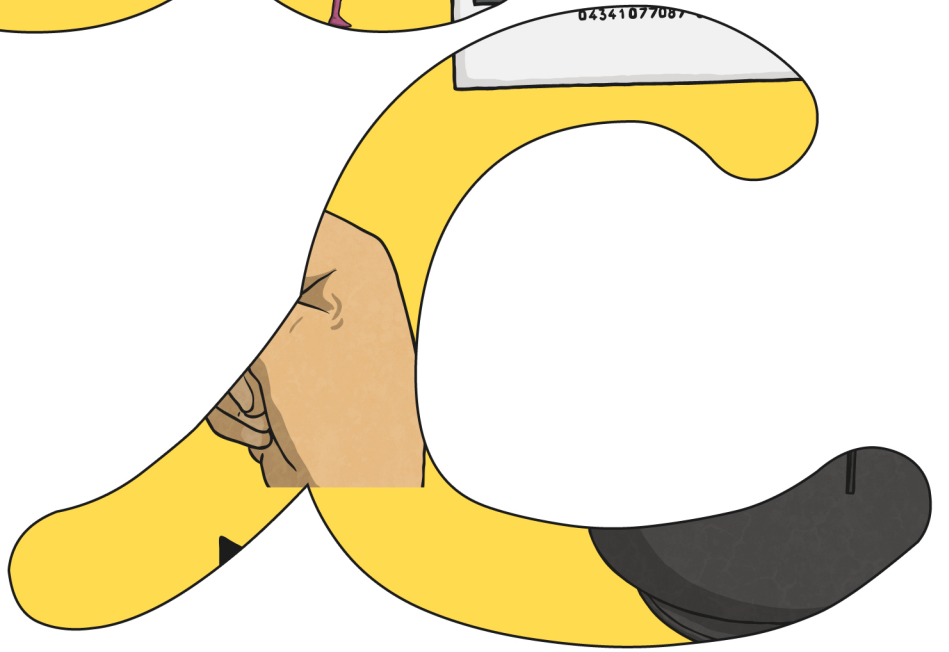
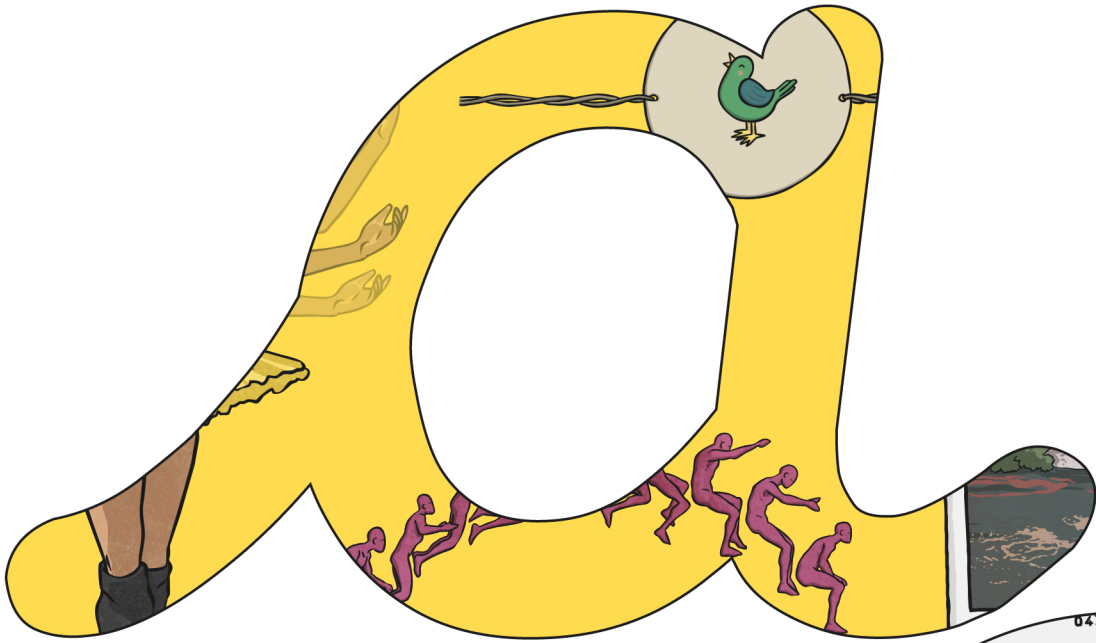


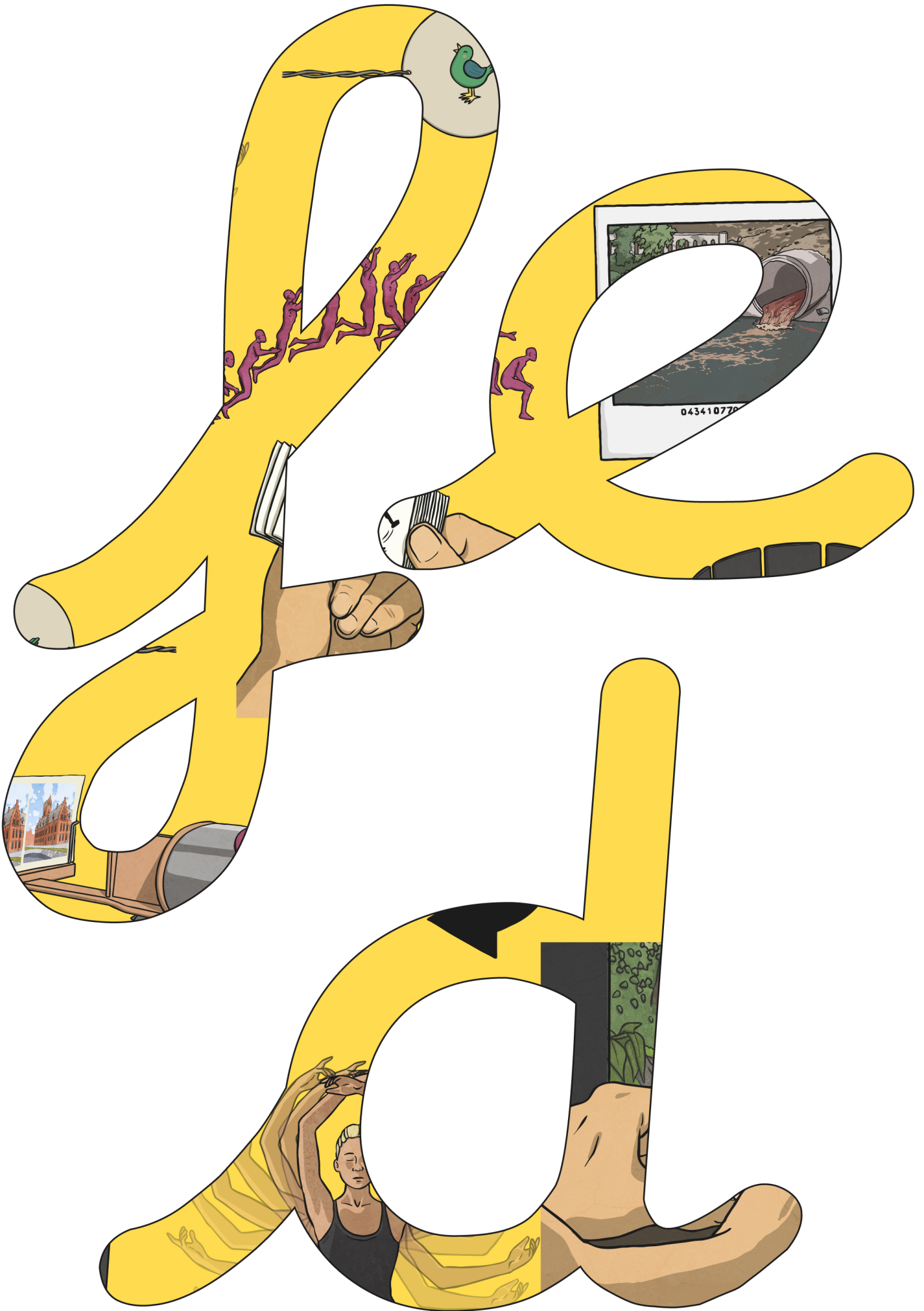


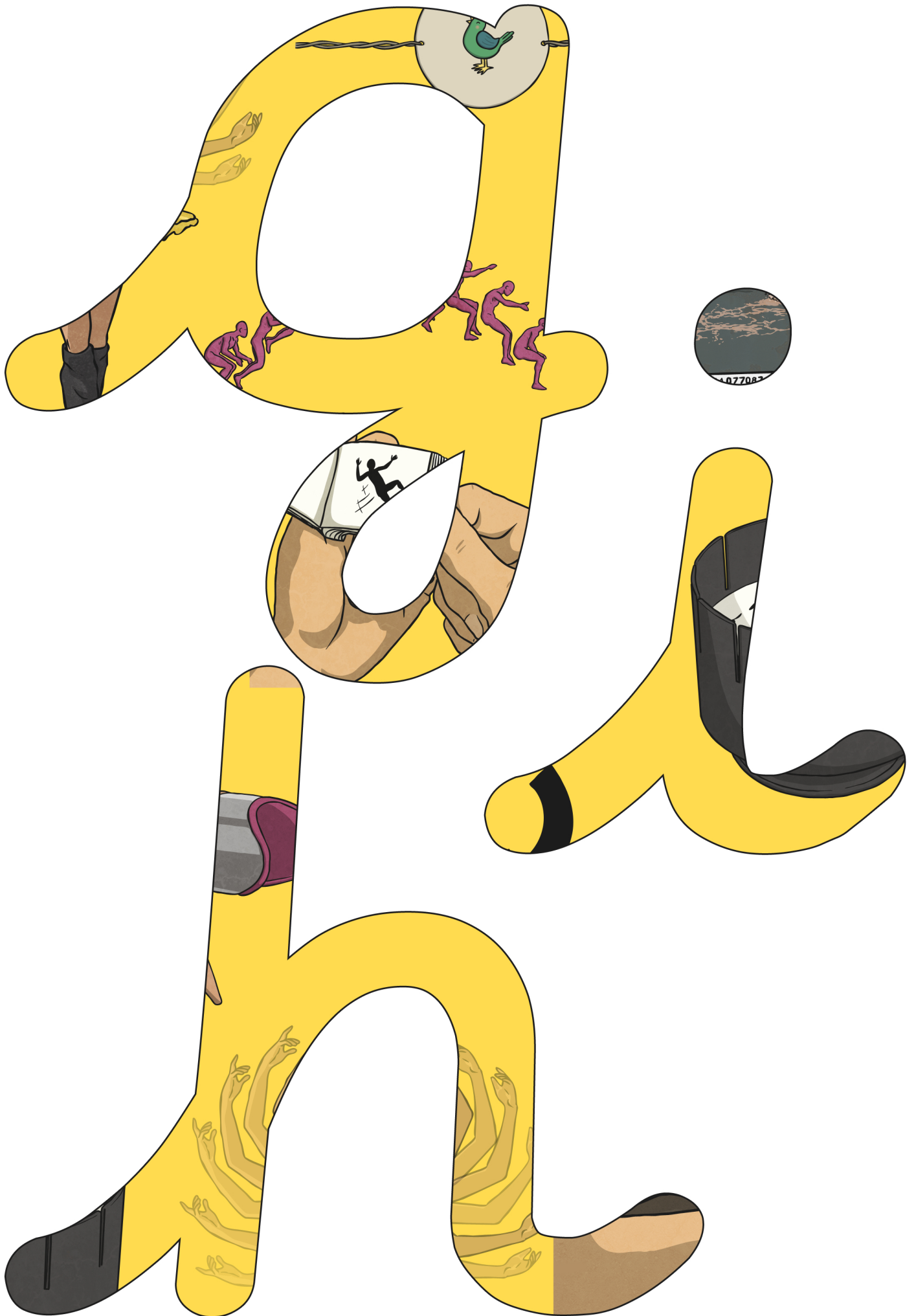


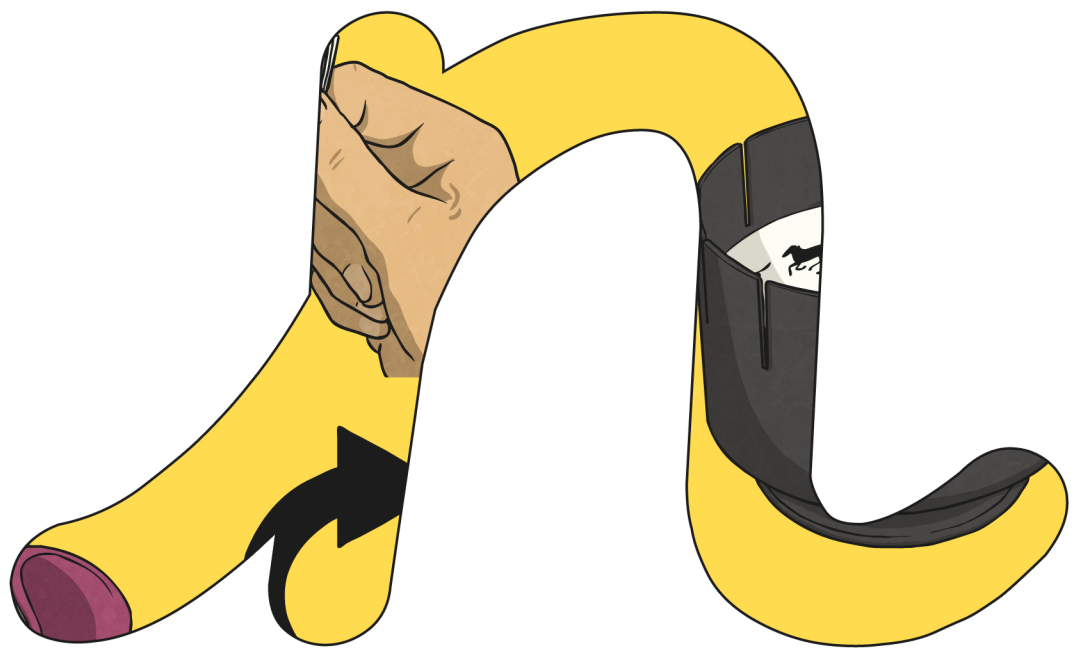
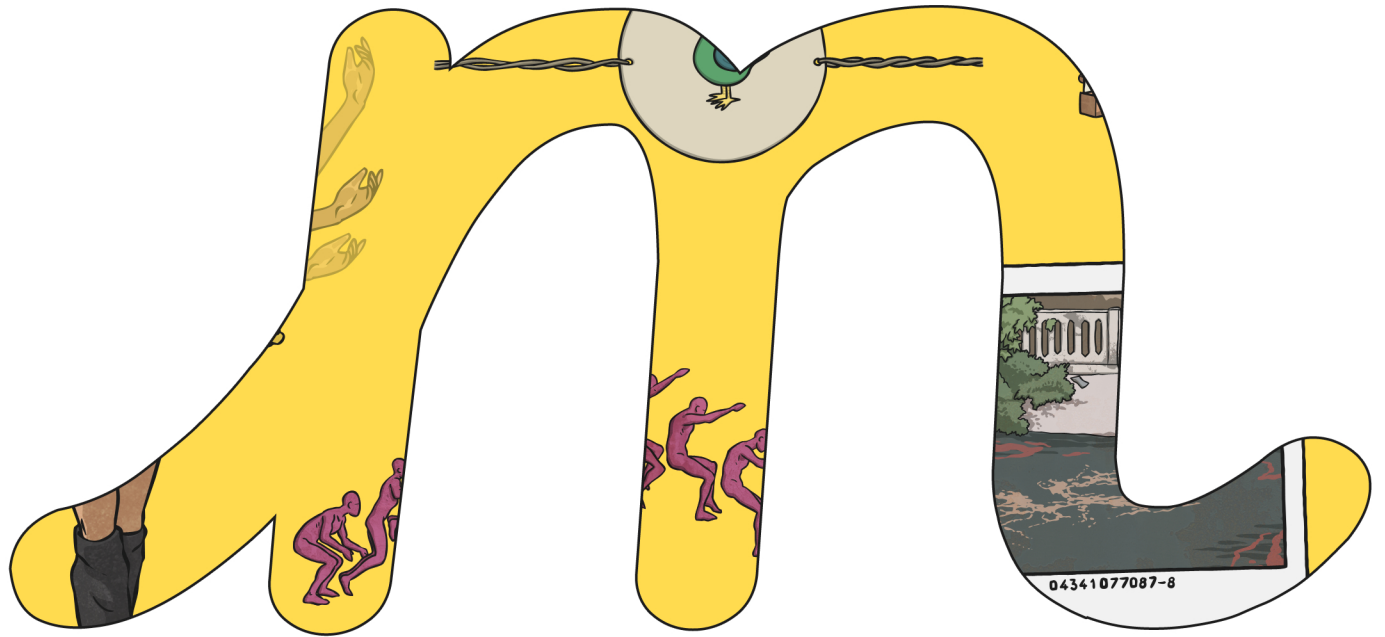




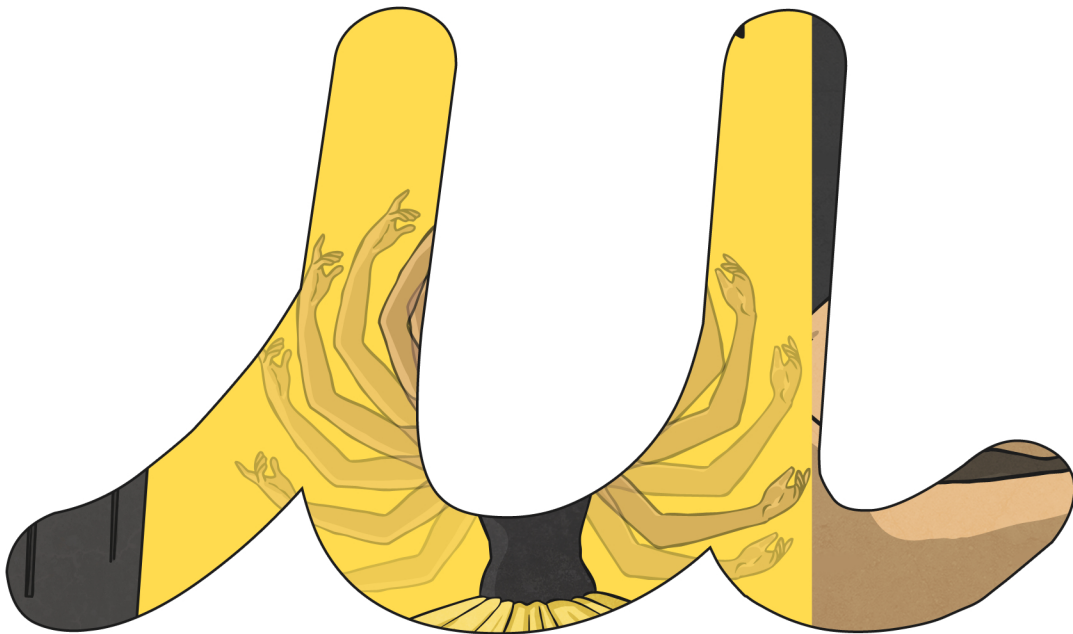
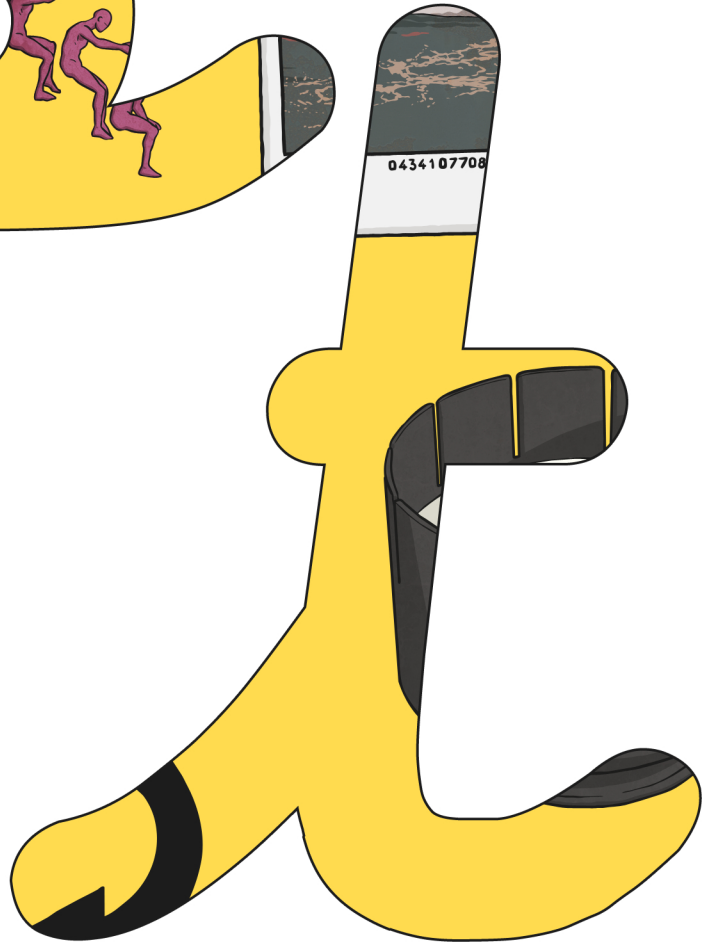
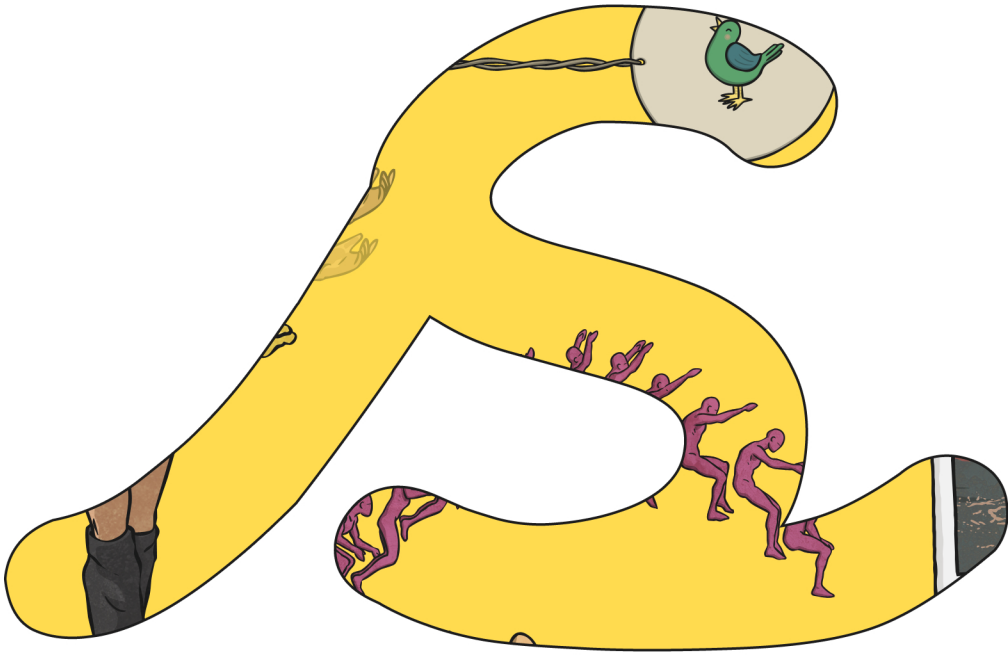


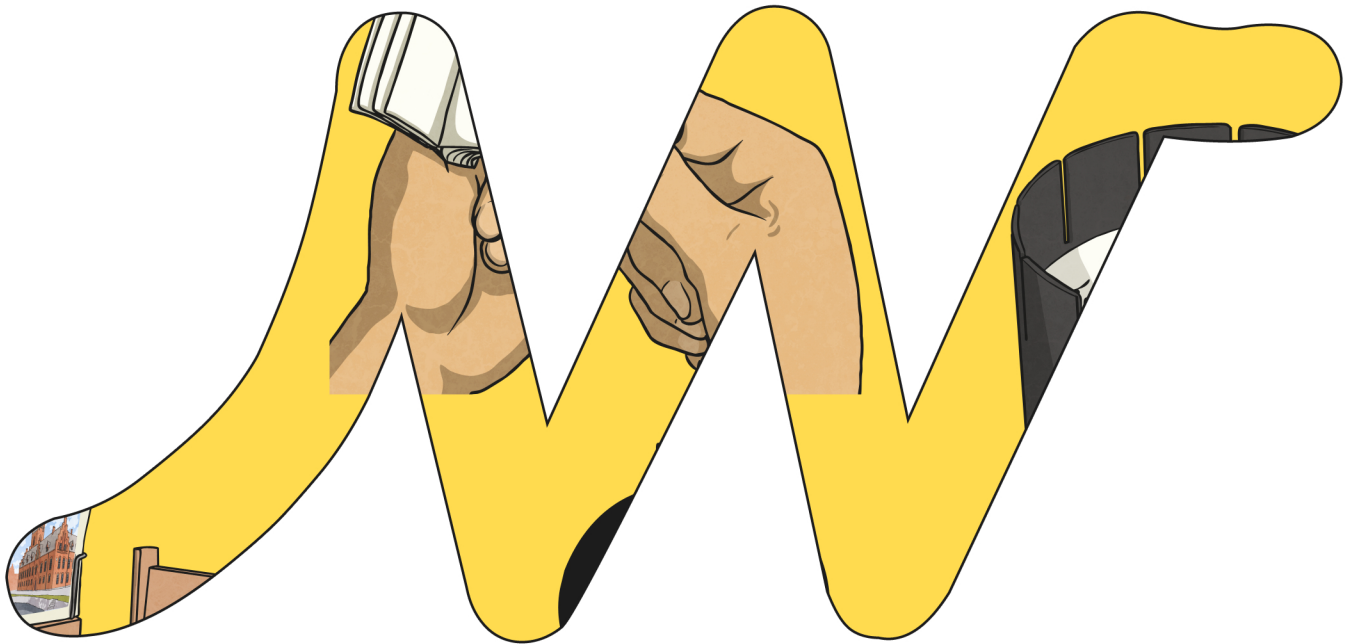
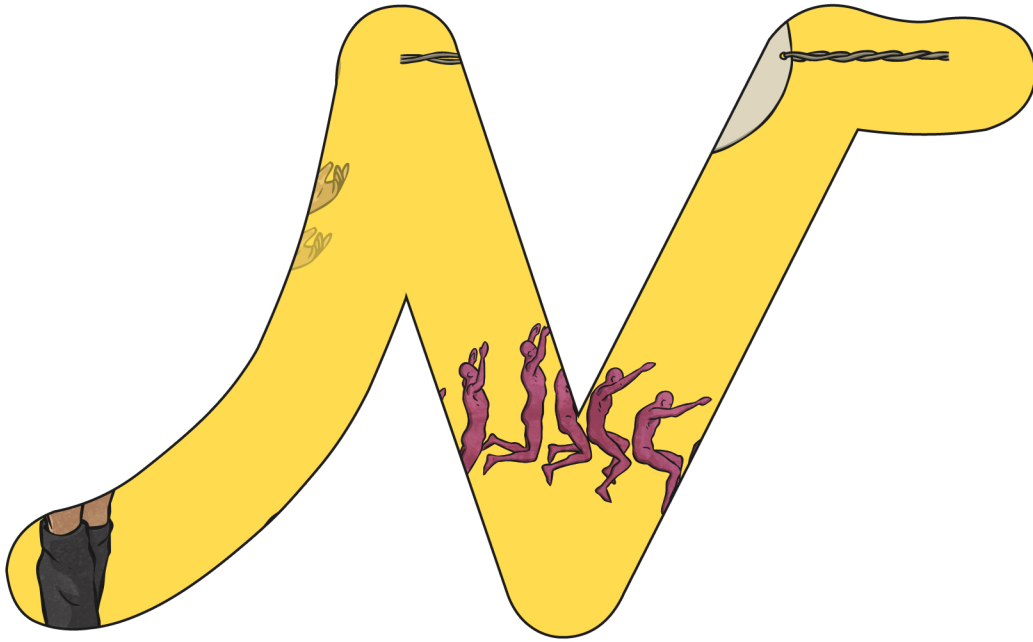


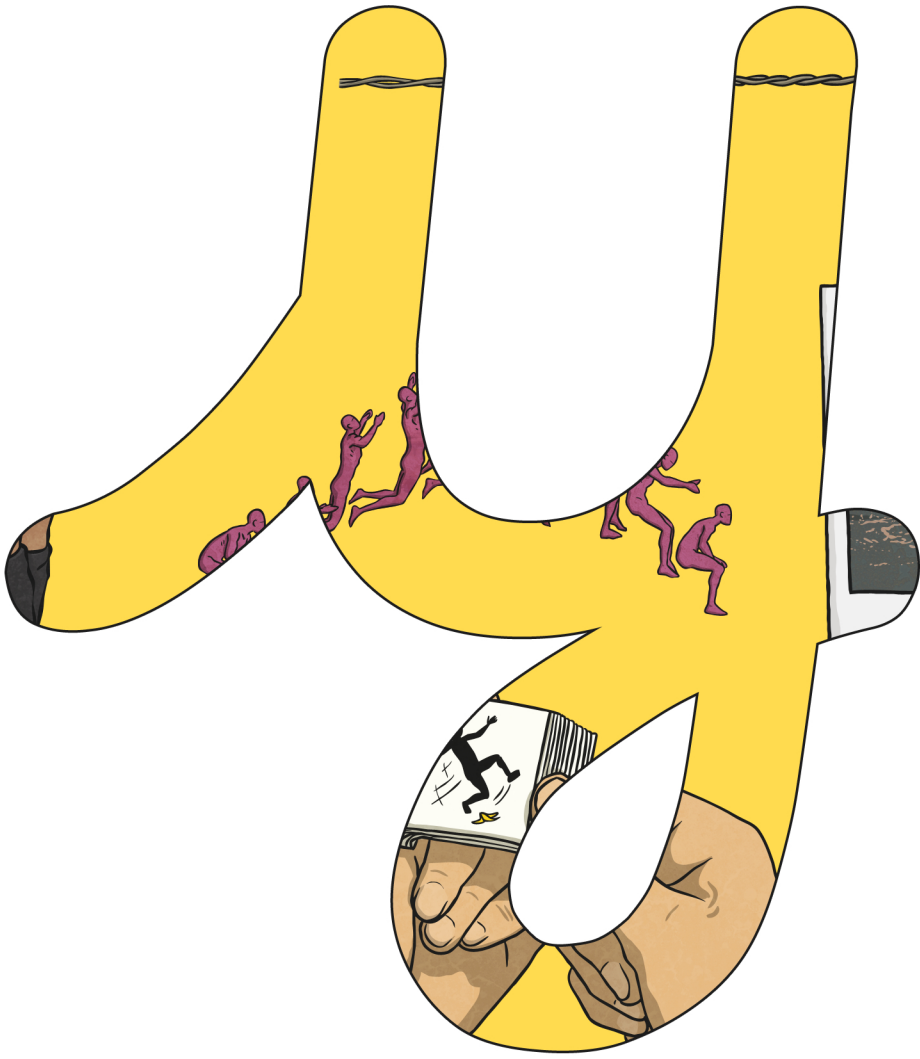


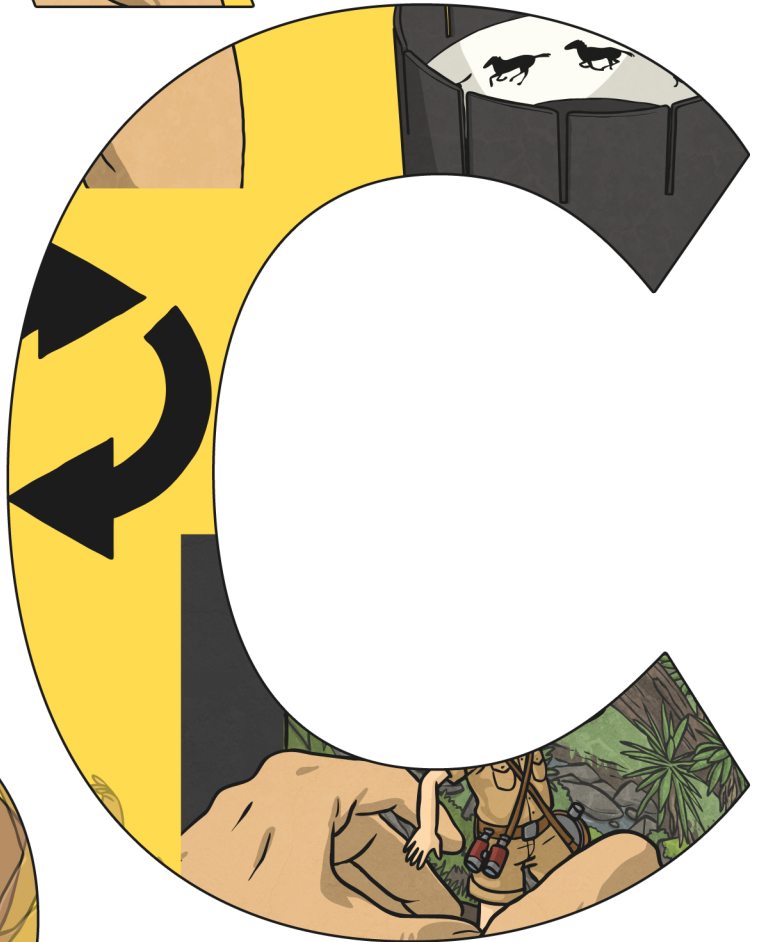
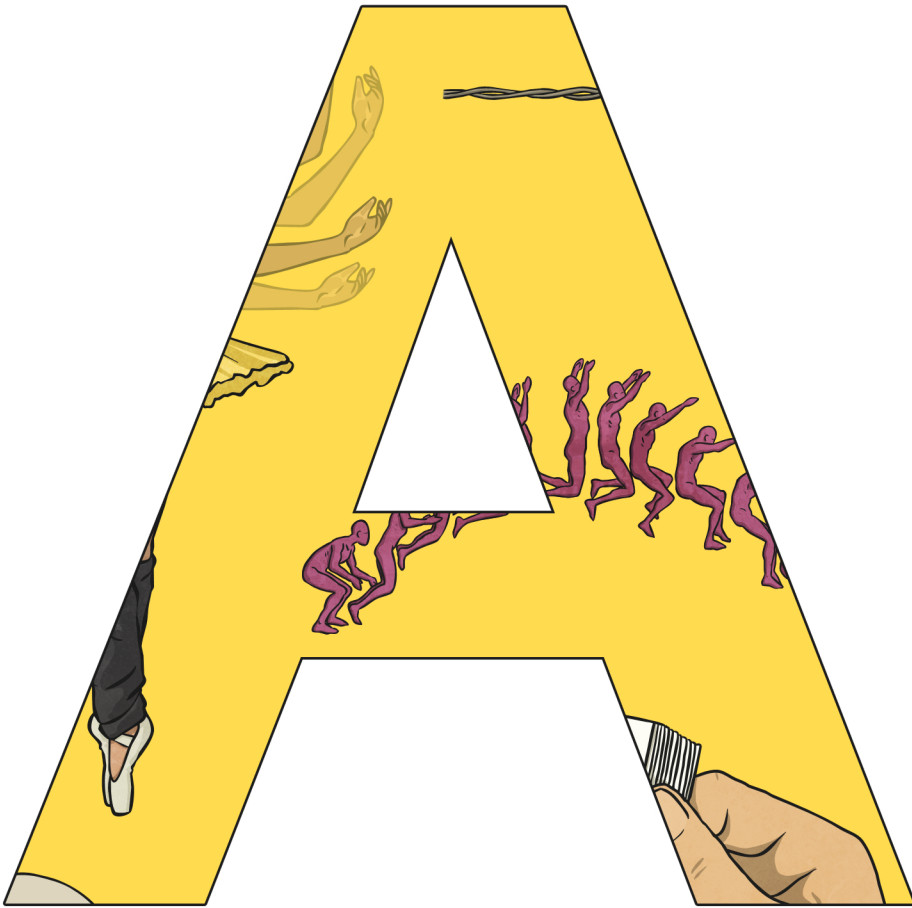


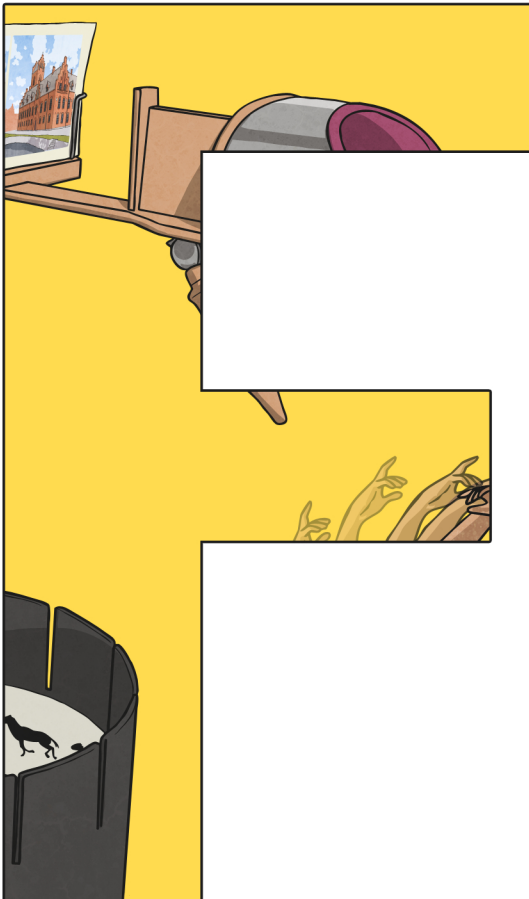
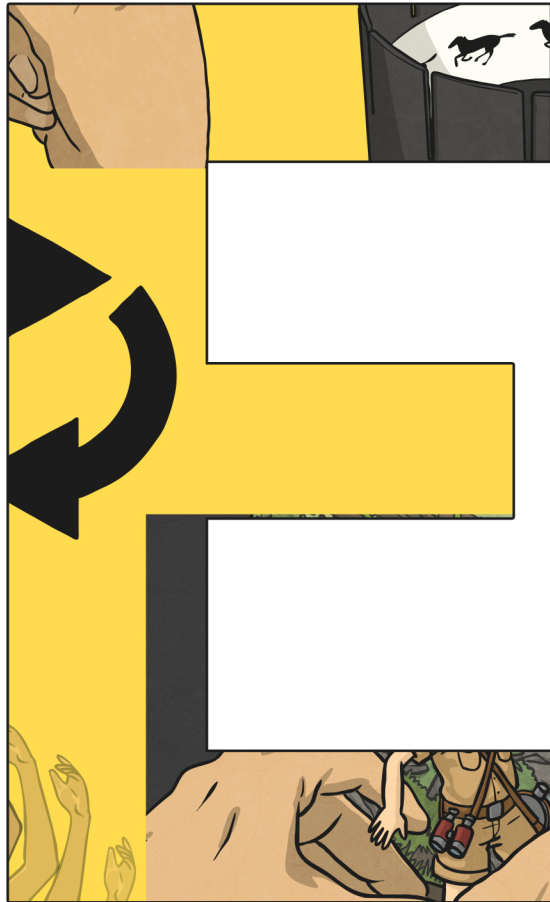
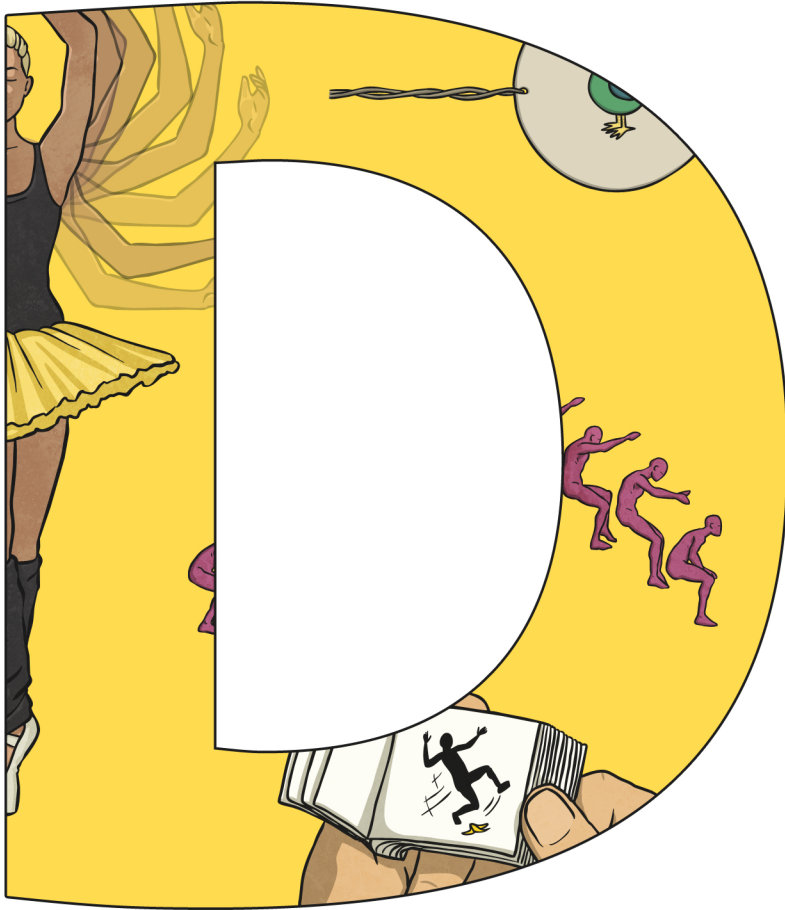


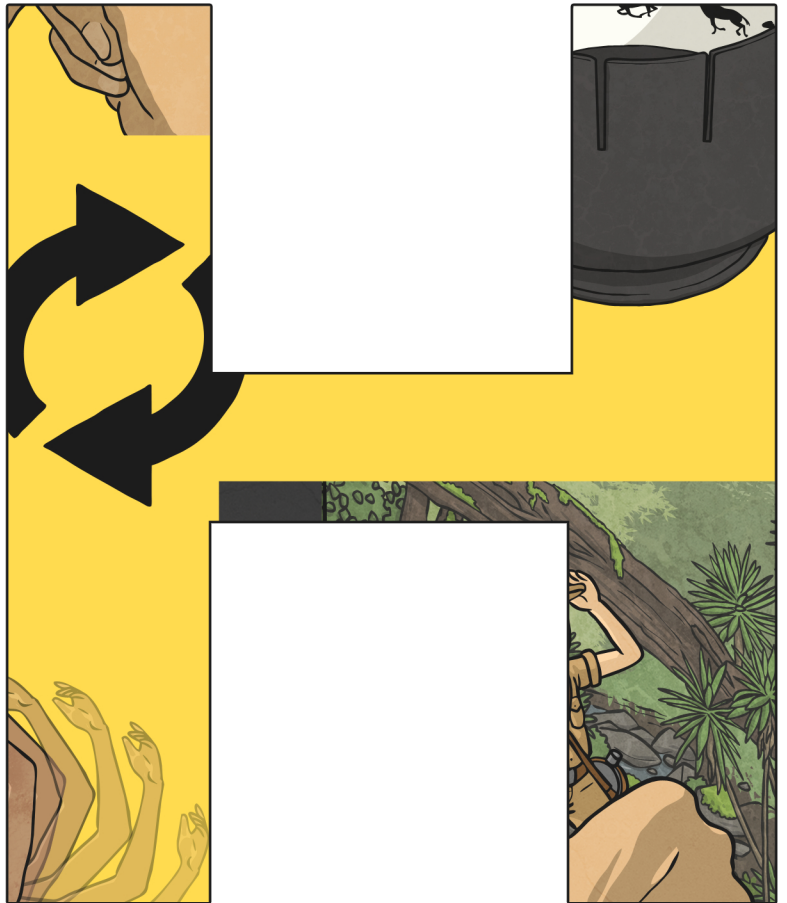
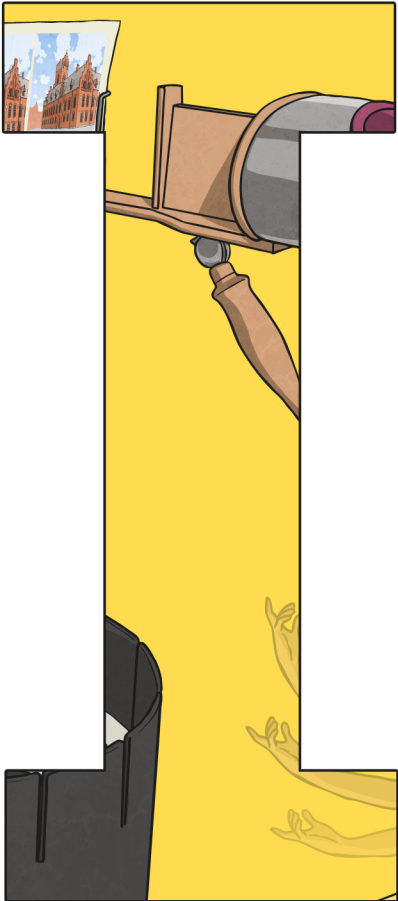
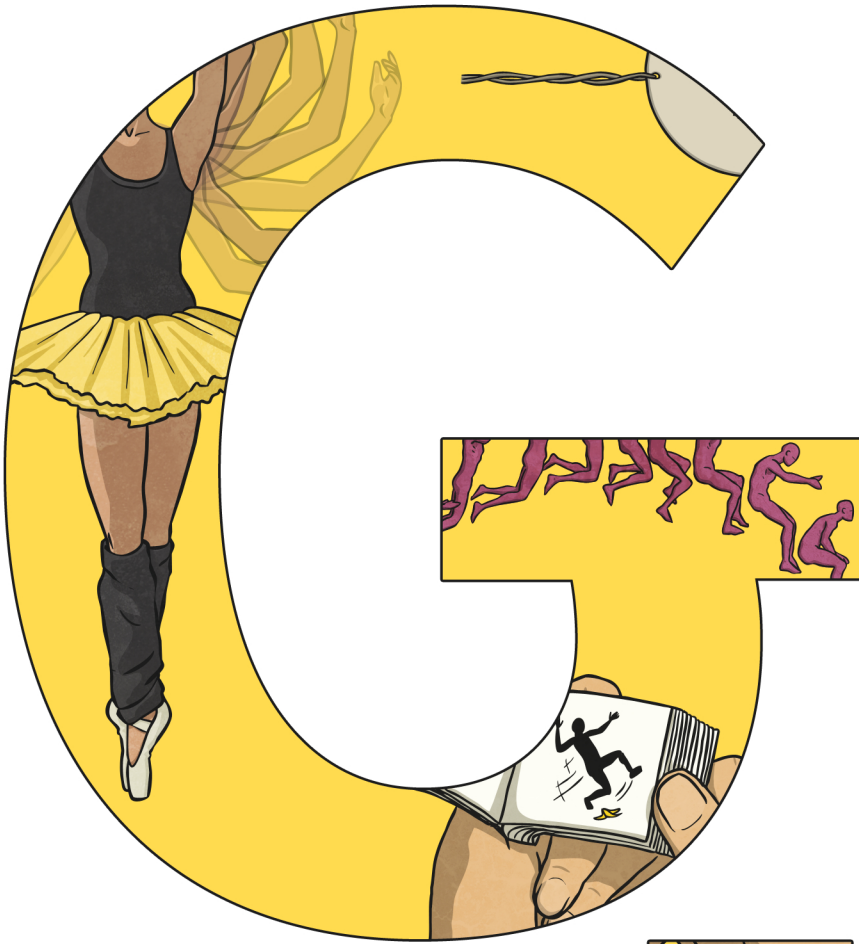


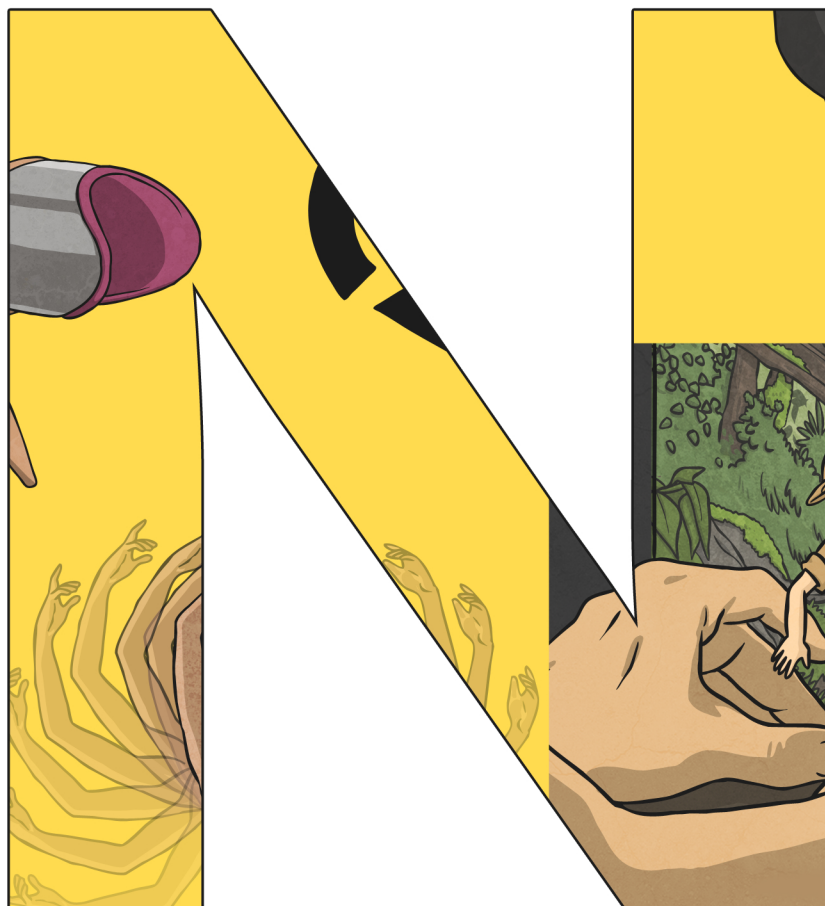




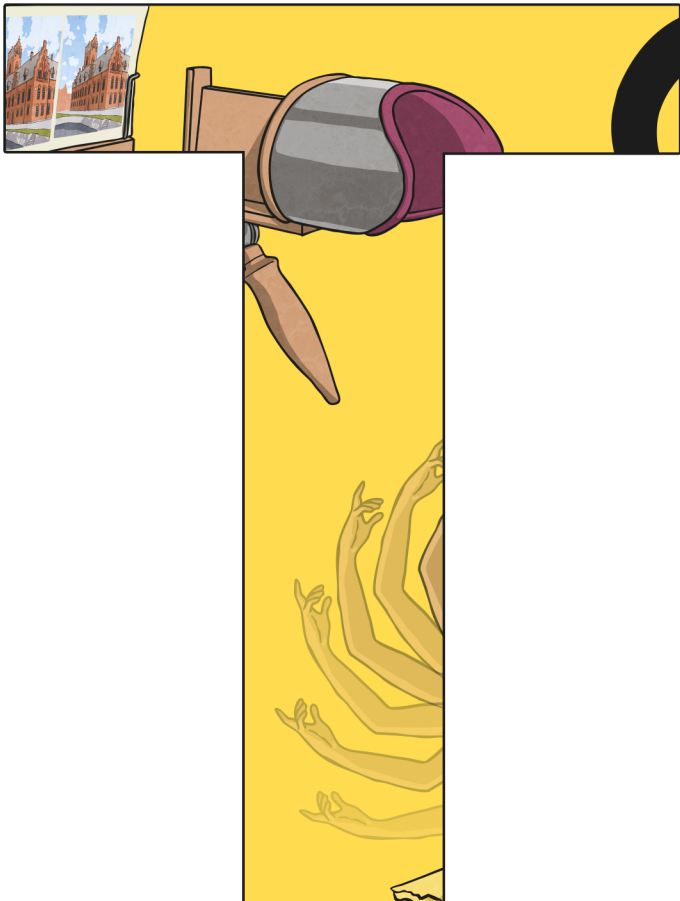
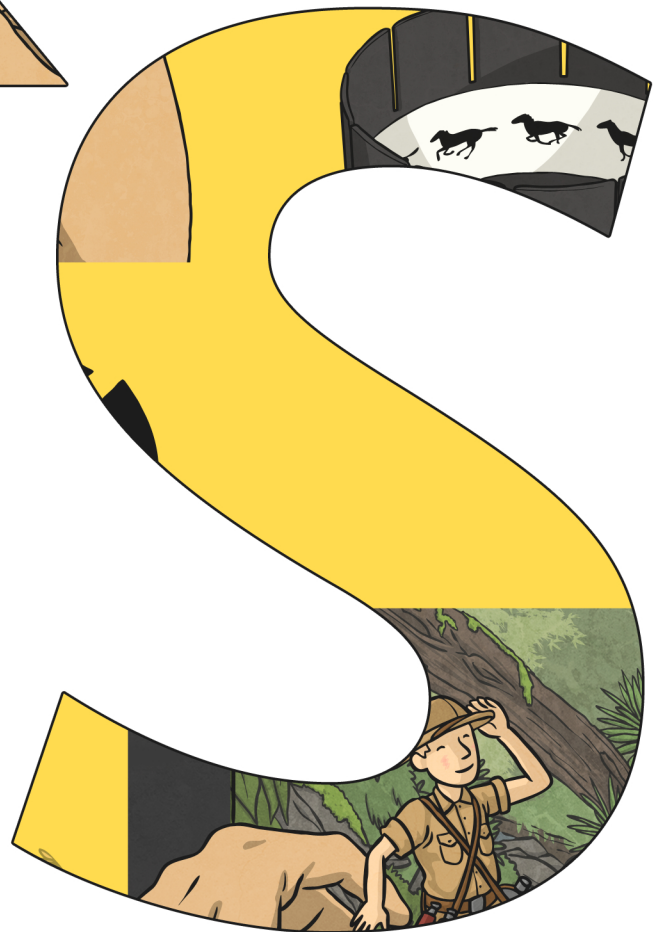


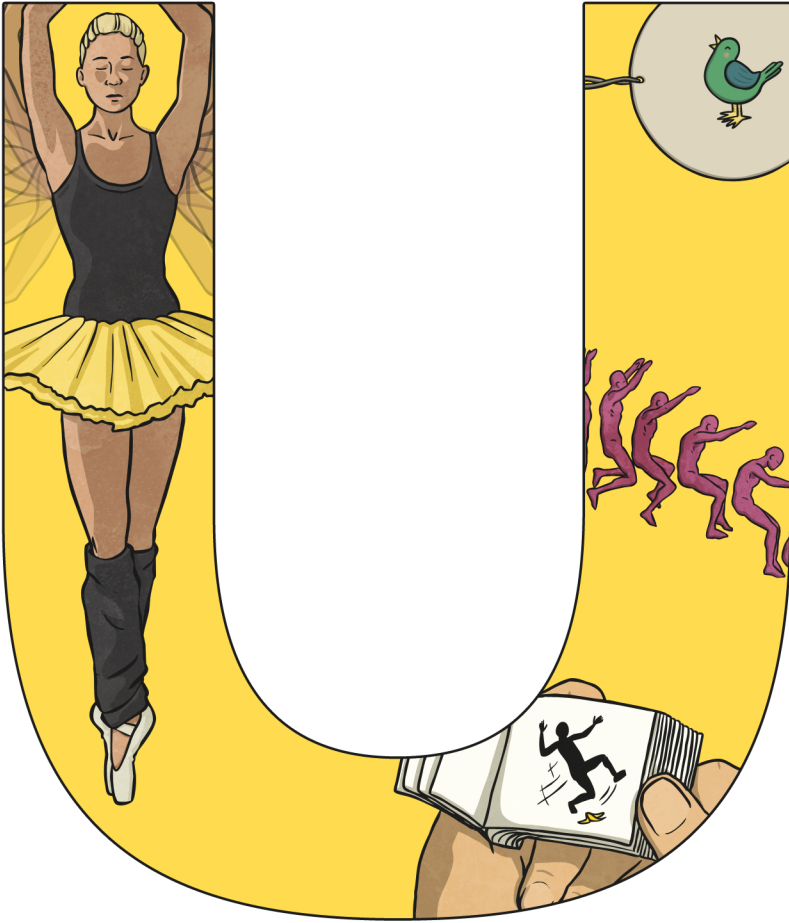


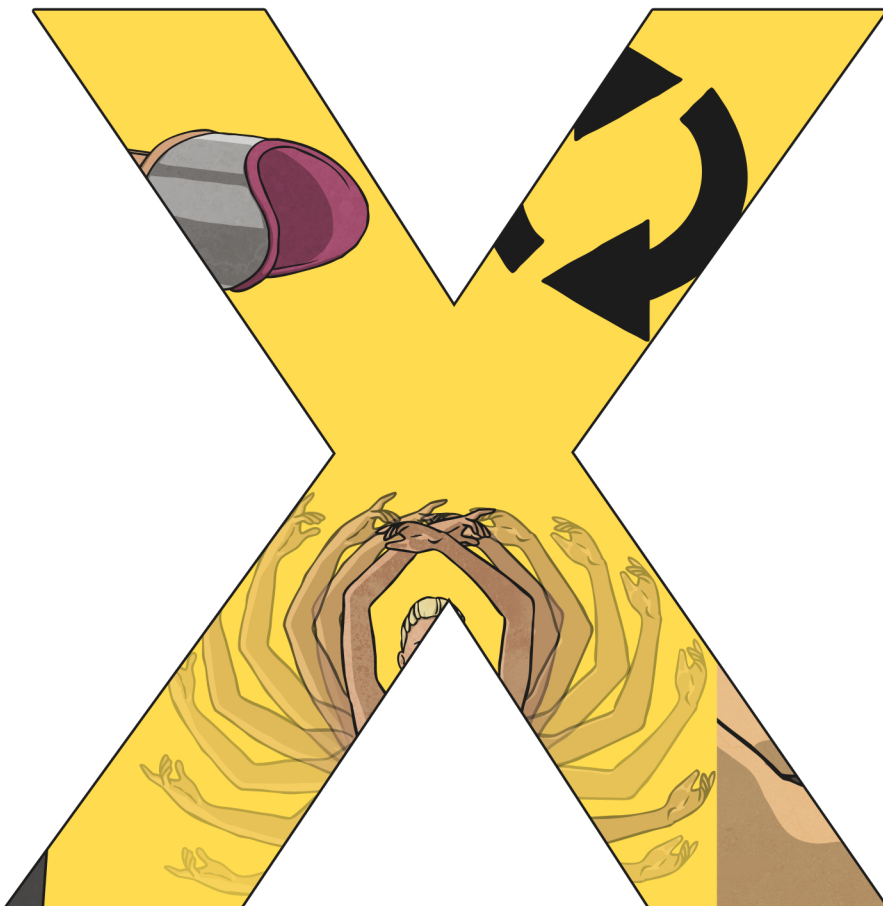
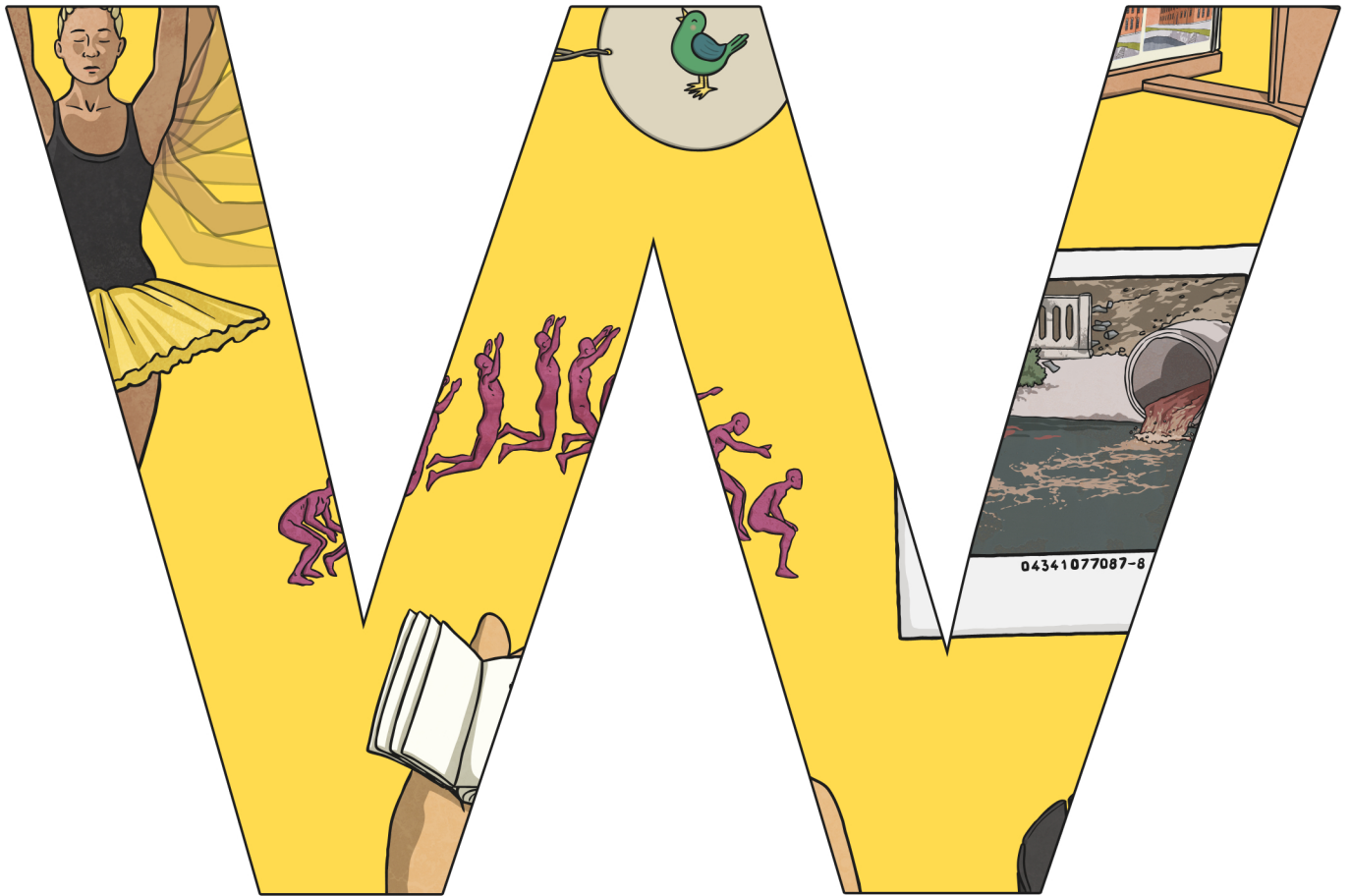


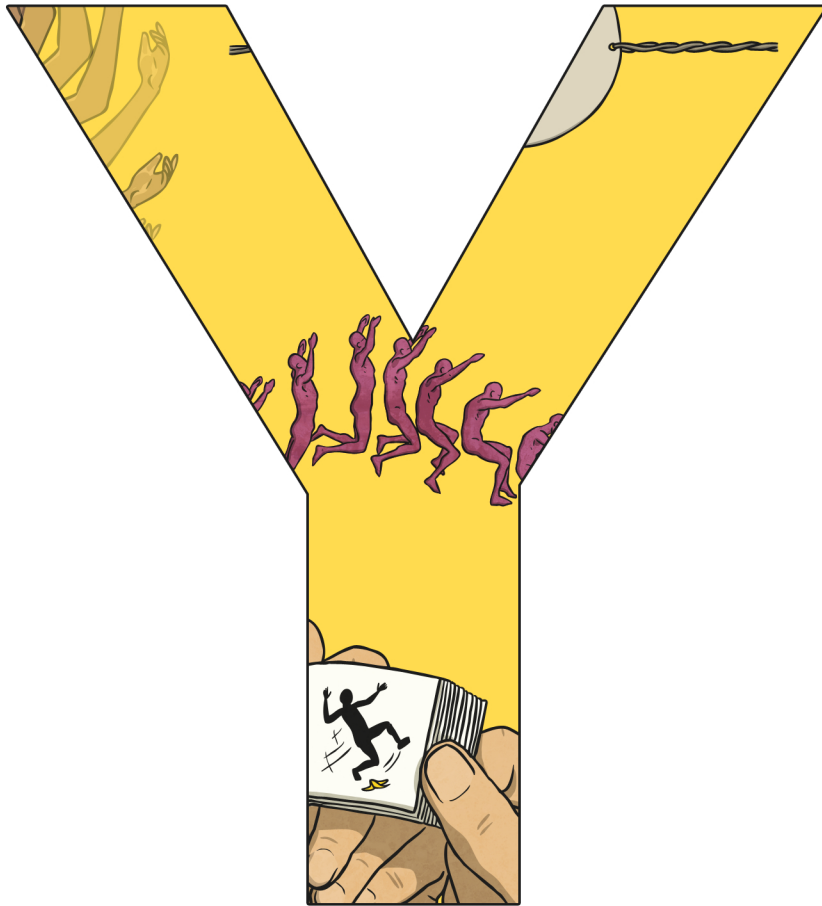


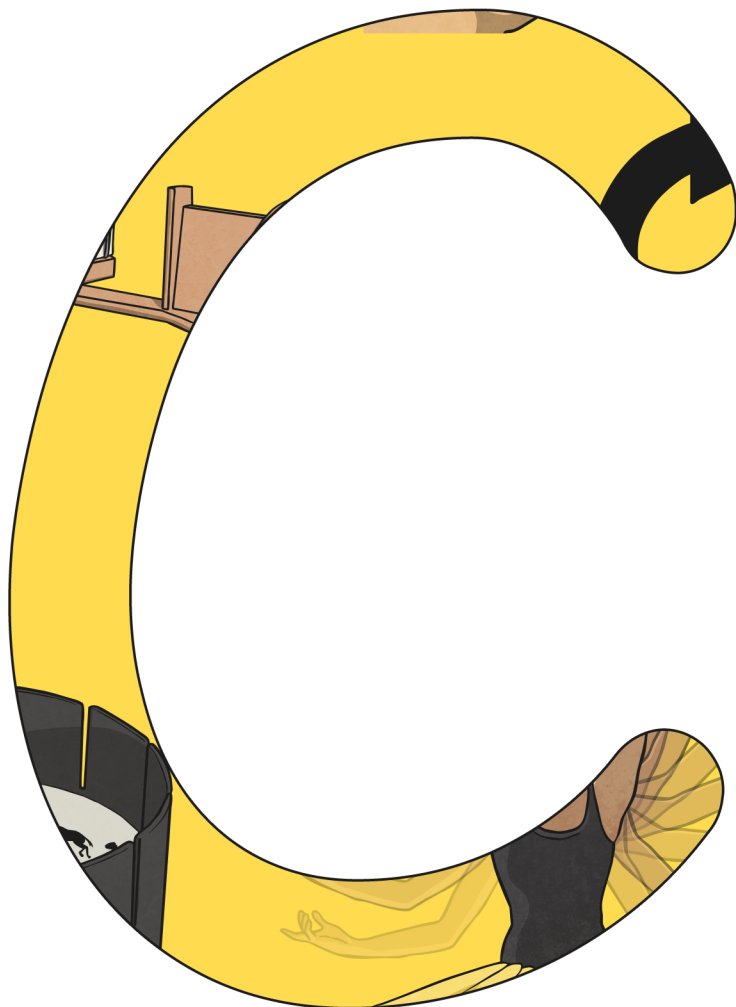
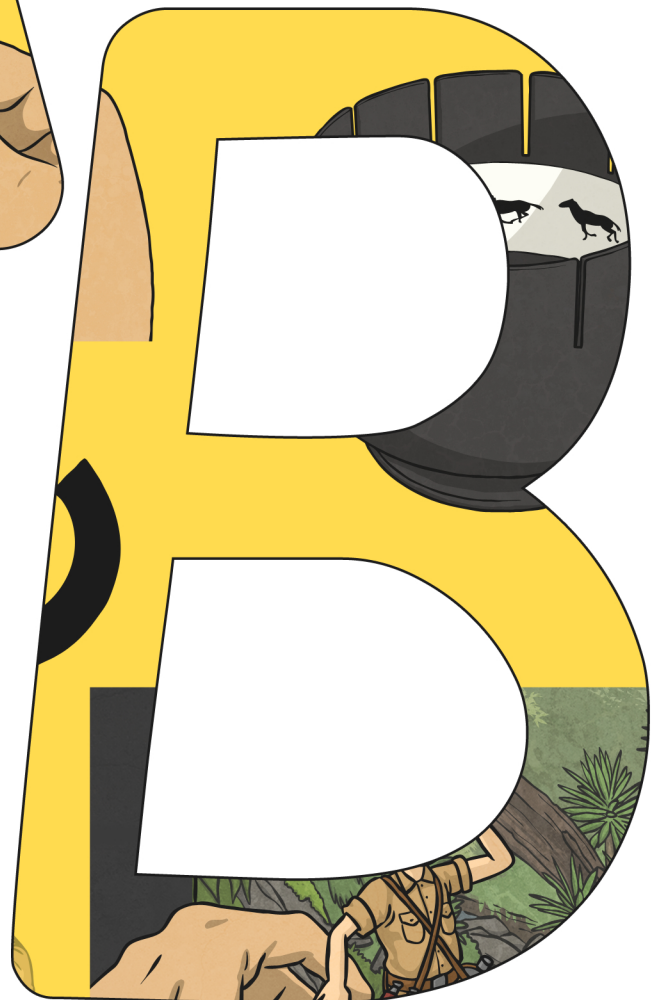
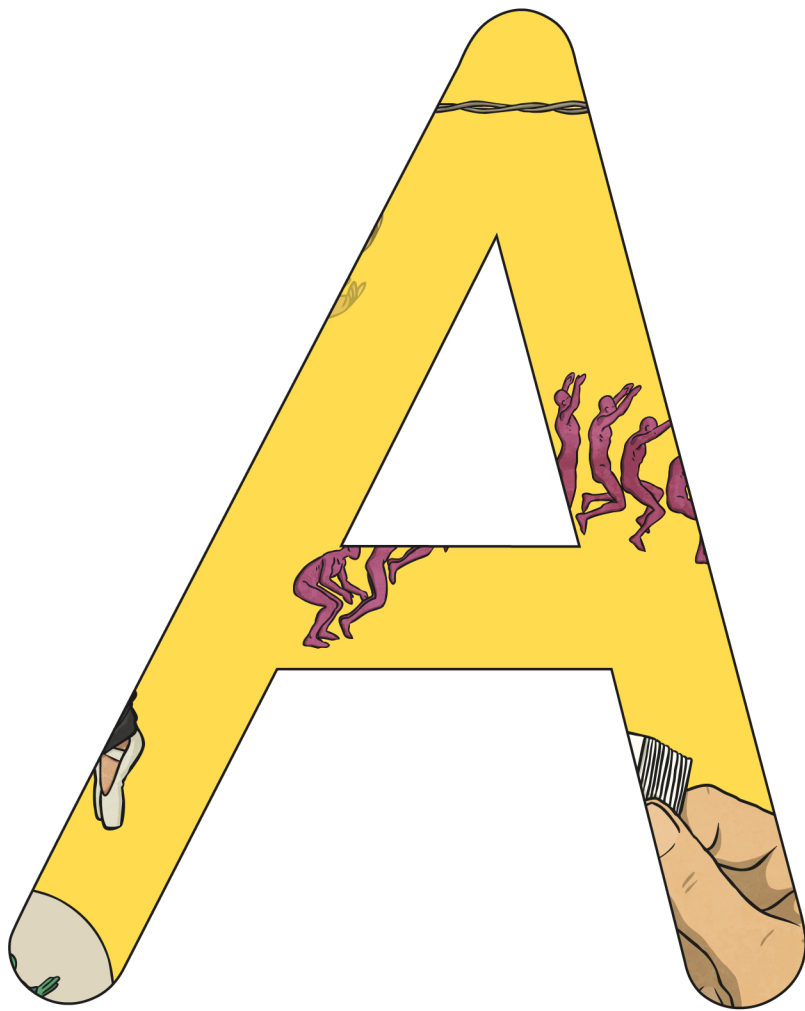


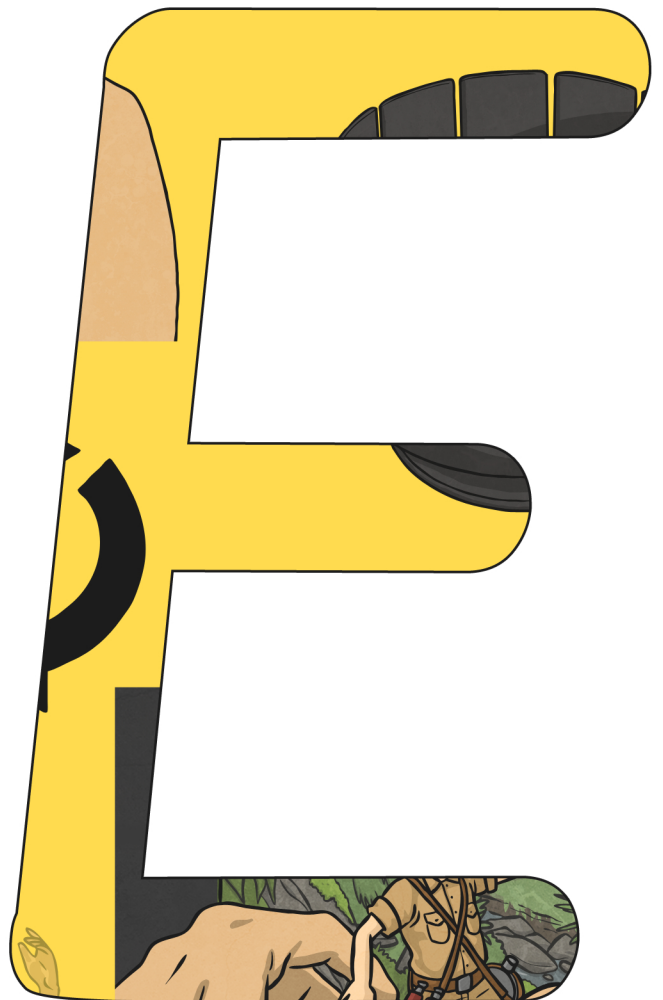
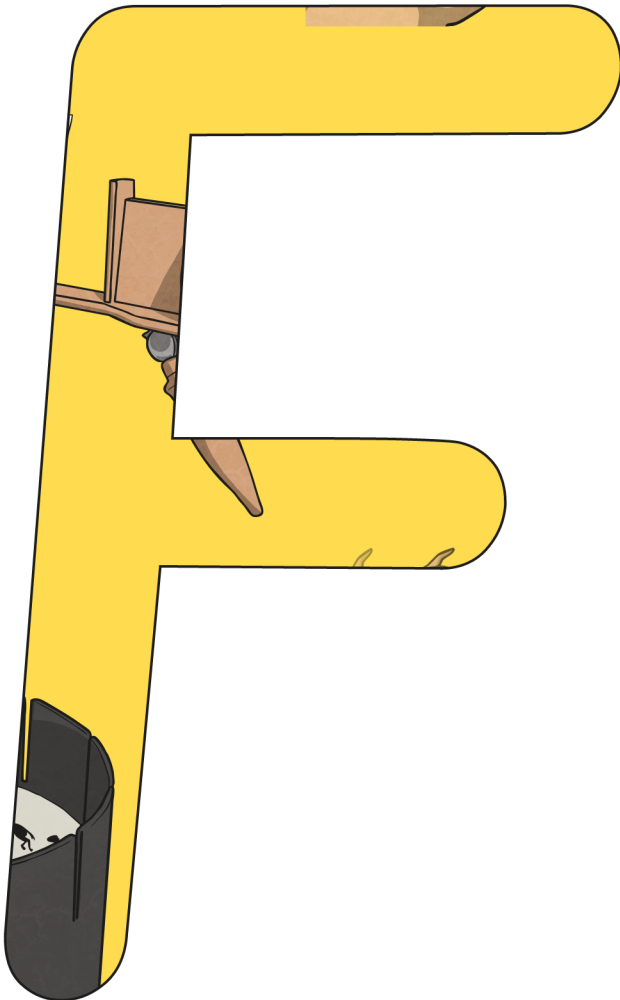
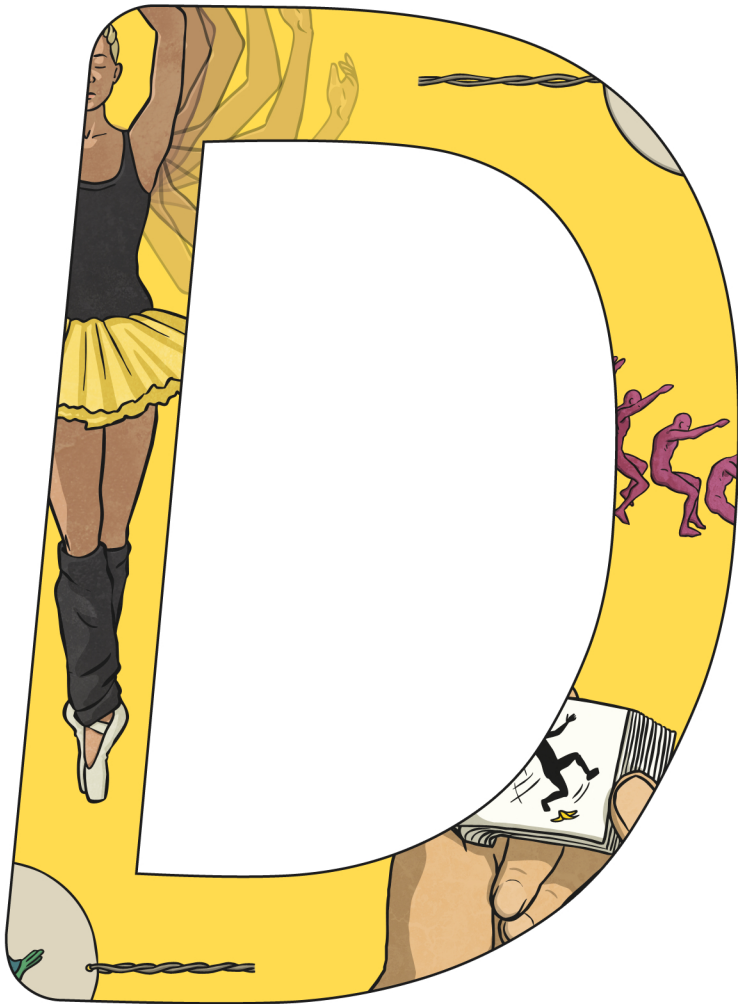


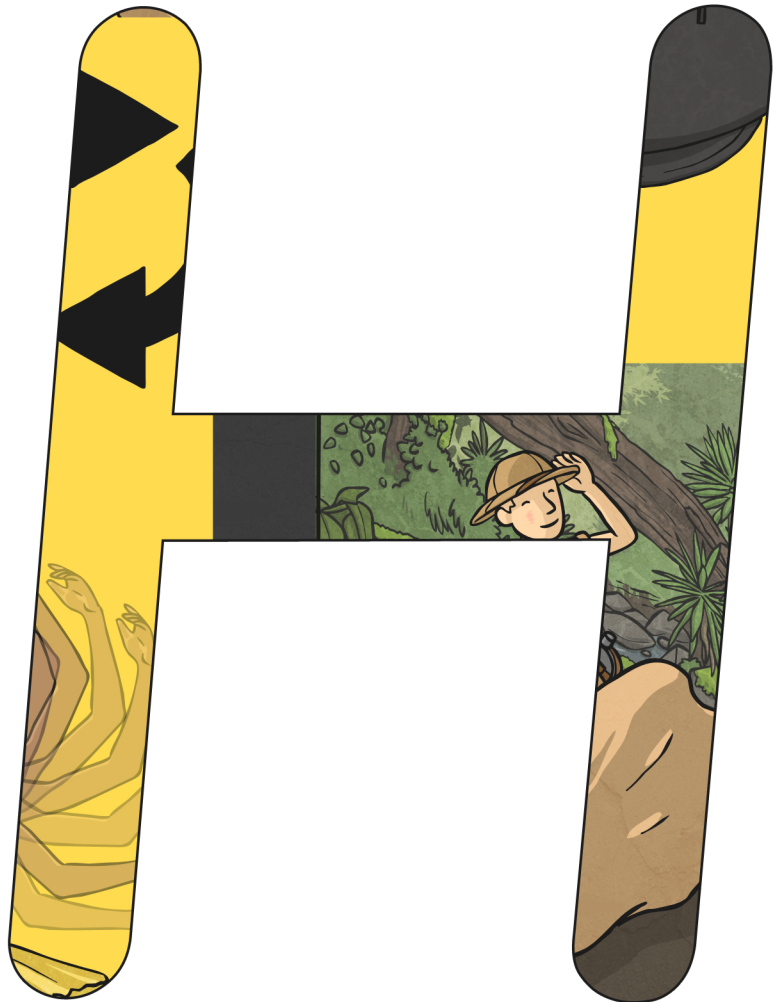
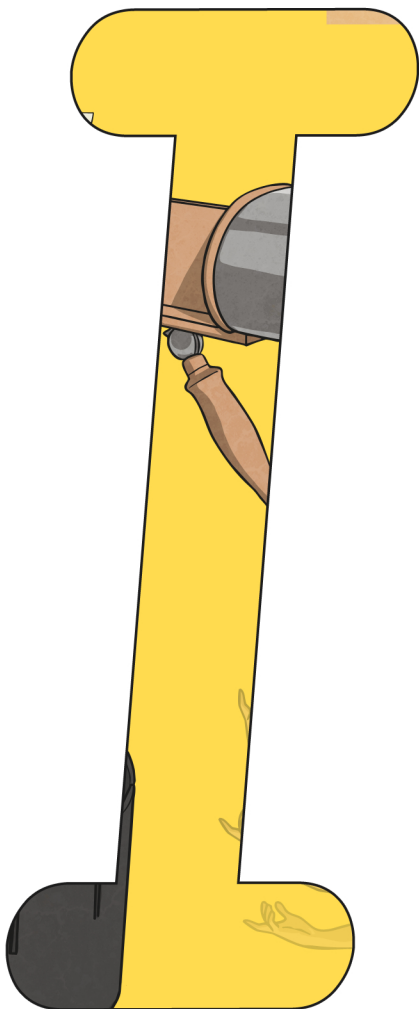
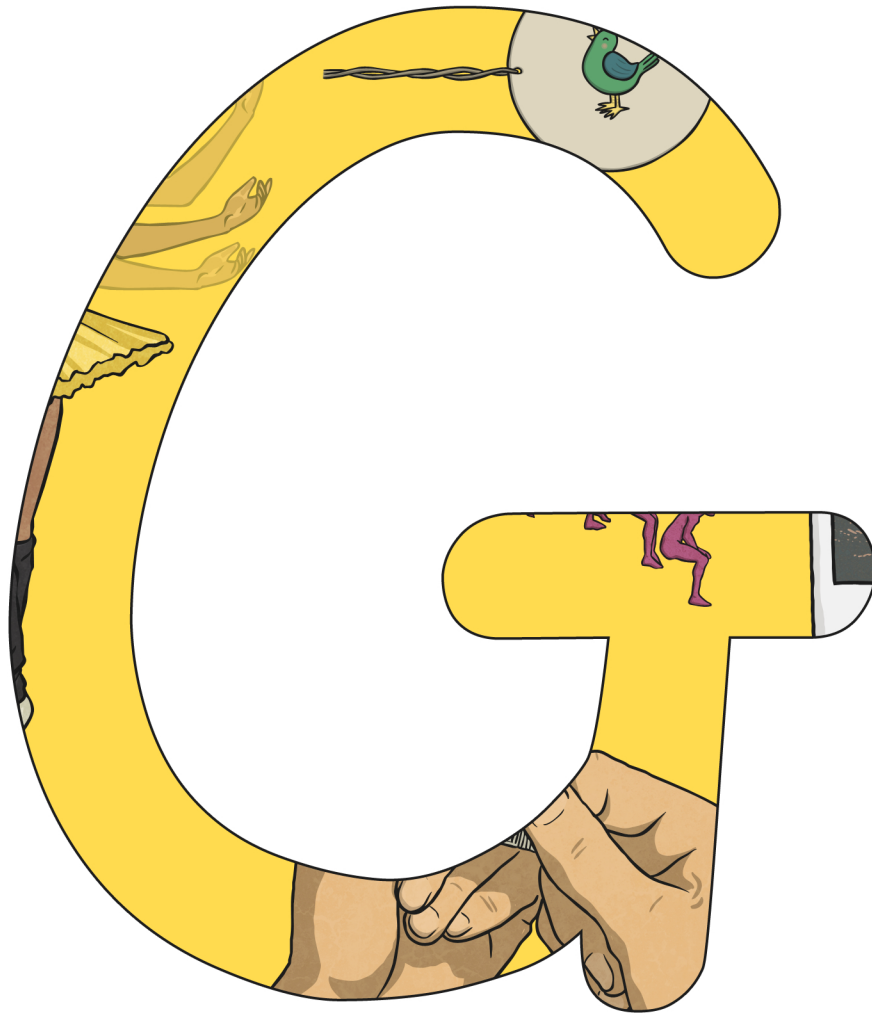




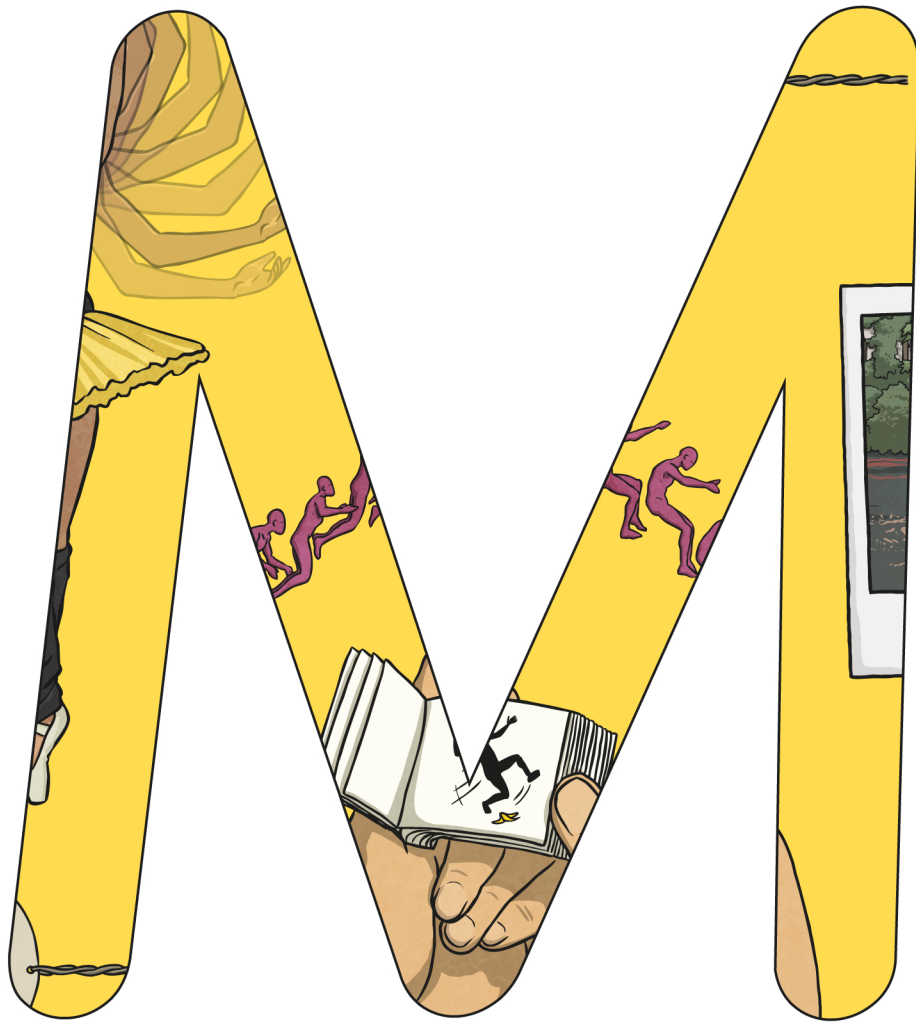


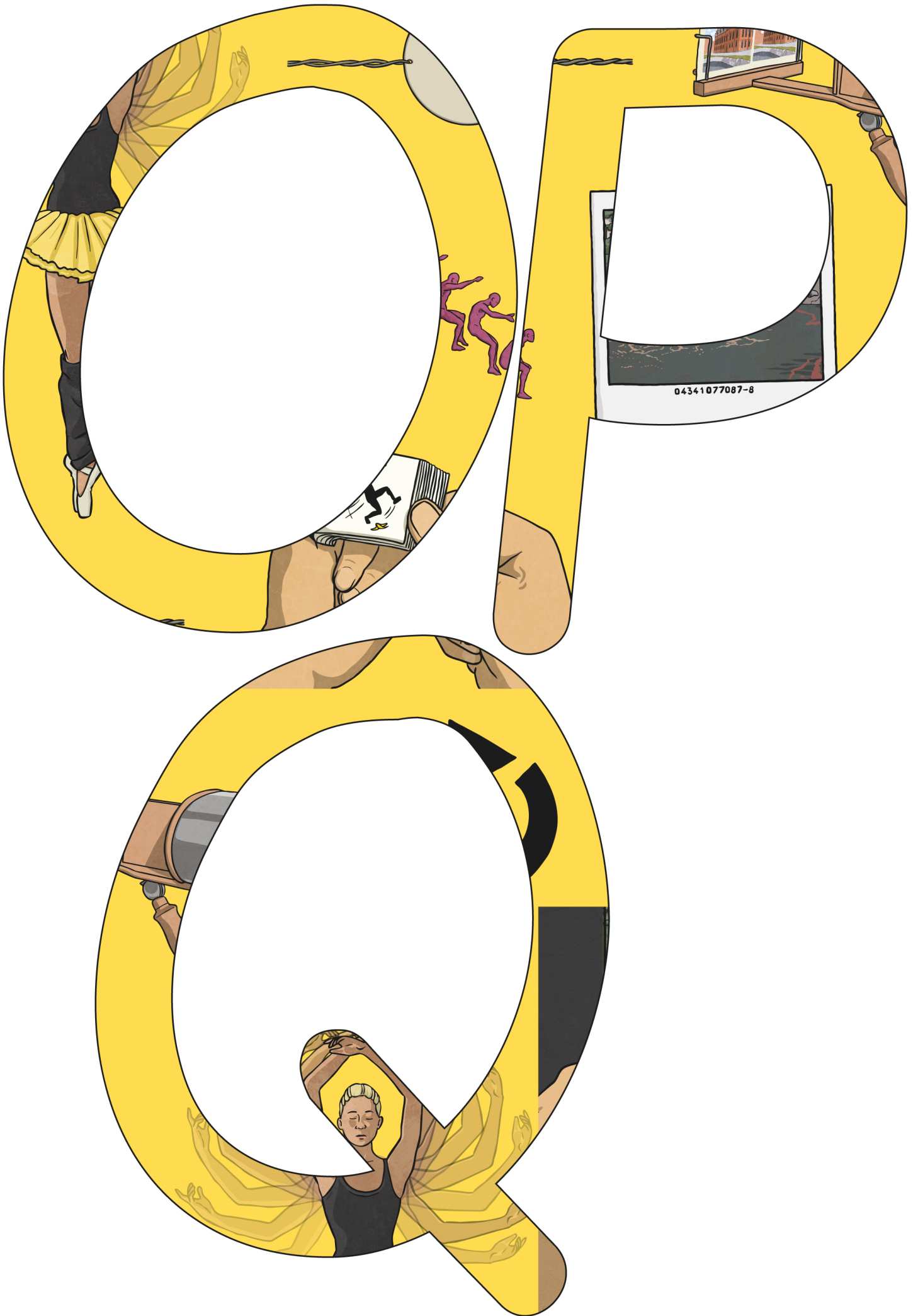


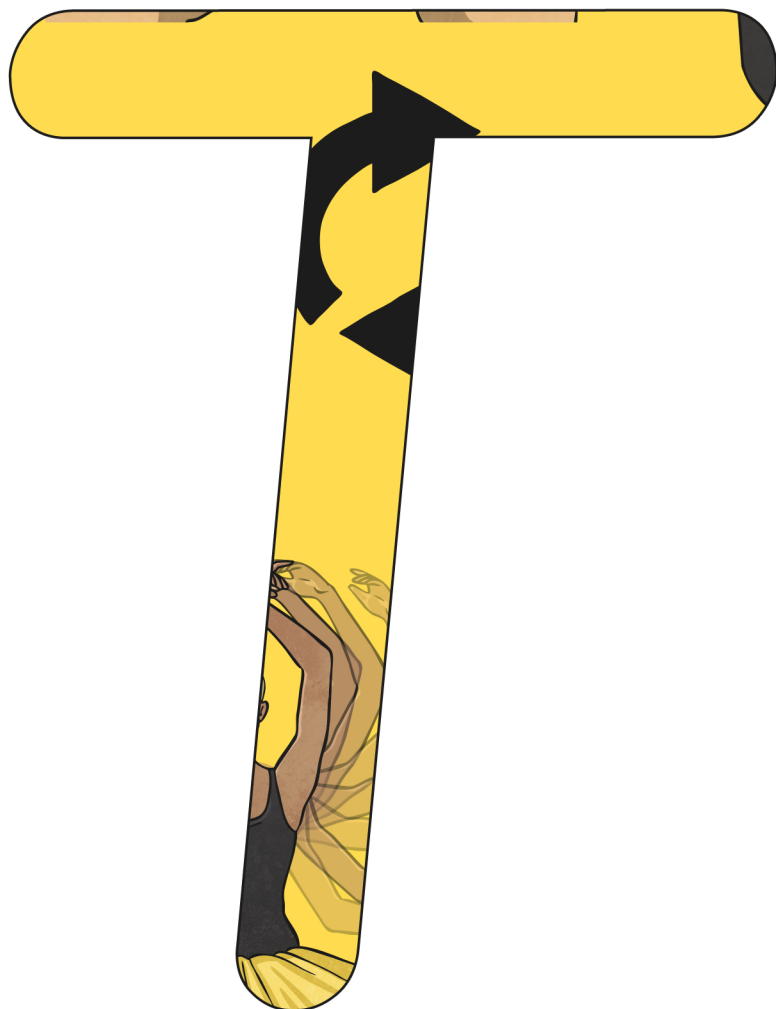




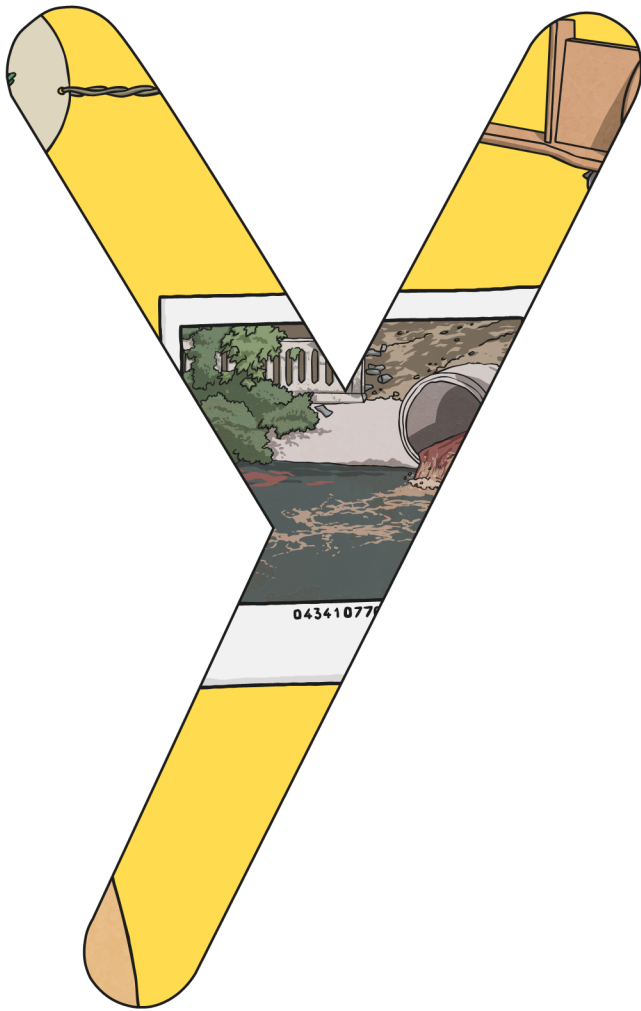


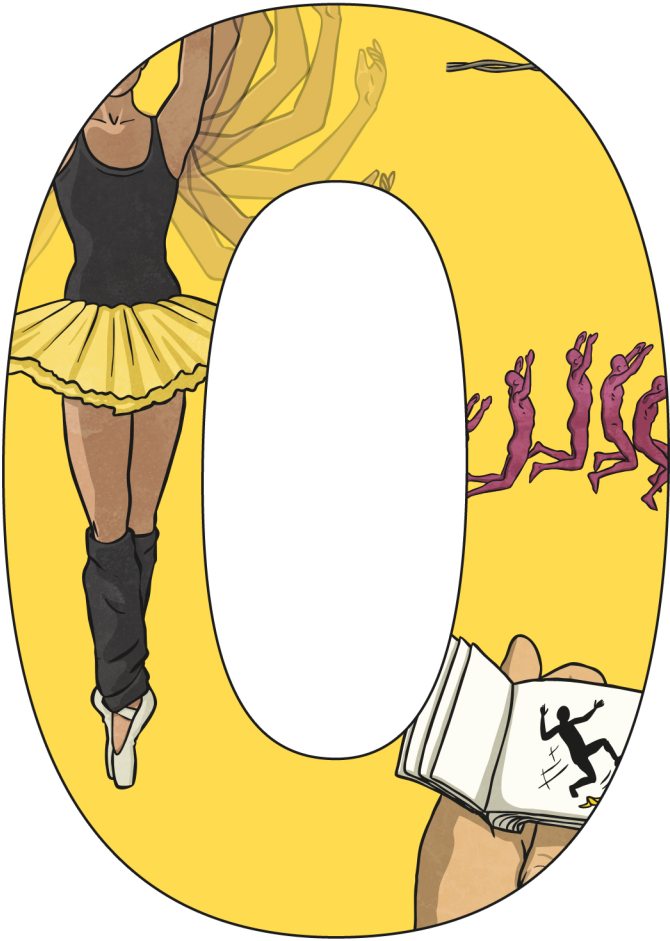


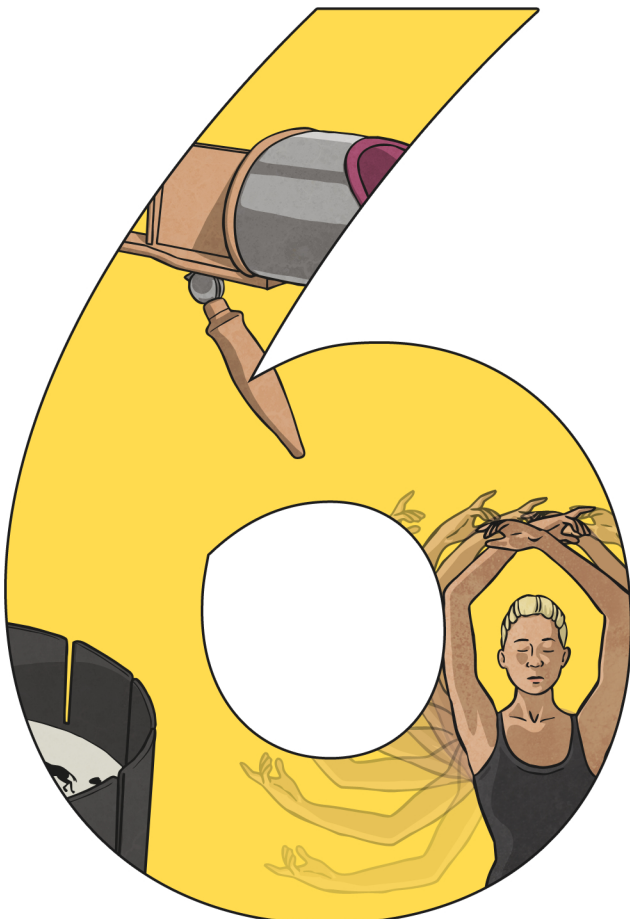


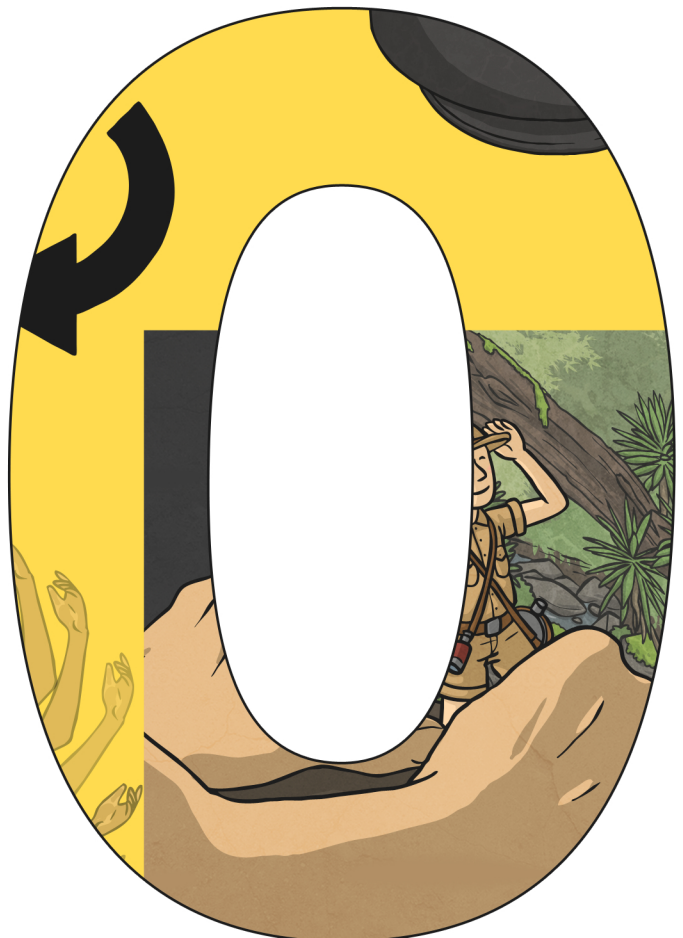


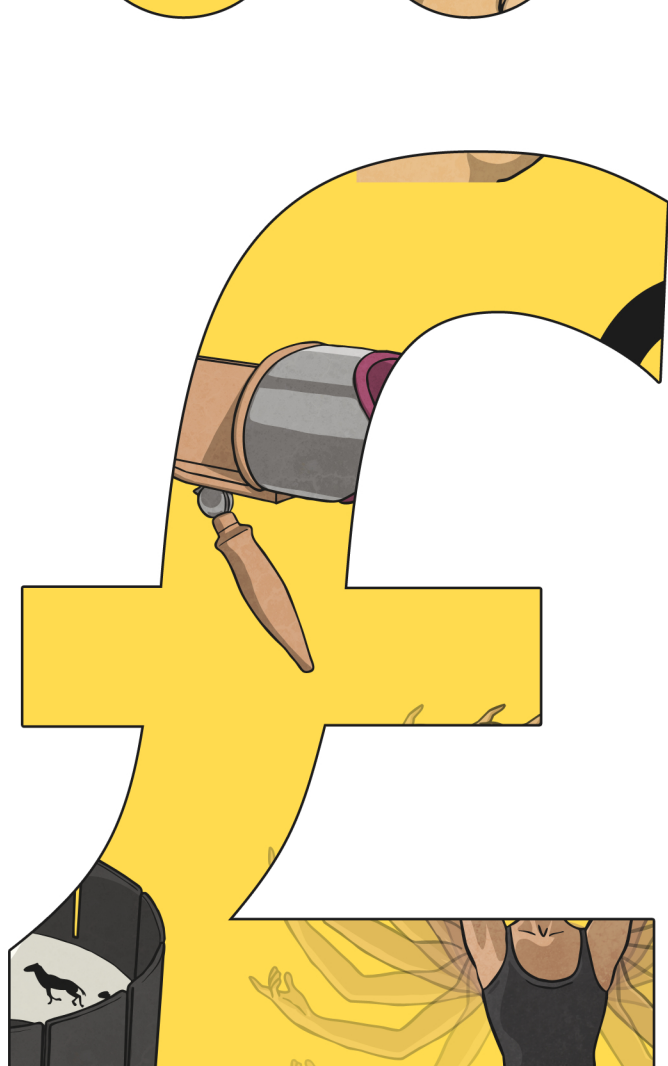
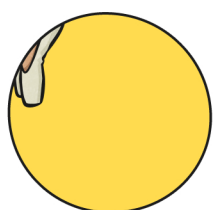
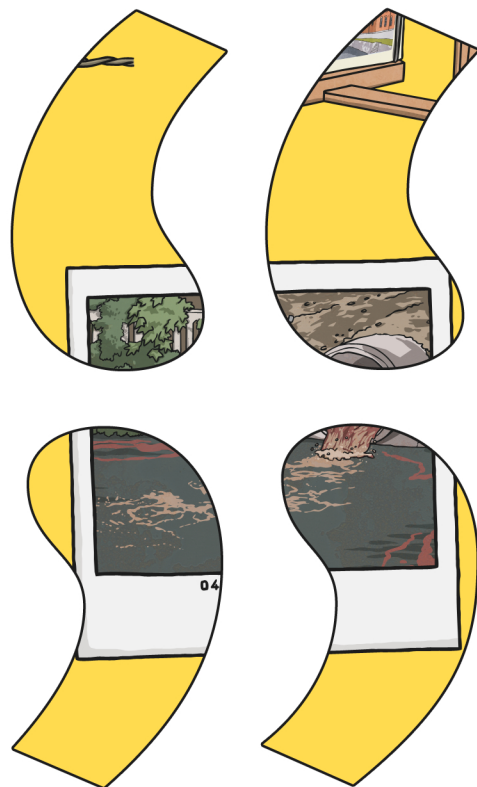


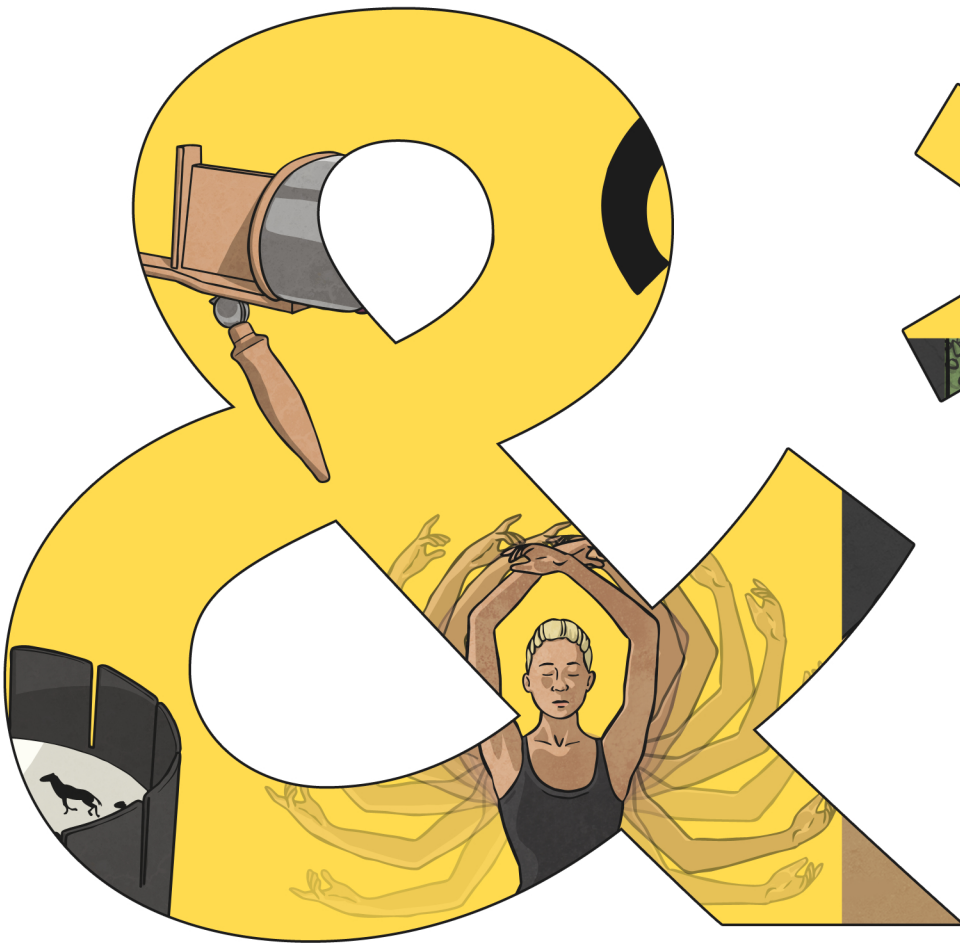
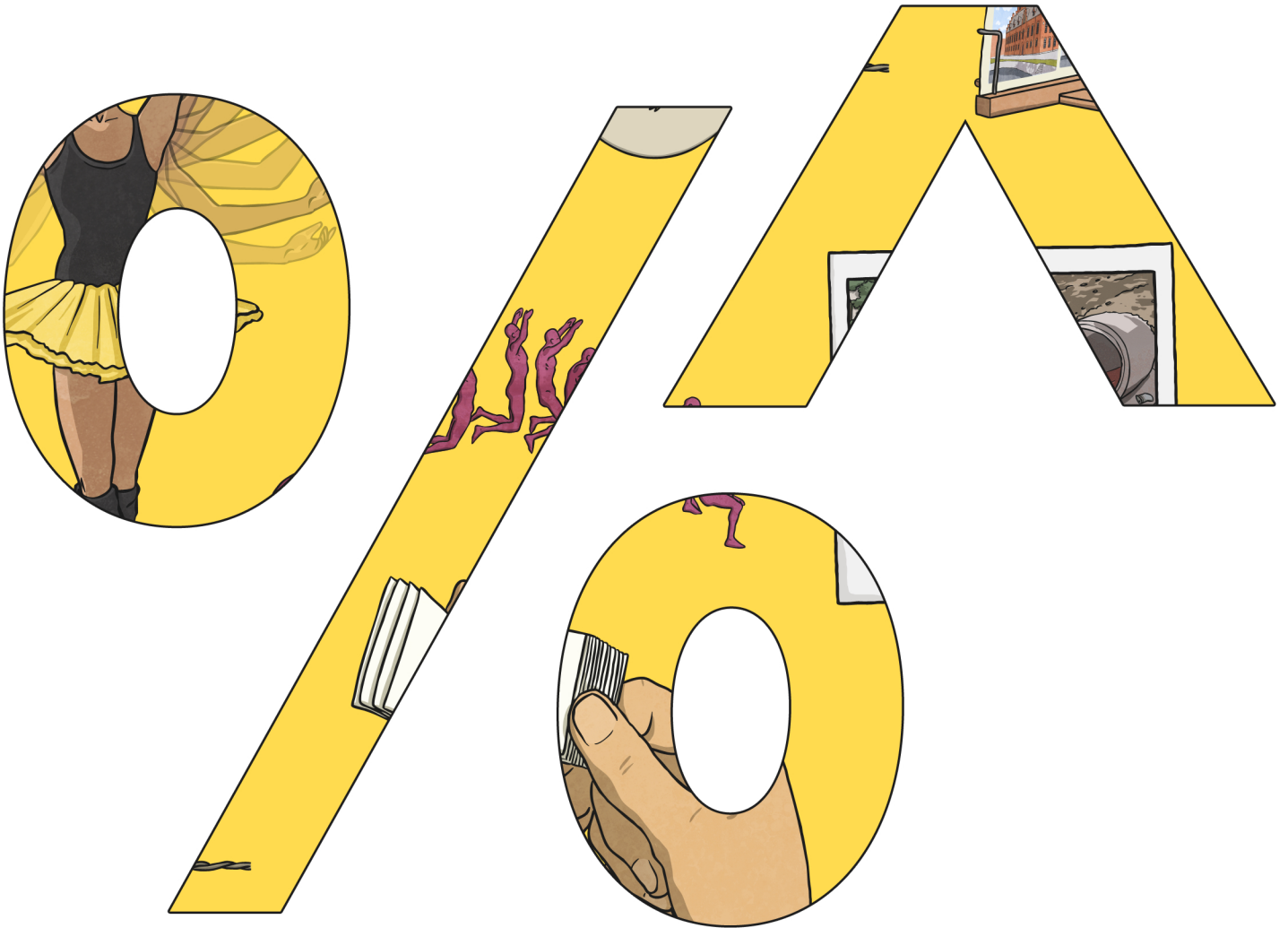


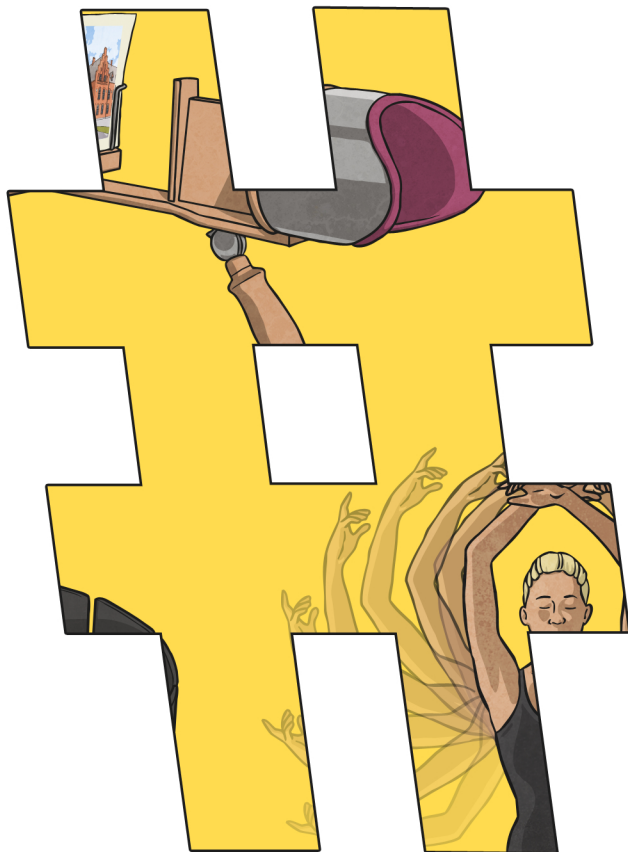
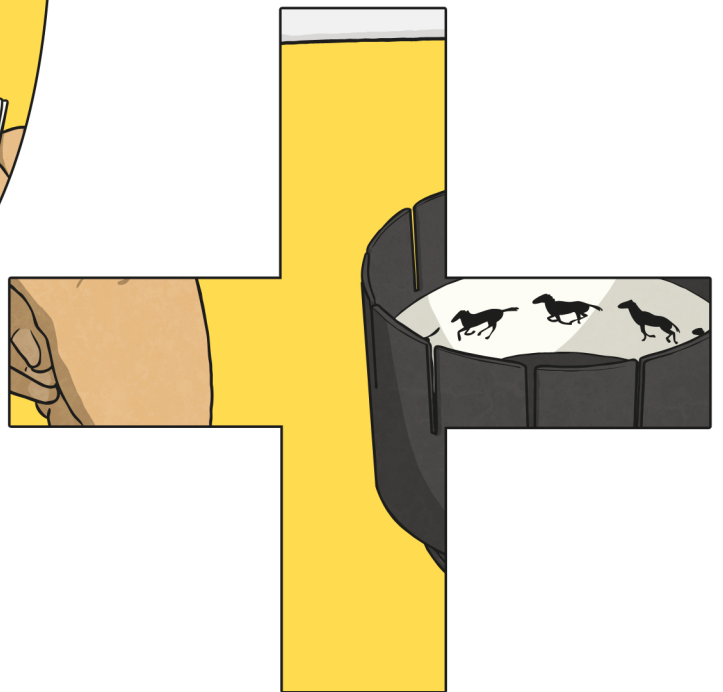
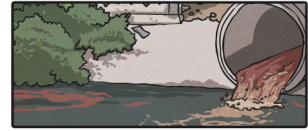
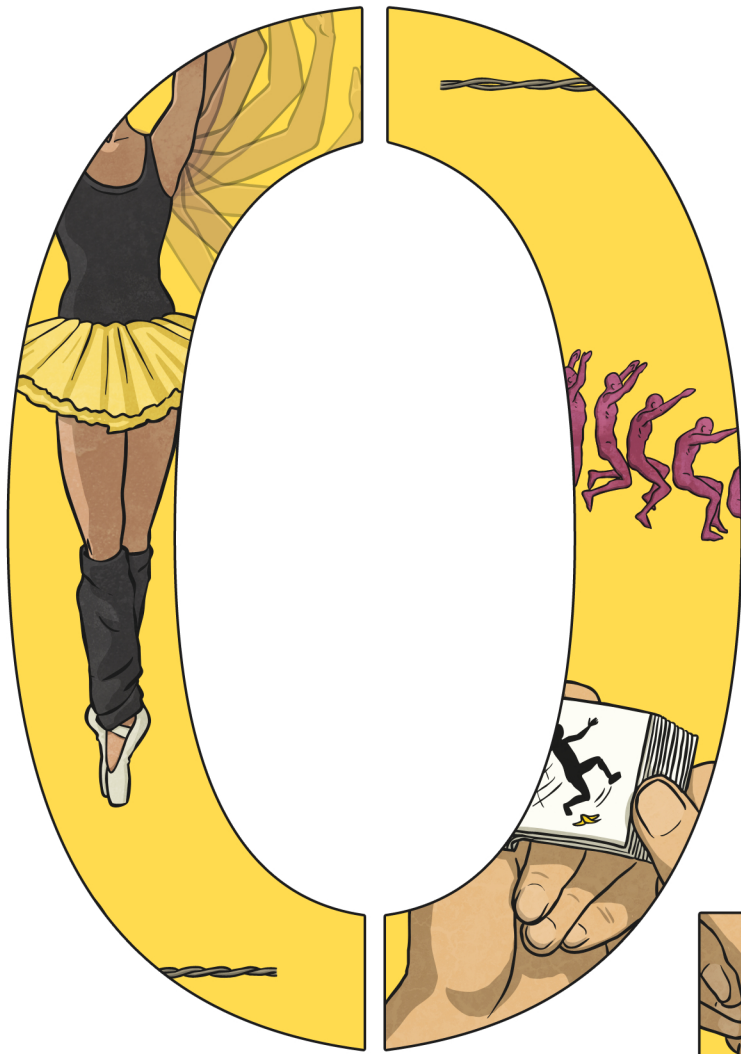


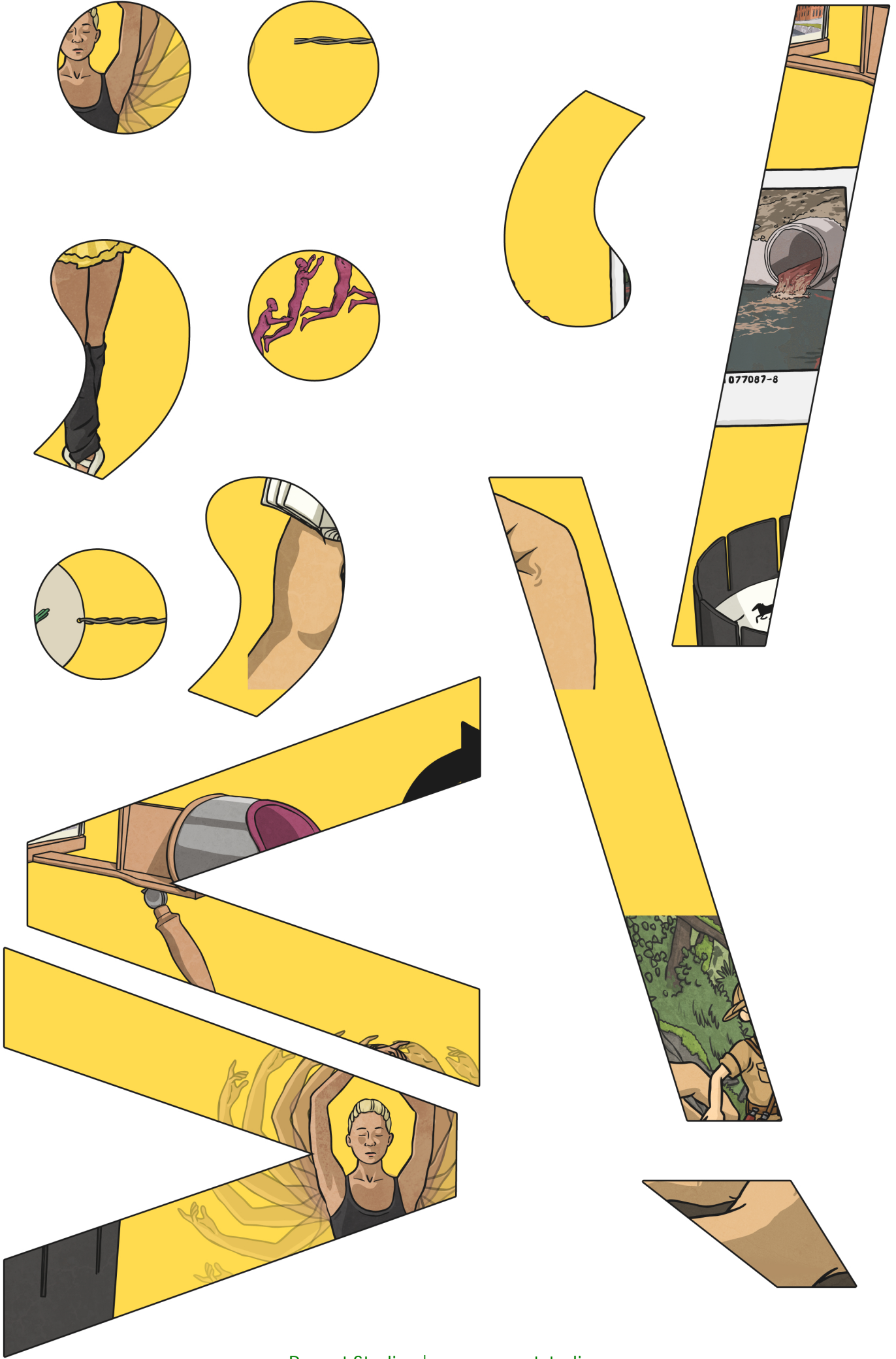






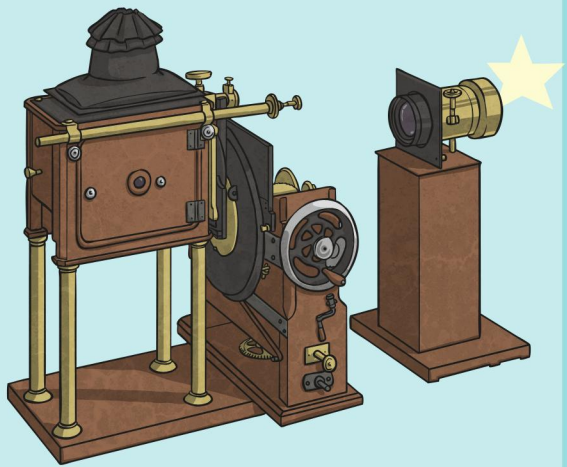








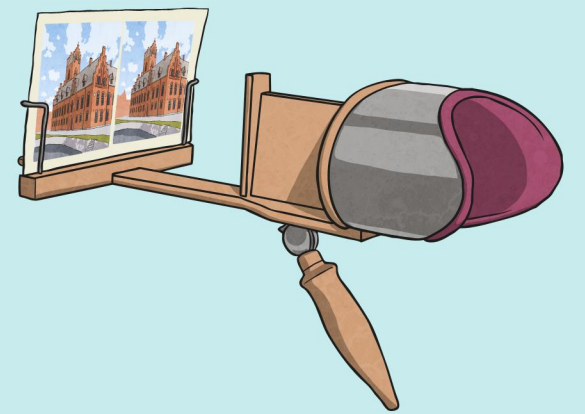
Anim



zoopraxiscope



zoetrope



stereoscope



onion skinning



still image

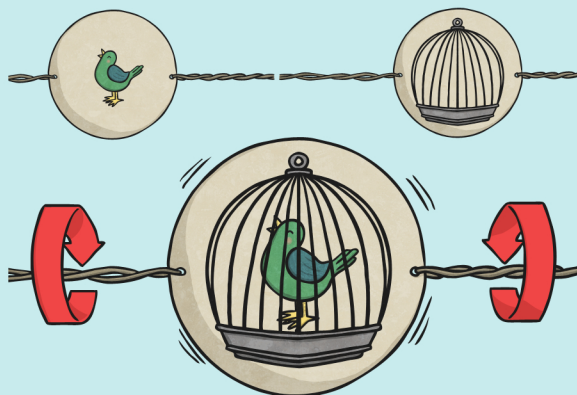


stick man

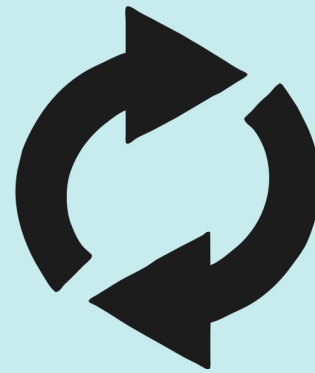
Animation



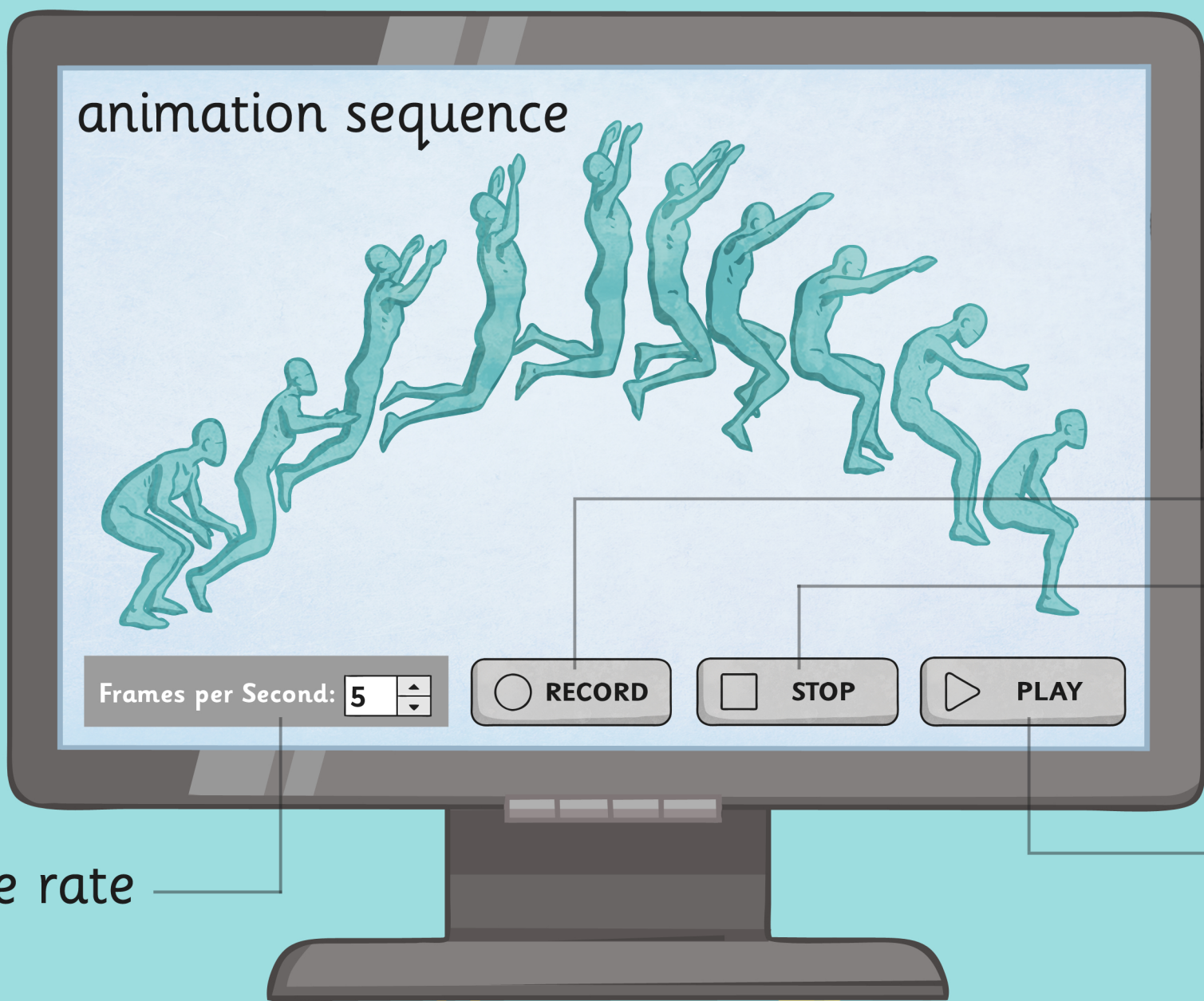
flip book



thaumatrope



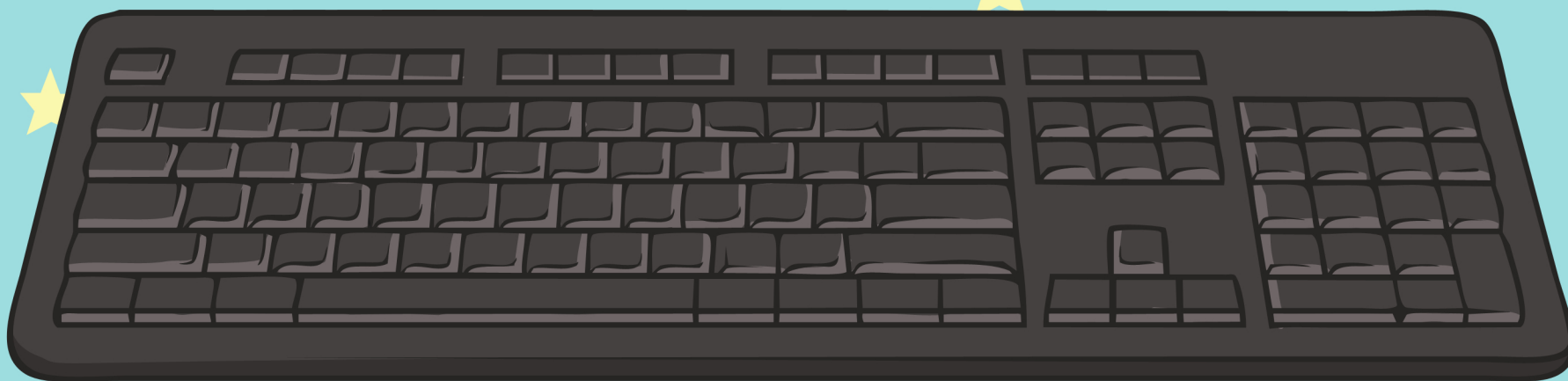
loop



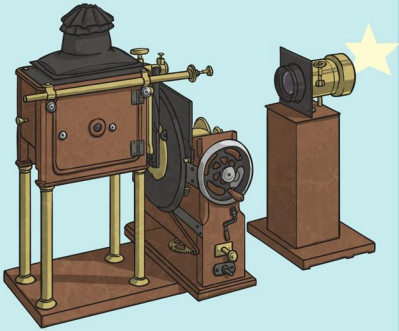
frame rate

record
stop

play



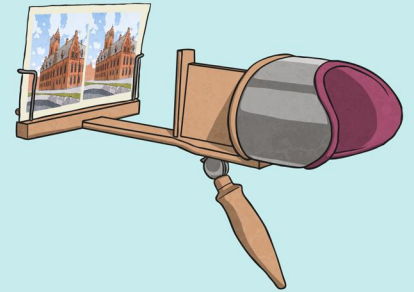
Anim



zoopraxiscope



zoetrope



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still image

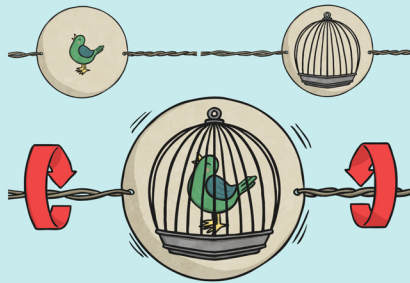


stick man

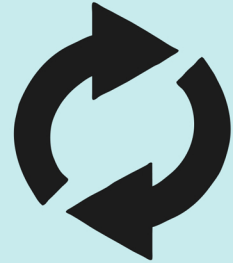
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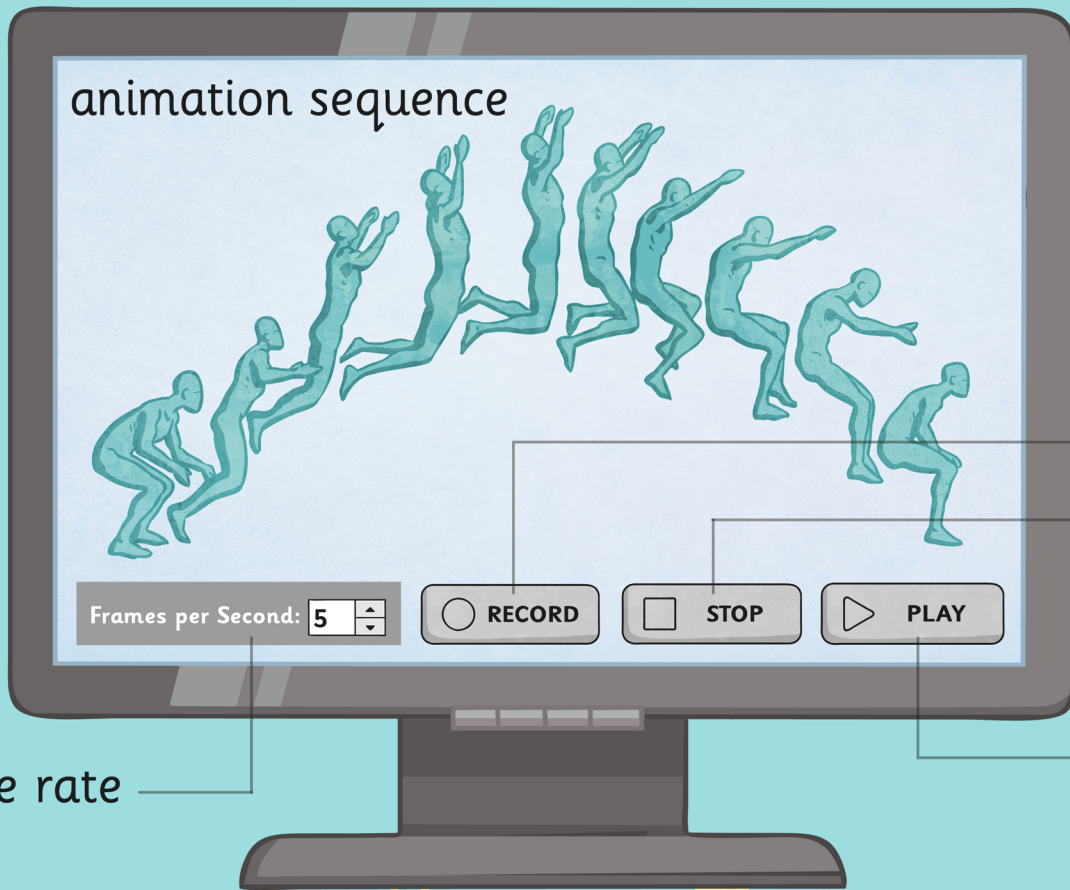
flip book



thaumatrope



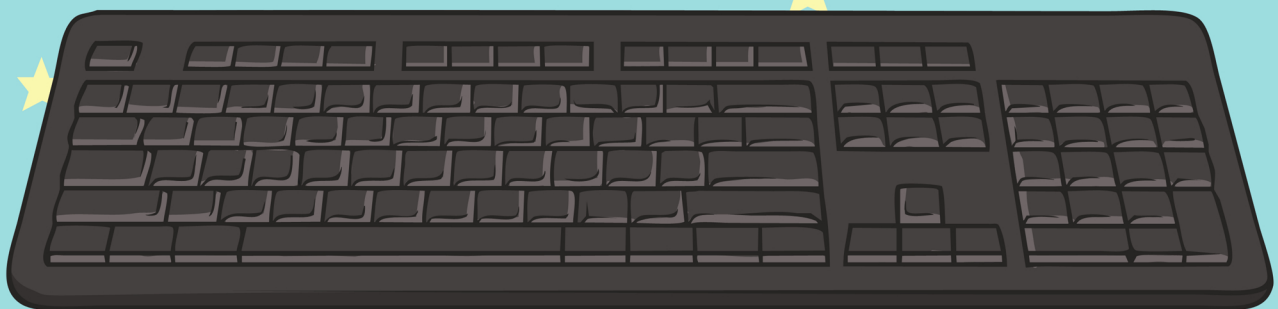
loop



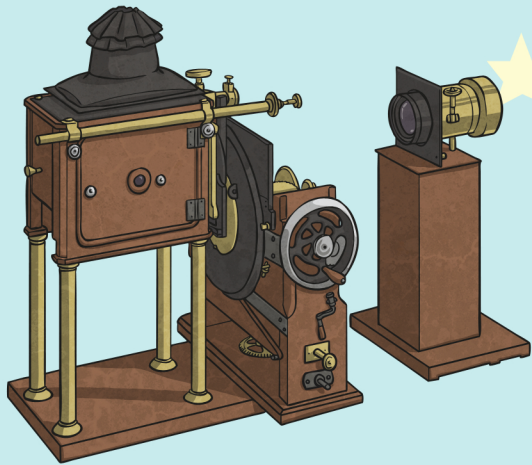
frame rate

record
stop

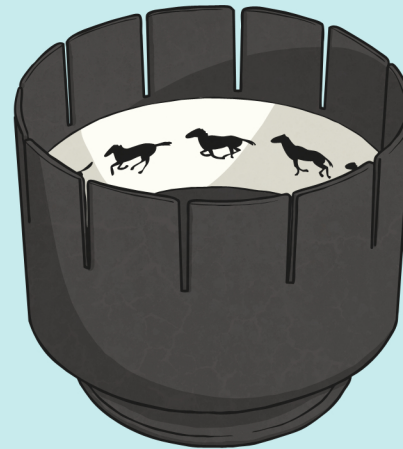
play



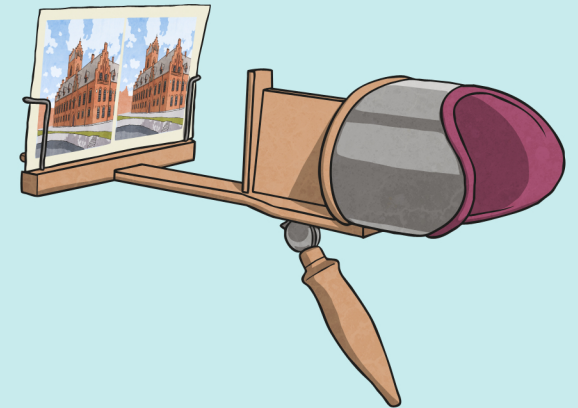
Anim



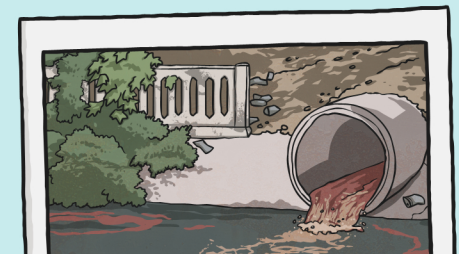
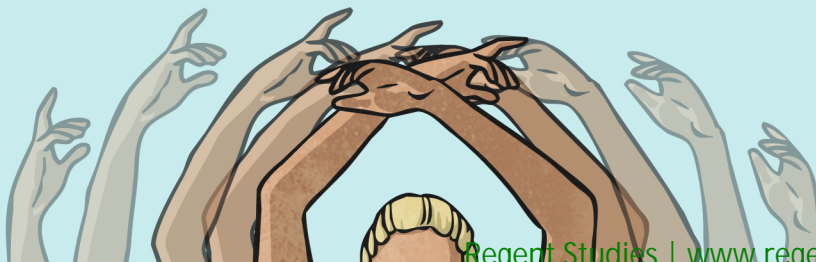
zoopraxiscope



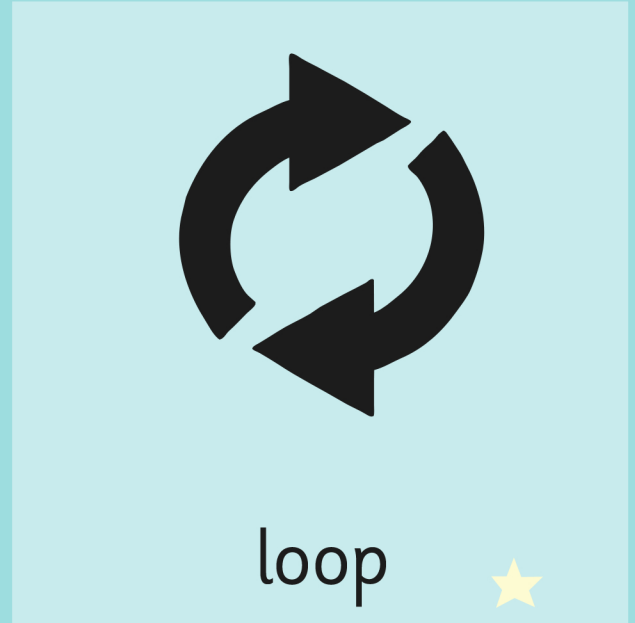
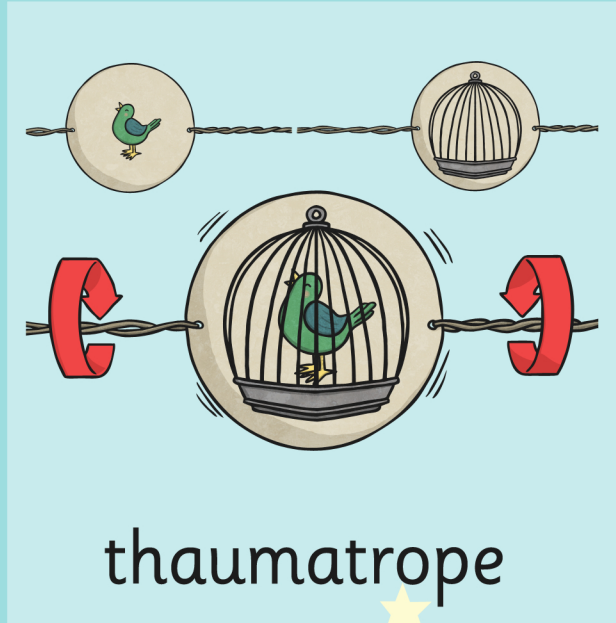
zoetrope



stereoscope

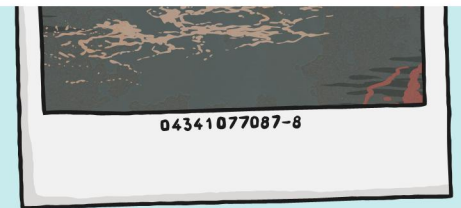


Animation





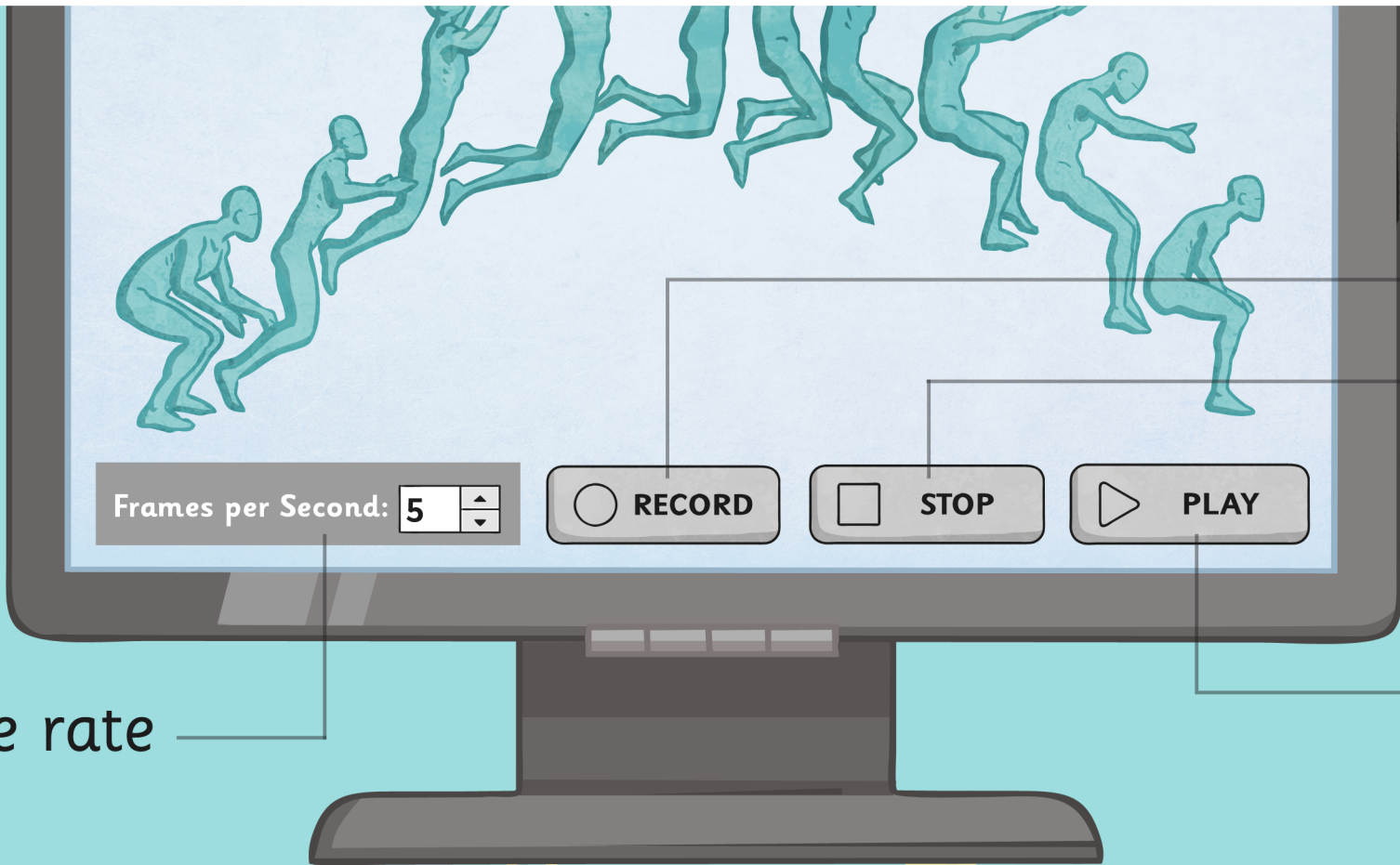
onion skinning



still image



stick man



record

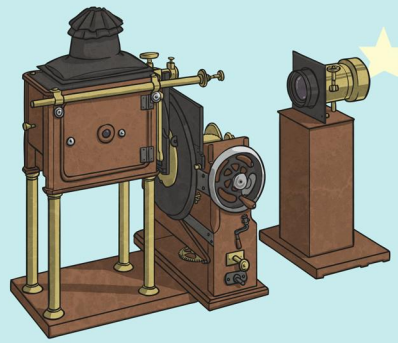
stop

play

frame rate



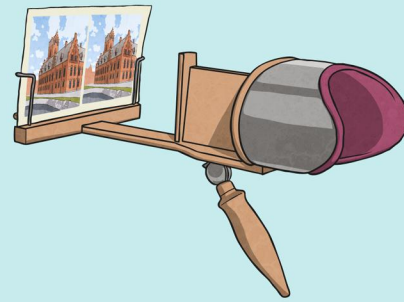
Animation



zoopraxiscope



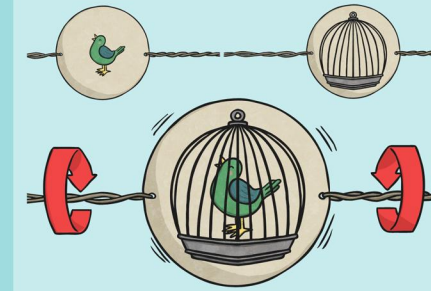
zoetrope



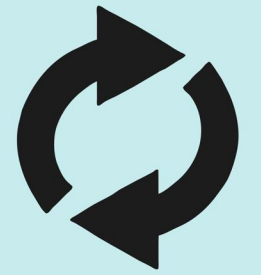
stereoscope



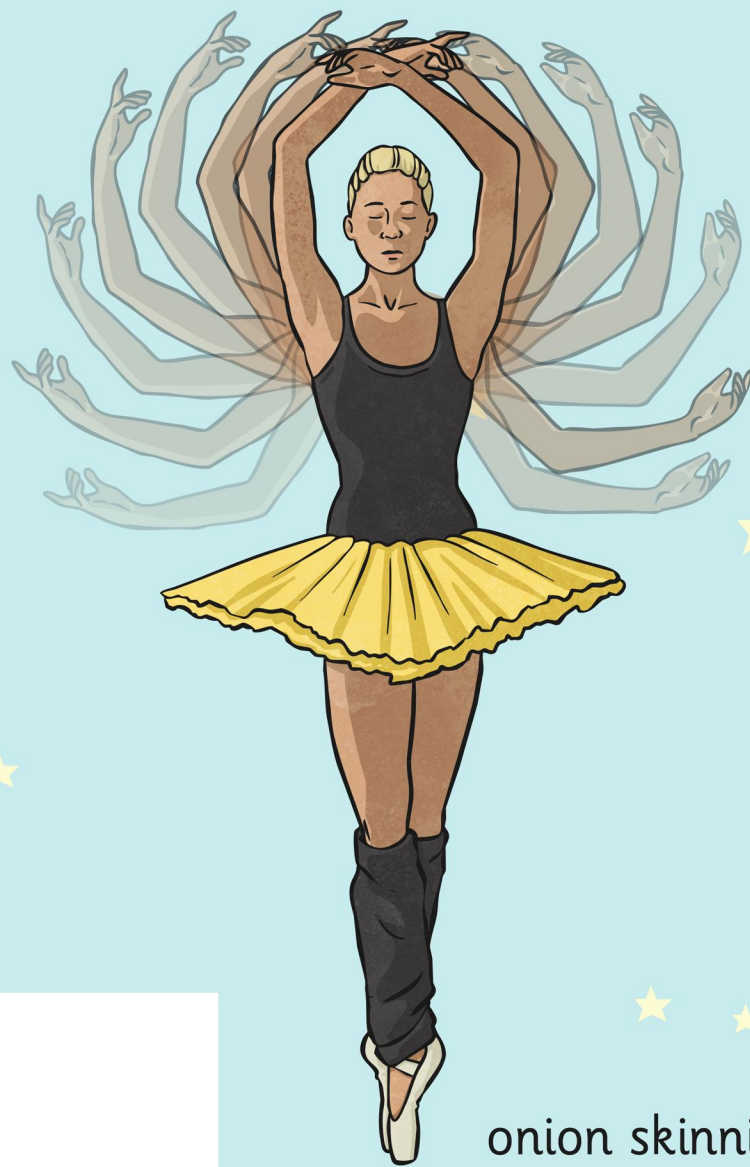
flip book



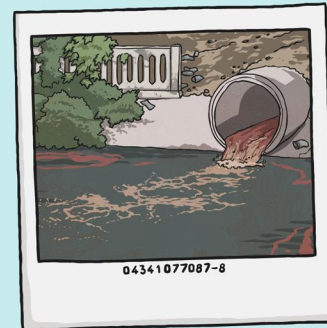
thaumatrope



loop



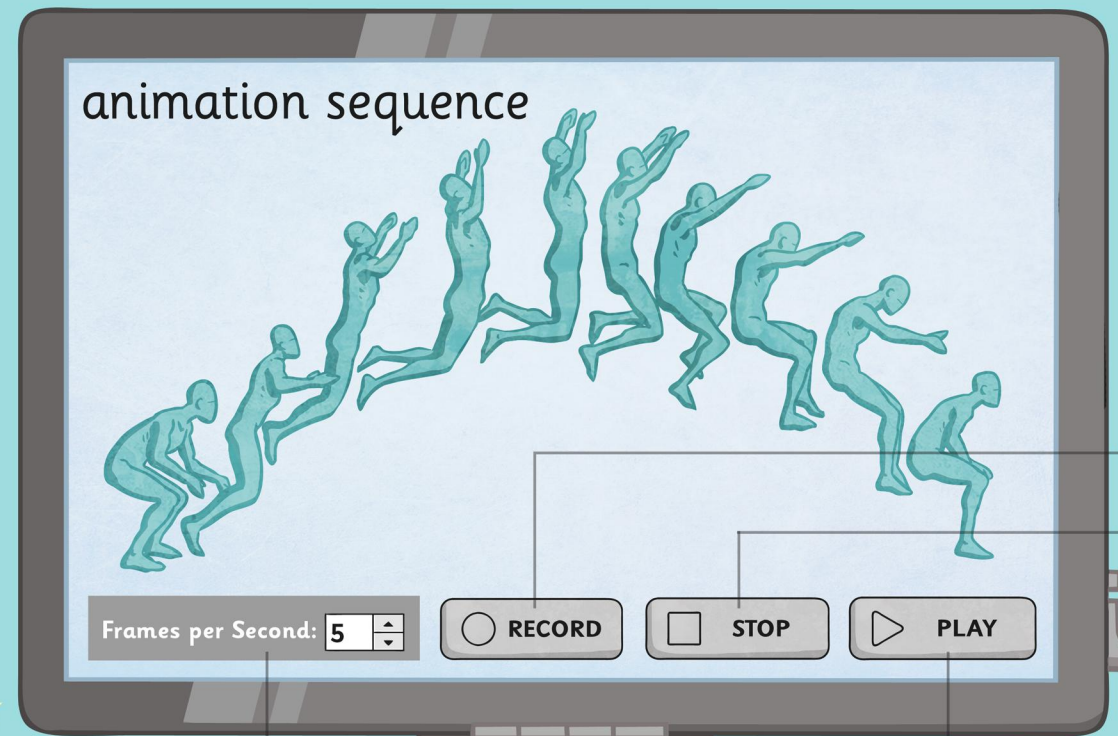
onion skinning



still image



stick man



animation sequence

Frames per Second: 5

RECORD

STOP

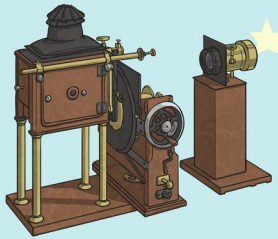
PLAY

record
stop

play

frame rate

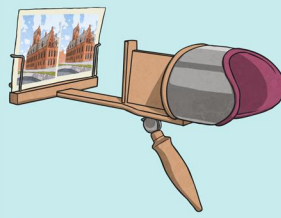
Animation



zoopraxiscope



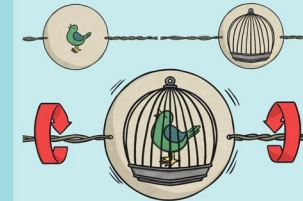
zoetrope



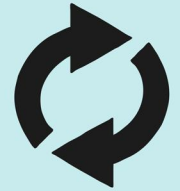
stereoscope



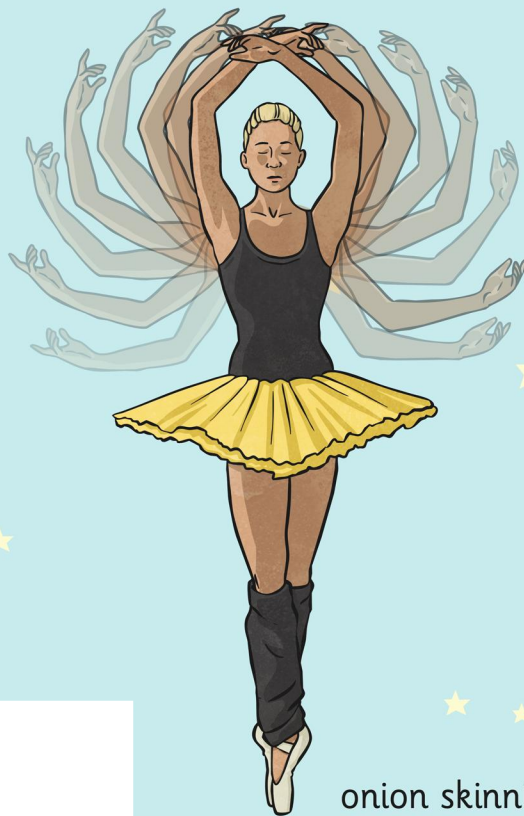
flip book



thaumatrope



loop



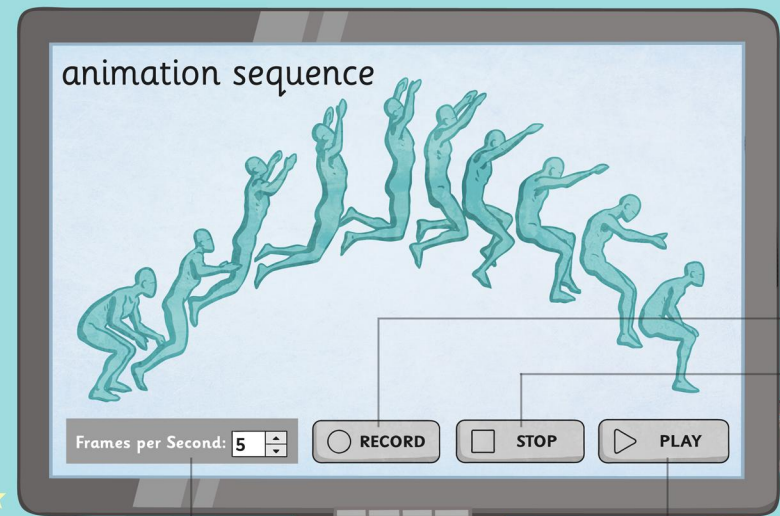
onion skinning



still image



stick man



animation sequence

Frames per Second: 5

RECORD

STOP

PLAY

record
stop

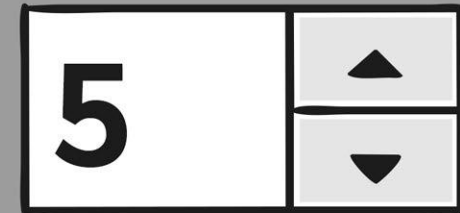
play

frame rate

frame rate

Frames per Second:

5



play



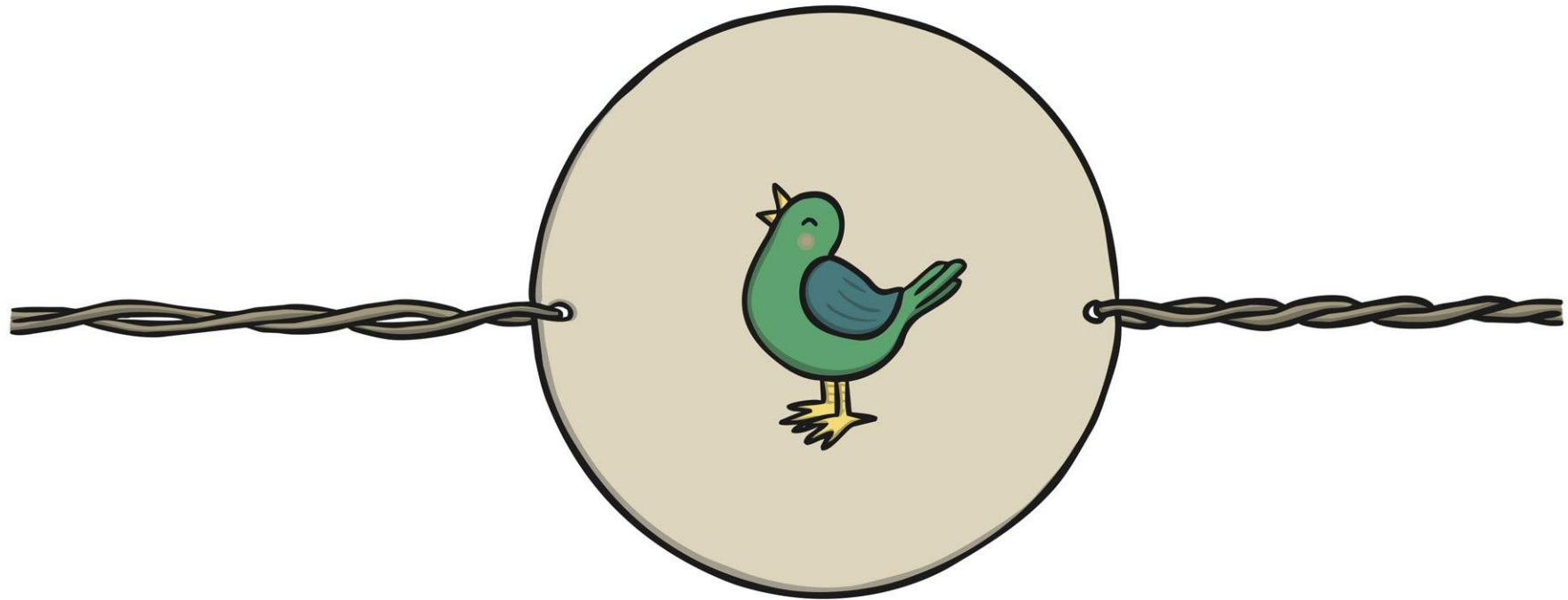
stop



record



thauμαντροπε



onion skinning



zoetrope

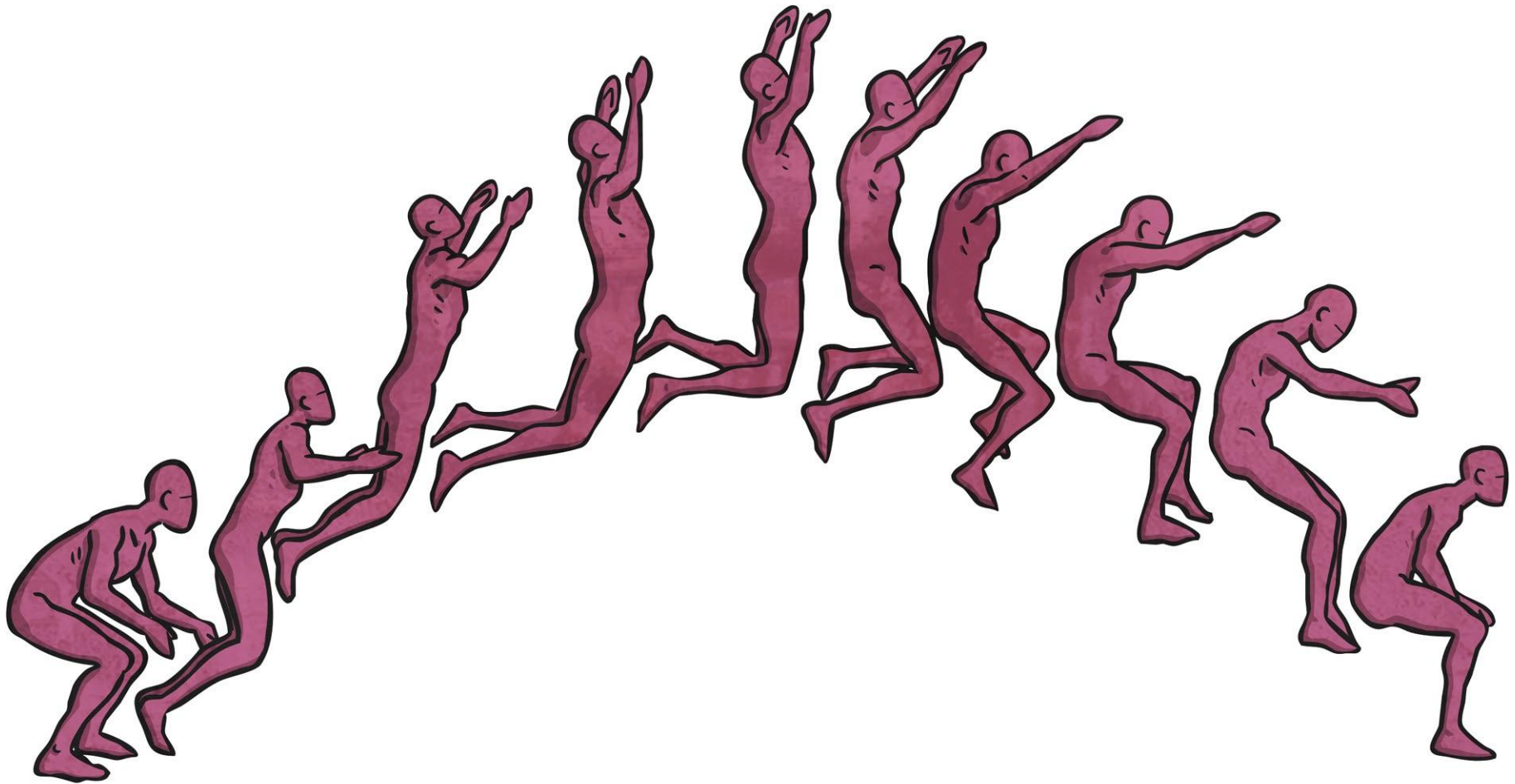


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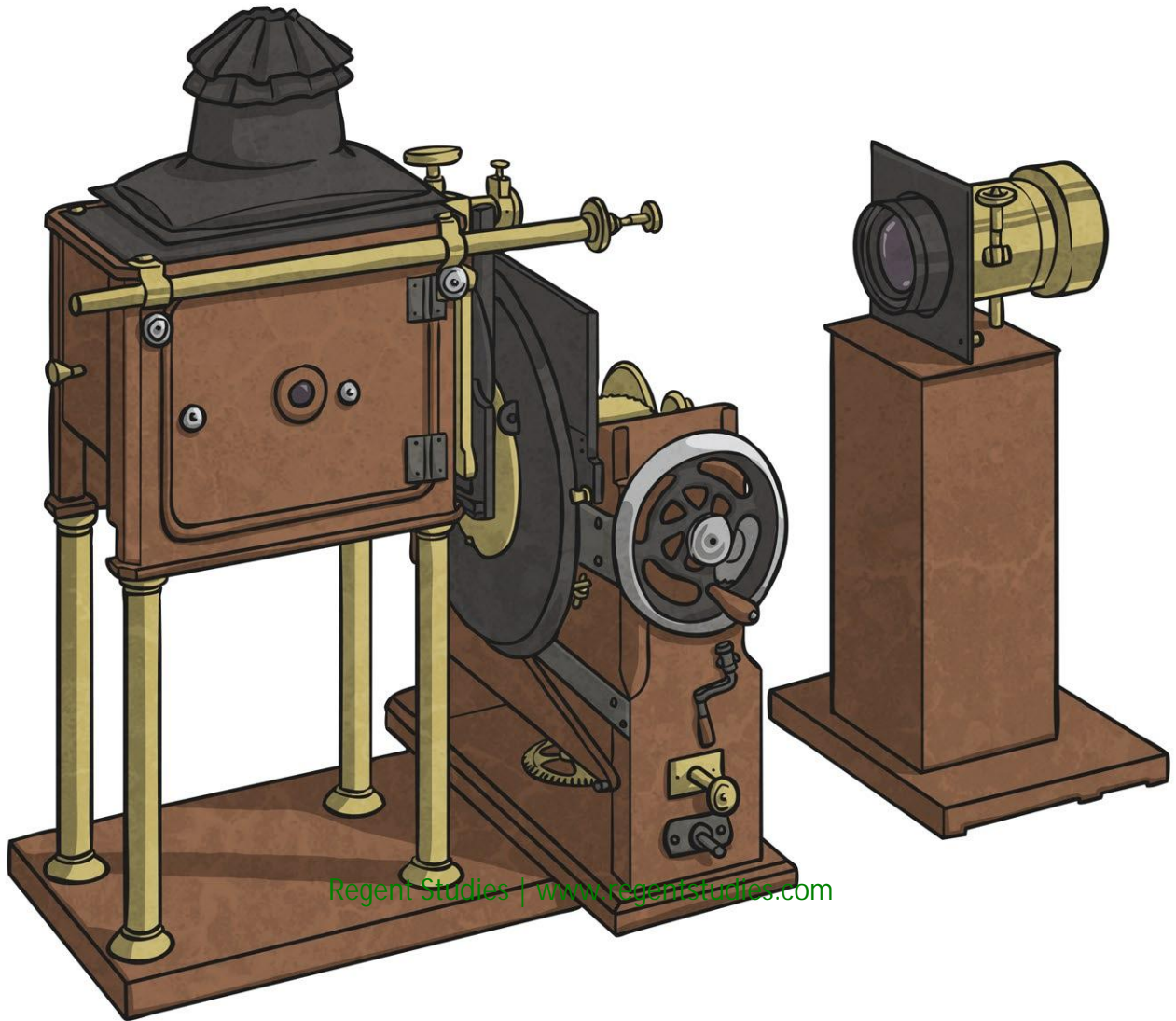
flip book



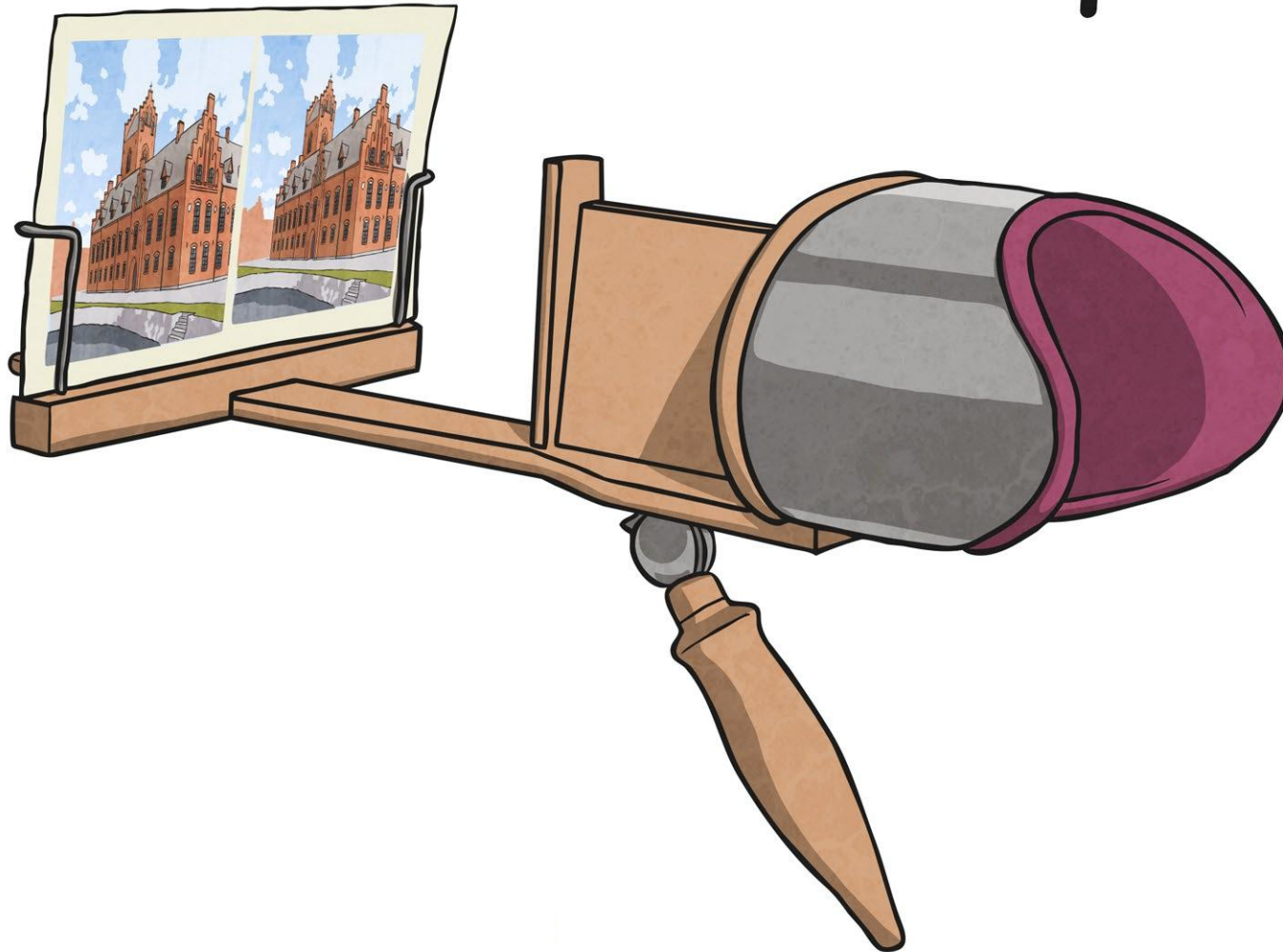
animation



zoopraxiscope



stereoscope

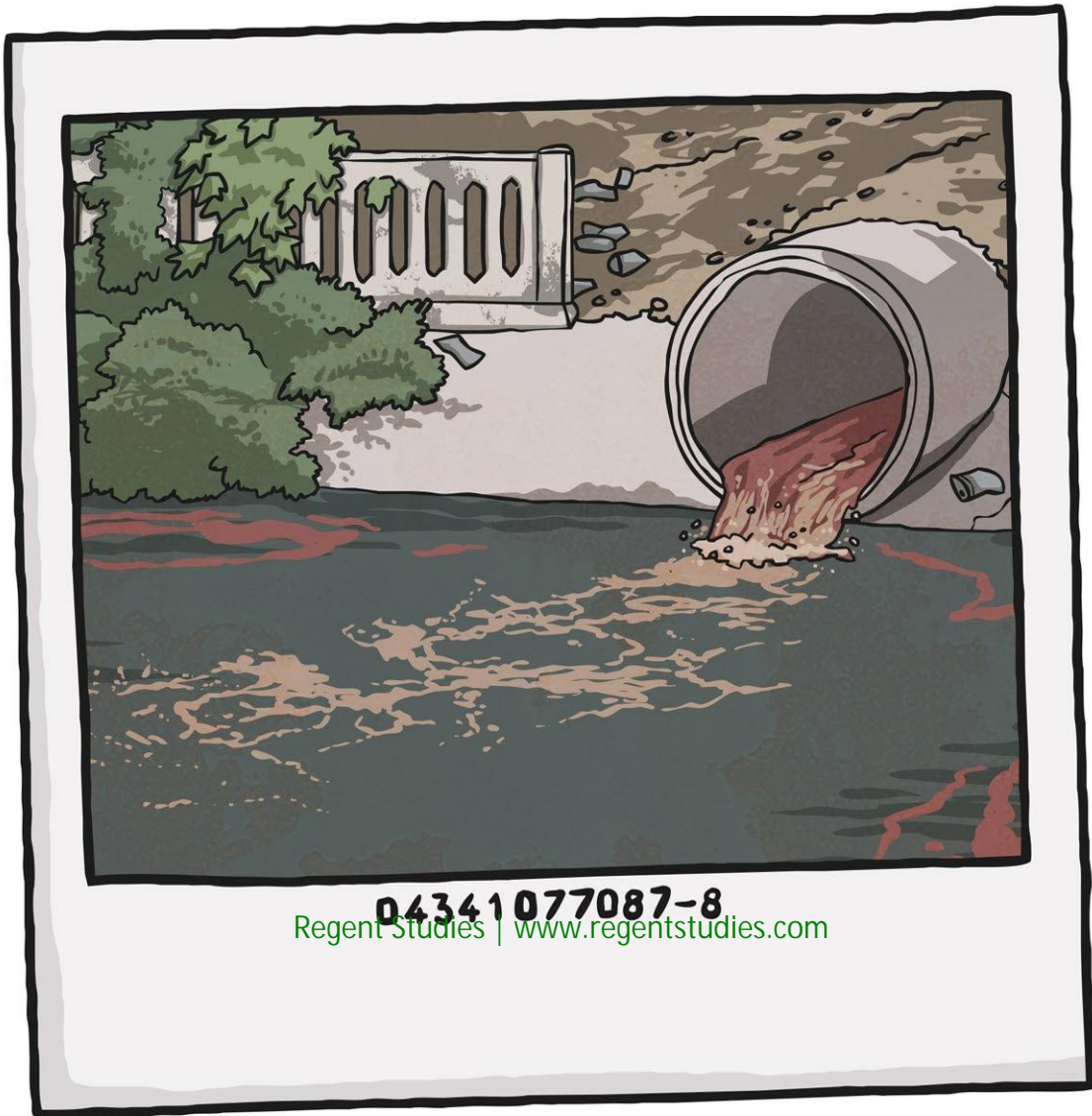


loop



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still image



04341077087-8
Regent Studies | www.regentstudies.com

evaluate



Regent Studies | www.regentstudies.com

stop motion

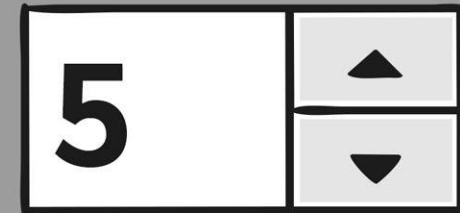


Regent Studies | www.regentstudies.com

frame rate

Frames per Second:

5



play



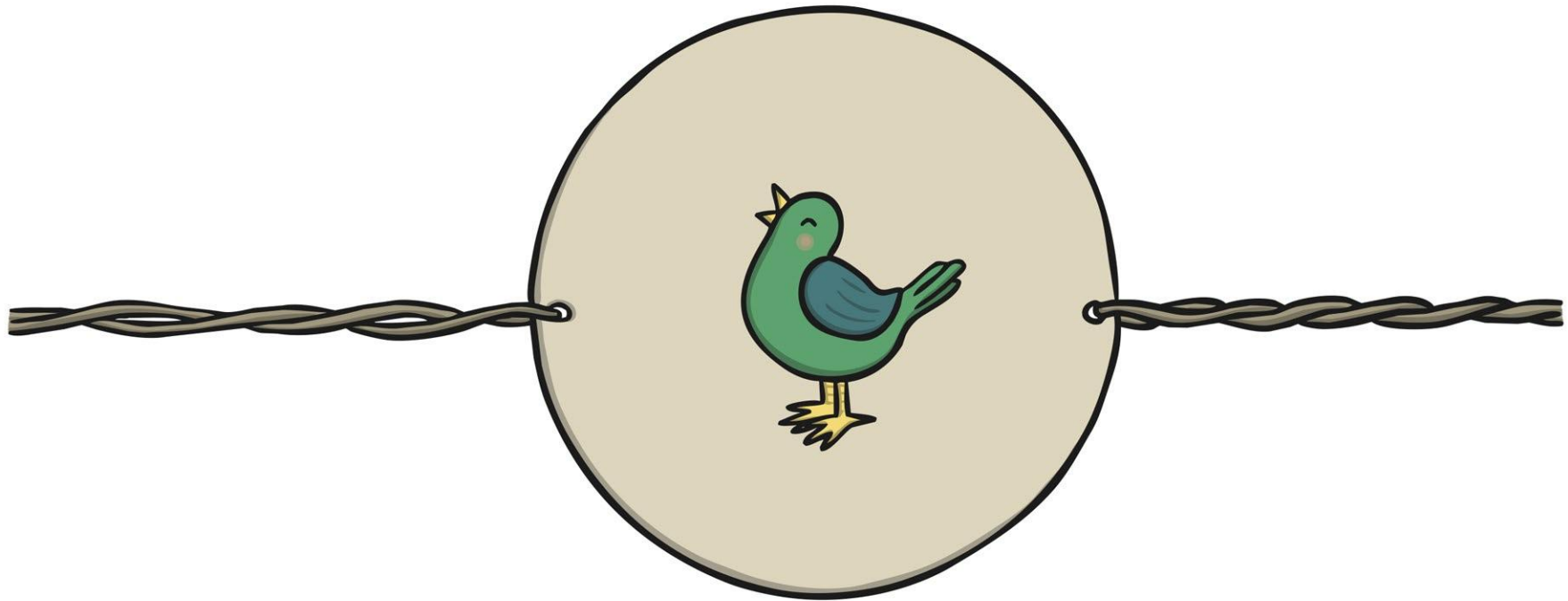
stop



record



thaumantrope



onion skinning



Regent Studies | www.regentstudies.com

zoetrope



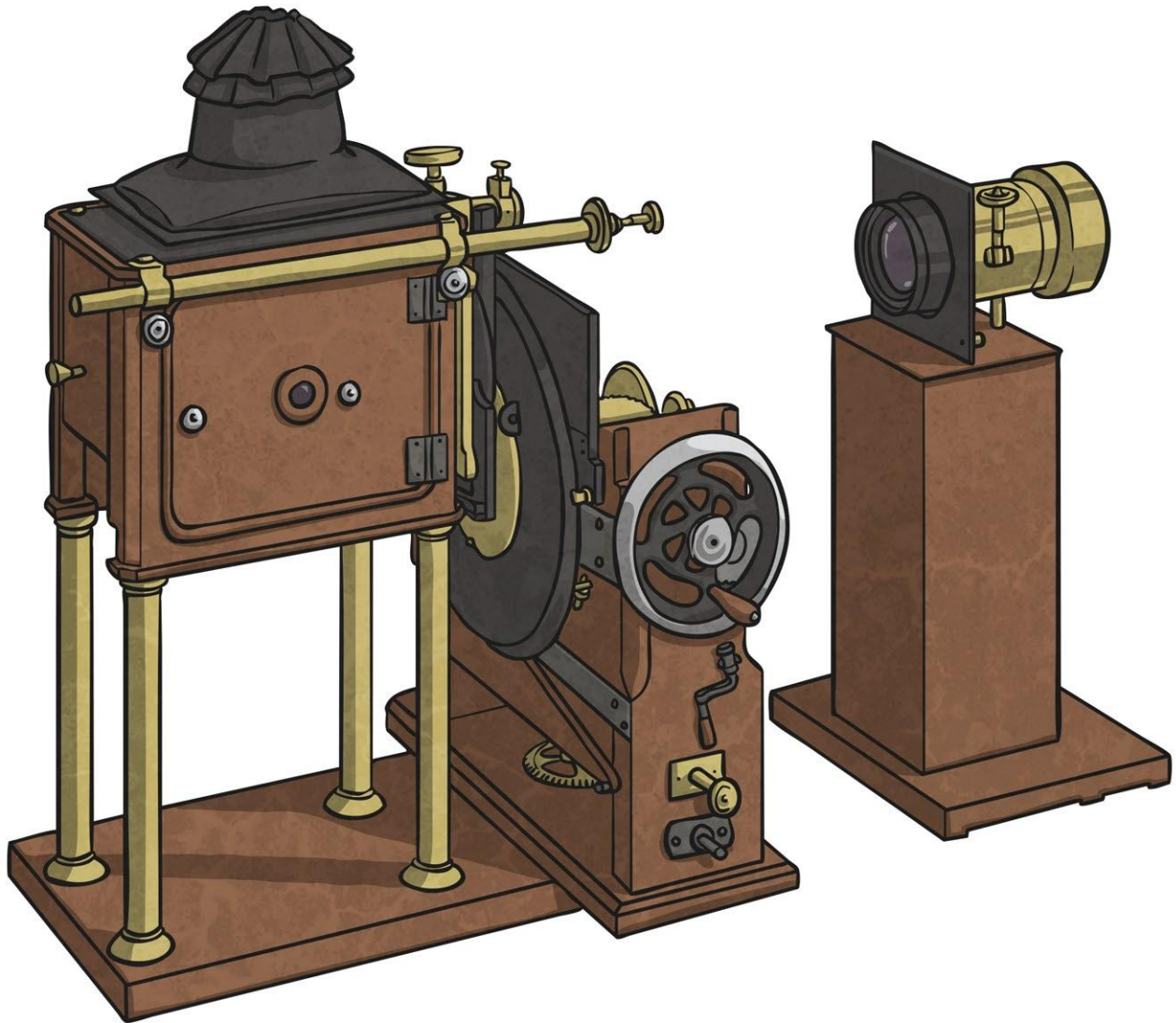
flip book



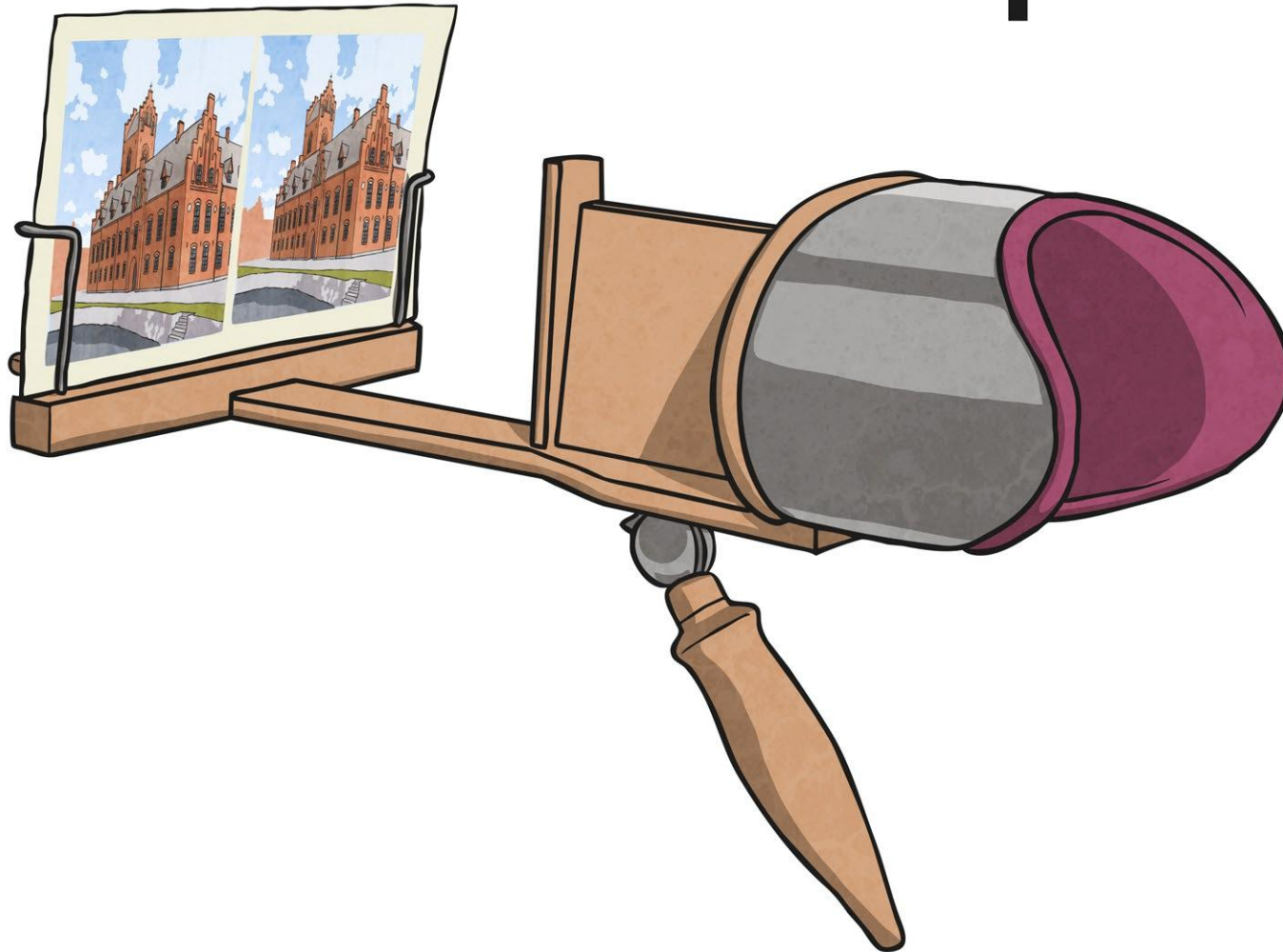
animation



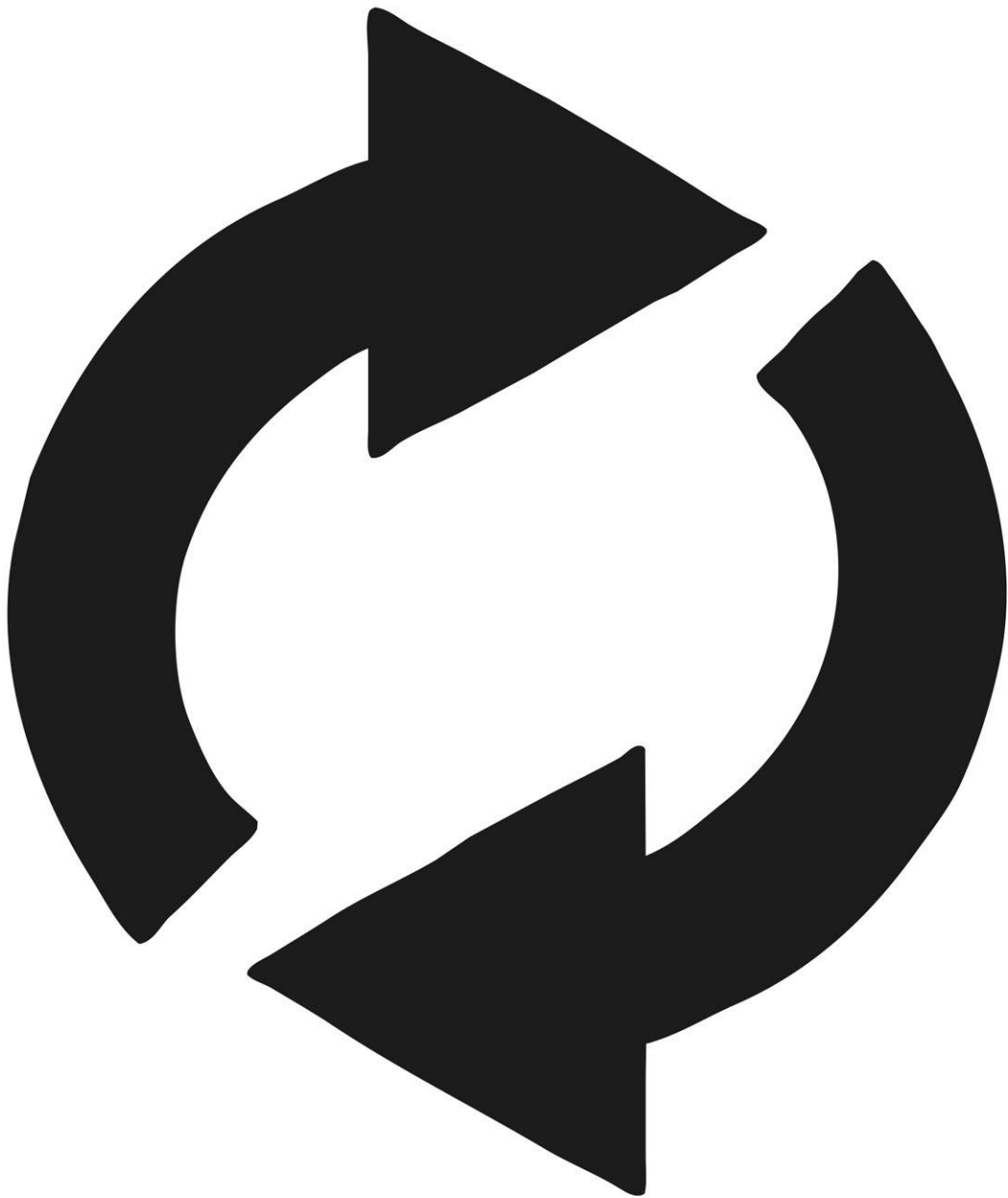
zoopraxiscope



stereoscope



loop



still image



evaluate



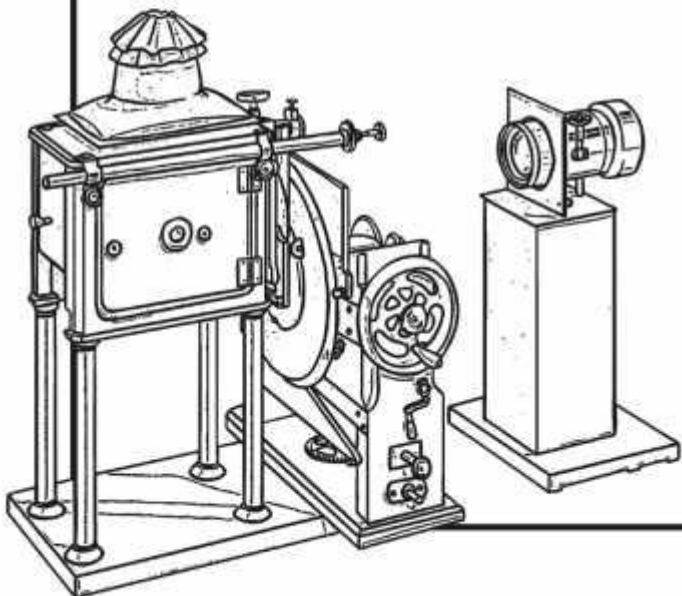
Regent Studies | www.regentstudies.com

stop motion

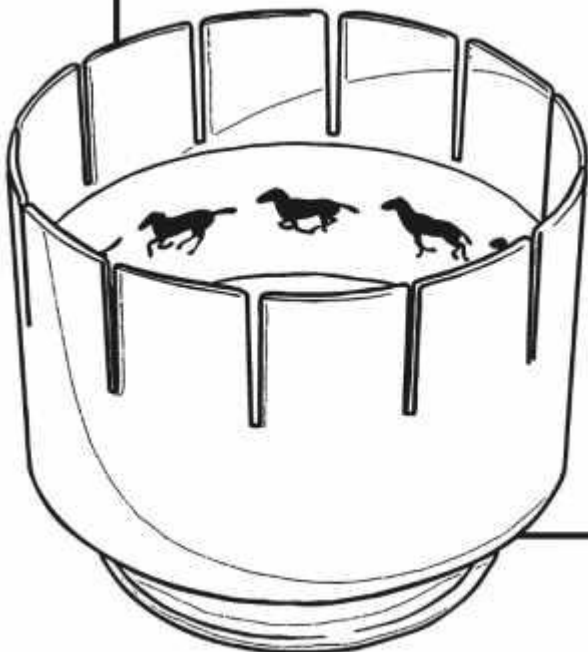


Regent Studies | www.regentstudies.com

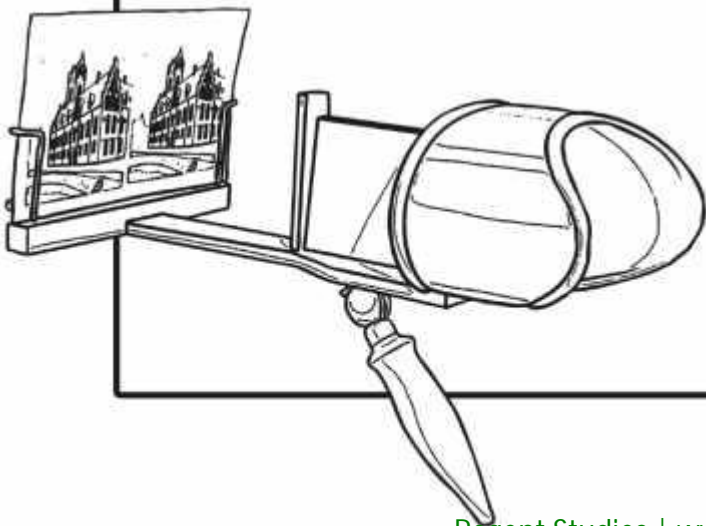
Insert text here



Insert text here



Insert text here

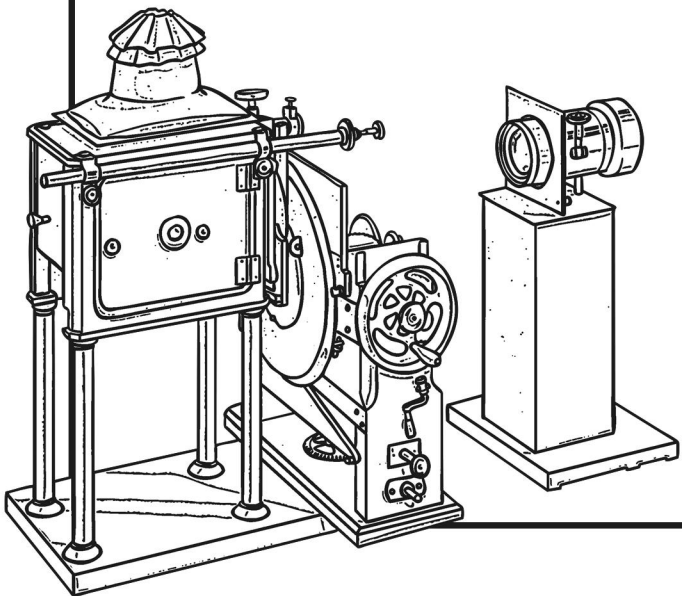


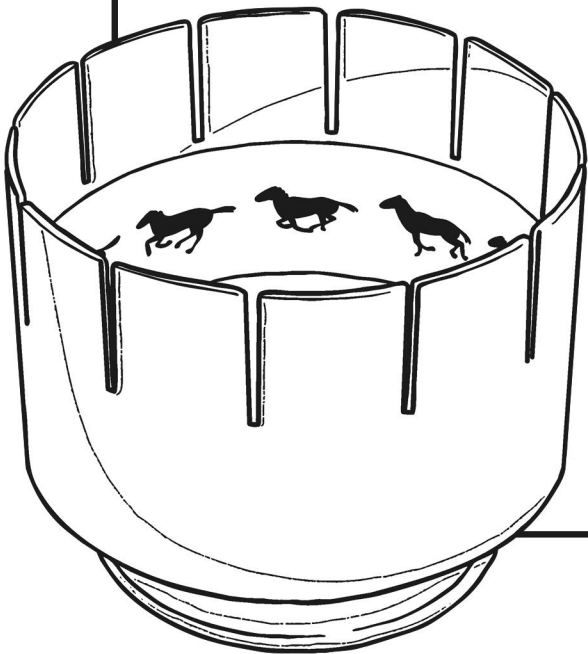
Insert text here

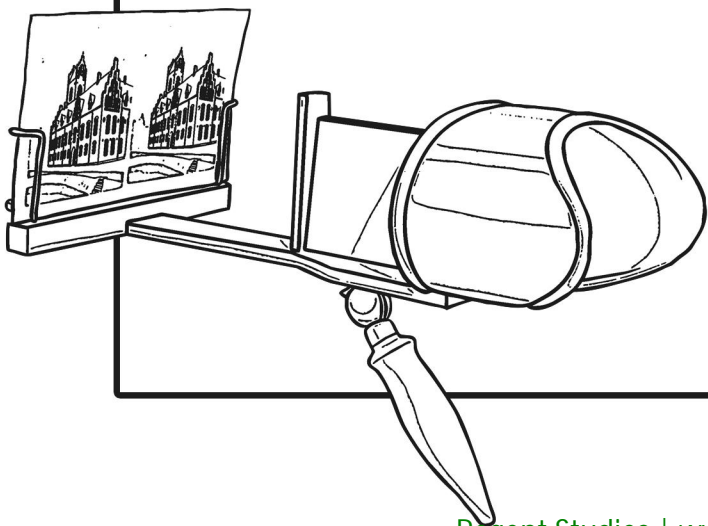


Insert text here

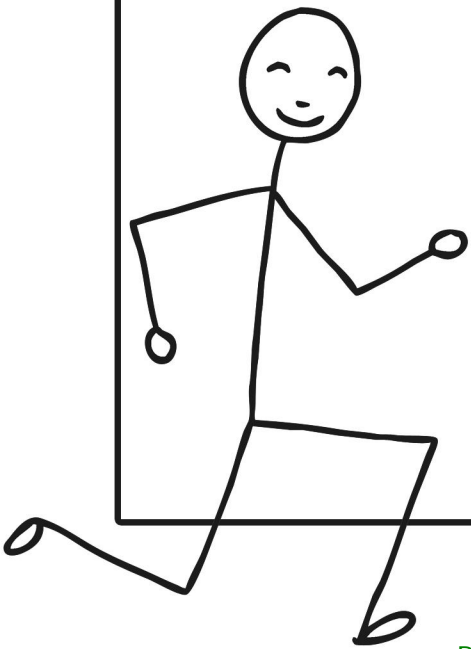




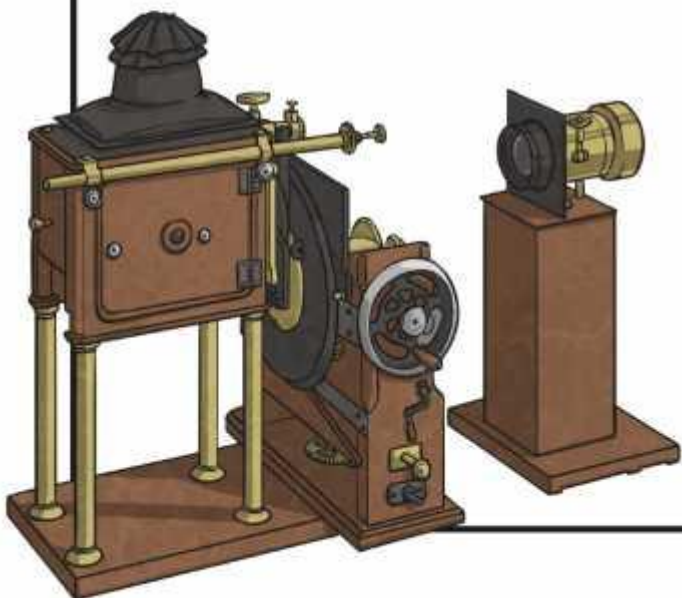








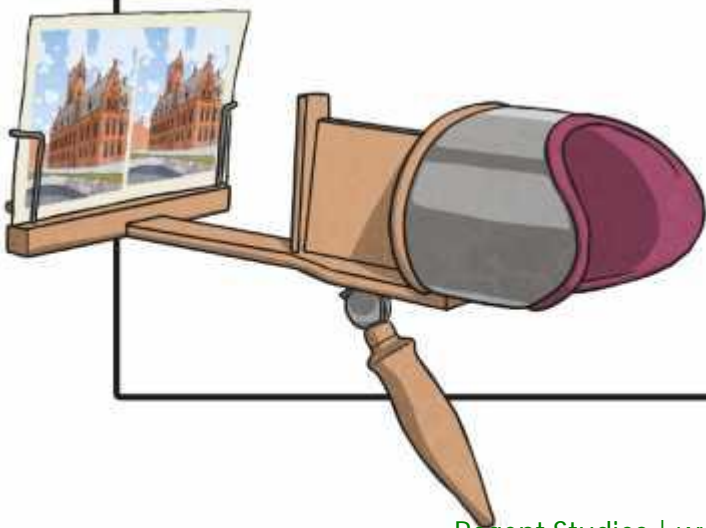
Insert text here



Insert text here



Insert text here

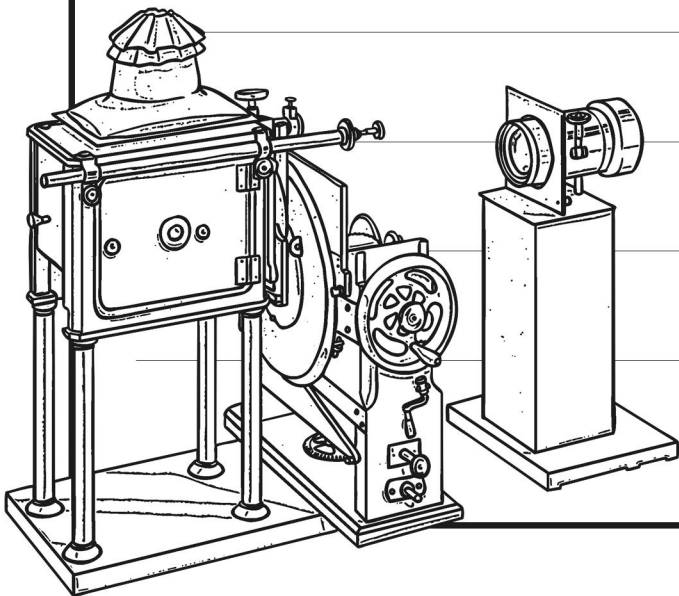


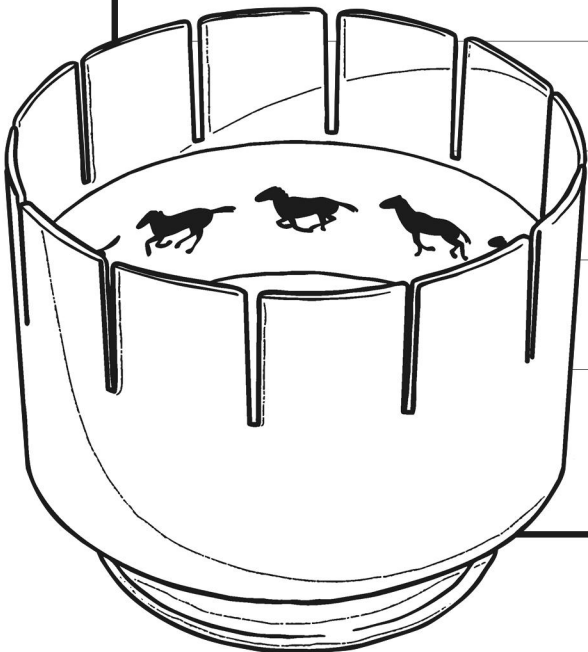
Insert text here



Insert text here





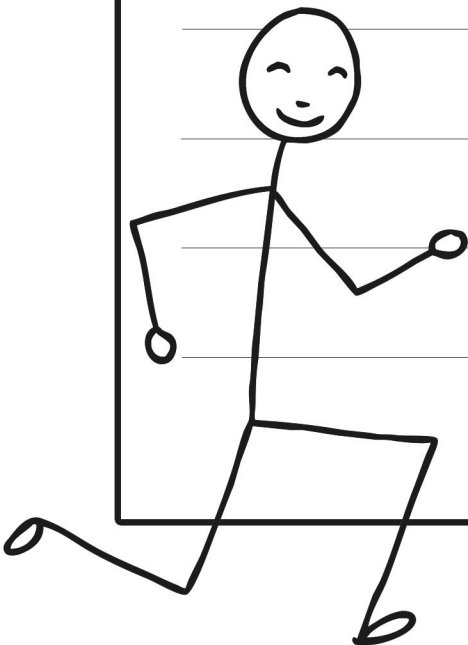


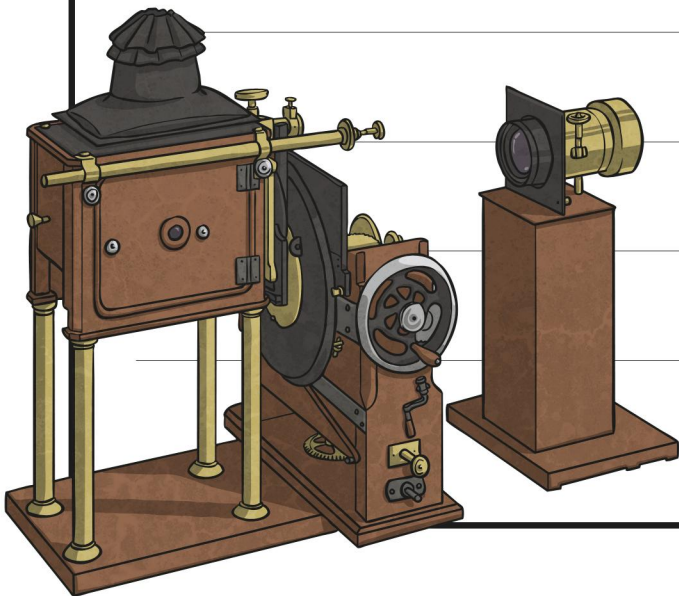
A large rectangular frame containing a writing area with four horizontal lines. Below the lines, there is a line drawing of a desk setup including a book with a building illustration, a quill pen, and a wooden gavel.

A large rectangular frame containing a series of horizontal lines for writing, positioned in the upper and middle sections of the page.



A large rectangular frame containing a series of horizontal lines for writing. The lines are spaced evenly and extend across most of the width of the frame. The top portion of the frame is empty, while the bottom portion contains a stick figure and the footer text.

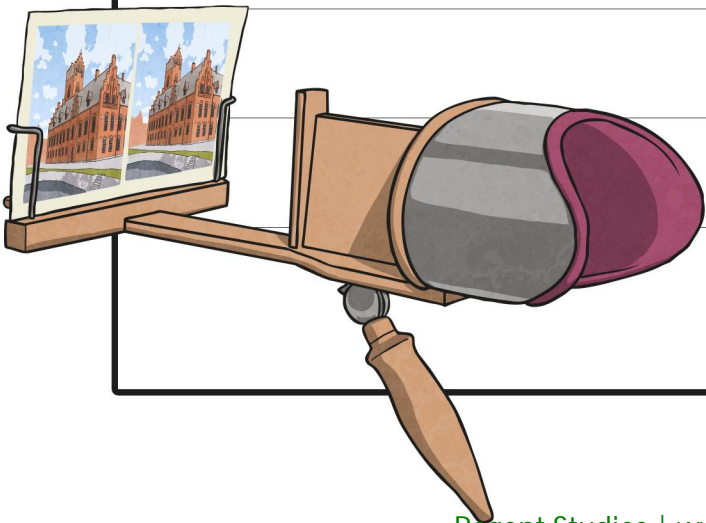




A large rectangular frame containing a writing area with horizontal lines. The lines are spaced evenly and extend across most of the width of the frame.



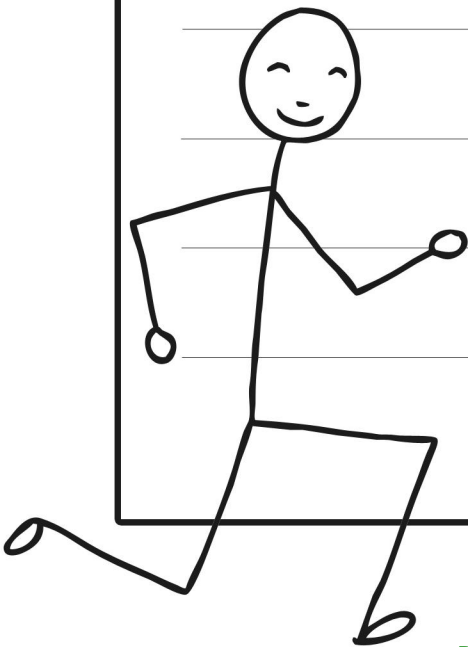
A large rectangular frame containing a blank white space for drawing or writing. At the bottom of the frame, there are four horizontal lines for writing. Below the frame, there is an illustration of an artist's palette and a paintbrush.

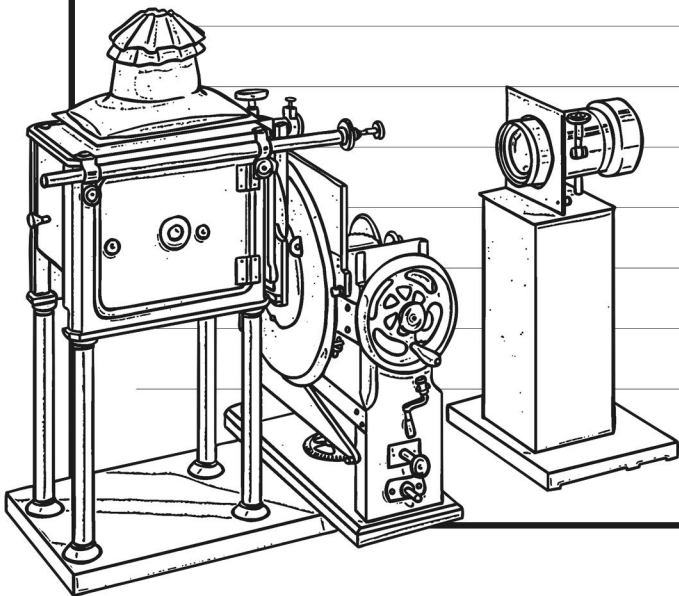


A large rectangular frame containing four horizontal lines for writing.

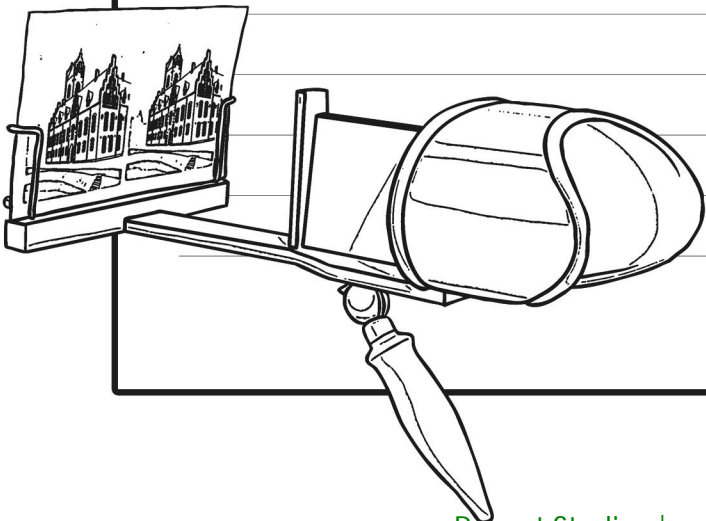


A large rectangular frame containing a series of horizontal lines for writing. The lines are spaced evenly and extend across most of the width of the frame.





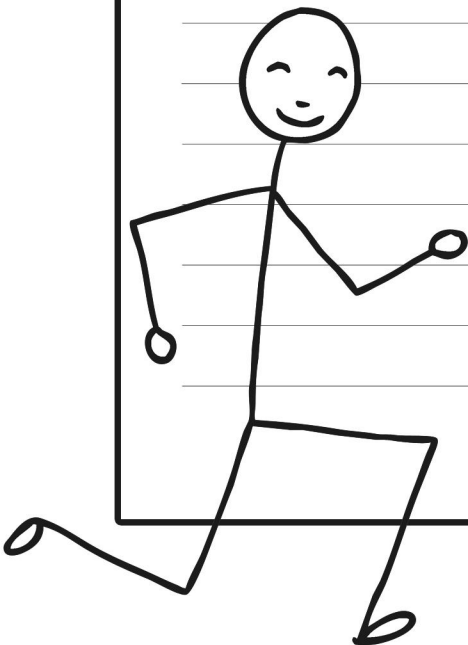
A large rectangular frame containing a series of horizontal lines for writing, positioned in the lower half of the page.

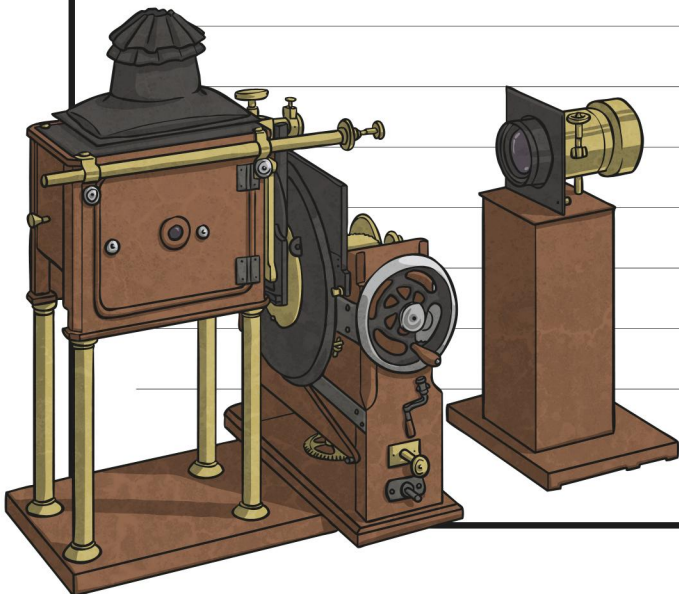


A large rectangular frame containing ten horizontal lines for writing.



A large rectangular frame containing a series of horizontal lines for writing, with a stick figure character at the bottom left.

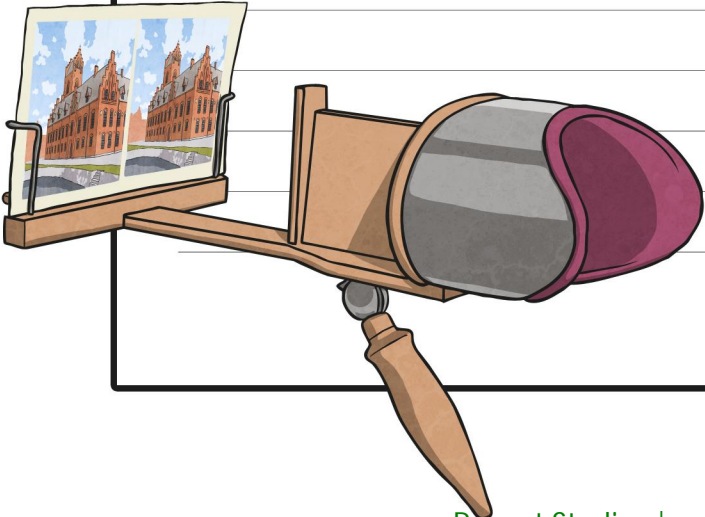




A large rectangular frame containing a series of horizontal lines for writing, positioned in the upper and middle sections of the page.



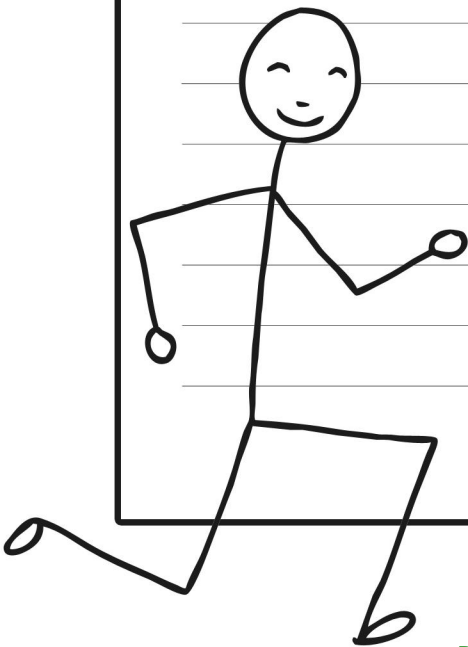
A large rectangular frame containing a blank white space at the top and seven horizontal lines for writing at the bottom.



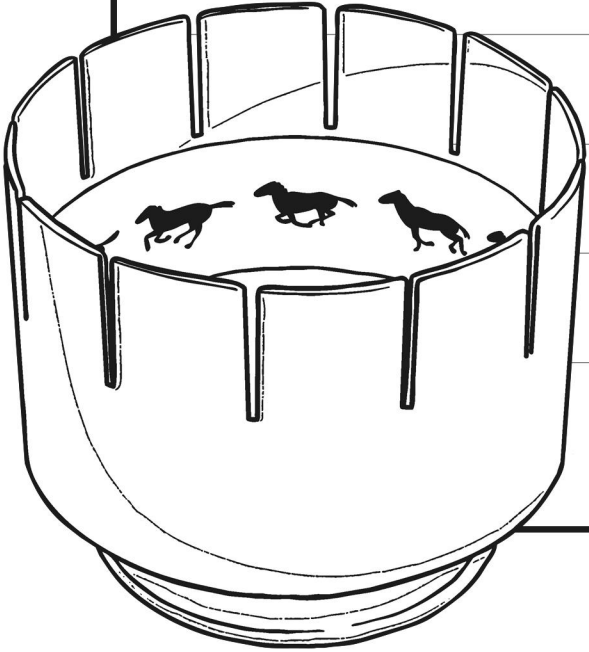
A large rectangular frame containing ten horizontal lines for writing.



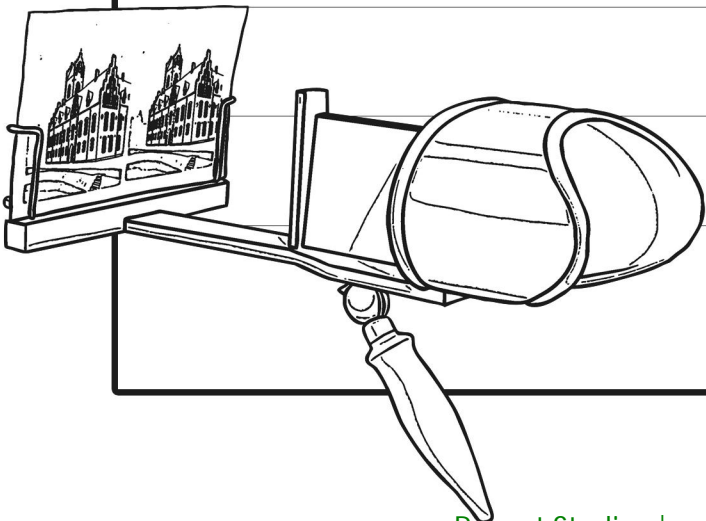
A large rectangular frame containing a series of horizontal lines for writing, with a stick figure character at the bottom left corner.



A large rectangular frame containing 18 horizontal lines for writing.



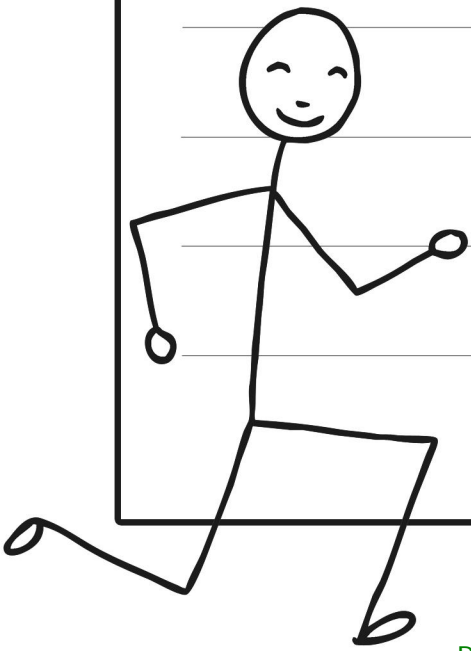
A large rectangular frame containing 20 horizontal lines for writing.



Lined writing area with 15 horizontal lines.



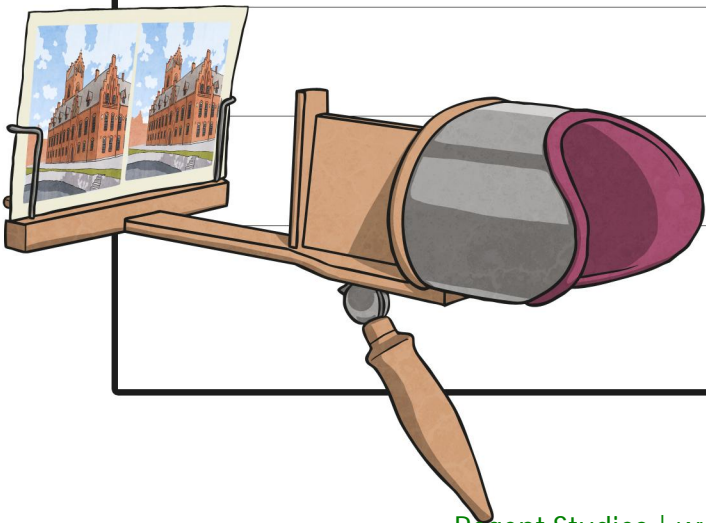
A large rectangular frame containing 20 horizontal lines for writing.



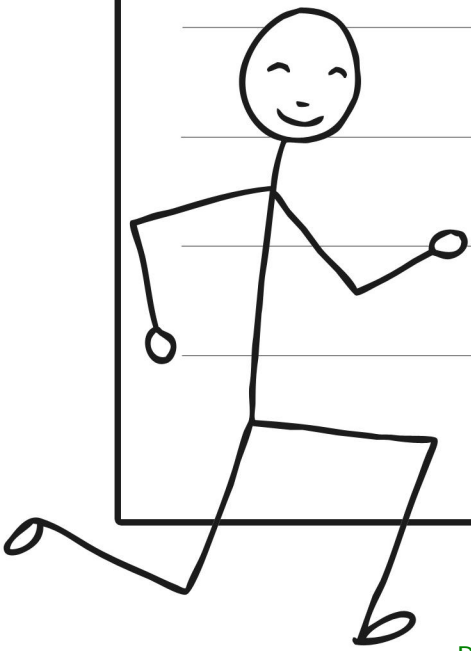
A large rectangular frame containing 15 horizontal lines for writing.



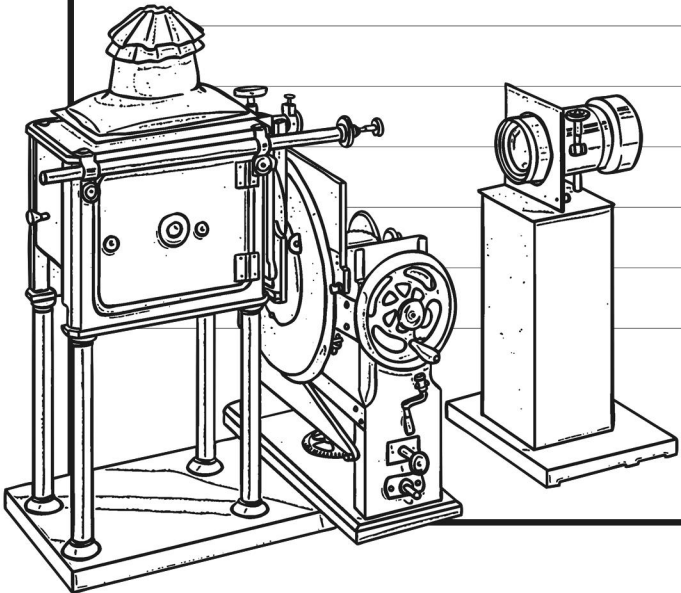
A large rectangular frame containing 18 horizontal lines for writing.



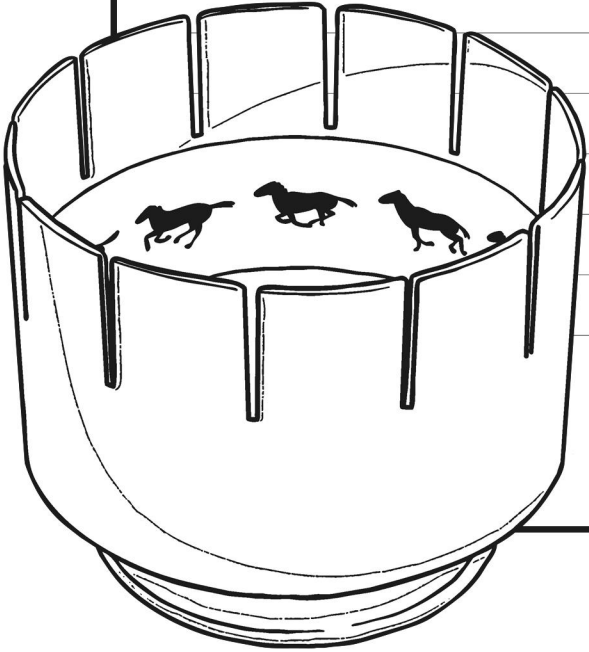
A large rectangular frame containing 20 horizontal lines for writing.



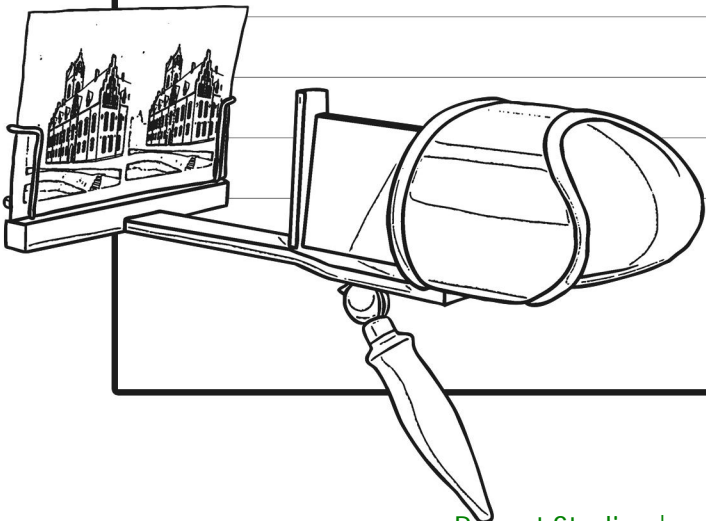
A large rectangular area containing horizontal lines for writing, intended for a student to describe the scientific apparatus shown in the illustration below.



Lined writing area for notes or answers.



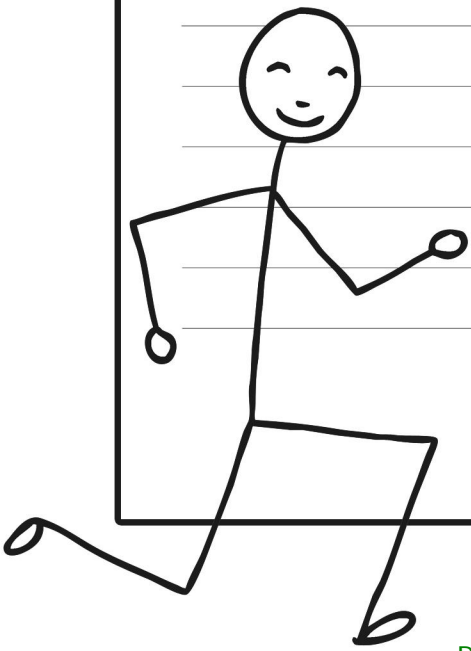
A large rectangular frame containing 25 horizontal lines for writing.



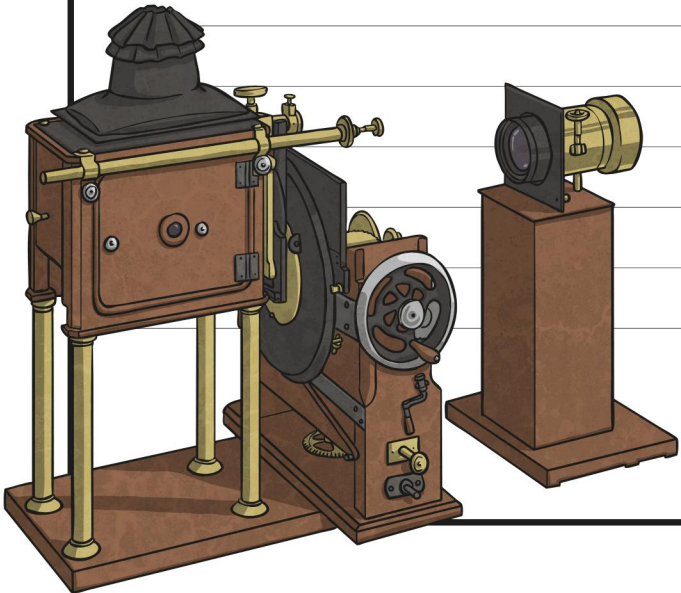
Lined writing area for notes.



A large rectangular frame containing 25 horizontal lines for writing.



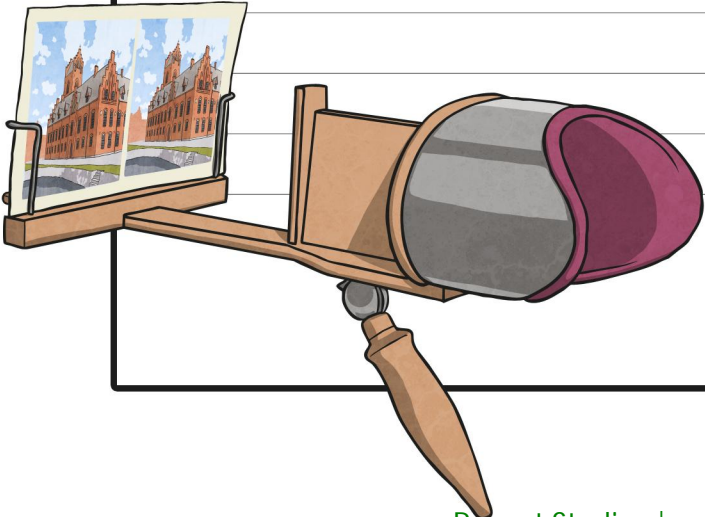
A large rectangular area with a black border, containing 20 horizontal lines for writing.



A large rectangular area with horizontal lines for writing, enclosed in a black border.



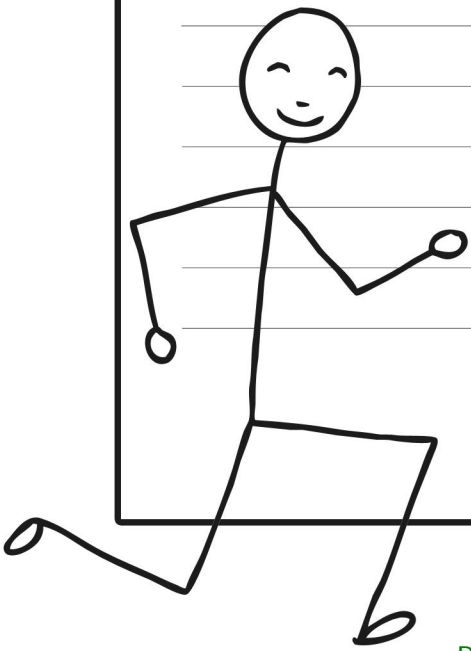
A large rectangular frame containing 20 horizontal lines for writing.

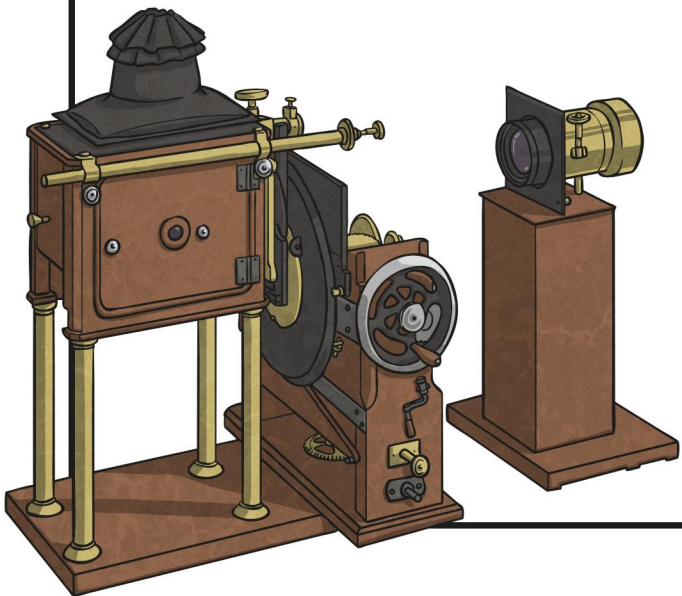


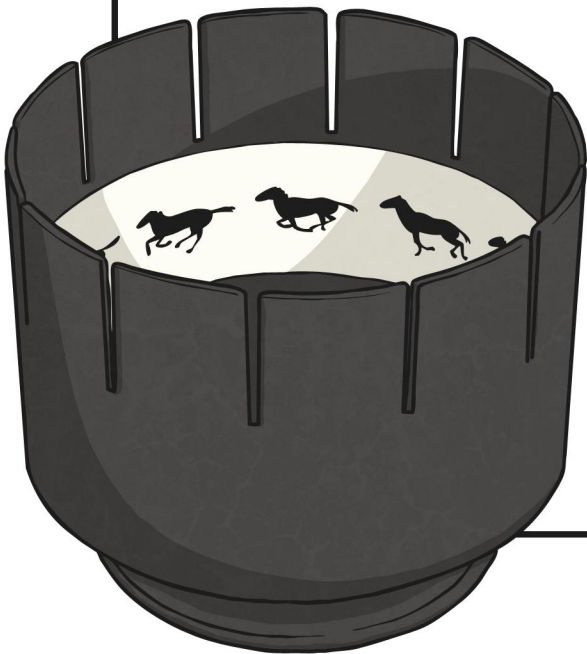
A large rectangular frame containing 25 horizontal lines for writing.

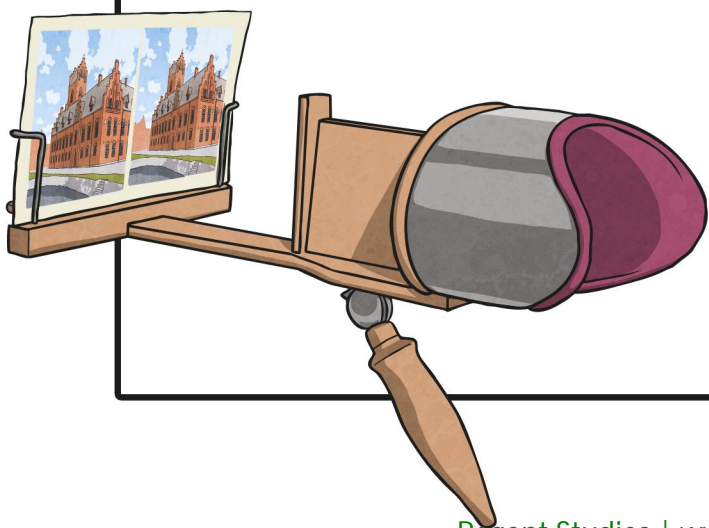


A large rectangular frame containing 25 horizontal lines for writing.

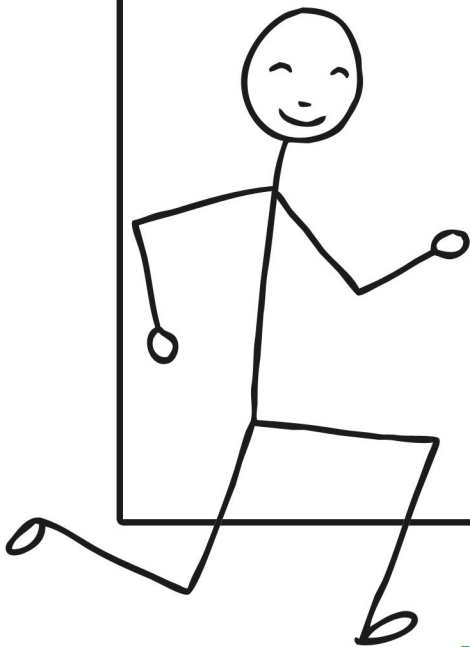












frame rate

Frames per Second:

play



stop



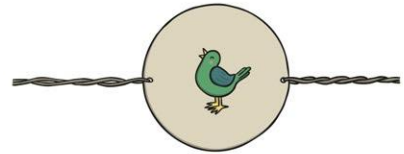
record



onion skinning



thaumatrope



zoetrope



animate

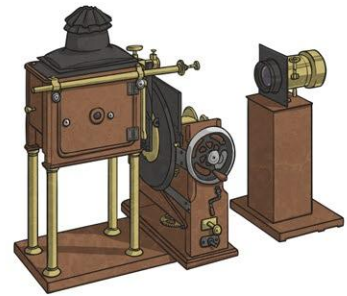
flip book



animation

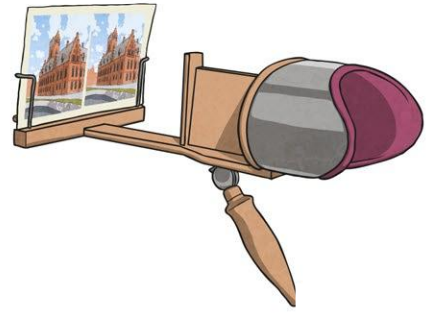


zoopraxiscope

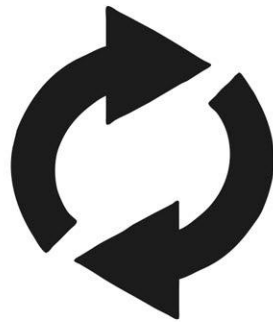


frame

stereoscope



loop



still image



backdrop

analyse

evaluate



stop motion



frame rate

Frames per Second:

play



stop



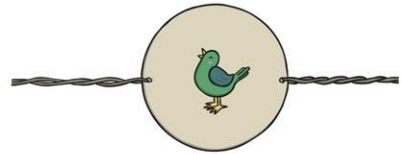
record



onion skinning



thaumatrope



zoetrope

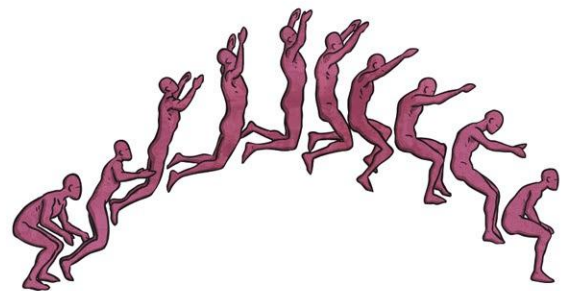


animate

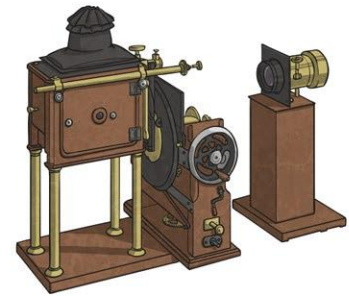
flip book



animation

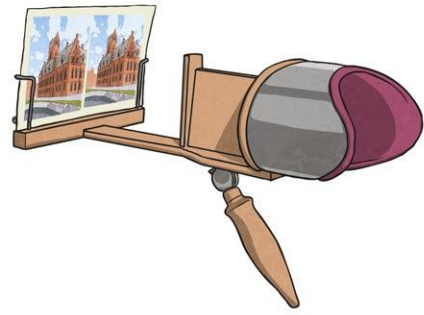


zoopraxiscope

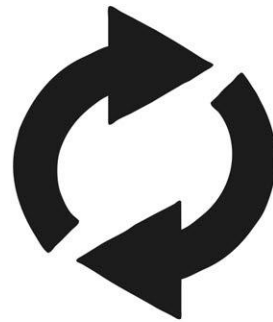


frame

stereoscope



loop



still image



backdrop

analyse

evaluate



stop motion

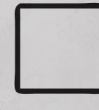


Animation

Frames per Second: 5



PLAY



STOP



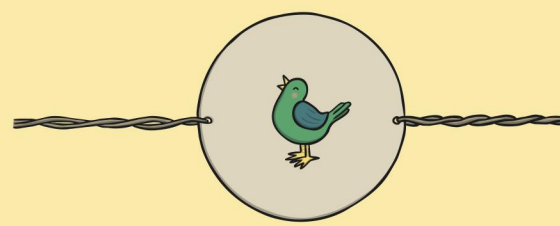
RECORD

frame rate

play

stop

record

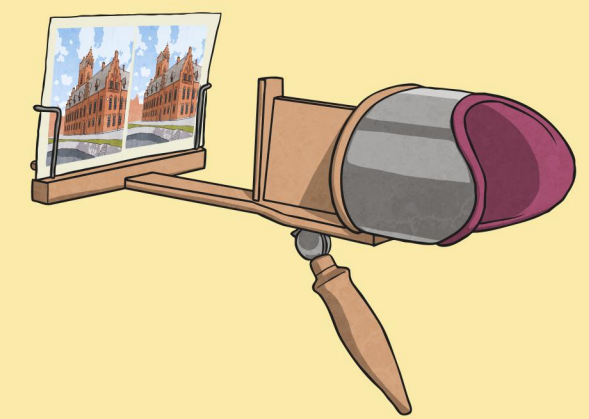
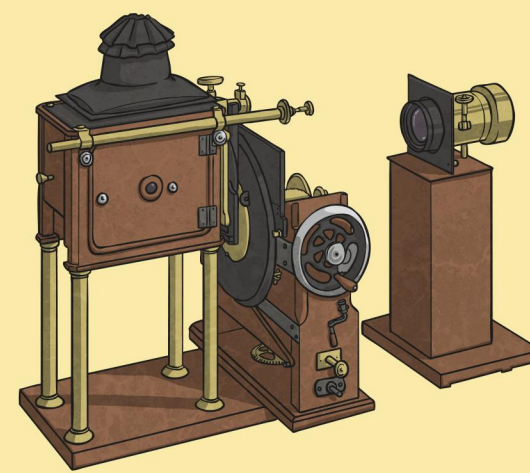
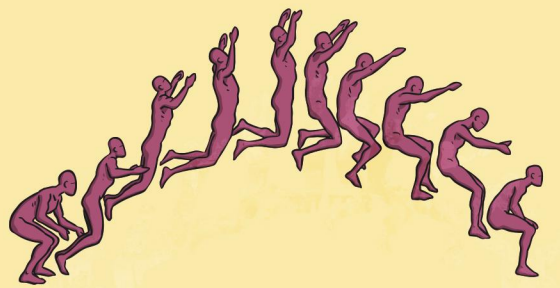


thaumatrope

zoetrope

flip book

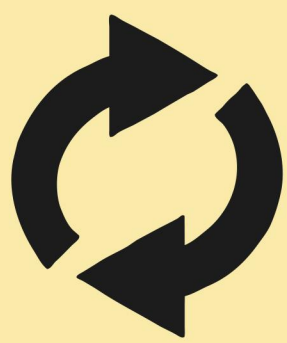
onion skinning



animation

zoopraxiscope

stereoscope



loop



still image

Animation Analysis

Are the backgrounds colourful?	<input checked="" type="checkbox"/>
Do the drawings look like they're moving?	<input checked="" type="checkbox"/>
Does it have 5 frames per second?	<input checked="" type="checkbox"/>
Would it look better in stop motion?	<input type="checkbox"/>
Does the onion skinning look good?	<input checked="" type="checkbox"/>
Am I happy with the end result?	<input checked="" type="checkbox"/>
Did we work well as a team?	<input checked="" type="checkbox"/>
Did I enjoy making my animation?	<input checked="" type="checkbox"/>

analyse



evaluate



stop motion

Animation

Frames per Second:



frame rate

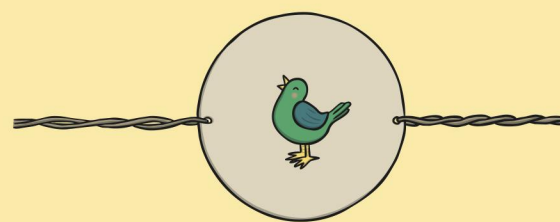
play

stop

record



onion skinning



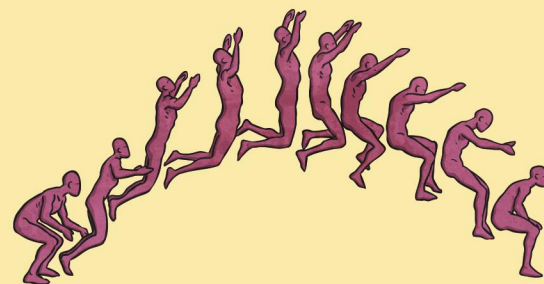
thaumatrope



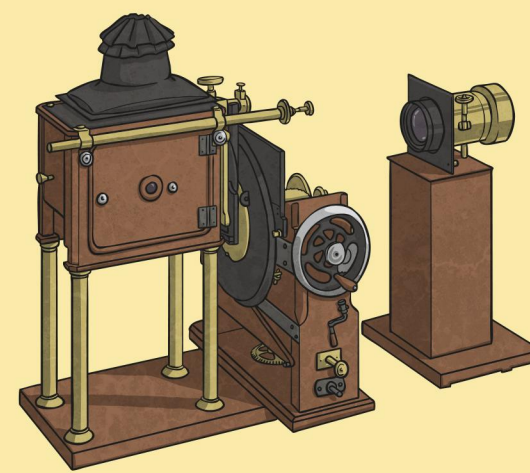
zoetrope



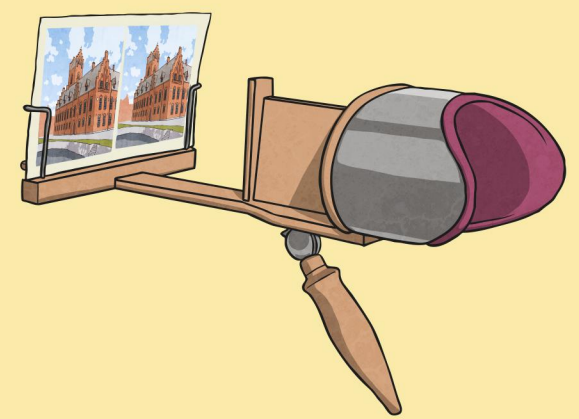
flip book



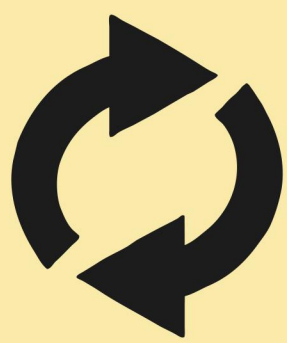
animation



zoopraxiscope



stereoscope



loop



still image

Animation Analysis	
Are the backgrounds colourful?	<input checked="" type="checkbox"/>
Do the drawings look like they're moving?	<input checked="" type="checkbox"/>
Does it have 5 frames per second?	<input checked="" type="checkbox"/>
Would it look better in stop motion?	<input type="checkbox"/>
Does the onion skinning look good?	<input checked="" type="checkbox"/>
Am I happy with the end result?	<input checked="" type="checkbox"/>
Did we work well as a team?	<input checked="" type="checkbox"/>
Did I enjoy making my animation?	<input checked="" type="checkbox"/>

analyse



evaluate



stop motion

Animation

e h e s r e c o r d a o
a a i t q a g b s o n i
k n p o a a d a t e i f
v a i p n j p c i t m r
f l b m n u e k l a a a
i y r o a q l d l u t m
e s i t c t h r f l i e
a e o i g s e o l a o k
p d d o k g b p d v n m
o l h n r b a j s e l j
t u a f l i p b o o k e
c i m y t v c u p o o l

animate

frame

loop

record

still

flip book

animation

stop motion

play

backdrop

analyse

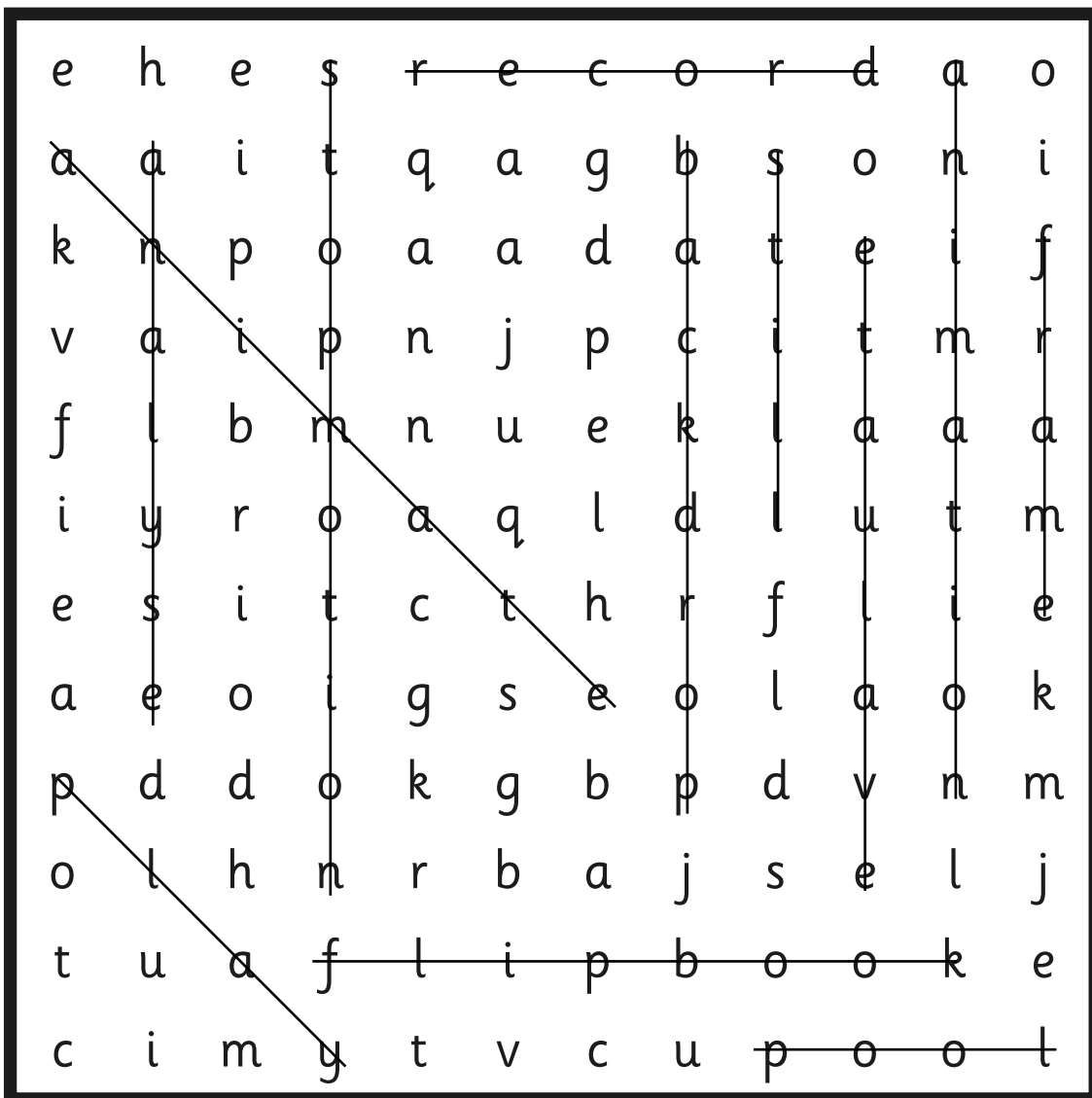
evaluate

Animation

a n i m a t e a l s a r
g d r o c e r h o e e d
t h a u m a t r o p e m
n b a c k d r o p o p t
p l a y e f i a t c o e
a n i m a t i o n s r a
e t a m b a o d p o t p
c r a n a l y s e e e f
f l i p b o o k i r o r
s t i l l i m a g e z t
f r a m e r a t e t f o
n e v a l u a t e s o s

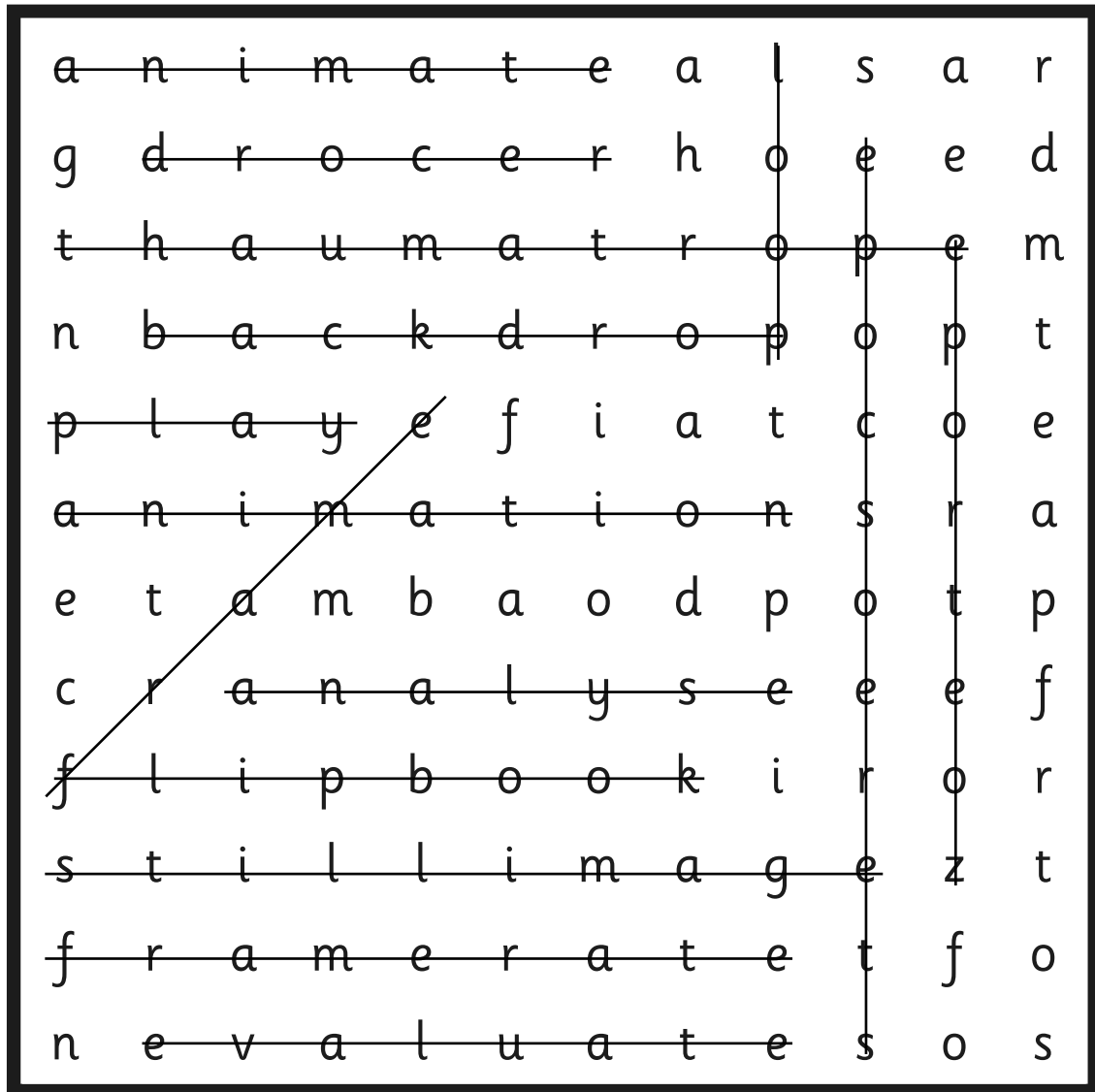
animate
animation
flip book
thaumatrope
zoetrope
evaluate
stereoscope
frame
loop
frame rate
still image
record
backdrop
play
analyse

Animation



- | | |
|-----------|-------------|
| animate | animation |
| frame | stop motion |
| loop | play |
| record | backdrop |
| still | analyse |
| flip book | evaluate |

Animation



animate
animation
flip book
thaumatrope
zoetrope
evaluate
stereoscope
frame

loop
frame rate
still image
record
backdrop
play
analyse

Animation

e h e s r e c o r d a o
a a i t q a g b s o n i
k n p o a a d a t e i f
v a i p n j p c i t m r
f l b m n u e k l a a a
i y r o a q l d l u t m
e s i t c t h r f l i e
a e o i g s e o l a o k
p d d o k g b p d v n m
o l h n r b a j s e l j
t u a f l i p b o o k e
c i m y t v c u p o o l

animate	animation
frame	stop motion
loop	play
record	backdrop
still	analyse
flip book	evaluate

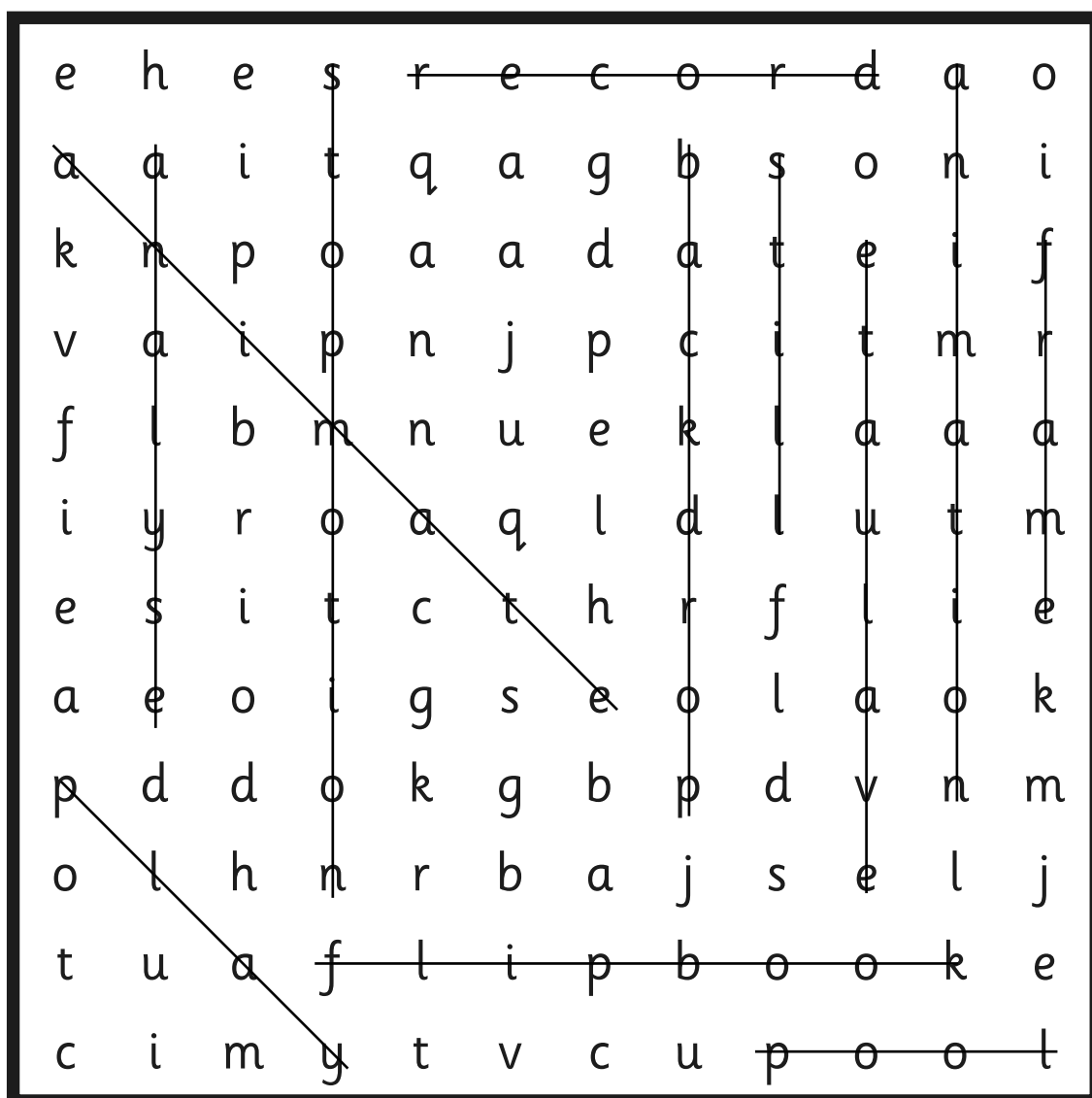
Animation

a n i m a t e a l s a r
g d r o c e r h o e e d
t h a u m a t r o p e m
n b a c k d r o p o p t
p l a y e f i a t c o e
a n i m a t i o n s r a
e t a m b a o d p o t p
c r a n a l y s e e e f
f l i p b o o k i r o r
s t i l l i m a g e z t
f r a m e r a t e t f o
n e v a l u a t e s o s

animate
animation
flip book
thaumatrope
zoetrope
evaluate
stereoscope
frame

loop
frame rate
still image
record
backdrop
play
analyse

Animation



animate

frame

loop

record

still

flip book

animation

stop motion

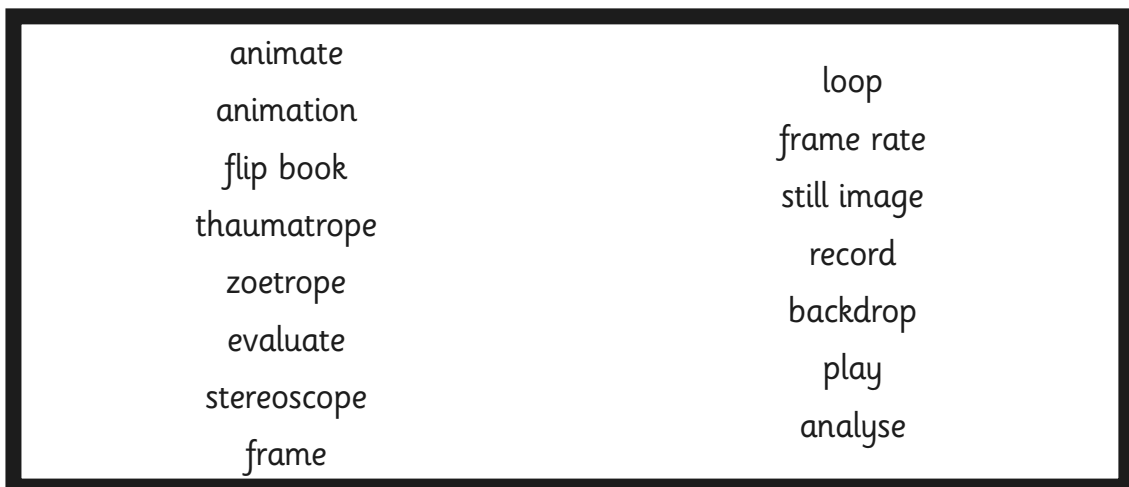
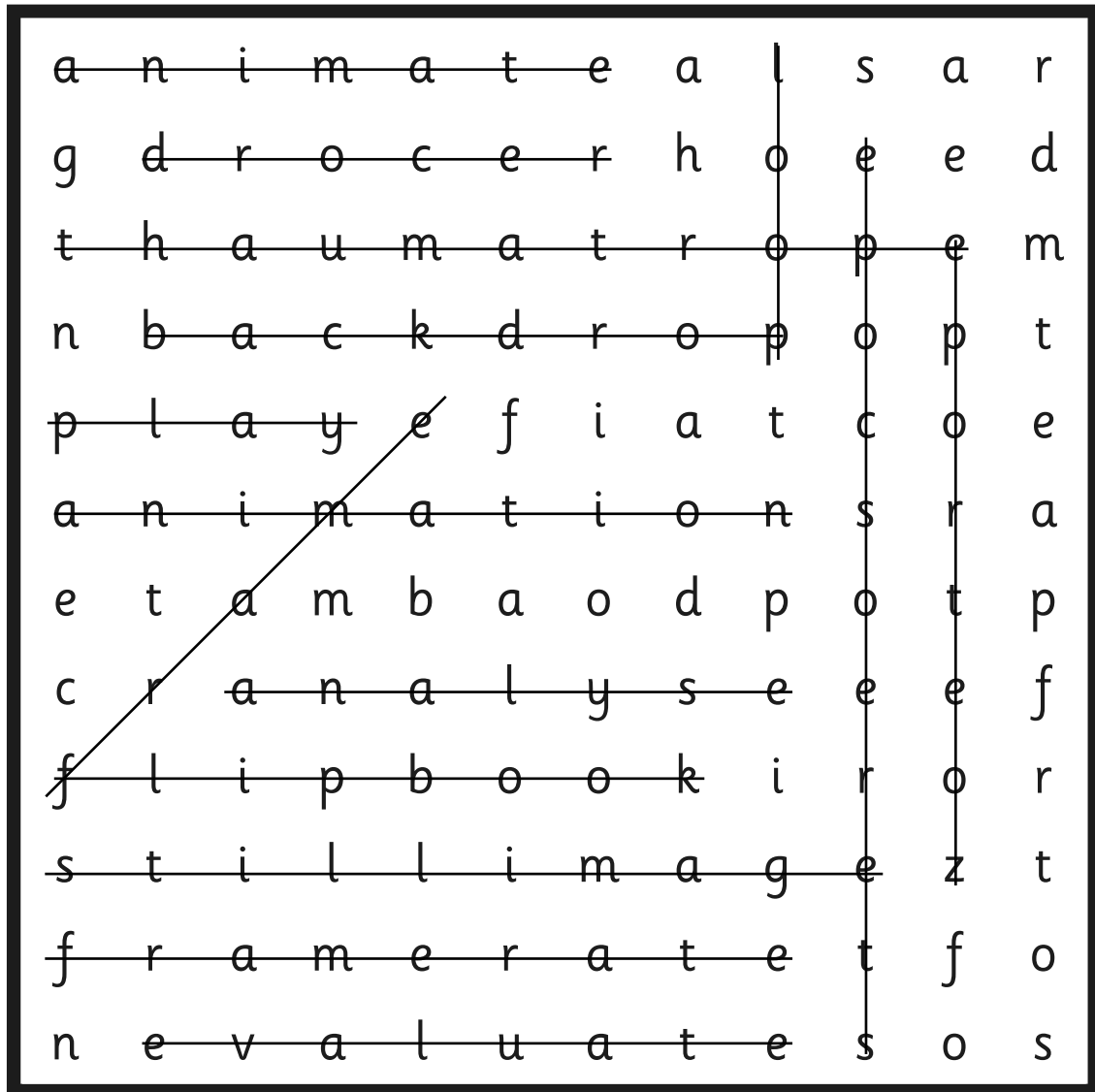
play

backdrop

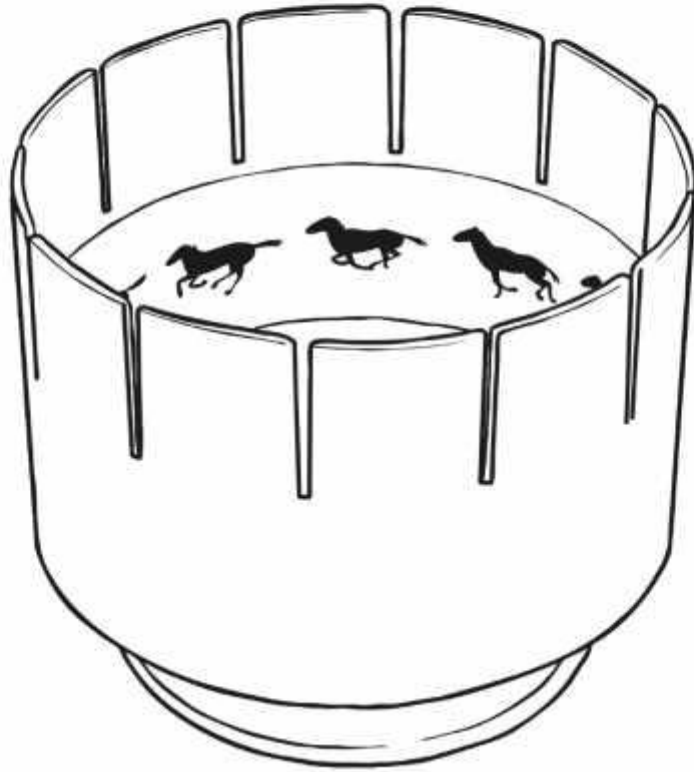
analyse

evaluate

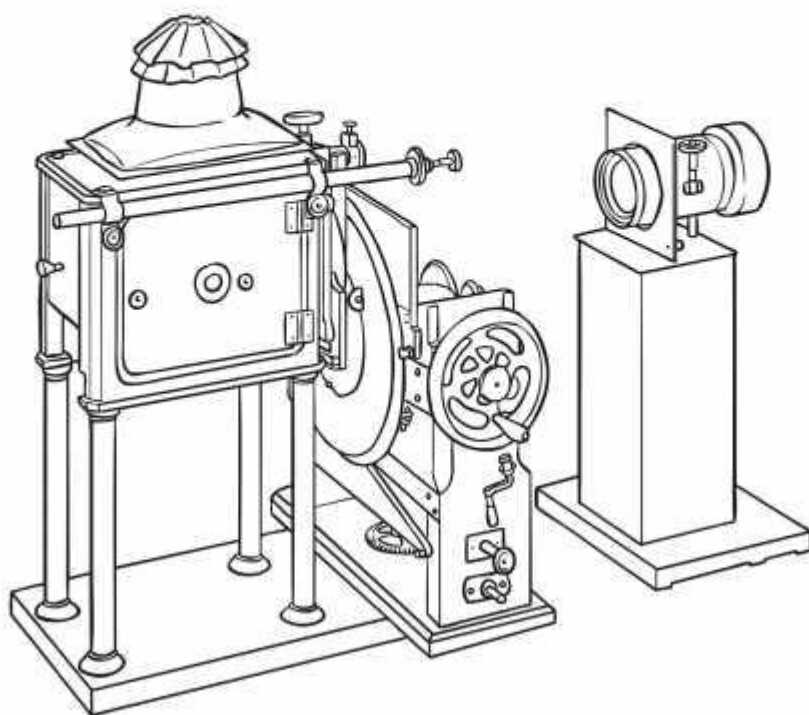
Animation



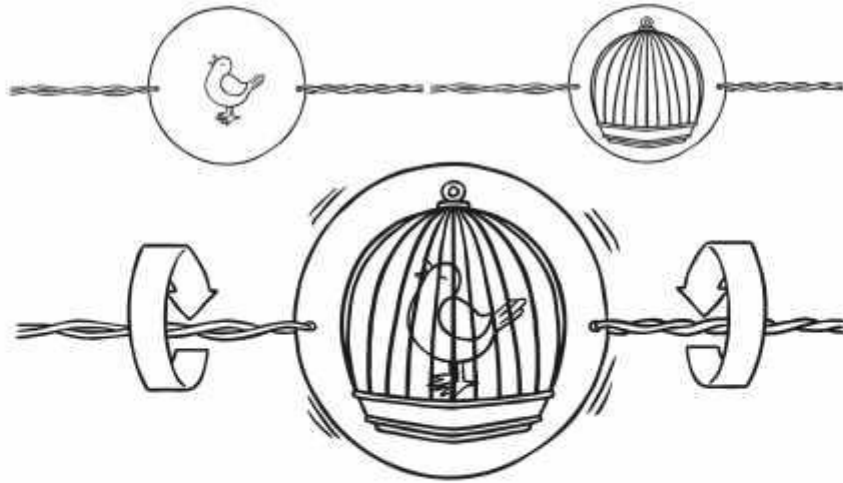
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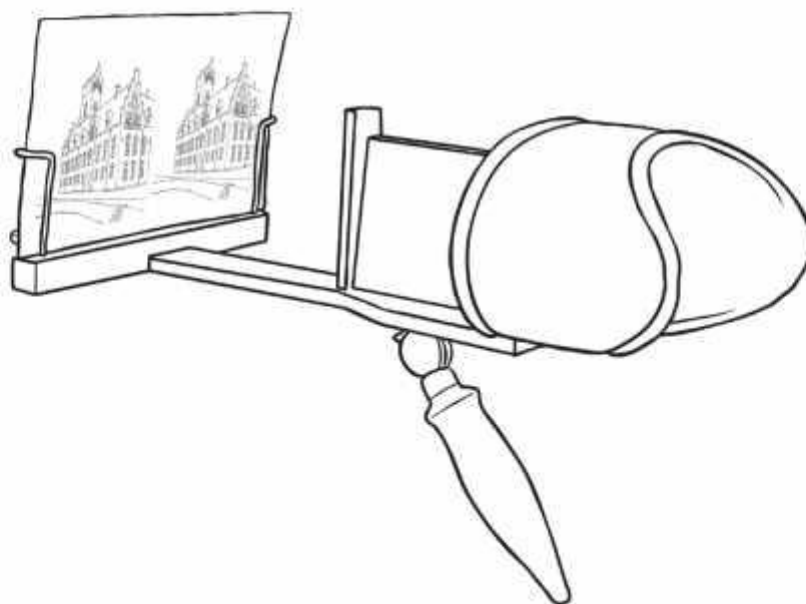
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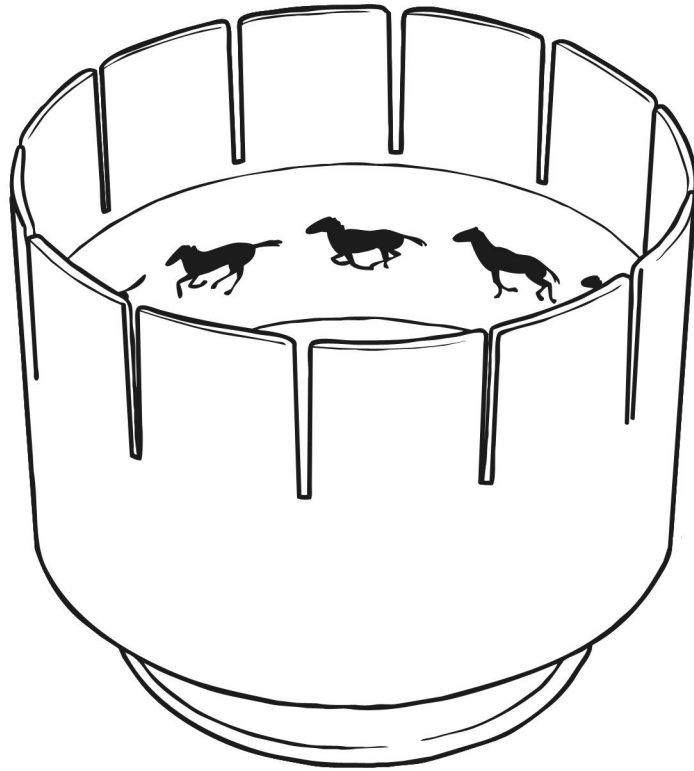


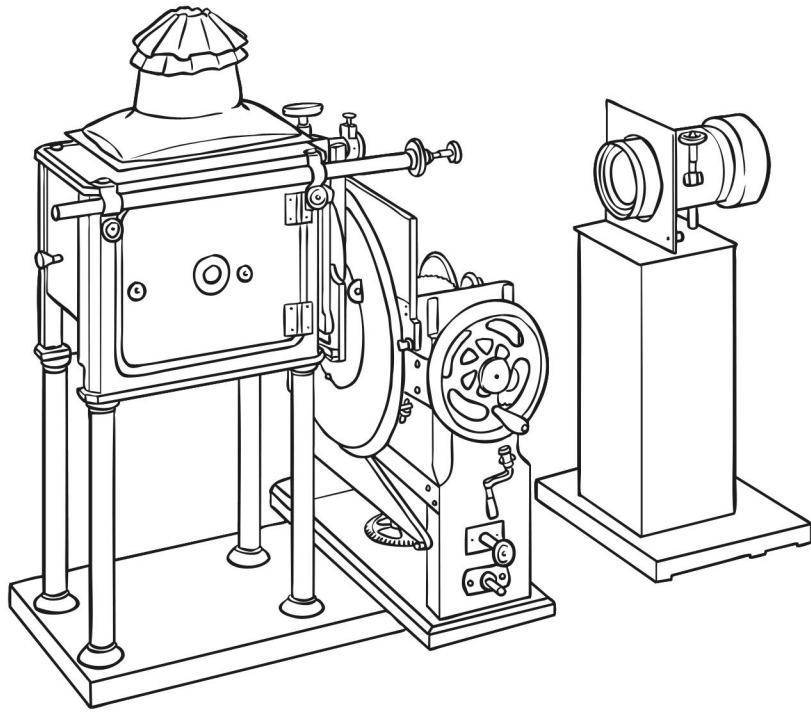
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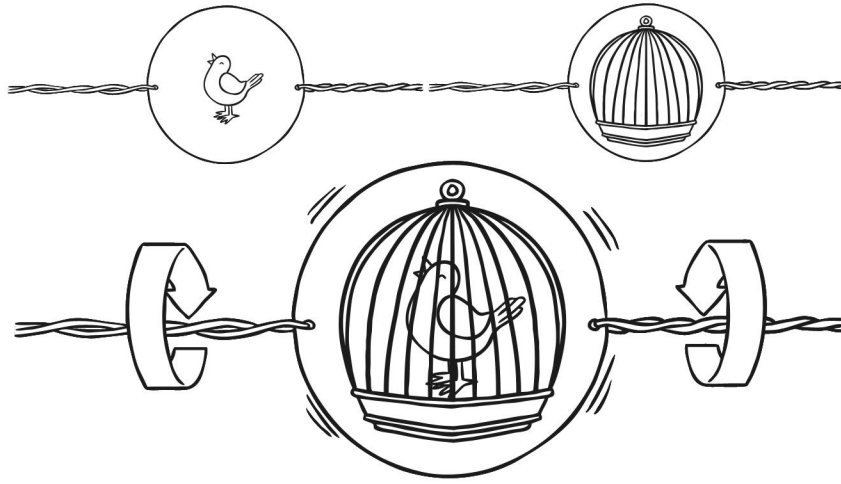


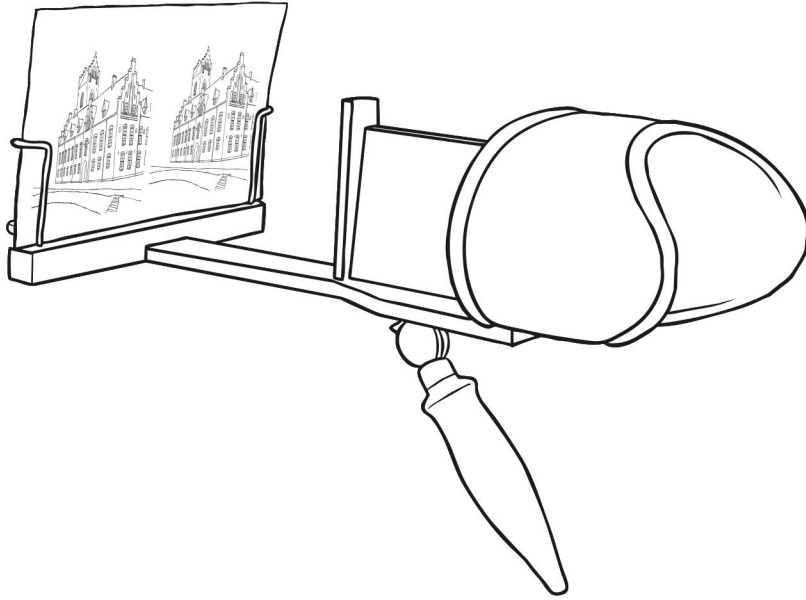
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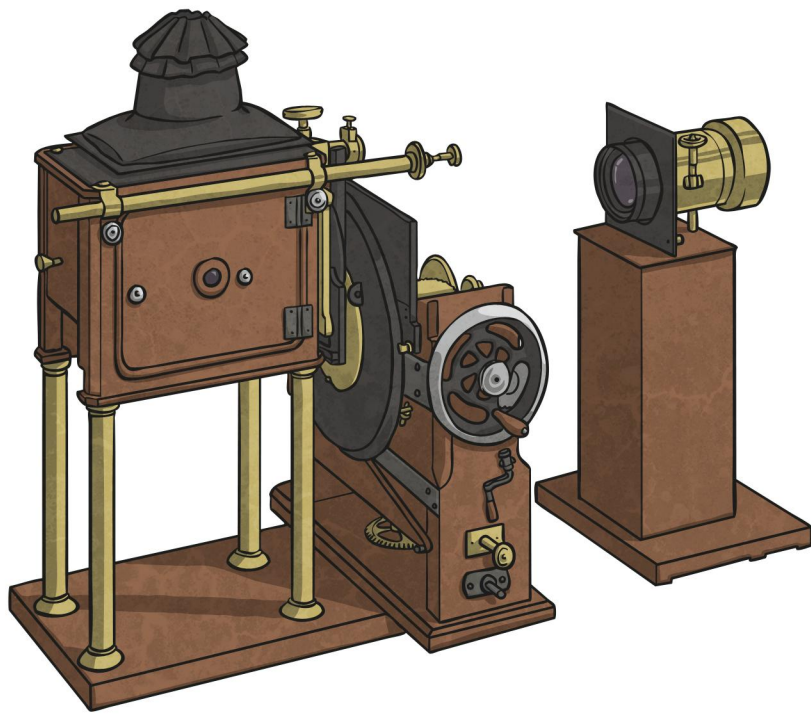


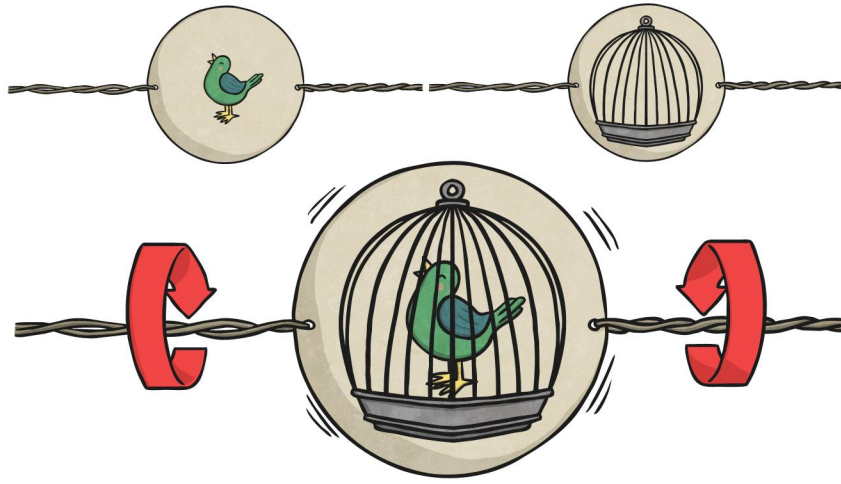


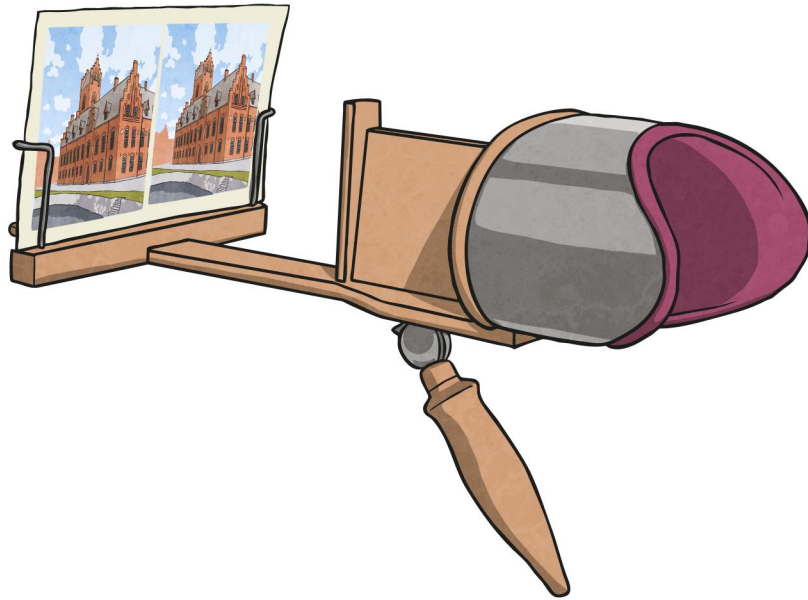














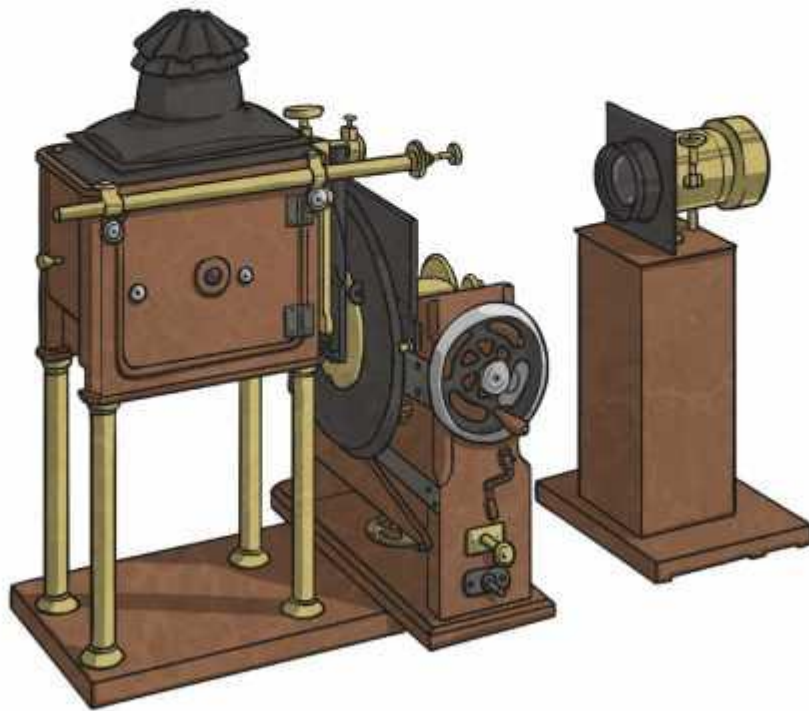




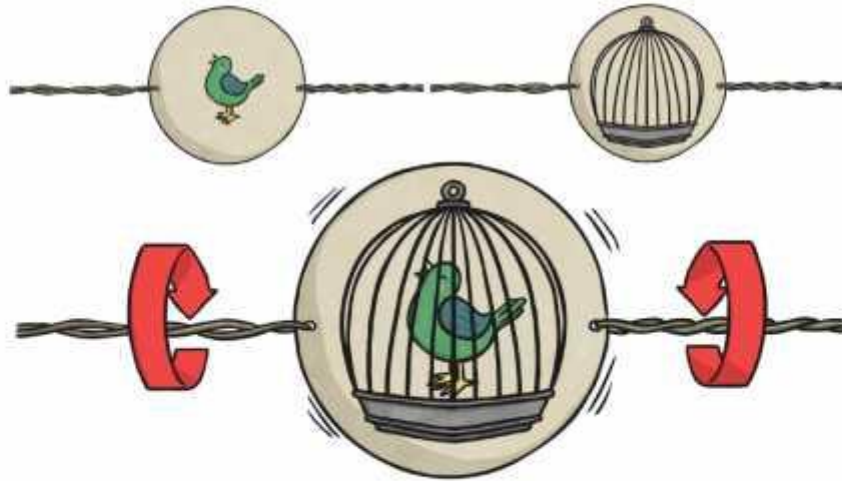
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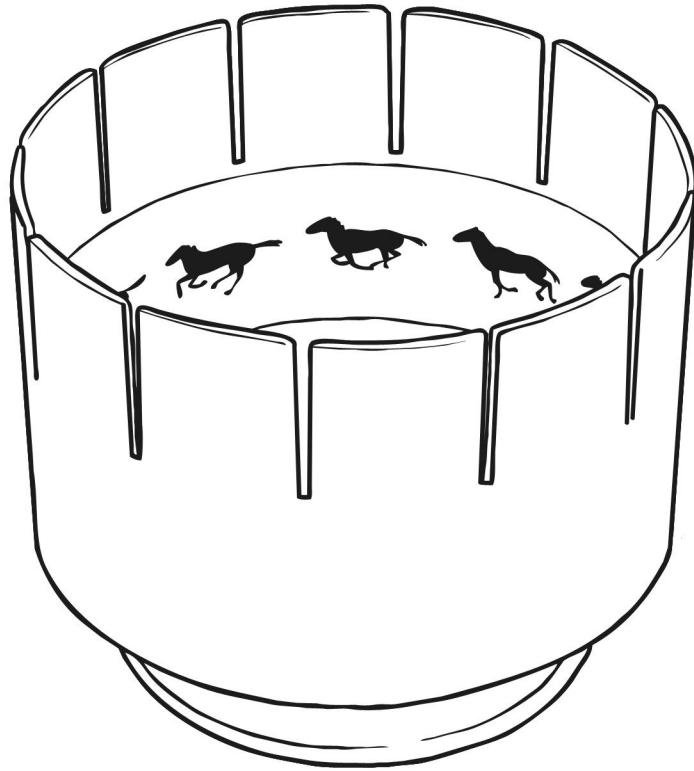


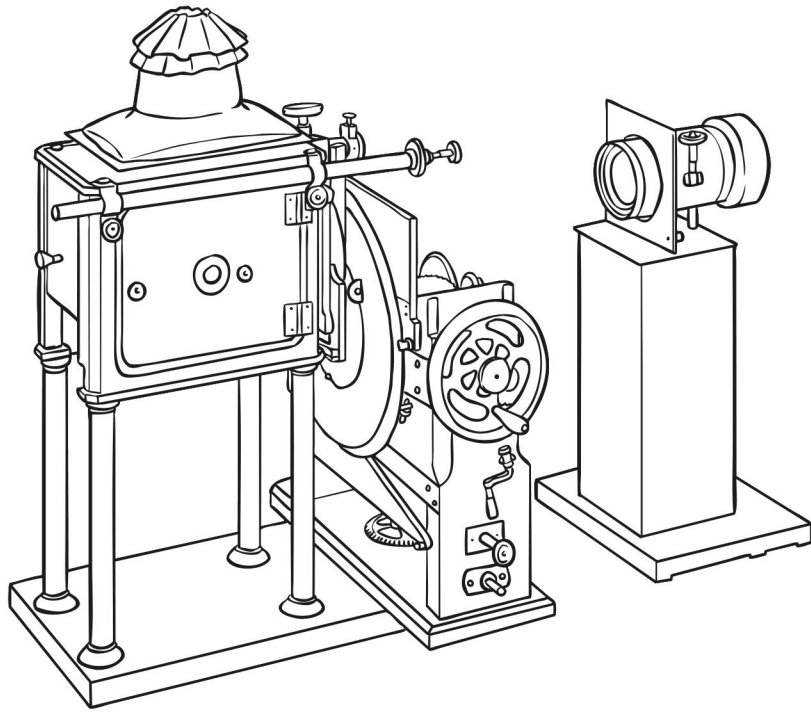
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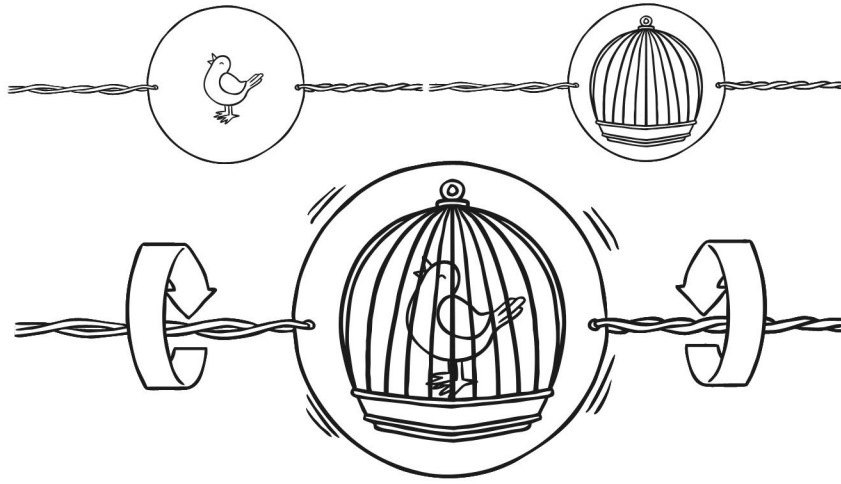


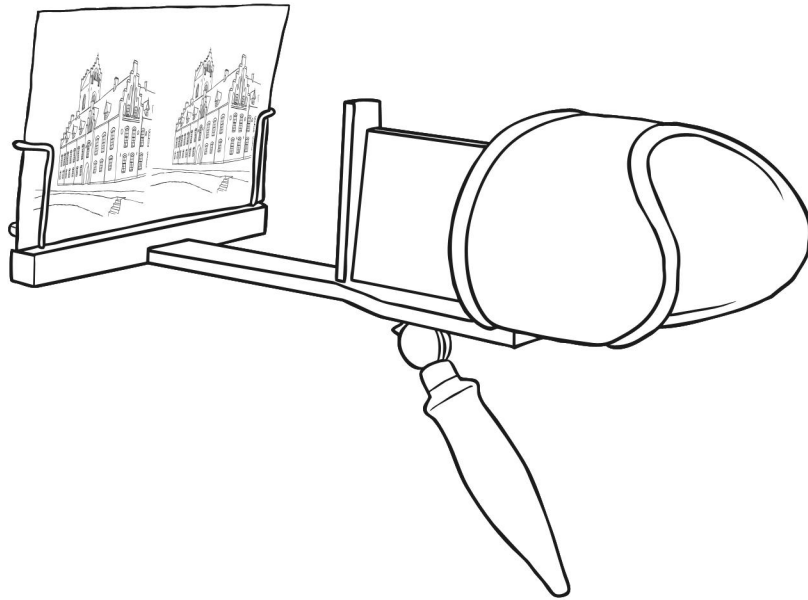
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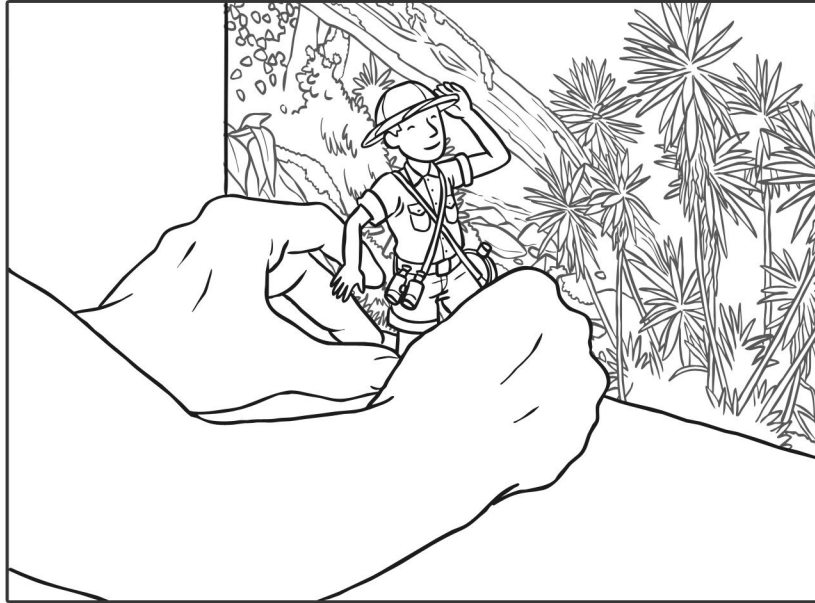








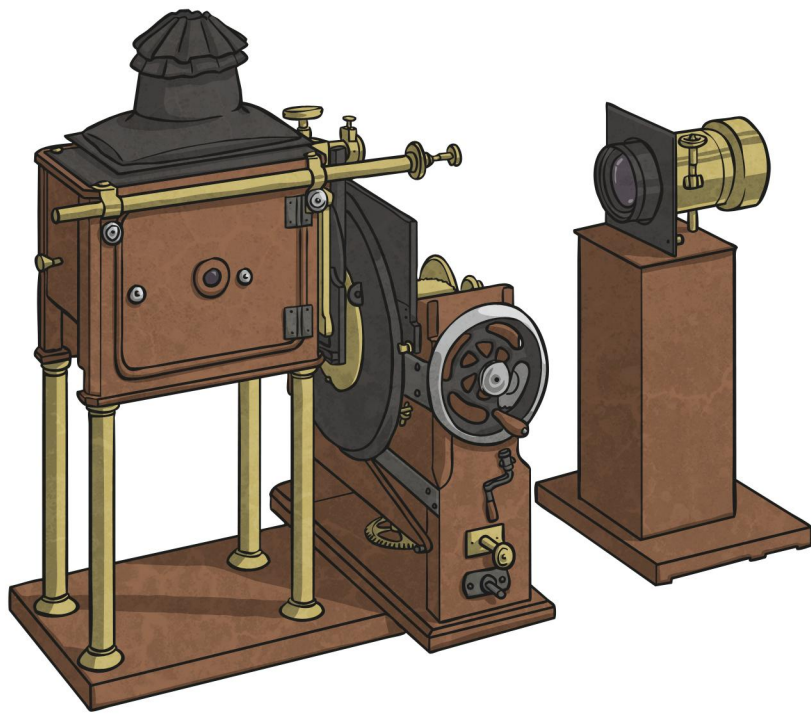


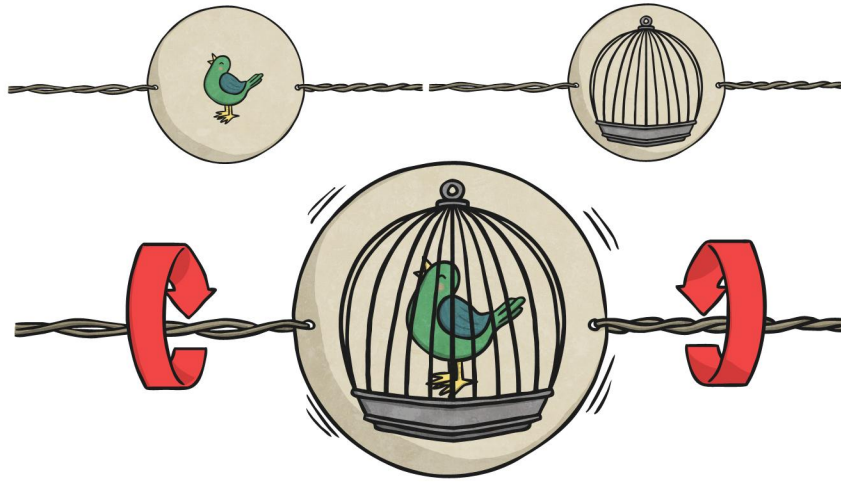


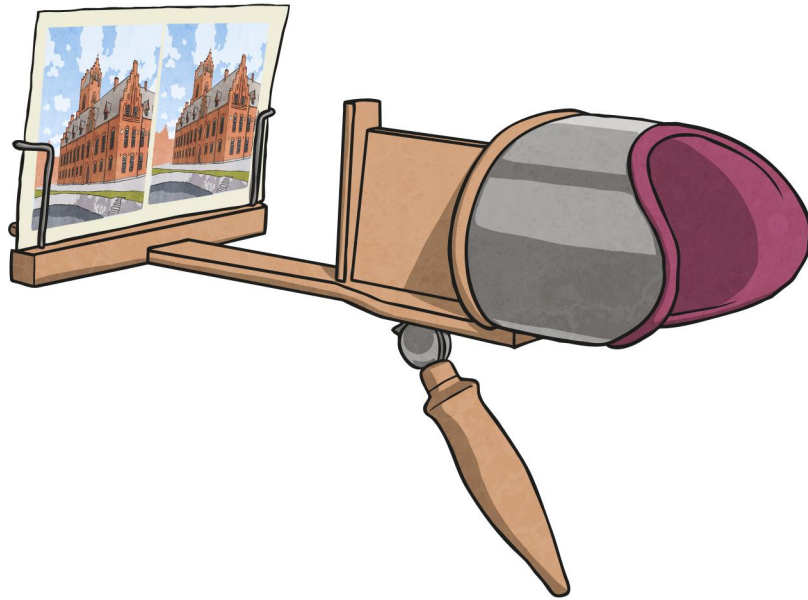


















End of Unit Assessment | Computing | Year 4 | Animation

All	Most	Some
<p>Explain what is meant by animation, create a series of linked frames that can be played as a short animation, control and adjust a time slider to locate a different point in a film clip, insert images to create a simple stop motion animation short film clip, evaluate the advantages and disadvantages of some animation software.</p>	<p>Describe one or more traditional methods of animation, make slight changes to an image using onion skinning, understanding the term, use a time slider to find a specific point in a film clip to insert or edit an object, edit and refine images in a stop motion animation short film clip, compare different animation software by looking at its advantages and disadvantages.</p>	<p>Explain how computer software has improved animation techniques, edit and refine still images with multiple layers of onion skins, make extensive use of a time slider to animate multiple objects simultaneously, use a webcam or digital camera to create their own images for a stop motion animation short film clip, recognise limitations of animation software and suggest improvements.</p>
33%	33%	33%
<p>Name Name Name Name</p>	<p>Name Name Name Name</p>	<p>Name Name Name Name</p>

End of Unit Assessment | Computing | Year 4 | Animation

Insert a character against the criteria the child has met. If they have not met the criteria leave it blank.

		Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	Name	% of class		
% met by child		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Has the child met the all and most statements?		n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	0%			
All	Explain what is meant by animation.																																		0%			
	Create a series of linked frames that can be played as a short animation.																																			0%		
	Control and adjust a time slider to locate a different point in a film clip.																																			0%		
	Insert images to create a simple stop motion animation short film clip.																																				0%	
	Evaluate the advantages and disadvantages of some animation software.																																				0%	
Most	Describe one or more traditional methods of animation.																																				0%	
	Make slight changes to an image using onion skinning, understanding the term.																																				0%	
	Use a time slider to find a specific point in a film clip to insert or edit an object.																																				0%	
	Edit and refine images in a stop motion animation short film clip.																																					0%
	Compare different animation software by looking at its advantages and disadvantages.																																					0%
Some	Explain how computer software has improved animation techniques.																																				0%	
	Edit and refine still images with multiple layers or onion skins.																																				0%	
	Make extensive use of a time slider to animate multiple objects simultaneously.																																				0%	
	Use a webcam or digital camera to create their own images for a stop motion animation short film clip.																																				0%	
	Recognise limitations of animation software and suggest improvements.																																				0%	

NC Aims Covered in the Animation Unit

Analyse, evaluate and present data and information.

Use a variety of software to design and create content that accomplish given goals.

Use a variety of software, on a range of digital devices, to design and create content that accomplish given goals.

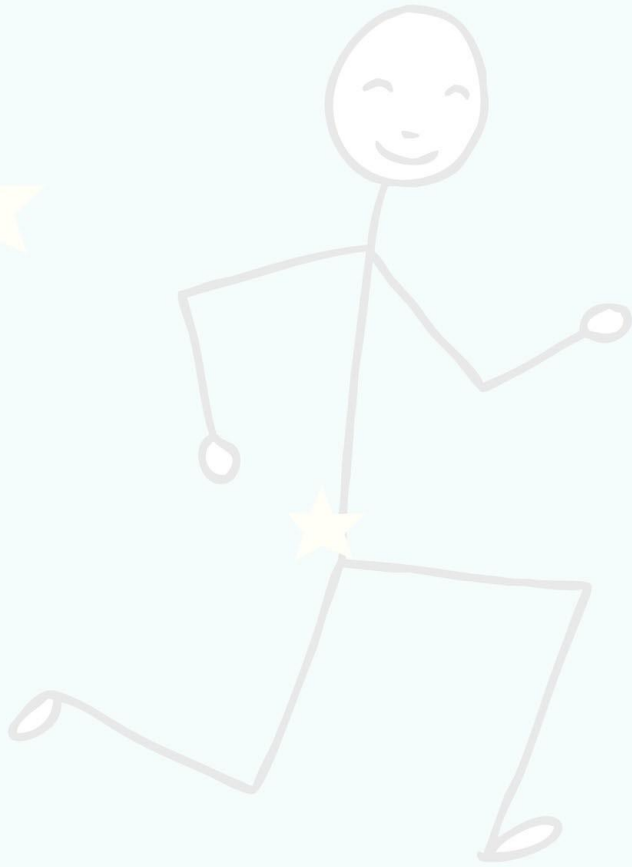
Select, use and combine a variety of software including analysing, evaluating and presenting data and information.

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
<p>I can describe early forms of animation before computers and how computers have made a difference.</p>	<p>I can create a short computer animation using one or more moving stick figures.</p>	<p>I can create a recorded animation involving a number of moving characters on a background.</p>	<p>I can structure specific timing of animations using a time slider.</p>	<p>I can use a camera to create a short stop motion animation film.</p>	<p>I can analyse and evaluate software.</p>
<p>I can explain what is meant by animation.</p>	<p>I can create series of linked frames.</p>	<p>I can use animation recording to animate the movement of a character.</p>	<p>I can use the time slider to find a new place in a clip.</p>	<p>I can take still images using a webcam or similar digital device.</p>	<p>I can comment on the advantages and disadvantages of using a particular piece of software.</p>
<p>I can describe early devices used to develop animation techniques.</p>	<p>I can make slight changes to an image, using onion skinning.</p>	<p>I can animate the interaction between two characters.</p>	<p>I can insert a new character at a given place in a clip.</p>	<p>I can import my own suitable photos to create stop motion animation.</p>	<p>I can compare features in different software.</p>
<p>I can explain how simple animation techniques work.</p>	<p>I can edit and refine still images to improve my animation.</p>	<p>I can control the timing of characters' appearance in a recording.</p>	<p>I can edit or change objects at different parts of a clip.</p>	<p>I can change the content of a picture by the correct amount between frames.</p>	<p>I can differentiate between different types of animation technique.</p>
<p>I can explain how computer software has improved animation techniques.</p>	<p>I can add a second figure and animate them interacting with each other.</p>			<p>I can order or sequence frames to create the effect of smooth movement.</p>	<p>I can express my opinion about the effectiveness of software.</p>

Computing: Animation

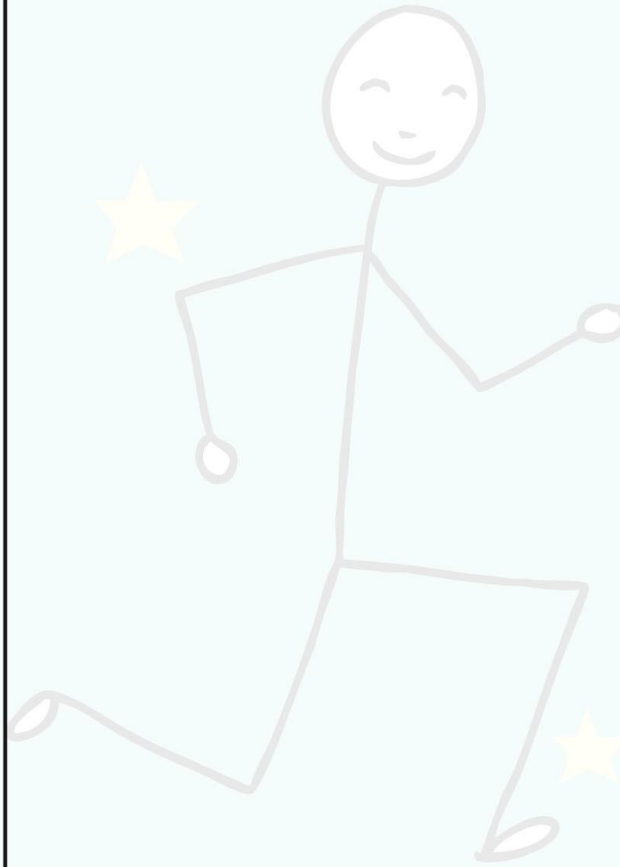
K

What I know



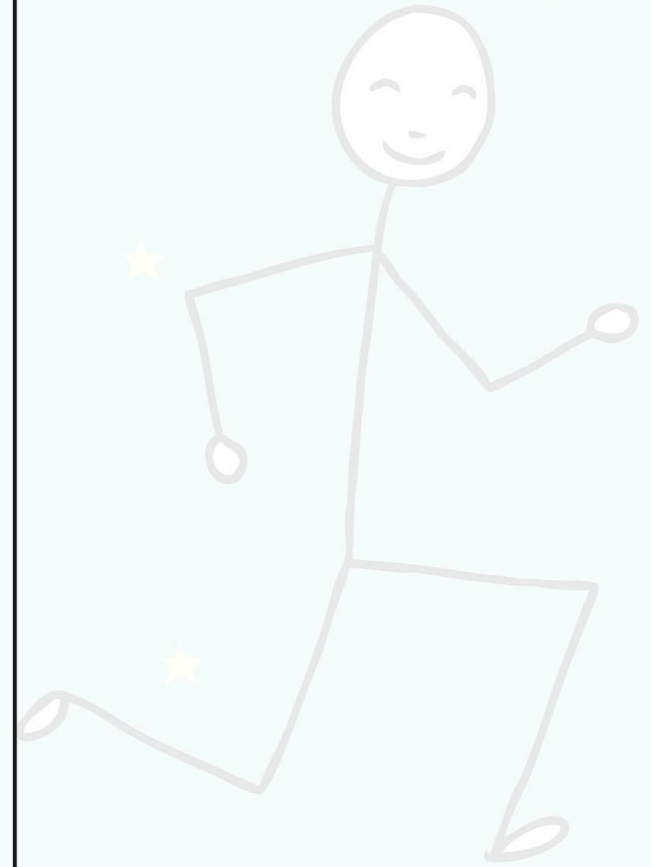
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What I want to know



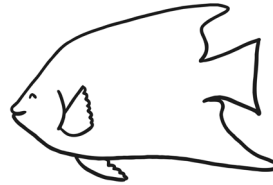
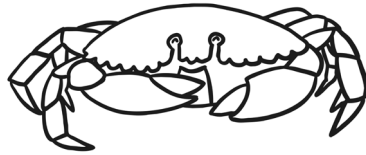
L

What I have learnt



Animation Planning and Storyboard

When planning a story, animators will usually draw out a storyboard to sequence events. This may be a series of rough sketches with notes, showing the events that will happen. Try sketching your own storyboard for an animated story about some underwater sea creatures.



Model Making or Drawing

Some animations are created by manipulating models or puppets, whilst others may be a series of frames made from drawings.

Model Making



Try creating your own model like Morph that can be moved and manipulated into different positions for a stop motion animation.

You could use modelling clay or try junk modelling.

You could make more than one character or even a backdrop on card to stand behind.

Can you move your character in different positions or poses?

Drawing

Alternatively, you could draw your own simple scene on a sheet of paper.

On a separate sheet, draw a simple character that can be cut out and placed on the scene. You could even try to make moving arms and legs using split pins.

Position your character on the backdrop and then move it along. If you can photograph the character in each position, the series of still frames can be used to make an animation!

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Position your character on the backdrop and then move it along. If you can photograph the character in each position, the series of still frames can be used to make an animation!

Animation: The History of Animation

Aim: Analyse, evaluate and present data and information in the context of understanding the history of animation. I can describe early forms of animation before computers and how computers have made a difference.	Success Criteria: I can explain what is meant by animation. I can describe early devices used to develop animation techniques. I can explain how simple animation techniques work. I can explain how computer software has improved animation techniques.	Resources: Lesson Pack Computers /laptops /tablets (with Internet access for research) Scissors, string, stapler
	Key/New Words: Animate, animation, still image, thaumatrope, zoetrope, zoopraxiscope, stereoscope, flip book.	Preparation: Making a Flip Book Activity Sheet - per child Thaumatropes Activity Sheet, The History of Flip Books Activity Sheet and The History of Animation Activity Sheet - as required

Prior Learning: It will be helpful if children have been asked to think about what they already know about animation.

Learning Sequence

	What Is Animation? Can children explain what is meant by animation? Establish that it is the process of creating the illusion of moving images using a series of still frames. Children may mention current animated movies or characters; also link to popular cartoons and Disney examples.							
	The History of Animation: Explain that we are going to look at how animation first began in today's lesson, before understanding how computers have begun to make the process easier. We will also be trying out our own early animation techniques! Can children explain how simple animation techniques work using the phrase 'persistence of vision'?							
	Early Animation Inventions: Explain that before animation was widely understood, there were many inventions and devices that fascinated people by seeming to merge images or make them appear to move. Some of these have some complicated sounding names! Show examples of thaumatrope and flip book.							
	Finding Out More: First we are going to find out more about at least one of these devices, then everyone will get the chance to make a flip book of their own. <table border="0" style="width: 100%; margin-top: 10px;"> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">Find out about thaumatropes and make their own using Thaumatropes Activity Sheet.</td> <td style="text-align: center;"></td> <td style="text-align: center;">Research the history of Flip Books using the History of Flip Books Activity Sheet.</td> <td style="text-align: center;"></td> <td style="text-align: center;">Research early animation devices using the History of Animation Activity Sheet.</td> </tr> </table>		Find out about thaumatropes and make their own using Thaumatropes Activity Sheet .		Research the history of Flip Books using the History of Flip Books Activity Sheet .		Research early animation devices using the History of Animation Activity Sheet .	
	Find out about thaumatropes and make their own using Thaumatropes Activity Sheet .		Research the history of Flip Books using the History of Flip Books Activity Sheet .		Research early animation devices using the History of Animation Activity Sheet .			
	Flip Books: First allow brief feedback from each ability group on their task. Give each child a copy of the Making a Flip Book Activity Sheet and ensure instructions are clear on what to do. All of the children will design a stick figure flip book. (Remember to keep these safe for next lesson.)							
	Computer Vs Pencil and Paper: How do you think computers have changed the animation process? What advantages are there in using a computer to produce multiple similar images, compared to pencil and paper? Allow discussion time then feedback ideas. List may include 'copy and paste' or duplicating, not having to start from scratch when drawing a similar object /scene, saving work, use of digital photos, less paper required.							

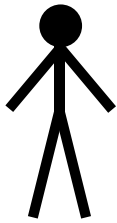
Taskit

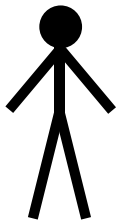
Createit: Make a new version of your own thaumatrope or flip book with a different design.

Making a Flip Book



Use these rectangles to make your own stick figure flip book. Cut out all the rectangles carefully to make pages. The first one is drawn for you. Take the next blank page and trace over the first image but change it slightly however you want to. Then take another page and trace over your last image but make another slight change. Keep going until you have drawn on each page, then put them in a pile together (You may want to number each in the top right hand corner). Attach together at the left hand side and flip through your pictures on the right!



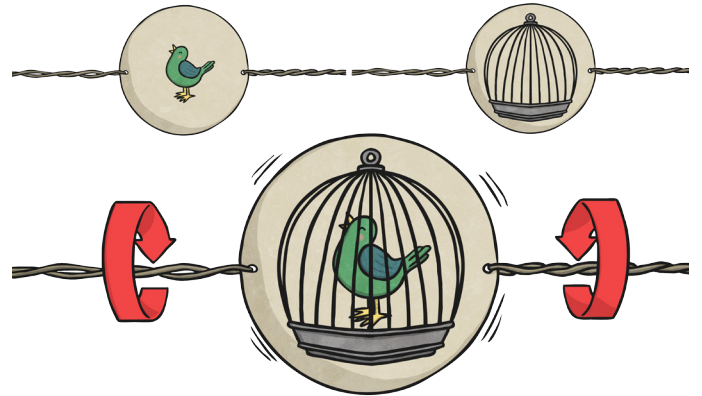
			

Making a Thaumatrope



A thaumatrope is a toy that was popular in Victorian times. People were fascinated with simple ways of making pictures look like they were moving – an early form of animation.

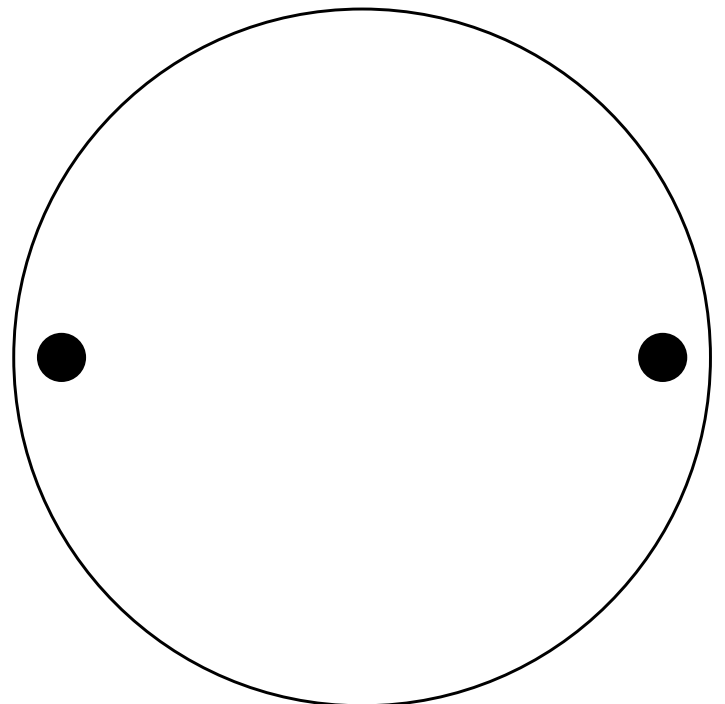
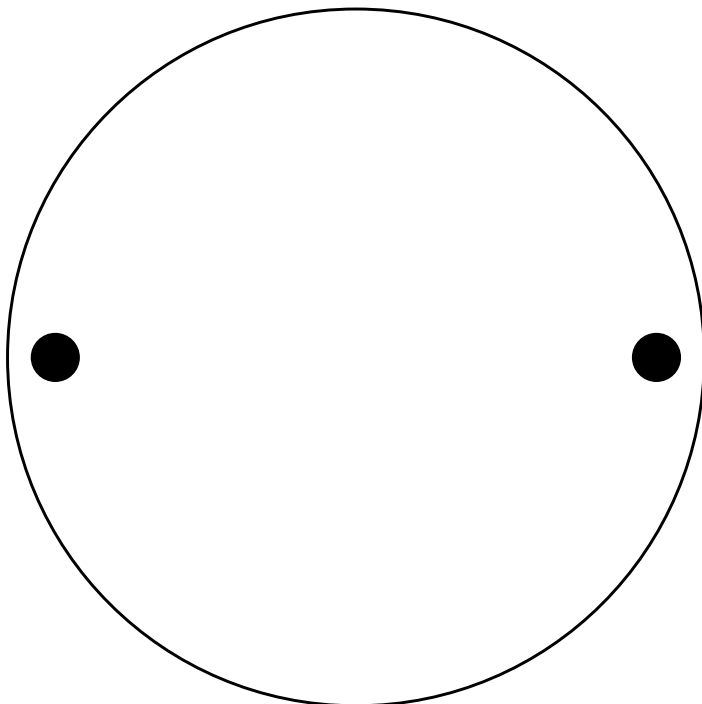
A simple thaumatrope was made with two disks, featuring a picture on each. With a picture on each side, string is then tied to the sides of the disks which are placed back to back. When the string is used to spin the pictures rapidly, the two images appear to merge into one.



The same effect can be created using a wooden stick rubbed between your palms with the disks stuck back to back at the top.

A famous old thaumatrope featured a bird in one image and an empty cage in the other. What do you think happens when the two pictures are turned rapidly?

Try making your own by drawing the pictures onto these disks. Cut them out and stick them back to back. Use either string or a piece of wood to make them spin rapidly.



The History of Animation



In the early days of animation, there were some different methods of making it seem like pictures were either moving or merging into one. People invented amazing devices which led to the movies, films and animations we have today.

See if you can find out what any of these inventions did. Draw them and describe how they worked!

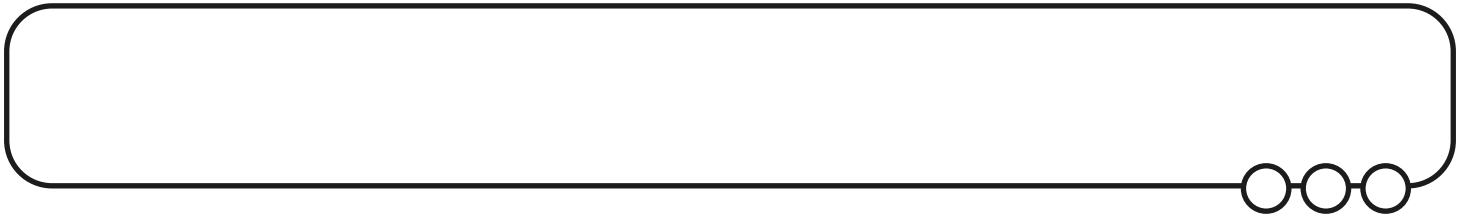
Thaumatrope

Zoetrope

Zoopraxiscope

Stereoscope

The History of Flip Books



A flip book (also known as a flick book) is a book containing a sequence of pictures that include gradual changes, so that when the pages are quickly flipped through, the pictures give the illusion of movement or animation.

Try researching the history of flip books.

Answer the questions below and make any other notes about what you discover:

From your research, list any subjects on which you can see flip books made.

List any names and dates of the earliest known flip books, who made them and what were they about?

What other names were compared or given to a flip book?

Animation | The History of Animation

I can describe early forms of animation before computers and how computers have made a difference.		
I can explain what is meant by animation.		
I can describe early devices used to develop animation techniques.		
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Animation: Stick Figure Animation

Aim: 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.	Success Criteria: 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.	Resources: 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.	
 <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>Children create an animation including at least 6 frames, using the Beginner's Guide to Pivot Animator Activity Sheet to help.</p> </div> <div style="text-align: center;">  <p>Children create an animation including at least 9 frames, using the Advanced Guide to Pivot Animator Activity Sheet to help.</p> </div> <div style="text-align: center;">  <p>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.</p> </div> </div>		
	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.	

Taskit

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

Sceneit: 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.

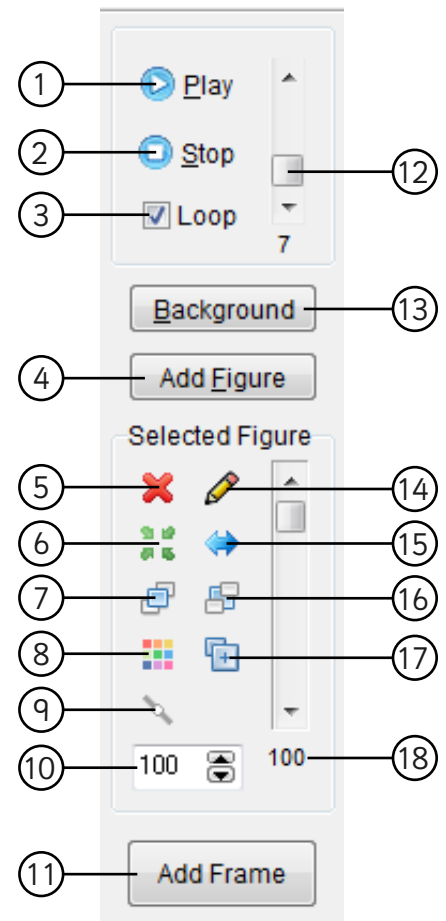
When a desired starting position has been chosen, click Add Frame. This will create a thumbnail of the first frame in the animation sequence at the top of the screen.

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.

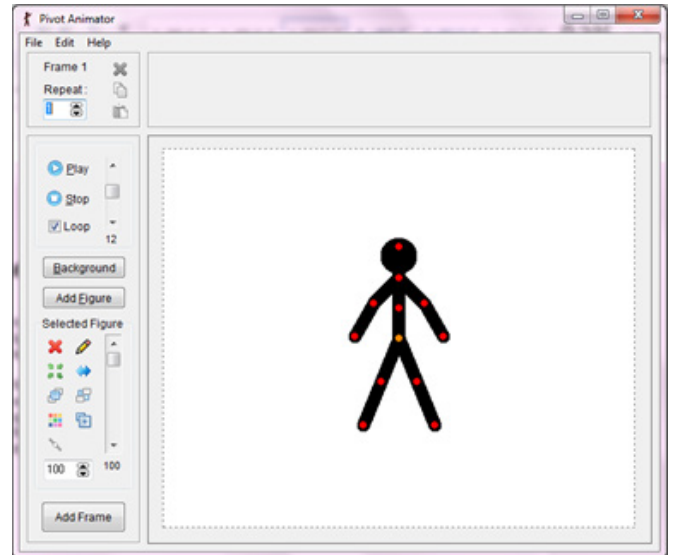
Beginner's Guide to Using Pivot Animator

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!

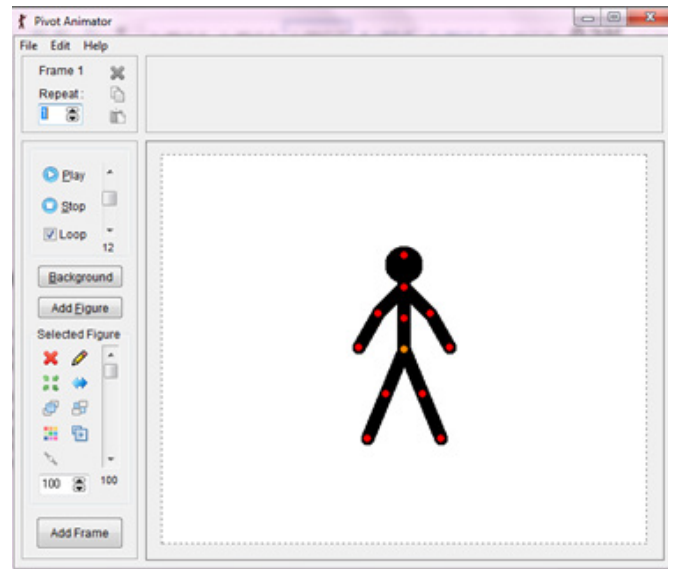
Animation: Lesson 2

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

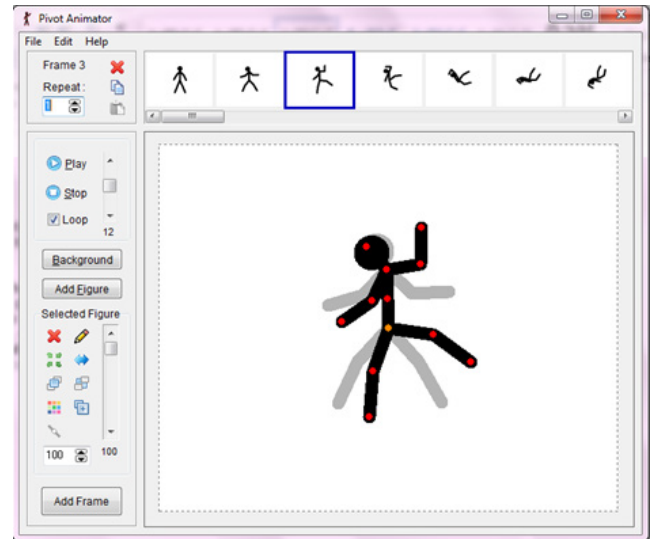
Animation: Lesson 2

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.

Animation | Stick Figure Animation

I can create a short computer animation using one or more moving stick figures.		
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Animation: Recording Movement of Characters

Aim: Use a variety of software to design and create content that accomplish given goals in the context of an animation recording with a number of moving characters I can create a recorded animation involving a number of moving characters on a background.	Success Criteria: I can use animation recording to animate the movement of a character. I can animate the interaction between two characters. I can control the timing of characters' appearance in a recording.	Resources: Lesson Pack Computers/laptops with MovieSoup software installed Whiteboard & pens or large sheets of paper
	Key/New Words: Frame, onion skinning, loop, frame rate, record, stop, play, backdrop.	Preparation: Differentiated Recording Movement Activity Sheet - 1 per child

Prior Learning: Children will have experienced different animation techniques in lessons 1 and 2.

Learning Sequence

	Movies and Cartoons: In pairs, ask children to think of as many animated movies or cartoons as they can. List on individual whiteboards or on large sheets of paper. Try to categorise, for example into drawn animation (such as Scooby Doo), model animation (such as Wallace and Gromit) or 3D computer-generated animation (such as Toy Story).	
	Animated Sea Creatures: Focus on the movie example, Finding Nemo. We are going to use some different animation software to create our own underwater animation. Demonstrate opening MovieSoup and selecting a background. As an extension, look at the Disney website's animations and games.	
	Frames Vs Recorded Movement: Rather than creating single images, frame by frame, this type of animation is performed by recording all movement of objects on the backdrop. Objects (e.g. characters) can be added, then moved to any desired new location. When recorded, the movement can be played back as a short animation. Demonstrate in MovieSoup software.	
	Underwater Animations: Can children create a short animation of one or more moving characters on the backdrop? <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Use the Recording Movement Activity Sheet to create an animation with at least one character.</p> </div> <div style="text-align: center;">  <p>Use the Recording Movement Activity Sheet to create an animation with at least two interacting characters and speech bubbles. Resize, rotate and flip characters/objects.</p> </div> </div>	
	What Can I Do? With a partner, firstly children explain to each other at least one thing that they have learned how to do during this lesson, using the MovieSoup animation. Secondly, try to think of one thing they would like to do with their animation next, but haven't had time or figured out how to do it. Can anyone solve a partner's query?	

Taskit

- Researchit:** Look at movie clips or still animation scenes from the Finding Nemo movie. What happens that you could try to recreate using your own animation?
- TroubleShootit:** Can anyone solve the queries of partners or classmates when learning how to use the new software? Who could act as a learning guide for a partner and share their knowledge or expertise?



Recording Movement of Characters

I can create a recorded animation involving a number of moving characters on a background.

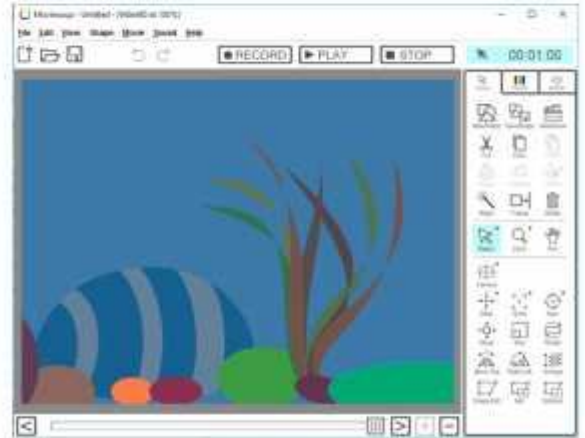


Using MovieSoup Software

Choosing a New Scene

Open **MovieSoup** and choose **NewScene** from the toolbar on the right.

From the **Libraries** tab, you can select an **underwater background** from the Library then click OK.



Inserting a Character

Insert a new shape (a character such as a fish or sea creature):

First click NewShape.

Then choose the library tab again.

Select your character and click OK.

Click and drag carefully to draw out the character in your chosen size on the background.

Recording Animation

Click **RECORD**.

The software will only record when you move or change anything on the scene.

Drag your character across the screen as if it is swimming.

(Notice the timer will be recording the movement to play back as an animation)

Click **STOP** when done and **PLAY** to test the animation.

More Ideas!

- Try choosing a different scene or image as your background.
- What shape or character would be suited to your new background?
- Now try animating your new character and background!



Recording Movement of Characters

I can create a recorded animation involving a number of moving characters on a background.



Using MovieSoup Software

Open MovieSoup and choose NewScene from the toolbar on the right. From the Libraries tab, you can select an underwater background from the Library then click OK.

Insert a new shape (a character such as a fish or sea creature) by selecting NewShape, then choosing from the library again. After clicking OK, draw out the character in your chosen size on the background.

Click **RECORD**.

The software will only record when you move or change anything on the scene.

Drag your character across the screen as if it is swimming. Notice the timer will be recording the movement to play back as an animation.

Click **STOP** when done and **PLAY** to test the animation.

What else can you animate?

- Add another character and animate it by dragging to create movement. Don't forget to press RECORD before you move it!
- Use the slider at the bottom to change to a different point in your animation and add a new character half way through.
- Notice as you record and move your new character, the first character should move automatically as you've already recorded its animation!

Recording Your Animation

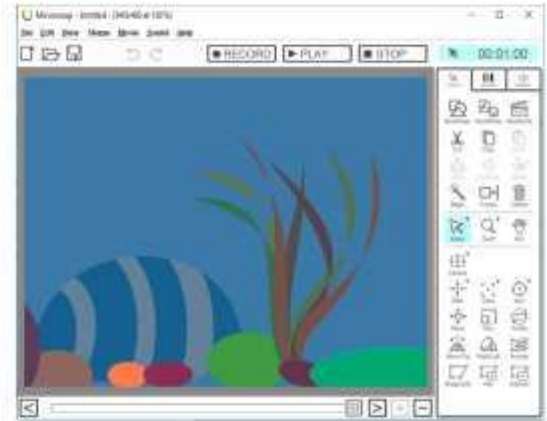
Remember always to press the **RECORD** button to record the movement of animation. Press **STOP** when finished. Use the slider to select where to **PLAY** back the animation from.

More Ideas!

- Try adding a different scene or image as your background.
- What shapes or characters would be suited to your new background?
- Now animate them!

Challenge: Adding Speech Bubbles

Add speech bubbles and text to appear during the animation. Use the slider to select a starting point for your text to appear, then insert new shapes – a speech bubble and then text. Click RECORD to record their movement in the animation and move them on the backdrop. If you want them to disappear again afterwards, use the **Cut** button on the toolbar.





Recording Movement of Characters



Using MovieSoup Software

Choosing a New Scene

Open **MovieSoup** and choose **NewScene** from the toolbar on the right.

From the **Libraries** tab, you can select an **underwater background** from the Library then click OK.

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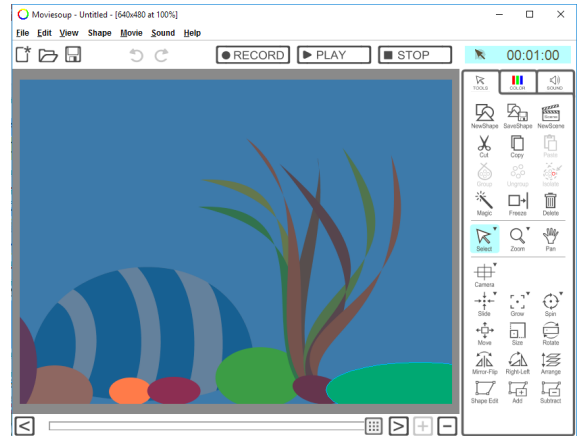
Insert a new shape (a character such as a fish or sea creature):

First click NewShape.

Then choose the library tab again.

Select your character and click OK.

Click and drag carefully to draw out the character in your chosen size on the background.



Recording Animation

Click **RECORD**.

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Drag your character across the screen as if it is swimming.

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Click **STOP** when done and **PLAY** to test the animation.

More Ideas!

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Recording Movement of Characters



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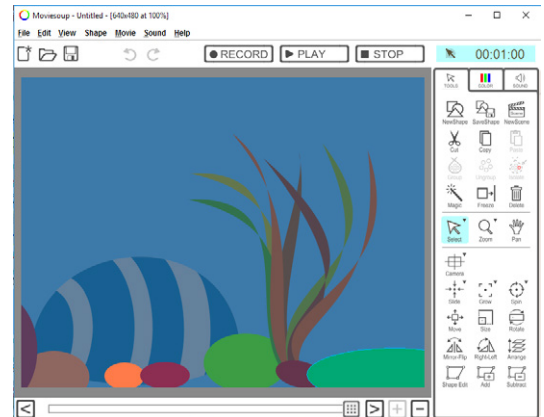
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More Ideas!

- Try adding a different scene or image as your background.
- What shapes or characters would be suited to your new background?
- Now animate them!

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Add speech bubbles and text to appear during the animation. Use the slider to select a starting point for your text to appear, then insert new shapes – a speech bubble and then text. Click RECORD to record their movement in the animation and move them on the backdrop. If you want them to disappear again afterwards, use the **Cut** button on the toolbar.



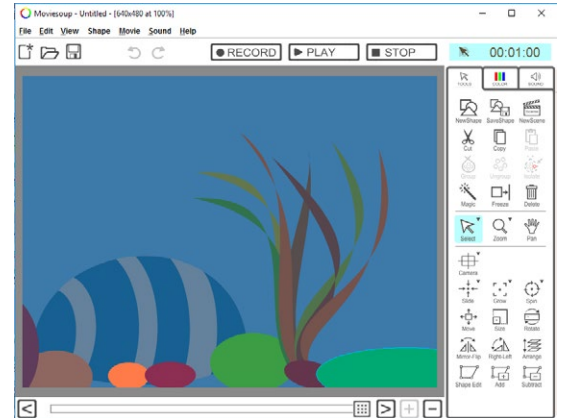
Animation: Lesson 3

Introduction to Moviesoup

A free version of Moviesoup (replacing the formerly used FluxTime Studio) can be downloaded and used by children. It is possible to upgrade and pay for a membership, which enables additional features such as being able to save and manage work.

New Scenes

The first stage is to choose a new scene by clicking on the button in the right-hand menu bar. Choose the Libraries tab and the drop-down menu offers 'Day in the Park' and 'Underwater World' categories. be selected from.



Adding shapes (characters)



The next stage is to add what is referred to as a shape (e.g. a character) using the 'New Shape' button on the right-hand toolbar. This allows choice from the library of images to match the underwater theme, as well as shapes, text and more. Once selected, the object can be clicked and dragged onto the background, to the desired size.

Changing Colours

To change the colour of an object, ensure it is selected, then click on the colour (COLOR) tab on the toolbar. Adjust the sliders to the desired positions.

Animating (Recording)

When ready to animate, click the RECORD button. Notice that the record time does not start or continue unless something is being moved on the backdrop. The animation recording remains 'paused' until detecting any movement.

With the RECORD option still selected, the shape (character) added to the background can be moved by dragging. As it is done so, the software records the changes. A timer on the top of the screen records the length of clip.

When finished recording, click the STOP button. The animation can then be played back or any point in the recording selected by using the slider that appears at the bottom.

Animation | Recording Movement of Characters

I can create a recorded animation involving a number of moving characters on a background.		
I can use animation recording to animate the movement of a character.		
I can animate the interaction between two characters.		
I can control the timing of characters' appearance in a recording.		

Animation | Recording Movement of Characters

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Animation: Structured Timing

Aim: Use a variety of software to design and create content that accomplish given goals in the context of structuring the timing of animation effects to create a short story. I can structure specific timing of animations using a time slider.	Success Criteria: I can use the time slider to find a new place in a clip. I can insert a new character at a given place in a clip. I can edit or change objects at different parts of a clip.	Resources: Lesson Pack Computer /laptops with MovieSoup software installed.
	Key/New Words: Animate, animation, record, stop, play, backdrop.	Preparation: Differentiated Structured Timing Activity Sheet - per child

Prior Learning: Children will have been introduced to using MovieSoup in lesson 3.

Learning Sequence

	Timing Is Key: Ask why timing is important in animation? Consider ideas such as matching movement to speech or other sound effects; co-ordinating movement of separate characters; introducing characters or objects at the appropriate time; changing colours or effects to fit events.		
	The Time Slider: In the MovieSoup software used last lesson, there is a Time Slider located below the main canvas. The time slider always represents 100% of the total playtime of a clip, no matter how long it is. This helps to give an idea of where you are in a clip at a quick glance. You can also use the time slider to jump to any position in the timeline of a clip by dragging the slider to any desired place (<i>Restrictions: note that the time slider is disabled when recording or playing a clip; it is instead controlled by the recorder or player. The slider is a useful tool for returning to a place at some point in your animation in order to change, edit or insert a new object.</i>)		
	Demo Using MovieSoup: When recording in MovieSoup, if you just make changes to the canvas without incorporating use of the time slider, everything will keep getting added on to the end of the clip and making it longer. To make things happen at the same time as each other, you need to stop and drag the time slider back before recording again. Open MovieSoup software and demonstrate.		
  Children complete Challenge featuring interacting sea creatures.	 Children complete Challenge 1: Interacting sea creatures and Challenge 2: Movement of Sun.	 Children complete Challenge 1: Interacting sea creatures, Challenge 2: Movement of Sun and Challenge 3 (Create new animation then swap and edit with a partner)	
	Pair and Share: Children to find a partner to review each other's final work. Then continue to move round and swap to find new partners, so that everyone gets to see several partners' work.		

Taskit

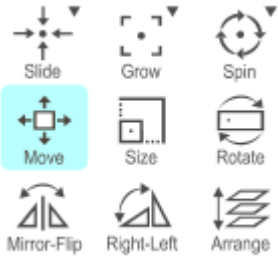
Paintit: Use paint software to create a background or an object to import into your animation clip. Copy the file to a known location then locate and use it in MovieSoup as a new background scene.

Scriptit: Plan, write or act out a script to go with your underwater sea creature animation.



Structured Timing

Activities using MovieSoup (or similar software)



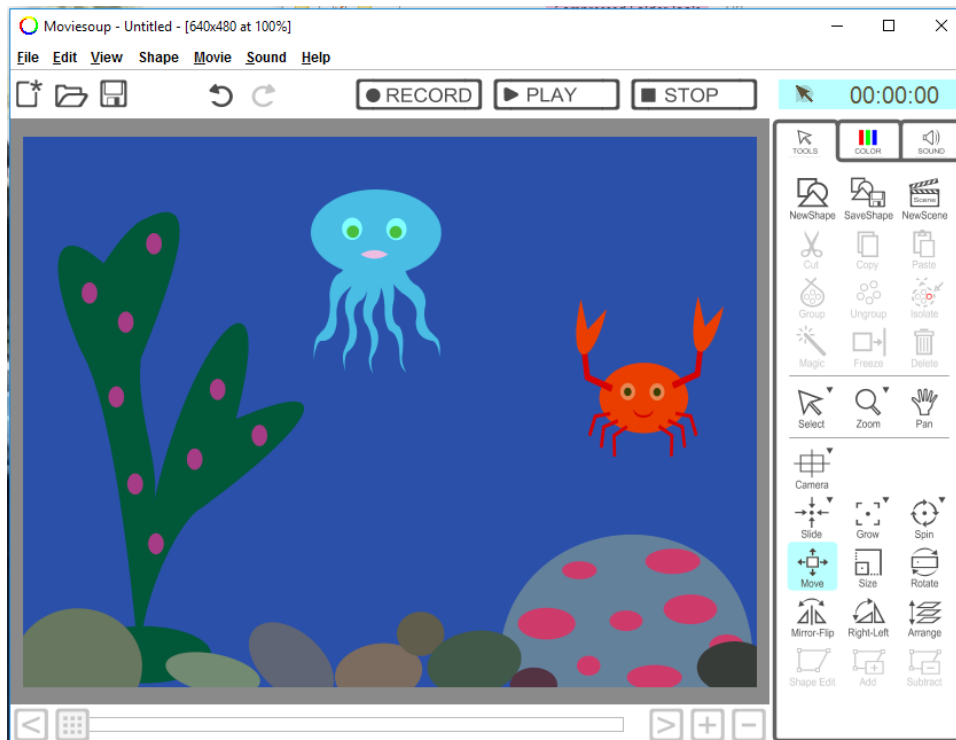
Here are some of the toolbar buttons you will find in the MovieSoup software.

What do you think they do?

Add a new shape or character to a background and try them out!

Challenge

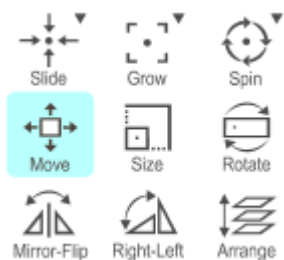
1. Choose a background and insert an object (character).
2. Record movement across screen then use Mirror-Flip and Rotate to face back the other way.
3. Stop recording and use the slider to go back to a point where the character is halfway across.
4. Insert new character.
5. Start recording again and move the new character to follow the first (as you move, you should notice the first character's movement automatically occurring).
6. Add a speech bubble and text from first character to say 'Hey, are you following me?'
7. Record some movement of second character then add new speech bubble to say 'No, I'm not!'





Structured Timing

Activities using MovieSoup (or similar software)



Here are some of the toolbar buttons you will find in the MovieSoup software.

What do you think they do?

Add a new shape or character to a background and try them out!

Challenge 1

Choose a background and insert an object (character).

Record movement across screen then use Mirror-Flip and Rotate to face back the other way.

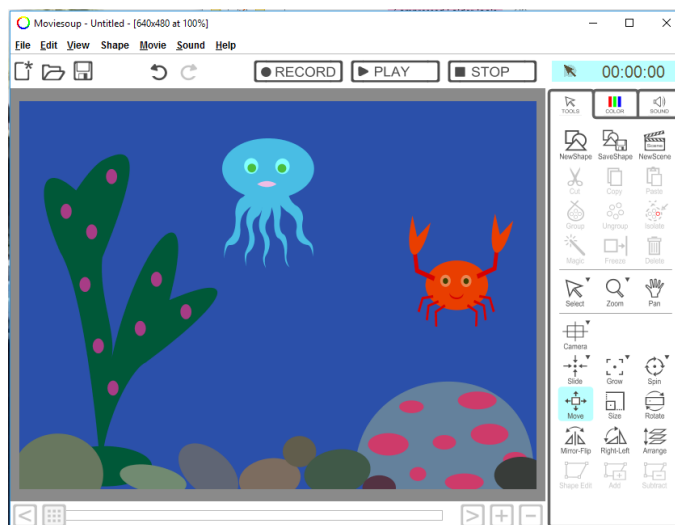
Stop recording and use the slider to go back to a point where the character is halfway across.

Insert new character.

Start recording again and move the new character to follow the first (as you move, you should notice the first character's movement automatically occurring).

Add a speech bubble and text from first character to say 'Hey, are you following me?'

Record some movement of second character then add new speech bubble to say 'No, I'm not!'



Challenge 2

Create a new clip with a blank background and change the colour to blue.

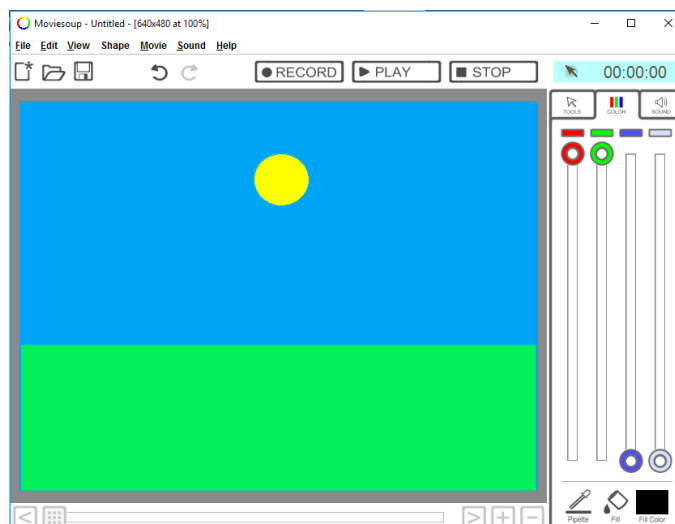
Add a rectangle shape at the bottom coloured green for grass.

Add a yellow circle to be the sun.

Record an animation of the sun rising on one side until it is high in the sky, then setting on the other side.

What else can you add?

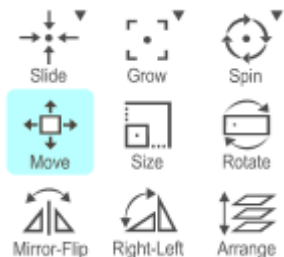
Can you change the colour of the sky to be darker at the beginning and end but lighter when the sun is highest?





Structured Timing

Activities using MovieSoup (or similar software)



Here are some of the toolbar buttons you will find in the MovieSoup software.

What do you think they do?

Add a new shape or character to a background and try them out!

Challenge 1

Choose a background and insert an object (character).

Record movement across screen then use Mirror-Flip and Rotate to face back the other way.

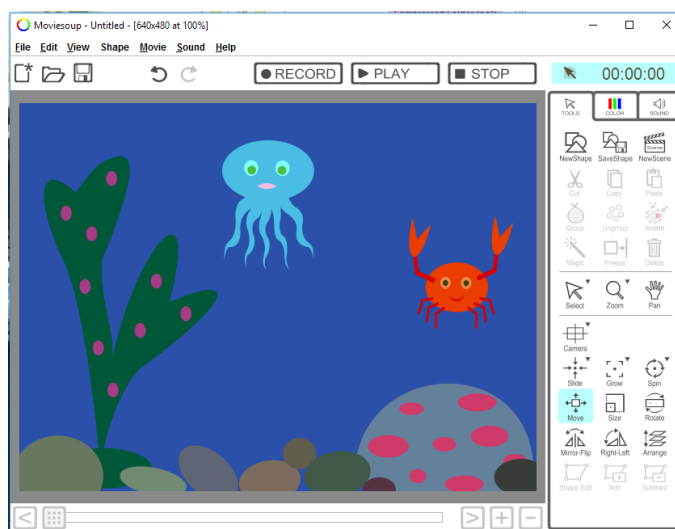
Stop recording and use the slider to go back to a point where the character is halfway across.

Insert new character.

Start recording again and move the new character to follow the first (as you move, you should notice the first character's movement automatically occurring).

Add a speech bubble and text from first character to say 'Hey, are you following me?'

Record some movement of second character then add new speech bubble to say 'No, I'm not!'



Challenge 2

Create a new clip with a blank background and change the colour to blue.

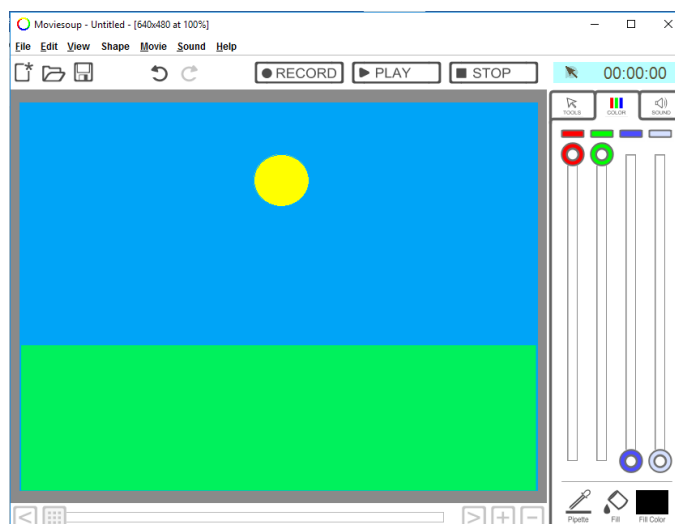
Add a rectangle shape at the bottom coloured green for grass.

Add a yellow circle to be the sun.

Record an animation of the sun rising on one side until it is high in the sky, then setting on the other side.

What else can you add?

Can you change the colour of the sky to be darker at the beginning and end but lighter when the sun is highest?



Challenge 3

Make your own new adventure animation using the Day in the Park scenes and character libraries.

Swap with a friend or partner to edit each other's clips and add new animations.

Animation: Lesson 4

This lesson is designed as a continuation from Lesson 3, using the MovieSoup software. However, for maximum flexibility, teachers may wish to replace this lesson by devoting additional time to continue from Lesson 2 (Pivot Animator software).

There are three challenges in the differentiated . The first is to show interaction between two moving characters; the second has the additional challenge of creating a clip from scratch on a blank canvas; and the third is to use a new scene and characters, then exchange with a partner to edit each other's existing animations.

Alternatively, children may be given time to create new clips if they have their own original ideas.

Animation | Structured Timing

I can structure specific timing of animations using a time slider.		
I can use the time slider to find a new place in a clip.		
I can insert a new character at a given place in a clip.		
I can edit or change objects at different parts of a clip.		

Animation | Structured Timing

I can structure specific timing of animations using a time slider.		
I can use the time slider to find a new place in a clip.		
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Animation | Structured Timing

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I can use the time slider to find a new place in a clip.		
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Animation | Structured Timing











I can structure specific timing of animations using a time slider.		
I can use the time slider to find a new place in a clip.		
I can insert a new character at a given place in a clip.		
I can edit or change objects at different parts of a clip.		

Animation: Stop Motion Animation

<p>Aim: Use a variety of software, on a range of digital devices, to design and create content that accomplish given goals in the context of stop motion animation using a webcam or digital camera and associated software.</p> <p>I can use a camera to create a short stop motion animation film.</p>	<p>Success Criteria: I can take still images using a webcam or similar digital device.</p> <p>I can import my own suitable photos to create a stop motion animation.</p> <p>I can change the content of a picture by the correct amount between frames.</p> <p>I can order or sequence frames to create the effect of smooth movement.</p>	<p>Resources: Lesson Pack</p> <p>Computers/laptops with access to webcam or other digital camera</p> <p>Stop motion software installed. (Several available - see Adult Guidance.)</p> <p>Source of photos or resources to create animation. (This will need to be considered in advance - see Adult Guidance.)</p>
	<p>Key/New Words: Frame, stop motion, upload, image.</p>	<p>Preparation: Guide to Stop Motion Animation - as required</p> <p>Storyboard Activity Sheet - as required</p>

Prior Learning: Children will have used other animation software and techniques in lessons 1 to 4.

Learning Sequence

	<p>Stop Motion: Introduce this approach to animation. Link to 'Wallace and Gromit', which is likely to be a well-known example of the technique.</p>	
	<p>Behind the Scenes: If there's time, watch some examples of stop motion animation.</p>	
	<p>Stop Motion Software: Model how to use your chosen stop motion software. Demonstrate how pictures can be either taken using a webcam or imported from files. The movie can then be played back, edited and finally enhanced with titles and a soundtrack.</p>	
	<p>Create Your Own Stop Motion Animation: Can children work in pairs to create a stop motion animation? Working in pairs or small groups, children use the Guide to Stop Motion Activity Sheet to create their animation. The Storyboard Activity Sheet can be used to plan their animation and materials needed. After preparing the images to be used, children then use your chosen stop motion software to edit their animations. See the Adult Guidance for further information.</p>	
	<p>Present and Share: Invite children in their pairs to present their finished animations. Before playing the clip (ideally on large screen at the front of the classroom) the children should introduce what it is about and how they made it. Allow other children (the audience) to ask questions or appraise.</p>	

Taskit

Modelit: Design a new model character (or set of characters) using modelling clay that can be photographed for a stop motion animation film. Alternatively, design a set or backdrop using cardboard or an open box.

Watchit: Watch examples of stop motion animation using models, such as 'Wallace and Gromit'.

Stop Motion Animation Adult Guidance

This lesson provides an opportunity for a third different approach to animation, in this case stop motion animation using photo capture.

Stop motion animation is a technique that involves a series of still photos played quickly to produce the effect of movement and animation. To achieve this, objects in the animation are moved very slightly in between each photograph.

Although self-contained, this lesson can easily be extended into a longer project over several lessons. Model and backdrop making could also make a suitable art or design and technology lesson. It can also be easily themed to fit in with other topic work in your curriculum.

Software and Hardware

There is a range of simple stop motion software widely available (both free and paid) to create animations that you can pick to work with your specific devices.

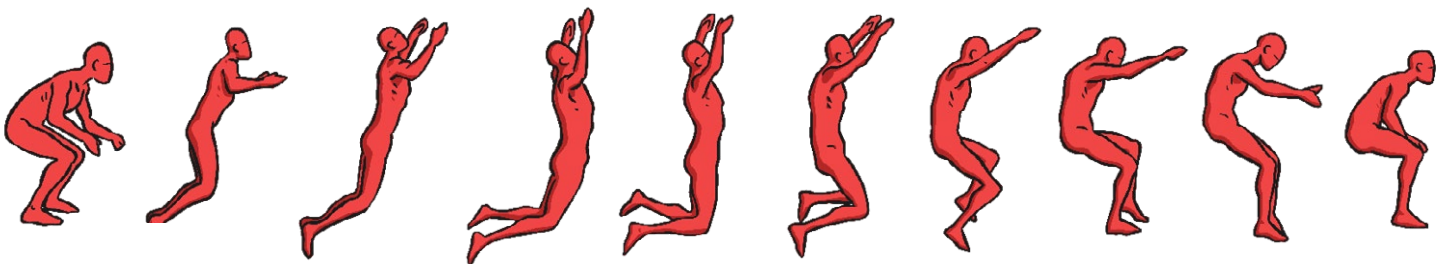
A range of hardware can be used for taking the photographs. Several devices have built-in cameras but a portable webcam is also a good option, as it can be moved around to capture the images. Digital cameras can also be used and the images uploaded.

Children will need a suitable place on your school system to save and access their images.

Photographs






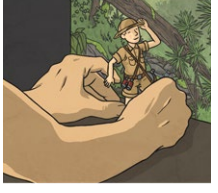

Children will need to take a series of photographs for their stop motion animation (following school guidance on photographs). This could be done in a variety of ways. For example, they could photograph modelling clay models, building bricks or toy figures. These are easy to move between each photograph. They could also use hand-drawn images and then photograph or scan these. Whiteboards are useful here as slight changes can be easily made to the images between each photograph.

A simple animation that can be made is to build a tower or structure using building bricks. After taking photos of each step, the pictures can be edited to make it look like the tower is building itself.



Guide to Stop Motion Animation

There are many different options or approaches to making stop motion animation. Choose which is best for you or which software, hardware and materials you may have access to.

	<p>Plot or Story</p> <p>First try to decide what your animation is going to be about. What is the basic idea? Will you tell a story with a beginning and end or something more random? Maybe just create the effect of something moving, like an everyday object?</p>
	<p>Material for Animating</p> <p>Decide which materials you are going to use for your animation. Ideas of materials that could be used include: modelling clay, cut-out paper or card, pictures cut from old magazines or toy figures.</p> <p>Think about your backdrop and set. Backdrops could be made on card or inside a box. You could use a simple, but effective, piece of material or colourful paper. Will you need any other props or objects in your scene?</p>
	<p>Plan a Storyboard</p> <p>Decide in advance roughly what will happen in your animation. Use a storyboard to plan the scenes but remember each scene will probably need several animation frames. Use sketches and notes to make a good plan.</p>
	<p>Creating Your Set, Props and Characters</p> <p>Draw, build or create anything you need for your animation. Use the Storyboard Activity Sheet to make sure you have everything needed before you start working on the animation.</p>
	<p>Choose a Camera</p> <p>Find out what type of camera you are able to use from your teacher. You may have a choice - in which case think about which will work best for capturing your images.</p>
	<p>The Animation</p> <p>Once you have everything set up, take a few photos as initial frames before you start making any movements or adjustments. When you are ready to start moving your character or object, only adjust by a few millimetres each time and aim to take 10-12 frames for each second of animation.</p>
	<p>Finishing Touches</p> <p>Download your images into the stop motion animation software and use the editing tools to complete your animation. You could also add titles or a soundtrack. Remember to save your work.</p>













Animation | Stop Motion Animation

I can use a camera to create a short stop motion animation film.		
I can take still images using a webcam or similar digital device.		
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I can change the content of a picture by the correct amount between frames.		
I can order or sequence frames to create the effect of smooth movement.		

Animation: Evaluation

Aim: Select, use and combine a variety of software including analysing, evaluating and presenting data and information in the context of evaluating and comparing different animation software. I can analyse and evaluate software.	Success Criteria: I can comment on the advantages and disadvantages of using a particular piece of software. I can compare features in different software. I can differentiate between different types of animation technique. I can express my opinion about the effectiveness of software.	Resources: Lesson Pack Computers/laptops with animation software installed Pivot Animator MovieSoup Stop motion animation software
	Key/New Words: Frame, onion skinning, loop, frame rate Analyse, evaluate, positive, negative, effectiveness.	Preparation: Differentiated Evaluating Animation Software Activity Sheet - per child

Prior Learning: Children will have tried out a range of traditional animation techniques and examples of computer software animation in lessons 1 to 5.
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Learning Sequence

	Animation Methods or Software: Begin with a quick recap and list of animation techniques, methods or software used during the course of the unit. This could include pre-computer methods (e.g. flip book) and computer animation software used during this unit. <i>(If any software methods have been missed out, these can be omitted from the evaluation options.)</i>	
	Analysing and Evaluating: Gather ideas about the meaning of the words 'analysing' and 'evaluating' before sharing their definitions as given on the Lesson Presentation . Explain that we are going to be analysing and evaluating the animation software we have used, to decide which ones we prefer and would recommend.	
	Evaluating Software: Focus in on the software we can use for animation on computers. Discuss how we can evaluate the software used in this unit. Explain that sometimes there is more than one way to achieve a given task; different pieces of software are useful for different aims. Introduce the idea that there are advantages and disadvantages (or limitations) to using different pieces of software. They need to remember what they ultimately want the software to achieve when evaluating how useful it is. Highlight the use of our own opinion when evaluating.	
	Evaluation Example: Choosing one of the software examples, e.g. Pivot Animator, list on the board the reasons why children liked or didn't like it. What are the advantages of using it? What are the disadvantages or limitations? Allow children to use the ideas for their own written evaluations.	
 Children evaluate one piece of animation software. Children evaluate and compare two pieces of animation software. Children evaluate and compare two pieces of animation software using specific examples about the software in their answers. Children then compare a traditional form of animation with a software animation program and say which they think is better.	Your Evaluations: Thinking about one or two of the different animation software used, complete an evaluation activity. <i>Can you analyse and evaluate software for a given purpose?</i> Children use the differentiated Evaluating Animation Software Activity Sheet .	



Presenting and Discussing Evaluations: Using their evaluations, children work in pairs or small groups to share their opinions and discuss the advantages and disadvantages of the animation software they have evaluated. Finally, vote for the overall favourite animation software of the whole group.



Taskit

Surveyit: Do people prefer traditional animation techniques or new computer software technology? Take a vote to check. Do a survey of everyone's favourite software.

Graphit: Present a bar graph showing people's favourite animation software, based on the survey results.

Presentit: Ask friends or classmates why they have picked their favourite choice of software. Do people have the same reasons? Can you make a list of suggestions, based on the disadvantages or limitations of the software, about how the software could be improved?

Animation: Lesson 6

The aim of this lesson is to provide the opportunity for children to analyse and evaluate software. This is done by comparing the techniques and range of software covered in prior lessons. Children are encouraged to discuss and comment on the advantages and disadvantages/limitations for each piece of software, in order to make justified comparisons.

Software to be evaluated includes those used in earlier lessons such as Pivot Animator, MovieSoup and your chosen software for creating stop motion animations.

Additionally, this final lesson of the unit can provide a further opportunity to return to a particular animation software. This could be a favourite choice or to complete a project started in an earlier lesson.

Suggestions for Software Evaluation

Below are some general suggestions for possible advantages and disadvantages of animation software. Answers will vary according to the specific software evaluated and children can be encouraged to reference specific aspects of their chosen software in their answers.

Possible Advantages:	Possible Disadvantages:
<ul style="list-style-type: none">• Easy to use (e.g. toolbars are clear to understand and use).• A range of characters/objects/backgrounds are available. Or you can use your own.• Easy to edit your animation.• Can add sound effects and titles.• Creates colourful and attractive animations.• Quick to create effective animations on.	<ul style="list-style-type: none">• Difficult to use (e.g. toolbars are hard to understand and use).• Limited range of characters/objects/backgrounds. Or no option to use your own.• Tricky to edit your animation.• Difficult to animate more than one object at a time.• Not very colourful or attractive.• Can take a long time to make a few seconds of animation.

Evaluating Animation Software



Briefly describe one of the different examples of animation software that you have used. What did you have to do?

What are the advantages of using this piece of animation software? What features does it have that are useful?

What are the disadvantages or limitations of this software? What would you change or improve?

Would you recommend it to someone else? What advice would you give someone who is going to use it?

Evaluating Animation Software



Briefly describe two different examples of animation software that you have used:

1.

2.

What are the advantages of using each piece of animation software? What features do they have that are useful?

1.

2.

What are the disadvantages or limitations of each piece of software? What would you change or improve?

1.

2.

Which one was your favourite and why?

Evaluating Animation Software



Describe two different examples of animation software that you have used.

1.

2.

What are the advantages of using each piece of animation software? What features do they have that are useful? Use specific examples of how the software works in your answer.

1.

2.

What are the disadvantages or limitations of each piece of software? What would you change or improve? Use specific examples of how the software works in your answer.

1.

2.

Which would you recommend to others and why?

Choose one traditional method of animation, e.g. a flip book, and one method of computer animation, e.g. Pivot Animator. Which do you think is a better form of animation? Why?

Animation | Evaluation

I can analyse and evaluate software.		
I can comment on the advantages and disadvantages of using a particular piece of software.		
I can compare features in different software.		
I can differentiate between different types of animation technique.		
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I can analyse and evaluate software.		
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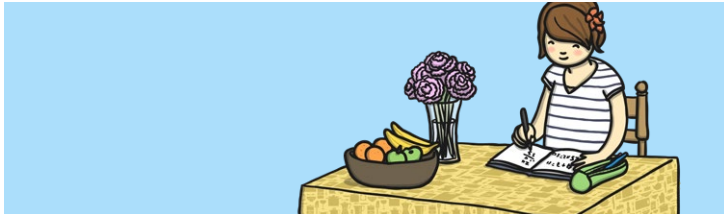
Introduction

This unit teaches children the basic principles and techniques of simple animation. Beginning with the history of animation, children research some of the early animation techniques used before the use of computers. The lessons then compare a range of free animation software and children incorporate the different techniques into their own animation. After experimenting, children are then given the opportunity to evaluate their experiences in the final lesson.



Health & Safety

General e-safety rules should be followed when using a computer, particularly if accessing the Internet. Encourage good posture when sitting at the computer.



Home Learning

Planning an Animation Storyboard: Children create their own storyboard animation plan linked to the underwater theme of the MovieSoup software used in Lessons 3 and 4.

Model Making or Drawing: A challenge to make the 'props' for an animation, either by model making (modelling clay or junk modelling) or drawing a backdrop scene with a movable character. Either option can be photographed either by children at home with adult guidance, or brought into school to be photographed. The photos could be used in Lesson 5 for stop motion animation.

Assessment Statements

By the end of this unit...

...all children should be able to:

- Explain what is meant by animation.
- Create a series of linked frames that can be played as a short animation.
- Control and adjust a time slider to locate a different point in a film clip.
- Insert images to create a simple stop motion animation short film clip.
- Evaluate the advantages and disadvantages of some animation software.

...most children will be able to:

- Describe one or more traditional methods of animation.
- Make slight changes to an image using onion skinning, understanding the term.
- Use a time slider to find a specific point in a film clip to insert or edit an object.
- Edit and refine images in a stop motion animation short film clip.
- Compare different animation software by looking at its advantages and disadvantages.

...some children will be able to:

- Explain how computer software has improved animation techniques.
- Edit and refine still images with multiple layers of onion skins.
- Make extensive use of a time slider to animate multiple objects simultaneously.
- Use a webcam or digital camera to create their own images for a stop motion animation short film clip.
- Recognise limitations of animation software and suggest improvements.

Lesson Breakdown

1. History of Animation

Analyse, evaluate and present data and information in the context of understanding the history of animation.

- I can describe early forms of animation before computers and how computers have made a difference.

Resources

- Computers, laptops or tablets with internet access
- Scissors
- String
- Stapler

2. Stick Figure Animation

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.

- Computers, laptops or tablets with Pivot Animator installed

3. Recording Movement of Characters

Use a variety of software to design and create content that accomplish given goals in the context of an animation recording with a number of moving characters.

- I can create a recorded animation involving a number of moving characters on a background.

- Computers, laptops or tablets with MovieSoup installed

4. Structured Timing

Use a variety of software to design and create content that accomplish given goals in the context of structuring the timing of animation effects to create a short story.

- I can structure specific timing of animations using a time slider.

- Computers, laptops or tablets with MovieSoup installed

5. Stop Motion Animation

Use a variety of software, on a range of digital devices, to design and create content that accomplish given goals in the context of stop motion animation using a webcam or digital camera and associated software.

- I can use a camera to create a short stop motion animation film.

- Computers, laptops or tablets with access to webcam or digital camera
- Source of photos/resources to create animation

6. Evaluating Animation Techniques

Select, use and combine a variety of software including analysing, evaluating and presenting data and information in the context of evaluating and comparing different animation software.

- I can analyse and evaluate software.

- Computers, laptops or tablets with animation software installed.