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Opening extract from

Super Skills: How to Create Animation in 10 Easy Lessons

Written by

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ABOUT THE AUTHOR

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CONTENTS

SO YOU WANT TO BE AN ANIMATOR?

Animation is amazing! You can bring movement to beautiful, detailed drawings or make two blobs of modelling clay fight each other. You can piece together a disaster movie starring your favourite toys, or even make your best friend vanish. Anything you can imagine, you can animate! In this book you will discover 10 skills you need to become an expert animator. And before you know it, you'll be making everything from two-dimensional fairytales to three-dimensional sci-fi epics!

WHAT IS ANIMATION?

Animation is the trick of bringing something to life with the illusion of movement. The illusion is created when a series of still images, which are only slightly different from each other, are flashed before your eyes. Your brain then sees this series as one moving image.

WHAT YOU NEED:

To turn an animation into a moving image on a screen, you'll need a smartphone, a tablet, or a computer or laptop with a webcam or a digital camera. You'll also need some animation software.

WHAT SOFTWARE SHOULD I CHOOSE?

There are lots of free and affordable animation software available. Type 'stop motion' into your app store to access a free or low-cost animation app. All you need from the app is a function called 'onion-skinning', which will allow you to arrange a series of still images into a sequence, and a feature to play back your animation.

SOFTWARE BASICS

FRAME RATE

When you open your software app, it may ask you what 'frame rate' you want to use. This is the speed the software is going to play back the images (each still image is called a frame).

The frame rate is measured in 'frames per second', or 'fps'.

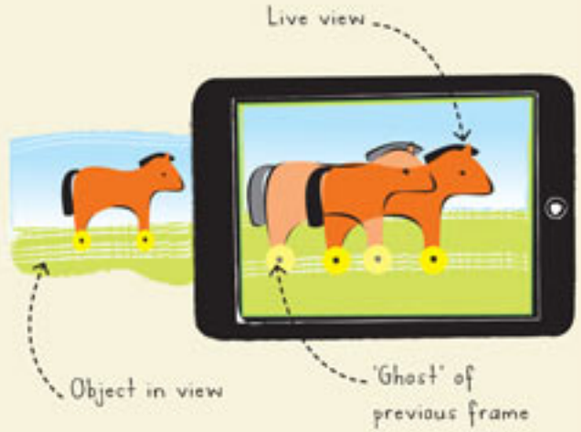
For example, to make one second of an animation at 12 fps, you would need to create 12 frames. Most stop motion animation is captured at 12 frames per second.

ONION SKINNING

When you've captured a frame, you will see a live view of what's in front of the camera, and a ghost image of the previous frame. This is to help you line up your frame with the previous one. This feature is often called 'onion skinning', after the transparent skins of an onion.

TIMELINE

The 'timeline' is a sequence of images that makes up the animation. It usually allows you to delete or duplicate an individual frame.



In many apps, you can tap the camera icon in the top right-hand corner to go back to animating.

DON'T PANIC!

If this all sounds too complicated, don't worry! You will find out more about editing software on page 56. You can also find definitions of technical and unfamiliar terms in the Glossary on page 63. By the end of the book you'll be able to amaze your friends and family with your very own short animated films.

HANDY TIP!

Apps have helpful videos and tutorials online that show you how to use their features.

MAKE A FLICKBOOK LOOP

The first animation most beginners make is with a flickbook, also known as a flipbook. For example, they may draw on the edge of an exercise book a teacher falling off a cliff or becoming a flying superhero and then riffle the pages to animate the action. In this Super Skill, you will learn how to create a flickbook, photograph and animate it. You will then loop it so it plays for ever and ever. It's the simplest form of digital animation!

GETTING STARTED

All you need is a set of pages that can be 'riffled' (flicked up and released quickly) with your thumb. On each page of your flickbook you draw an image. When you riffle the pages, each image is replaced by the next almost as soon as you see it, and this creates the illusion of movement.

If you have a small notebook or a pack of sticky notes, you can start right away on page 8. If you only have a sheet of A4 paper, you can find out how to make a flickbook on the opposite page.

'WOW' FACTOR!

SOME OF THE FIRST MOVIES EVER MADE WERE SEQUENCES OF IMAGES ON STIFF CARD MOUNTED ON A BIG WHEEL. YOU TURNED A HANDLE TO FLICK EACH IMAGE AND WATCHED IT AS IT WENT PAST A VIEWING HOLE. ONE SUCH MACHINE TO APPEAR IN AMERICA WAS THE 'NICKELODEON' (NICKEL THEATRE). PEOPLE HAD TO PAY A NICKEL (A COIN LIKE A PENNY) TO TURN THE HANDLE AND WATCH THE IMAGE MOVE.

WHAT YOU NEED:

- Plain A4 paper
- Small bulldog clip or stapler
- Scissors
- Coloured pens
- A creative brain

HOW TO MAKE A 16-FRAME FLICKBOOK

To make a flickbook from a sheet of paper:

1. Take a sheet of plain A4 paper.
2. Fold it neatly in half, along its longer side.
3. Fold it again, along its longer side.
4. Fold it once again, along its longer sides.
5. Fold it yet again, along its longer side. (Yes, that's four folds!)
6. Use a bulldog clip or stapler to fasten the folded paper together on one of the shorter sides.
7. Use large scissors to cut through the folds on the remaining three sides. You might need some adult help with this.

Fold along the long side, four times

Clip or staple the short edge

Cut off the folds on the other three sides

HANDY TIP!

One of the best ways to flick is to hold the clipped edge of the flip book in your hand. Press the other side of the book against your thumb so the book is bending, and flip the pages away from your thumb, a page at a time.

DON'T WORRY IF IT'S WONKY!

You should be able to riffle or flick through the pages smoothly from back to front. You might need to flatten the edges of the pages so that they don't catch and jump several frames of your animation. If it is still a bit wonky and skips pages when you flip through it, don't worry. When you photograph the pages to make the frames of your animation, you can hold each page open in turn. The app will create the movement. Now turn over to learn how to draw and capture the frames.

DRAWING AND PHOTOGRAPHING YOUR FRAMES

Once you have your empty pages, you are ready to start drawing the frames of your animation. You will draw a different step of the action on each page to form the frames. So what do you draw that will make a great animation? This is where your creative brain comes in to play!

IDEAS FOR YOUR FIRST ANIMATION

- A stick person walking up stairs
- A bee landing on a flower
- A flying saucer vaporising a planet
- A windmill turning
- An anvil falling on a person's head
- A person biting an apple

HANDY TIP!
Go wild! The wackiest ideas are often the best. If something doesn't work, think of it as good practice and try another one.

ANIMATORS HAVE A SAYING: "THE MAGIC HAPPENS BETWEEN THE FRAMES". THIS IS BECAUSE OUR BRAINS FILL IN ALL THE ACTION BETWEEN EACH STILL IMAGE TO MAKE A FLOW OF MOVEMENT THAT ISN'T REALLY THERE.

Tip 1: START AT THE BACK

Draw your first frame on the inside back page using a dark-coloured pen or pencil. Trace your next drawing on the page above making a tiny change in the movement, and then a third drawing above that with another small change, and keep going until you complete the action.

Tip 2: SMOOTH CHANGES

Make sure each drawing is similar enough to the previous one to trick your brain into seeing smooth movement when you play back the animation.

Tip 3: KEEP IT SIMPLE

Small, complicated actions can be difficult to make out and may confuse the brain, so make your drawings bold and the movement clear and simple.

HANDY TIP!
You can change the settings of many cameras to show guidelines or grids in the viewfinder, to help you position the pages in the same place.

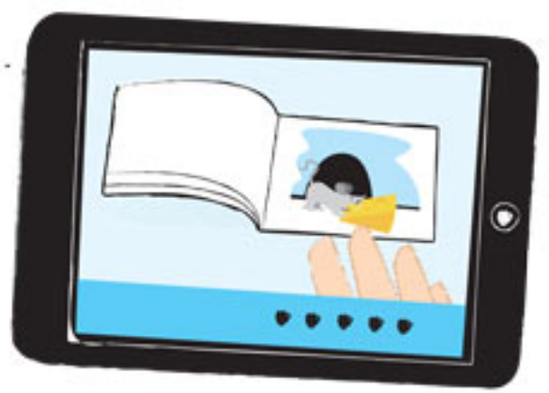
Tip 4: CHECK YOUR SPEED

Test your animation every few frames by riffling. You'll soon become good at judging how small the changes need to be in order to make the movement smooth and believable. If the movement is too fast, you need to break the action down into smaller parts to make more frames. If the movement is too slow, you need to complete the action in fewer frames.

PHOTOGRAPHING YOUR FRAMES

Now it's time to photograph each page of the flickbook using your animation software. Photograph the pages in sequence so that the back page (the beginning of your animation) becomes frame 01, the next page becomes frame 02, the next 03, and so on. To keep the book open, either break the book apart and lay each page flat, or hold it open with your hand.

Keep your hand in the same place in each frame so that only the drawings appear to move between frames. You don't need to hold the camera completely still between images: you can use the software's onion skinning to line up the images.



Photograph the pages of your flickbook on a plain, uncluttered surface. That way, when the animation is played, the background will remain still and not interfere with the action.

PLAYING THE MOVIE

It feels magical when you use the animation app to make your flickbook flick by itself. When you play back the animation, the drawings are literally moving next to your hand! Don't worry if you don't get it right first time, just look at what went wrong, correct the error and record the action again. You need to be willing to make lots of versions and learn from your mistakes. Practice really does make perfect!

Tip 1: TRY DIFFERENT FRAME RATES

Try changing the speed of your animation by altering the frame rate. Remember, 12 fps is a good number for achieving smooth movement. If you drop below 8 fps, you'll start to see the separate images, not flowing movement, and the illusion will not work.

Making the moves too big between frames is the most common mistake new animators make, ending up with a 'jumping' effect. If the action is playing back too fast, make smaller moves per frame to slow it down. You will need more frames to complete the action.

Tip 2: SETTING THE RESOLUTION

Resolution is a way of describing the size of your movie. This is usually measured in pixels, which refers to the number of tiny squares of colour that makes up your image on the screen. If it's possible, set your animation to a High Definition size, such as 1920 x 1080, sometimes written as 'HD 1080p'. A movie will appear horribly blocky if you scale it up from a low to a high resolution, but it is fine to play a high-resolution movie at a smaller size.

HANDY TIP!

For each new project, you'll need to set up a new file in your software. If you don't, all your animations will stack up in the same movie.

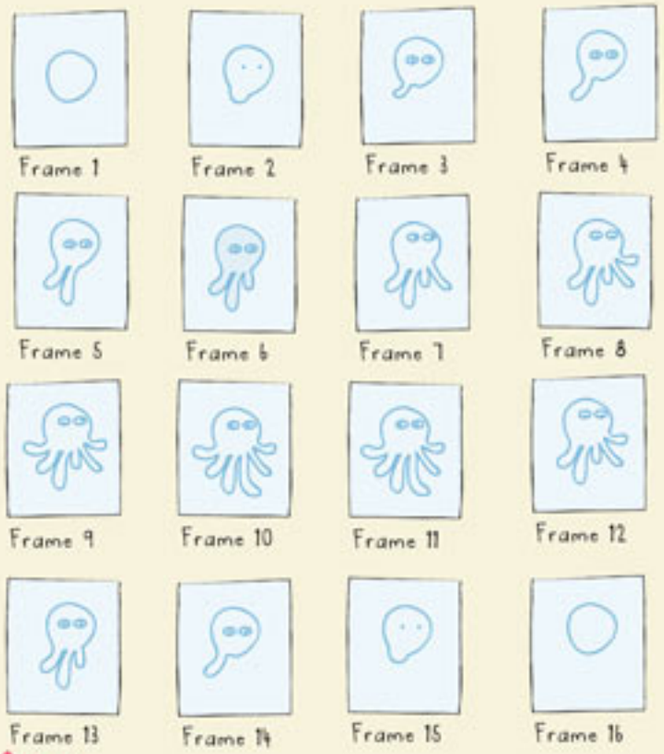
LOOP IT!

Did you know you can make your animation run forever by creating a loop? A loop is where you end your animation with the same frame you started with. Once you set it to repeat, during play back it will jump from the last frame back to the first and keep playing.

Most apps automatically loop your animation when you hit the 'Play' button. You can also copy and paste all your frames to make them repeat as many times as you like. In some apps you can also use 'reverse selected frames' to make the action run backwards. This is great if you want to create an action such as a character bowing: you can bend them forwards frame by frame, and then copy and reverse the frames to make them stand up again.

TRY THIS!

- Make a flickbook with a looping action. Start with a circle on frame 01 and end with a circle on frame 16.
- Make slight changes to your circle; over 10 frames mutate it frame by frame into a strange creature, lovely flower or alien spaceship.
- Change it back into a circle in the last six frames.
- The circle in the final frame should be identical to the circle you began with in frame 01, to complete the loop.



YOU WILL BE AT YOUR MOST CREATIVE WHEN YOU'RE HAVING FUN WITH ANIMATION. SMILE, RELAX AND START PLAYING WITH YOUR IDEAS!

CONGRATULATIONS!

You have now learnt the basics of how to create an animation. Everything else builds on this, so let's move onto the next Super Skill.

PIXILATION

A great way to make quick stop motion animation is to use other people (or even yourself if no one else is around) as props and characters. You can make a friend glide on an invisible skateboard, drive an invisible car or even hover above the ground. It really is fun!

GLIDING ON AN INVISIBLE SKATEBOARD

Are you ready to make an animation of a friend on an invisible skateboard? The technique you will use is called pixilation. It involves taking a frame of a live actor – your friend – before you move them to a slightly different position and take a new frame. You move them again and take another frame, and so on until you complete the action.

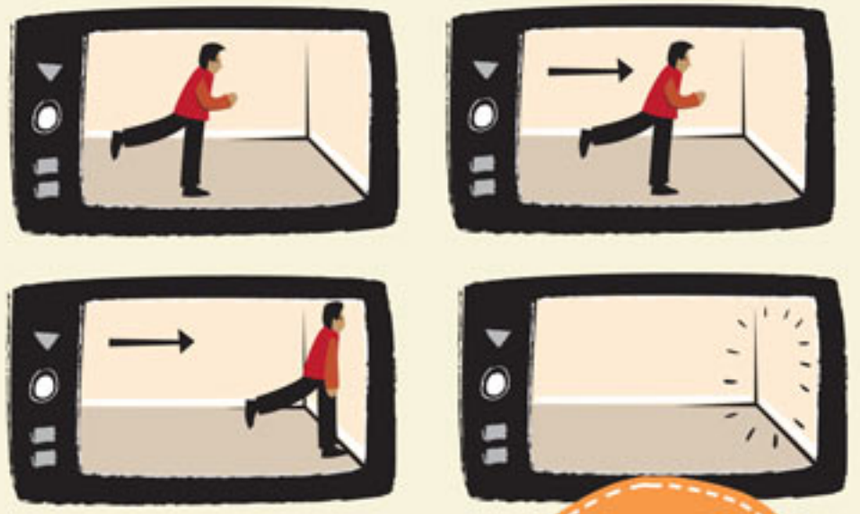
GETTING STARTED

Find a clear area to film in. If you don't have a friend nearby to film, prop up the camera so its viewfinder captures the whole of the area you will be moving in. Set the camera software to 'time lapse' or 'timer', so it will take a frame at regular intervals, then move into position for frame 01.

PIXILATION IS NAMED AFTER THE MAGICAL LITTLE PIXIES OF FOLKLORE. BECAUSE THE EFFECT LOOKS LIKE MAGIC! IT HAS NOTHING TO DO WITH PIXELS.

MAKING THE FRAMES

- Stand as if you're on a skateboard and take frame 1.
- Keeping your arms and legs in the same position, shuffle forwards a few centimetres. Take frame 02.
- Next, move twice as much as you did last time and take frame 03. This will give the effect of speeding up. (You will find out more about speeding up and slowing down on pages 14–15.)
- Keep adding frames, moving more each time, until you are moving the width of your body. If you're filming a friend, you can make them go around the room and around obstacles. If your camera is fixed, they will have to stay in view of your camera.
- You could end your movie by filming them going through a doorway. An even more dramatic end might be to have them go through a wall! Capture them approaching the wall a frame at a time. Once they reach the wall, move them out of shot and take several frames of the empty space.
- Every 12 pictures you take will give you one second of animation (remember "12 fps"). So if you want to whiz around the room for a couple of seconds you will need to take 24 frames and for four seconds you will need 48 frames.



TRY THIS!

When you've got the hang of filming your friend skateboarding, try filming them ice skating or performing any other crazy move you can think up. Pixilation can even be used to combine live action and animated models in one movie!

HANDY TIP!

Some apps tend to play movies at 5 fps, so the action looks jerky and slow. Remember to change the setting to 12 fps. You may need to do this regularly.