Stop motion   pg 1/6

Introduction

Image above –
Eadweard Muybridge,
1878: The Horse in Motion
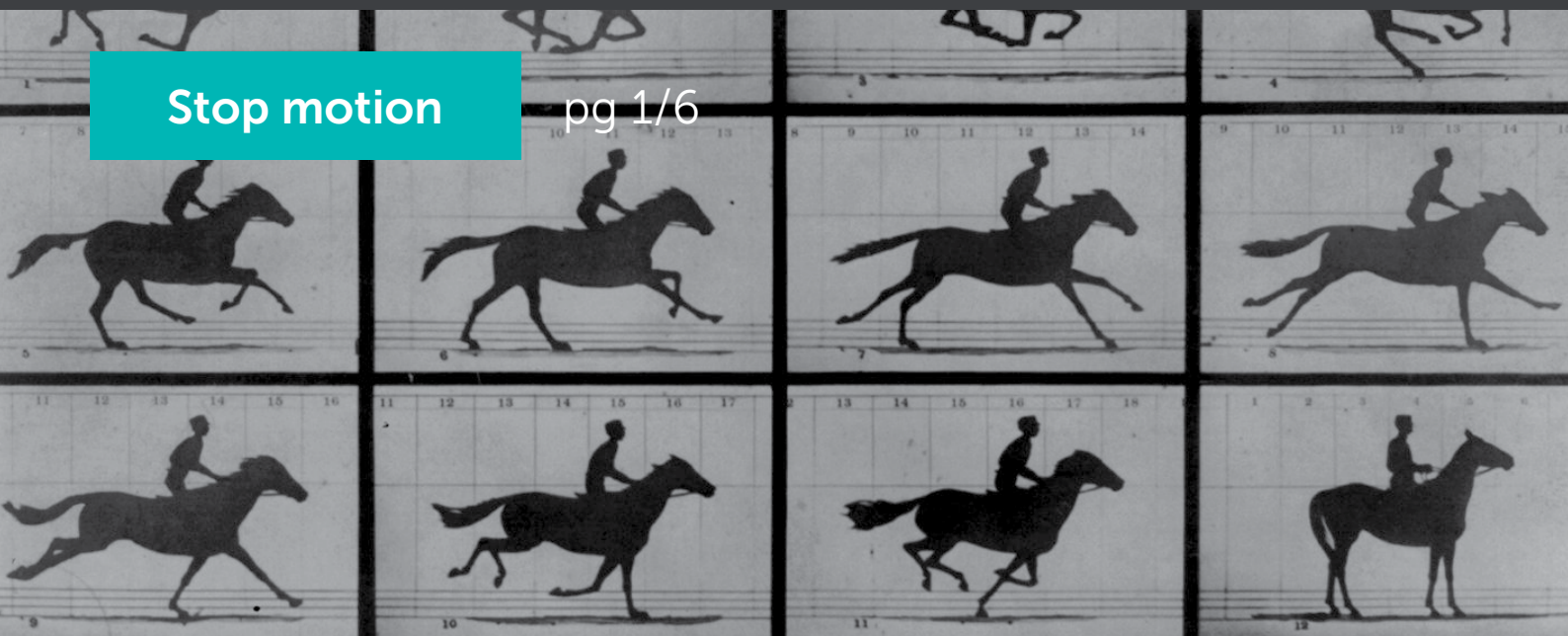
Movement in film is an illusion. Every film, whether animated or live action is made up of lots of still images that change so quickly our brains do not register each individual picture and instead we see what we believe to be one continuous moving image. This is called **persistence of vision**. It takes 24 individual images (or frames) to make just one second of film.

When making an animated film each frame is captured individually, as if taking a still photograph. To make something appear to move by itself animators must take a series of frames of the object. In each one the object must be in a slightly different position than in the one before. Animators move the object a small amount before they take a picture of it, and repeat this process. The object will always be still when a picture is taken but when all the frames are played together at the correct speed (24 frames per second or FPS) it will appear to move. Animators can make something disappear simply by removing it in the time between taking two images when the camera is not recording anything. You can find out more about persistence of vision and early examples of animation in our **Early Animation guide**.

Stop motion

As you can imagine, it can take a very long time to make a full-length animated feature film. A Disney Pixar film can take around four years to make and over its 90-minute duration will have about 135,000 individual frames! But a short film can be made very easily and quickly using simple techniques and software explained below.

USING JUST FIVE SIMPLE STEPS, WE ARE GOING TO HELP YOU TO CREATE YOUR VERY OWN ANIMATED FILM.

Step 1: Equipment and software

You will need a device that can take lots of still photographs, such as a tablet, smart phone or digital still camera. Make sure it is charged and has lots of free memory/storage space for all your images. You will also need some software to join all your images together to make the animated video – this could be on your tablet or smart phone or you could transfer the images to a computer. Some examples of animation software include iStopmotion, Stop Motion Studio, Stikbot, Zu3D and Animate It! You can find tutorials on how to use most software online. We have included a selection of these in our **Software and Editing for Animation guide**.
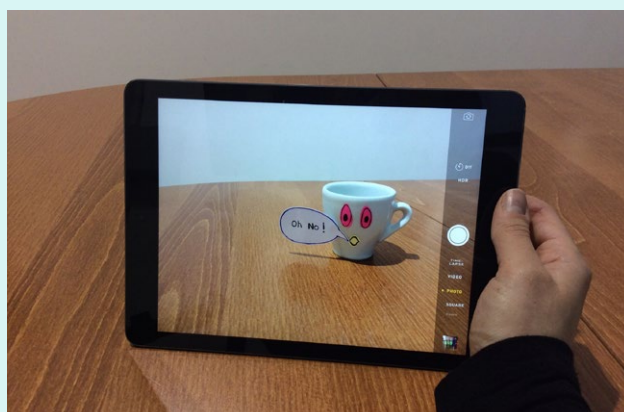
Stop motion   pg 3/6

Step 2: Setting up

Once you have your device ready to capture your images you need to find a space and prepare to animate! Choose a place where you are not going to be disturbed and try and clear the space as much as possible. How you set up depends on the type of animation you are going to create. You can animate almost anything – toys, household items like cutlery, mugs, clothes pegs, dried pasta shapes and sweets, chairs and even people! Using objects means that you can start animating straight away. If you want to create characters out of materials including modelling clay or paper, use our **Characters, Materials and Sets for Animation guide**.

Once you have decided what to animate you need to set up your camera. Think of a cinema screen or TV and make sure you set up your device so that the image is horizontal (called landscape). You might need to turn the device on its side to achieve this. Make sure your device is secure and will stay still throughout the animation, so you don't destroy the illusion of movement you are creating. You can use a tripod, monopod or stand if you have one, or make your own easily from cardboard, a plastic cup or Lego – there are lots of tutorials online. For more information on creating your own tablet tripod, check out our **Cardboard Tripod Worksheet**.

Stop motion   pg 4/6

Step 3: Making something move

Now you are ready to start animating. If you have not animated anything before, keep it simple and make a short film of an object moving from one side of the screen to the other.

First, decide on the start position of your animation and take 6 establishing pictures (frames that show the setting of your animation with your character or object in its starting position) without moving anything to slow down the action and allow the viewer to take in the surroundings. Move the object (or ask the person to move) a small amount, then freeze and remove all hands from shot, take two pictures of it, and repeat this process.

Continue this until you have moved the item from one side of the screen to the other. Finish with the object out of sight and take 10 additional frames. This will allow you to loop the footage, making it look like your object is coming out of shot and then returning. Here is an example that we have created: http://bit.ly/StaplerAn

Top tips

Keep your camera still and avoid accidentally knocking your camera, models or set.

Be patient, it takes longer than you think.

If you are using an app to capture your animation, turn off any auto focus, white balance or auto exposure functions before you take your first frames. These functions can change the focus and exposure of your frames mid scene, causing a flickering effect in the final film.

Stop motion   pg 5/6

Step 4: Playback

This is the most exciting part! Once you have created a short animation, play it back to see what you have created. If you are using animation software, you can just press play to watch it back – make sure you are playing the film back at a good speed (the film industry standard is 24 FPS but aim for between 12 and 18 FPS. If you have taken photographs on your camera, you can get the effect of the images moving if you skip through them in order or you can put them onto a computer and flick through in a photo preview programme using the arrows keys on the keyboard.


How does it look?
What could you do to make it better?

Top tips

If the animation is jumpy you may need to make smaller movements of your objects. You may also need to increase the number of fps so that is flows together better and stops looking like still photographs.

Step 5: Check for mistakes

When you are playing your animation back, check to make sure that there are no stills that show your hand or anything else that shouldn't be in the shot. If there are, delete these images.
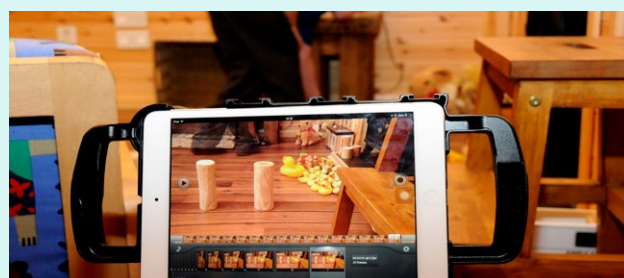
Top tips

If you have accidentally taken a picture with your hand in shot, you can delete individual frames in most stop motion software.

Stop motion   pg 6/6

Congratulations

You've made an animation! Now that you know what to do, you can improve your animation with longer and more complex stories, more characters and interesting sets. Use your imagination and try things out!

You are now ready to take on the Stop Motion Animation Challenge! For more information, please visit www.intofilm.org/competitions.

For additional help with filmmaking planning and techniques, visit www.intofilm.org/filmmaking for access to our mini filmmaking guides.

You can also view a selection of animated films made by young people on YouTube here www.youtube.com/playlist?list=PLF974387DC428396E

Here is a selection of animated films that can be found on the Into Film catalogue (include links to film pages)

Shaun The Sheep Movie (2015) (U)   www.intofilm.org/films/18317

Howls Moving Castle (2004) (U)   www.intofilm.org/films/2838

Peter and The Wolf (2006) (U)   www.intofilm.org/films/13471

Fantastic Mr Fox (2009) (PG)   www.intofilm.org/films/16107

Lotte Reiniger: The Fairy Tale Films (1961) (PG)   www.intofilm.org/films/16381

Norman McLaren*: The Master's Collection (1933) (PG)   www.intofilm.org/films/17876

Persepolis (2007) (12)   www.intofilm.org/films/3334

Belleville Rendez-vous (2003) (12)   www.intofilm.org/films/2737

Mary & Max (2009) (12)   www.intofilm.org/films/16286