

## An introduction to Stop Motion

If you are looking for a way to get involved with the Pen Pals Art Club submissions, but you've never animated before, then here are some instructions that will introduce you to the world of stop motion.

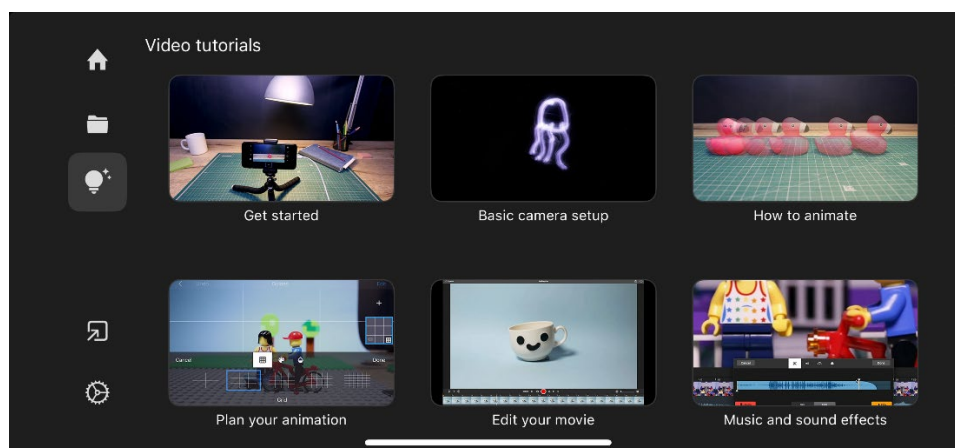
For these instructions we will be using one of the premade colouring grids that you can customise and, once animated, will create a perfect loop.



## The animation app

[Stop Motion Studio](#) is an animation app for smartphones/devices. It does have various added features that you can pay for, for the purposes of getting started with the animation grids, we will only be using features that are available in the free version.

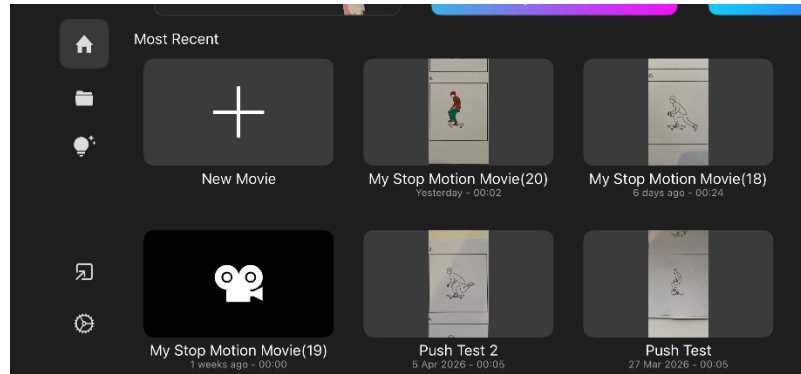
Once you've downloaded the app, you will find a huge list of built-in video tutorials that will explain a whole host of features, so we won't be going in to too much detail here – this guide is just designed to help you get started with the animation grids. If you enjoy your time animating though, we highly recommend going through these in-built tutorials for loads more inspiration.



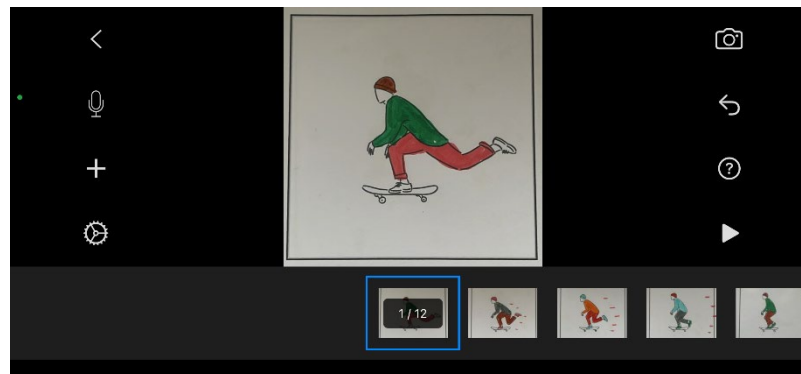
## Navigation

When you open the app there are going to be **three navigation screens** that you will be using:

1. **The project management screen** – this is the first screen you will see when you open the app. It's where you can start a new project, or open previous ones that you have been working on. It's also where you will be able to export your finished animations to be able to then share with the world.



2. **The editing screen** – Once you start or open a project, this is the next screen you will see, it will show you all of your captured photos and allow you to delete frames, edit frames, add audio and more.



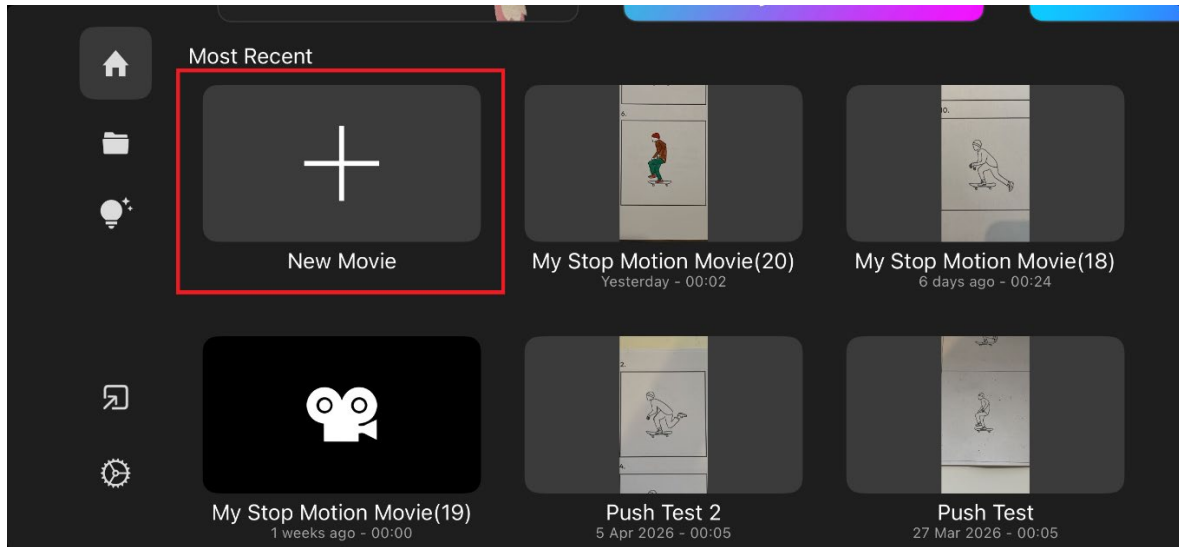
3. **The capture screen** – This is camera screen where you take the photos that will form your animation.



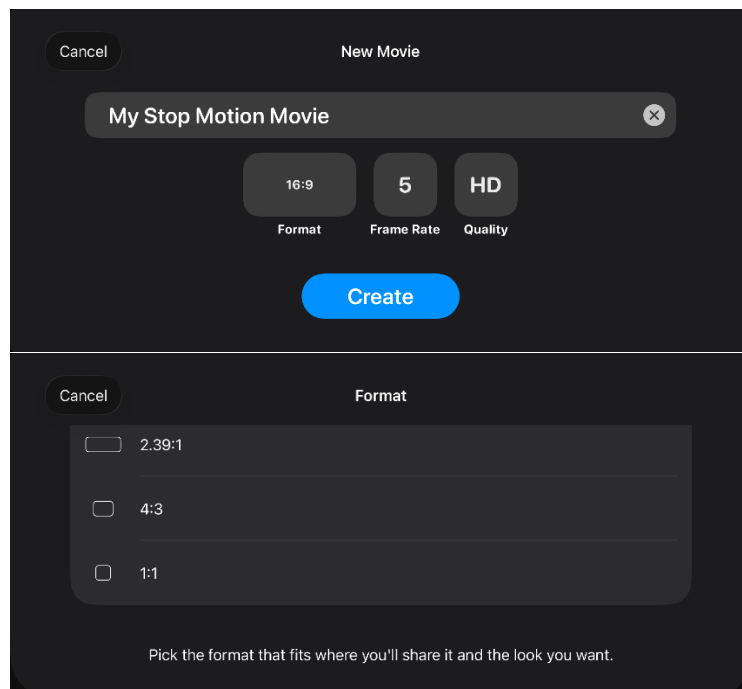
So let's get started capturing a customised animation grid

## New Project

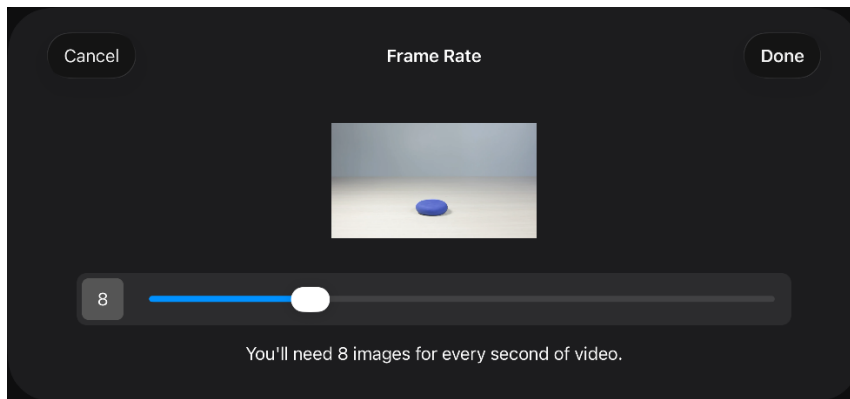
With the app open, click on **'New Movie'** to get started.



It's going to give us the option to name our project (feel free to change this to whatever you like) and then options for the **'Format'**, **'Frame rate'** and **'Quality'**. The colouring grid frames are square, so we will click on **Format**, and then scroll down until we find **'1:1'** as this signifies a square ratio format for our video.

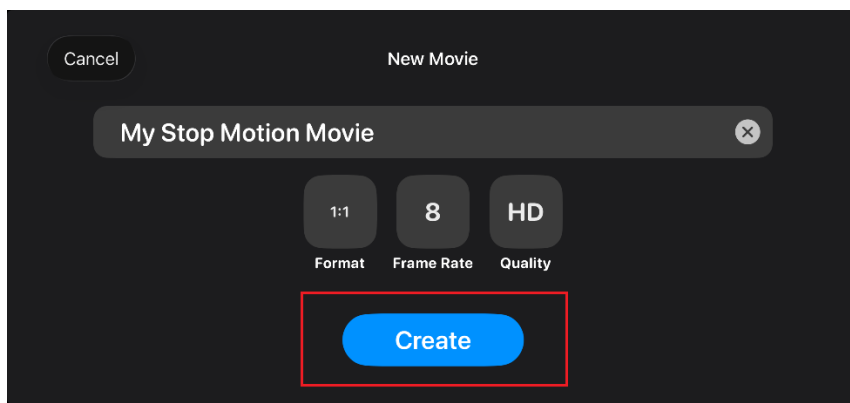


For the **Frame Rate**, this doesn't matter too much at this stage as we can always change this later, when watching the animation back, however for the purpose of the premade colouring grids, we would recommend setting this option to about 8. If you watch your loop back and want it to be faster or slower, then we can just change this frame rate number in the editing screen later.

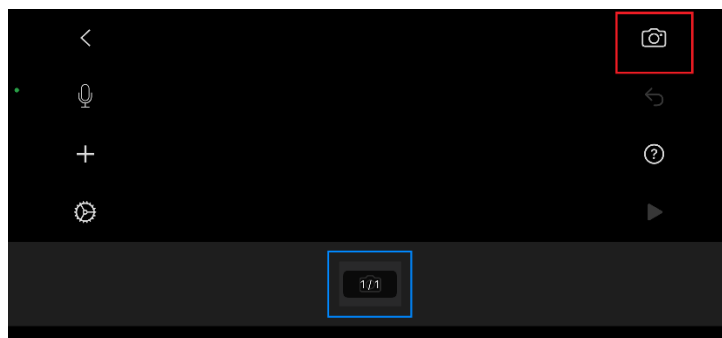


For the **Quality**, this can just be set to HD.

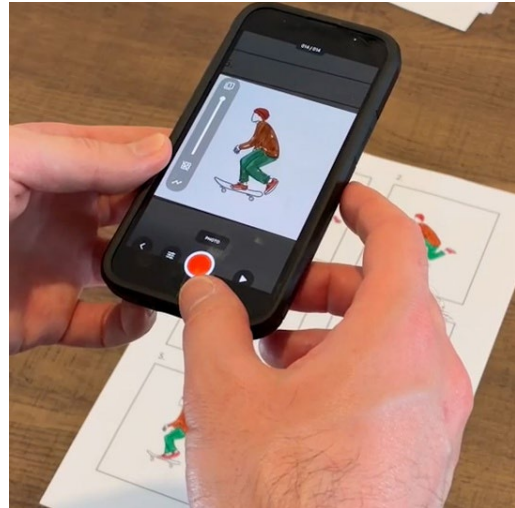
Then click Create



The next screen we will see is the editing screen, but we are actually going to skip straight past this (don't worry, we will come back to it after we've captured our photos). So, if we click on the camera icon in the top right corner, this will take us through to the capture screen.



On this new capture screen, you will notice a large red button – this is what we press to take a photo. So, now it's just a case of us taking a photo of each of the squares on the colouring grid in order. If you like, you can just go ahead and quickly capture a handheld photo of each grid square to see how this looks, however there are a couple of **top tips** to make your life a bit easier and that will result in a better quality finished animation, so **we highly recommend reading these through before capturing any photos.**



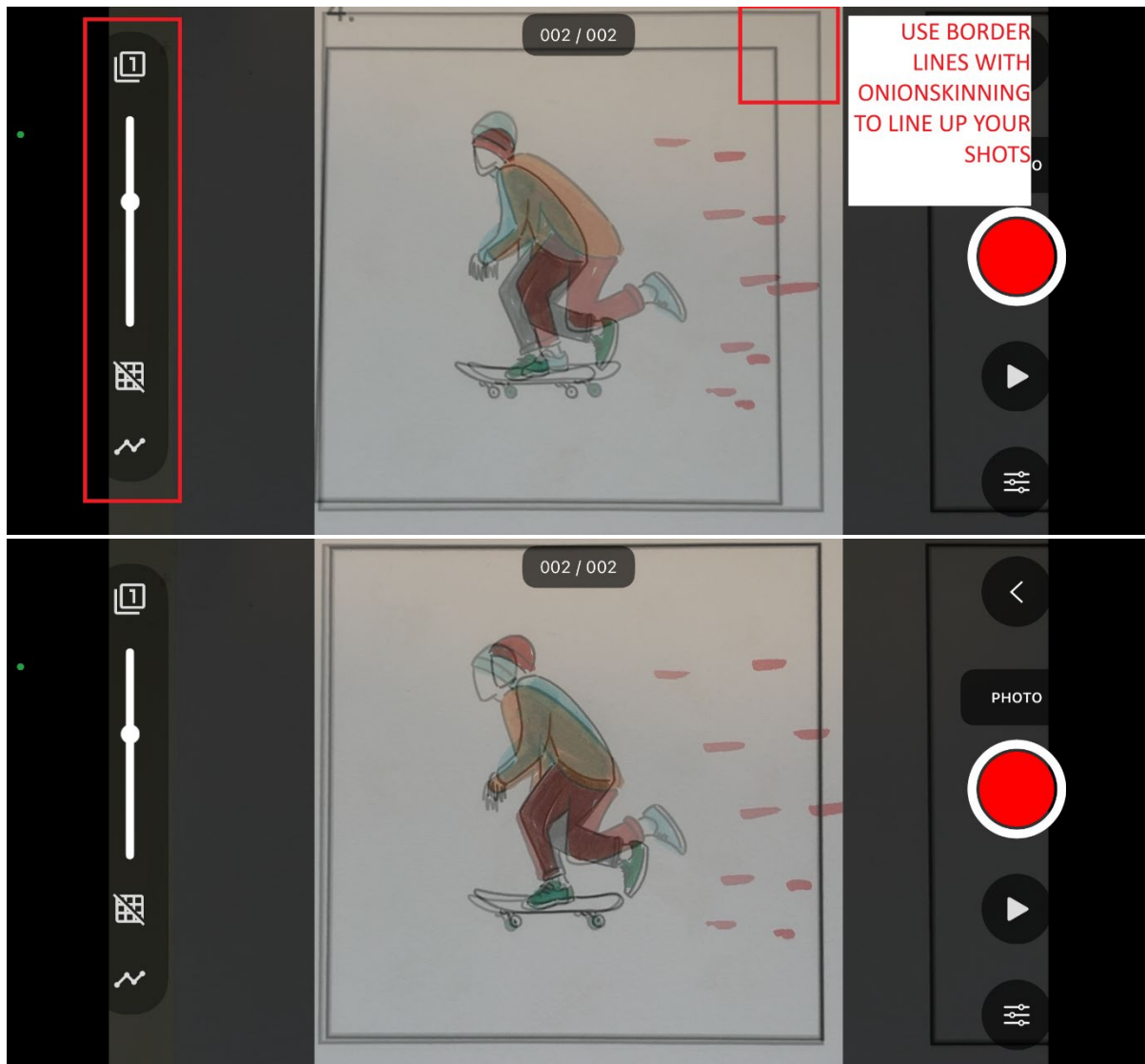
## Top tips for capturing your photos (read this before getting started)

Firstly, a simple one, but if you have your device on silent then we recommend switching it to loud before you start. The app makes a camera shutter noise when you press the button and without it, it can be hard to know whether you pressed the button or not – this often results in you taking duplicate photos by accident.

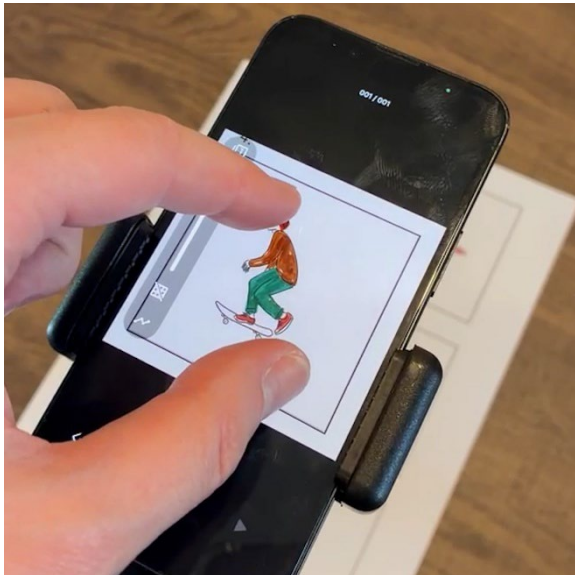
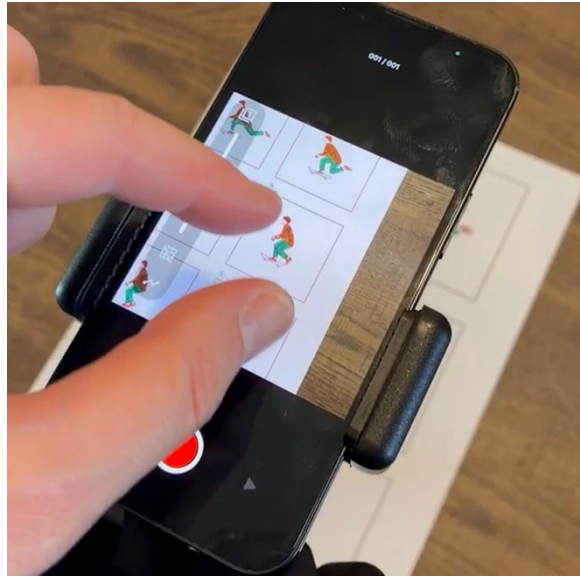
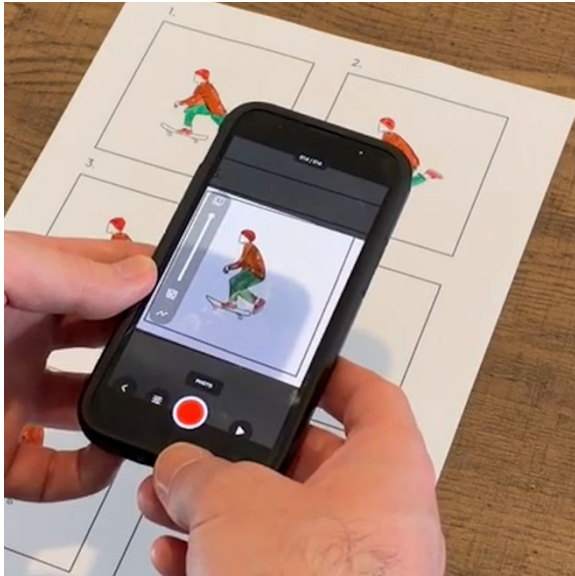
Secondly, we won't go in to too much detail around lighting at this stage, but just a note to make sure the sheet is well lit. The better lighting in the room, the easier it will be for your phone to focus and get relatively consistent photos, so you may wish to setup a few lamps nearby to ensure you've got enough light.

Next we would highly recommend using some kind of tripod to keep the phone/device in the same place, and then you can move the paper to capture each colouring square, rather than the other way around. We use a very cheap 'gorilla pod' style tripod (the ones with three beaded legs that you can manipulate to attach to things). You can then wrap it around an everyday household object like a clothes horse, or a banister etc, to create a DIY top down setup to capture photos of the paper on a table (just be careful that whatever you wrap the tripod around can support the weight of the device). If you prefer, you can have the tripod upright and then have the paper vertical instead.

Another tip is that we want to make sure we are taking the photos of the colouring squares with them in roughly the same place each time – e.g we don't want the centre of the drawing to be way off to the side on one photo, as this will cause the animation to 'jump around' when watching it back. This is where the bounding box of each drawing comes in handy as we can use it as a guide to ensure each photo is roughly in the same place each time. You may have noticed when first viewing the capture navigation screen, that there is a sliding bar on the opposite side of the screen to the big red button. If we slide the node on this bar up and down, you will notice that we start seeing a ghostly image of the last photo we took, overlaid on the current live view. This is known in stop motion as 'Onion skinning'. For the purposes of our colouring grids, it's going to allow us to see exactly where the border of each drawing is in relation to the last one we took, enabling us to get each drawing in pretty much the same place for each photo. Super useful!



Lastly, because the squares on the paper are fairly small, it's going to be very tempting to move the camera really close to the paper to allow the drawing to fill the screen, however if we do that it will cause two issues. Firstly your phone/device may really struggle to focus on the drawing if it's too close to the camera lens, resulting in blurry photos. Secondly, when getting really close, you may find you start casting a huge shadow from your device and hands which covers most of the drawing, which can be very frustrating. What we have found works much better, is to get your device setup on the tripod further away from the paper and then zooming in (you can do the standard two finger pinch to zoom in and out that most smartphones use on the camera). The quality of modern smartphone cameras mean you are still going to get a good quality photo when zoomed in, but it allows the camera to focus easier and gets rid of a lot of the pesky shadows that can cover your paper.



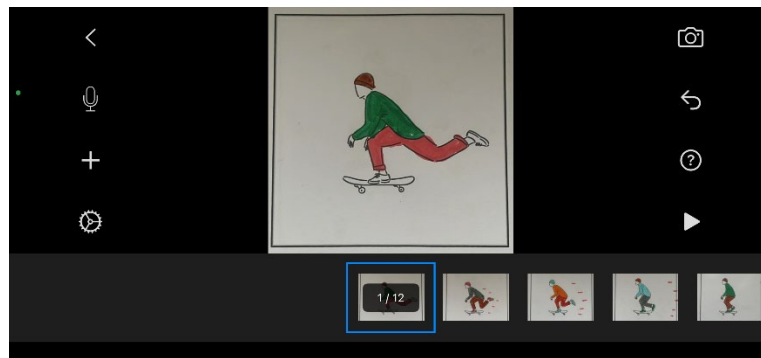
With those tips in mind, once you have everything setup, it's simply a case of using the red button to take a photo of each colouring grid square in order.

Once you have captured a photo of each of the squares, it's time to move back to the editing screen. You can do this by pressing the back button in the top right hand corner (represented by an arrow pointing left)

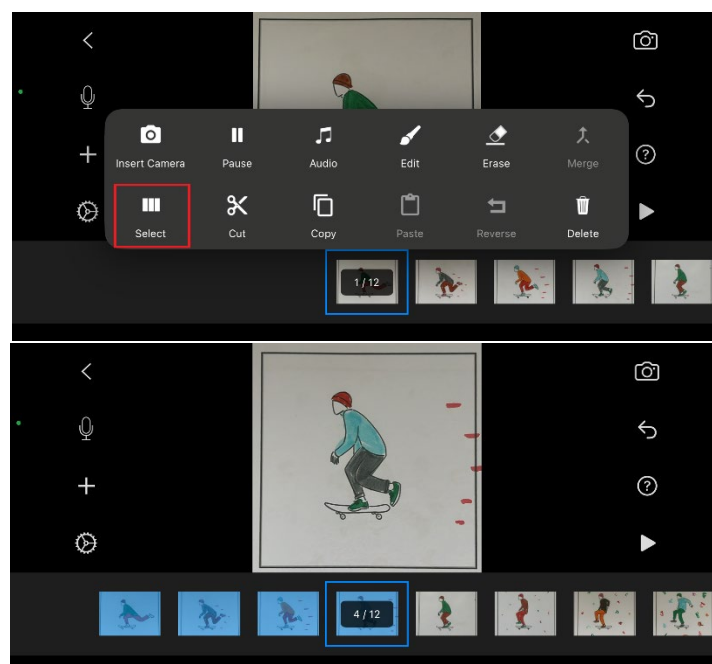


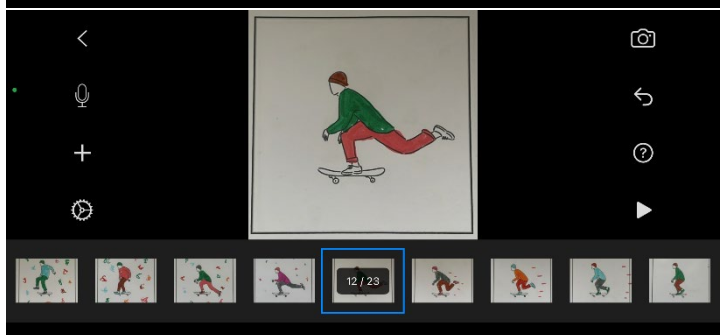
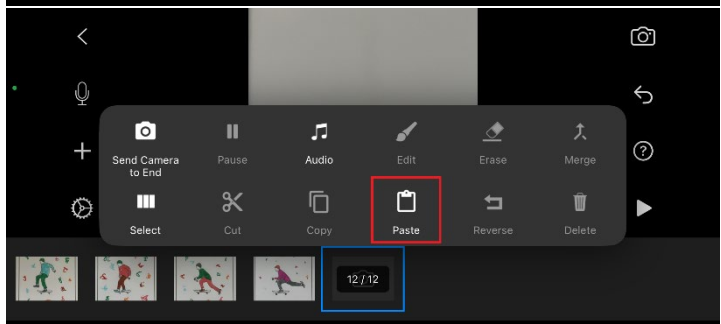
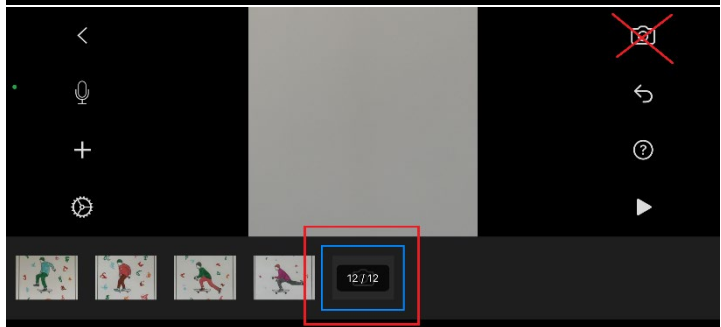
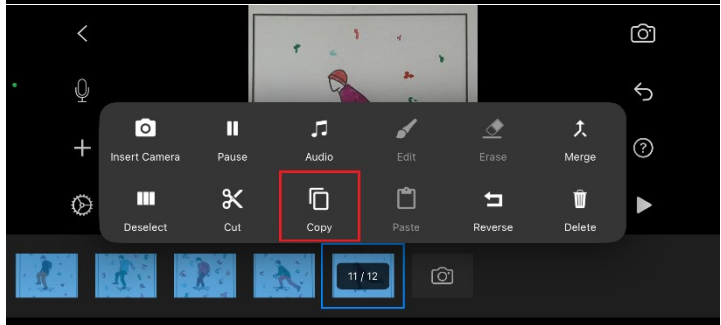
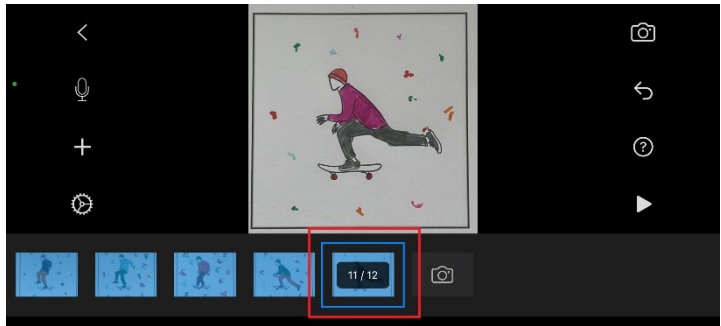
## EDITING (important for creating the loop)

Once back in the editing screen, you will now notice that all the photos you have captured are shown along the bottom of the screen in a 'timeline' and the animation is shown on a preview screen in the middle. If you slide your finger along this timeline, you will see that it cycles through the images on the preview screen.



As the colouring grid is only a small amount of drawings, the animation is currently going to be very short, however we are going to copy and paste the whole timeline a bunch of times to make the video loop. To do this we want to navigate to the first frame in the timeline and press on it. This will bring up a menu with various options. Click on '**Select**'. You should notice that this turns the first frame blue, if we now slide our finger along the timeline at the bottom of the screen, you should see that the rest of the frames are also turning blue to signify that we are selecting them as well. Slide all the way to the last frame, so we end up with all the frames being selected and turning blue. If you now click on the last frame it should bring up the same menu as before, and we now want to click on '**Copy**'. After clicking copy, we now need to press on the small camera icon at the very end of the timeline, after last frame (**note** – this is **not** the camera icon in the top right corner that takes us through to the capture screen). The same menu should pop up again, and this time we are going to press '**Paste**'.

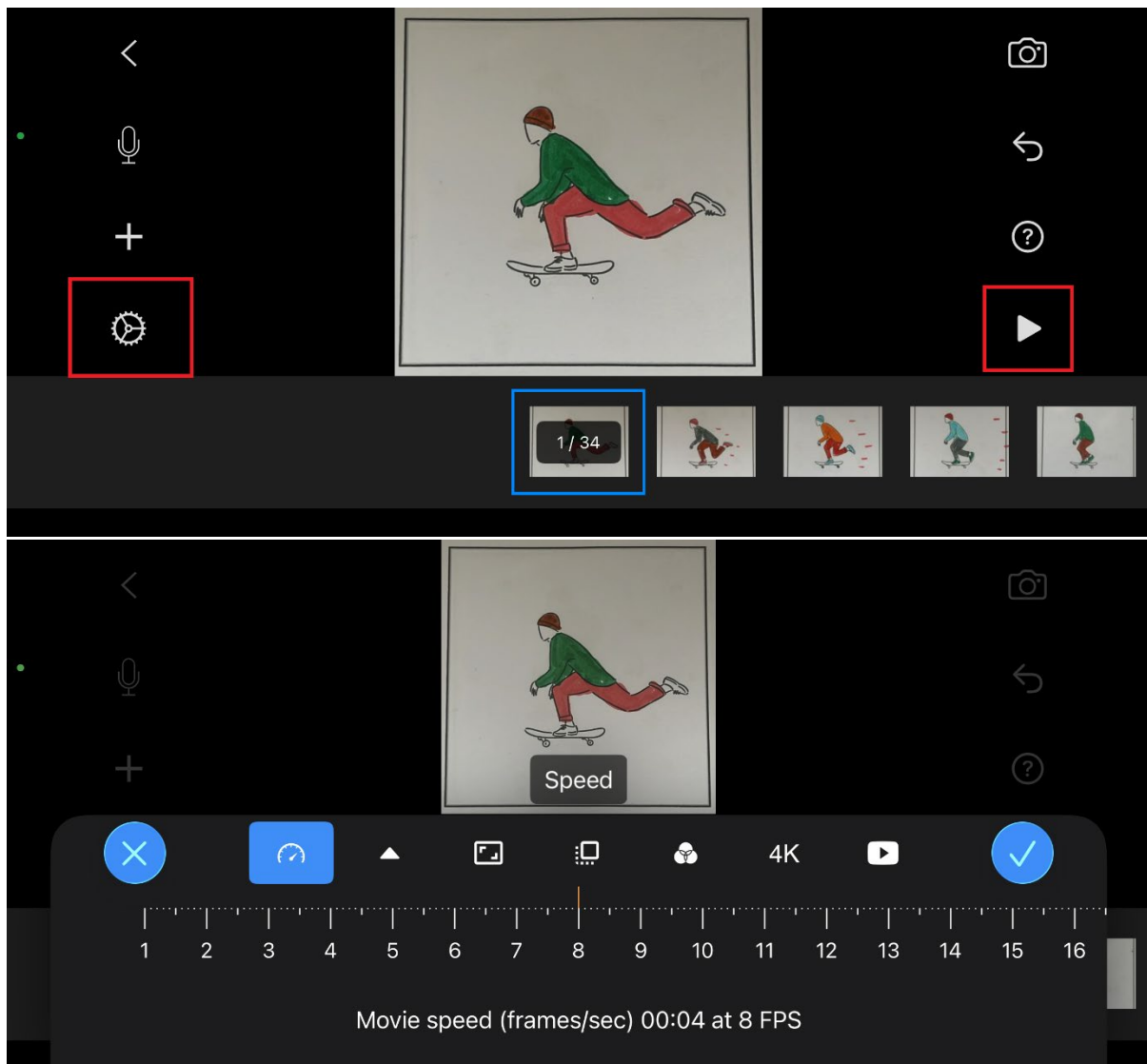




You will now have a whole new set of your captured images pasted after your last frame. Now slide your finger along the timeline once more, all the way to the end, past the last frame and click on the little camera icon again. When the menu pops up, click **'Paste'** again. You now have three sets of your captured images, which should be enough to see the effect of the looped animation.

Simply press the **'Play'** button on the right hand side (represented by a triangle icon), to watch a preview of your animated loop.

If it's a little too slow or a little too fast for your liking, then open the **'Settings'** menu by pressing on the cog icon on the left hand side. The first tab in this menu is the **'Movie speed (frames/sec)'** slider and you can use this to adjust the speed of your loop.

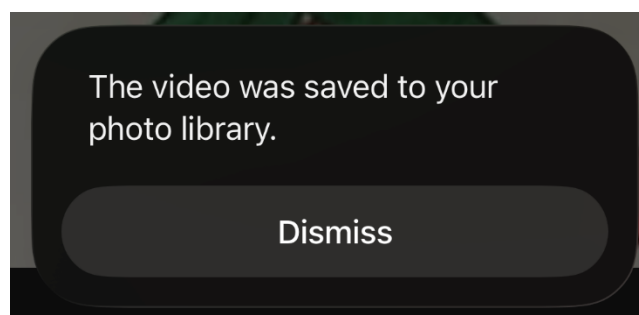
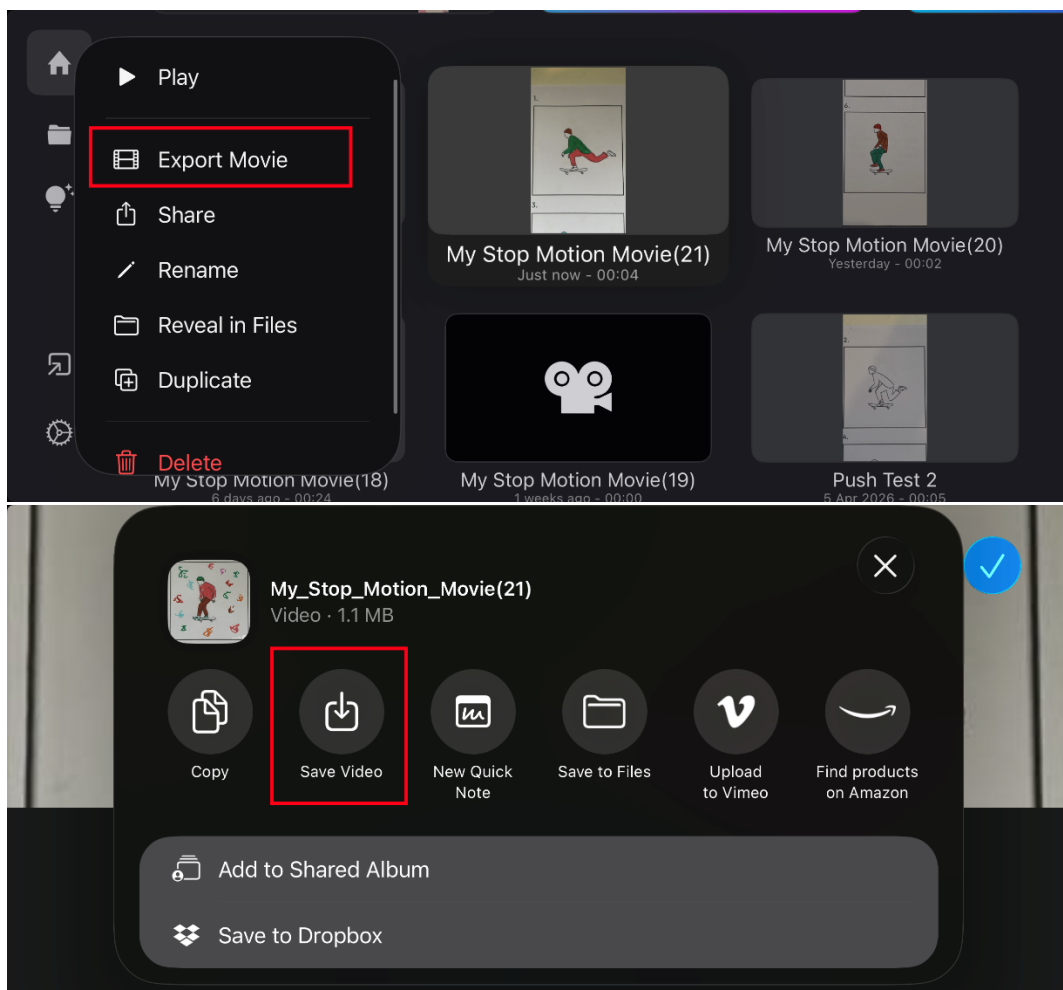


If you are happy with the animation, it's time to export it!

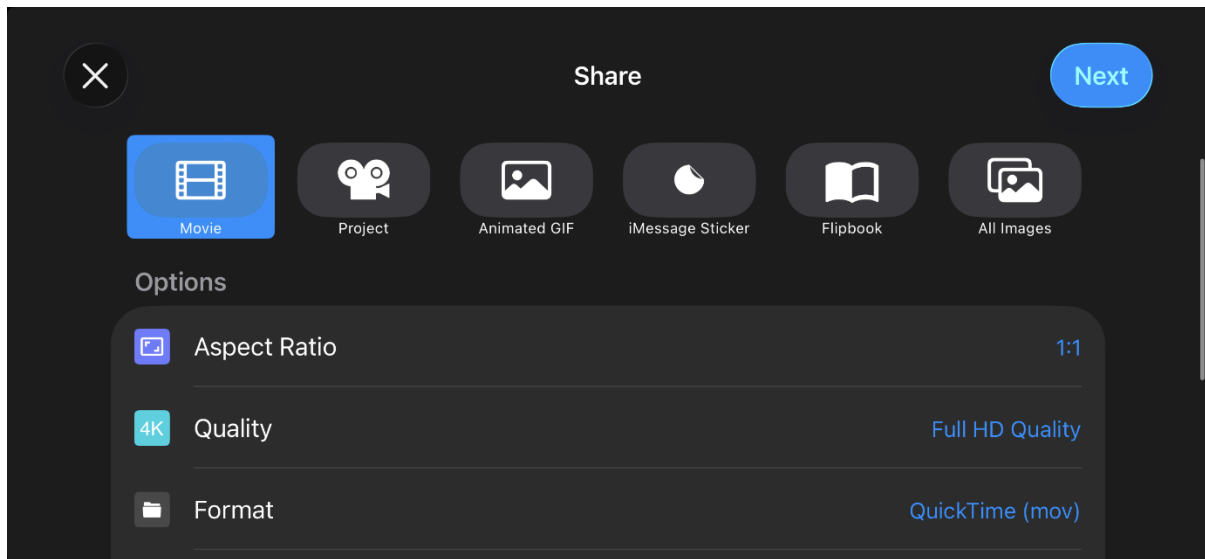
## Exporting your video

To export your video, head back to the opening home screen of the app. You can do this by pressing the back button, which is located in the top left corner and represented by an **arrow facing left**.

Once you are back at the opening home screen, you should see a list of your projects. Simply hold your finger on the animation project you wish to export and it will bring up a small menu. Click on **'Export Movie'**. After processing, you will then be presented with a share menu, allowing you various options such as sending it to friends or family via email, social media etc. The option to select is **'Save Video'** represented by a download icon (arrow going downwards into a square), this will save the video to your camera roll/photos app.



Tip – if you select 'Share' instead of 'Export Movie' from the menu that appears when you hold down on your project, then you will have more advanced options for your export, such as exporting your video as a gif.



## Advanced tips

If you are using a tripod and therefore the camera and paper are always the same distance away, but you are finding you are still getting slightly blurry photos or massive changes in lighting, this might be because your phone/device is constantly re-adjusting the focus and exposure between each photo capture. To combat this, once you have everything setup and you are ready to take the first photo, you can click on the **three slider icon in bottom right corner**. This will bring up some advanced options. Under '**Mode (M)**' you will notice that the camera is set to '**Auto**' as default. If you click on '**Auto Locked (AL)**' then this will lock the focus and the exposure and stop your camera from constantly adjusting these as you capture your animation.



