



# TRY THIS OUT!



## FLIPBOOK

Time: Variable  
Difficulty: Easy

Did you know animators take advantage of a simple optical illusion to make their characters appear to move so smoothly? Although animators are helped with powerful computers, you can make your own cartoon animation using the same principles as the professionals!

### WHAT YOU NEED:

- A stack of small pieces of paper (sticky notes work well)
- A pen, pencil, or colouring pencils

### MAKE IT:

1. Decide what story you want to tell, and which characters you would like to tell it. The simpler, the better!
2. On the top piece of paper, draw your first “frame” – which is the “opening shot” of the animation. This is the very beginning of your story.
3. On the second piece of paper, draw the next frame. The image should be very similar to the first, with only minor changes made to move towards the next action. For example, if your character is supposed to wave, have him or her lift their arm just a tiny bit.
4. Repeat this process, making small, incremental changes on every page.

### TEST IT:

Use your thumb to flip through all of the pages quickly. It'll look as though your character is moving!

### EXPLAIN IT:

The reason the flipbook looks alive is due to the principle of **persistence of vision**. Before your eyes has finished processing the first image, you've already flipped onto the next. This is what makes the motion look seamless – the drawings, or frames, blend together because your brain cannot process them quickly enough.

### OBSERVE IT:

A flipbook works exactly the same way that animated films do! Frames with slightly different drawings change in such rapid succession that your brain is unable to process them as separate images. This makes it look like the characters are moving, but really, they just “flip” between many drawings – just like your book!

### GO FURTHER:

Another object which uses the principle of persistence of vision is the zoetrope. [Check out this zoetrope 3D printing activity!](#)

