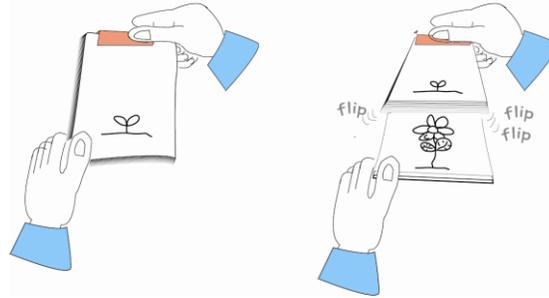


## Animated Flip Books

A simple way to make artwork appear to move!



This fun activity will give you the opportunity to create basic animations to better understand how motion pictures and the human eye work.

### Activity Challenge

Create a meaningful frame-by-frame animation by drawing a series of pictures and clipping them together to make a flip book.

### Preparation

1. Review the Materials Needed list and gather all materials.
2. If using cardstock or folders, cut them into pieces about 3x5 inches. Skip this step if using index cards, as they are usually the right size.
3. Think about the animation you want to show. For example, you might show a butterfly fluttering across a meadow, a boat moving down a river, or a special moment in your life. Use your imagination!
4. Consider how the animation will start and how it will end. This helps determine the position of the moving objects in each drawing (frame) within the sequence.

### To Do

1. Use a pencil to start drawing the first frame of your animation on a piece of 3x5 material. Go over the drawing in pen and/or color with markers when finished. If you have stickers, include them in your work!
2. Continue drawing the remaining frames of your animation, one frame per piece of 3x5 material. Remember that each frame should be slightly advanced and changed from the previous frame.
3. Number each frame in the lower right or left corner. This helps keep the frames in the correct order (sequence).
4. Slide a paperclip or binder clip onto the top edge of the stack of frames. The clipped stack is also a flip book.
5. Use your thumb to quickly flip through the entire frame sequence. View this short video online as an example: <https://bit.ly/2X8EfmG>

### Materials Needed

- Cardstock, index cards, or old folders
- Paperclips or binder clips
- Pencils, pens, markers
- Scissors
- Optional: small stickers

### Grade Range

3-5

### Topics/Skills

Science: Structures and Processes; Persistence of Vision

Art: Forms, Structures, and Materials

### Learning Standards

NGSS: [Life Science](#)

CA Visual Arts: [Creating](#)

### Duration

15-30 minutes

### Prep Time

10-15 minutes

### Observations

The drawn frames should appear to your eye as an animation as you flip through the pages of the book. The quicker you flip the pages, the more fluid the motion in the animation will be.

- What do you notice with your flip book?
- Is your animation smooth as the objects move from one position to another?
- If so, how might you make the animation last longer?
- If the animation was not smooth, how might you improve it?

Try your ideas and observe the results!

### Extensions

- Use graph paper to more accurately track the positioning, size and motion of a drawn animation sequence
- Create several flip books that can be attached together to create a longer animation
- Use digital technology to create unique GIFs of your flip book animation(s)

### The Content behind the Activity

When an image is sent from the eye to the brain, the image lingers until the next image is perceived. This phenomenon is known as “persistence of vision.” When a sequence of images in an animation is presented to the eye in rapid succession (quickly), the brain melds them together and assumes that the images are a moving object. The format for animated feature films displays 24 frames per second. The Disney animated film *Snow White* was the only film that animators drew and inked 24 pictures for each second of the movie. After *Snow White* was completed it was realized that the human eye can only register 12 picture changes per second. Animated films still have 24 frames per second, but to save on production costs each animation “picture” is shown twice. The human eye can’t tell the difference!