



## What You Need

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### Make a picture look like it's moving!

**1 Staple** the index cards along one of the short edges to make a book.

**2** Which **part** of your drawing will look like it's moving? This is the part that you will draw a **little bit differently** on each page. (For example, if you want to show a face changing from a frown to a smile, you would draw the mouth differently on each page.)

**3 Draw** a picture on the last page of the book. First draw only the parts of the picture that **don't change**. (For example, draw a face with eyes, but don't draw the mouth yet.)

**4** Now put the next-to-last page over the picture, and **trace** it. Keep tracing until all the pages have the picture.

**5** Starting again on the last page, **draw** the part of the picture that **will change**, but draw it a little bit differently on each page. (For example, draw a smiling mouth. Then on the next pages, draw a mouth a little bit differently until it becomes a frown.)

**6 Flip** the pages forward and backward, and watch the pictures change.



Sent in by Meaghan F. of Medford, MA

#### Science Scoop

When you flip the pages, the pictures move so quickly that your eyes and brain can't keep them separate. The pictures end up blending together. You think you're seeing one picture that's moving—but you're really seeing a series of still pictures. The way your eyes and brain work to make you think you're seeing a moving picture is called *persistence of vision*.



Now it's time for you to experiment. What happens if you flip the pages **faster** or **slower**? What happens if you use more or **fewer** pages? Try drawing different pictures. Do some **shapes** or **colors** work better than others? Change **one thing** (that's the variable) and make a new flip book. **Predict** what you think will happen and why. Then **test it** and send your results to ZOOM.