

USE "Eye" Notes

to complete this  
assignment



## PERSISTENCE OF VISION

Persistence of vision is the eye's ability to keep seeing an image of an object for a fraction of a second after the object has disappeared from view. The image of an object stays on your retina even after you've stopped looking at it. Your eye and brain actually retain a visual impression for about  $1/30$ th of a second.

The principle of persistence of vision is used in making motion pictures and animated cartoons. Movies are made up of a series of separate pictures, flashed on the screen at a speed of 24 per second. When you're watching a movie, each image lingers on the retina long enough to merge with the next image, and you have the illusion of motion (hence the name: motion pictures.) You don't even notice that the movie screen is dark half the time!

In this section, you will make two motion toys that will demonstrate the principle of persistence of vision.

# 4

### WHAT'S IN THIS CHAPTER?

#### activity

Make a Spinning Disc  
(Thaumatrope)

#### activity

Make a Flipbook

make a spinning disc



## eye fact

When things move very quickly before your eyes, it's difficult for your brain to keep each picture separate. Your brain actually continues to see one picture for a very brief moment even after the disc has flipped to the other side. This is called *persistence of vision* meaning that the image persists, or continues to be seen, for a split second even after it's actually out of sight.

# activity

## STEPS FOR STUDENTS

Have the students:

1. Use a compass or drinking glass or circle template to cut out a circle 3" to 5" in diameter from an index card or card stock.
2. Draw the two images *in pencil first* on opposite sides of their cut-out circle. (Remember that one should be right-side-up and the other up-side-down.)
3. Color in the images.
4. Punch a hole in either side of the circular card.
5. Run a string through each hole and tie each piece of string in a loop.
6. Put their hands through the loops of string.
7. Wind the toy up by flipping it over and over, making twists in the strings.
8. Pull the strings to make the toy spin.

## DEMONSTRATION FOR STUDENTS

1. Show the students the thaumatrope you've made.
2. Discuss with them the concept of persistence of vision and how the thaumatrope works.
3. Have the students try the thaumatrope.
4. Brainstorm ideas for possible thaumatropes with the students. (Examples include a frog on a lily pad, a fish in the water, a bird in a nest.)