

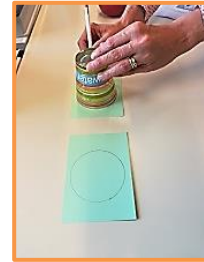
Am I in the cinema or do I see individual pictures?

Materials:

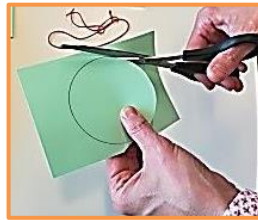
- a piece of cardboard or thicker paper that you glue together
- a drinking glass
- a pencil
- scissors
- a hole punch
- two coloured pencils
- two elastic bands

Preparation:

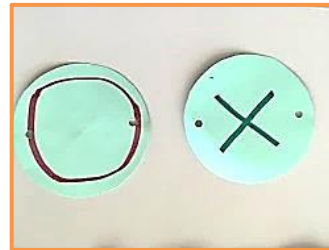
1. Use the pencil to draw a circle around the glass.



2. Cut out the circle.



3. Punch two holes into the cardboard, each one on opposite sides. Use one of the coloured pencils to draw a circle on one face and the other pencil to draw a cross on the other face.



4. Put a rubber band through each hole.



5. Hold the rubber bands and turn the cardboard until the rubber bands are wound up.

Am I in the cinema or do I see individual pictures?

Observation:

Let go of the cardboard. What do you see?

Do you have an idea what could be the cause of this?



A film or separate pictures?

There are sensory cells in our eyes. These take about 1/15 (one fifteenth) of a second to clearly distinguish a new image from the previous one. The rapid rotation of the disc blends the pictures on the front and back of the cardboard circle into one single image in our eyes.

When we watch a film in the cinema or on television, we think we see moving pictures. But films are made up of many individual still images, with each image being just a little different from the previous one. If more than 15 images appear within one second, our eyes cannot perceive the individual images as a still image, and this gives us the impression that the images are moving.

Our eyes are rather slow compared to those of birds. For many birds, every television film would be like a slide show: birds can clearly differentiate between 150 and 200 frames per second!