Thaumatrope

What you will need

- Template (see next page)
- Scissors
- Felt tip pens
- Sticky tape, or double sided sticky tape or glue
- A pencil or a craft straw or a kebab stick

Health and Safety

- Get an adult to help you
- Take care when using scissors
- If you are using a wooden kebab stick you must get an adult to cut off the sharp end first

Instructions

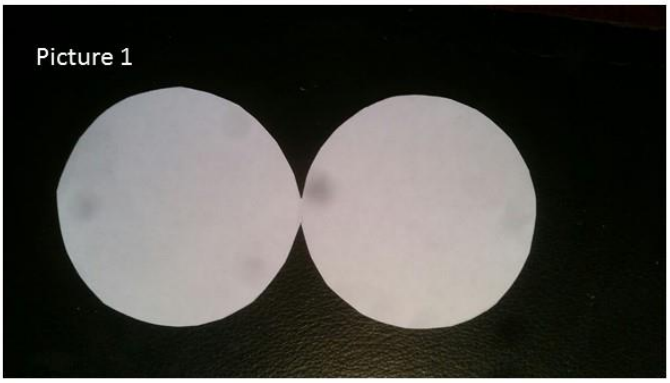
1. Print off the template page onto paper or card.
2. Cut out one of the templates but don't cut all the way around (picture 1). This will mean you can fold the sides together (picture 2).
3. Draw a picture inside the circle on one side of the card. E.g. a fish bowl, a cage (picture 3).
4. Draw a picture in the other circle (picture 3). This picture must fit into the picture that you drew first e.g. draw a fish and make sure it fits inside the fish bowl; draw a bird and make sure it fits inside the bird cage.
5. Stick the pencil (or straw or kebab stick) to one side of the Thaumatrope (picture 4).
6. Make some loops of sticky tape if you don't have double sided tape or glue and stick them onto one side of the Thaumatrope (picture 4).
7. Fold the other side over and stick it down.
8. Now twirl the pencil between your hands (picture 5). What can you see?

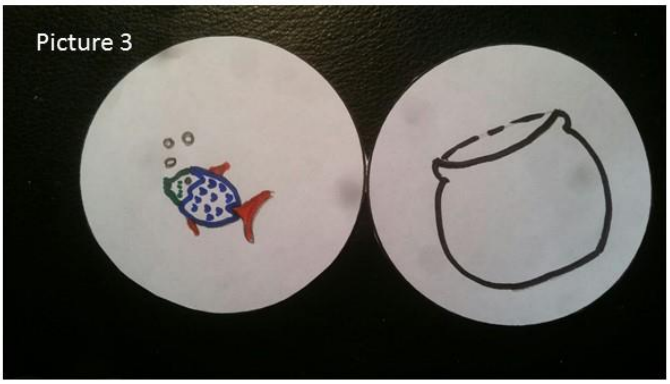
Whats happening?

You should see that the fish ends up in the bowl (or the bird looks like it is in the cage).

This is all to do with PERSISTENCE OF VISION. The eye receives light and an image forms on the retina. First you see the fish then the fish bowl but very quickly one after the other. To process this information the optic nerve has to get involved. The optic nerve is at the back of the eye and sends a message to the brain so we can 'see' the image. The optic nerve uses chemicals to send the message to the brain.

So light comes through the eye and falls onto the retina. Then the optic nerve sends a signal to the brain through the optic nerve to let us know what we are seeing. The message sent to the brain through the optic nerve uses chemicals to transmit the signal. This takes longer than the process of light transmission onto the retina from your picture. Because you are twirling the images around quite quickly you are asking your eye to see 2 separate images, a fish and a fish bowl quicker than the brain can process the information. The images get stacked up together and your brain ends up merging the two together so you see your 2 pictures on top of each other.





Picture 5

Twirl the pencil between the palms of your hand. Twirl it slowly, then faster and faster and see what happens.

Templates