

OPTICAL ILLUSIONS

THERE'S A HOLE IN YOUR HAND!!

YOU WILL NEED:

The cardboard tube from a roll of toilet paper or paper towels

OTHER MATERIALS REQ'D:
None

INTENDED FOR:
Grades 2-6

SCIENCE GOALS:

- Science as inquiry
- Observation optical properties
- Questioning visual observation

DIFFICULTY RATING: EASY STEM CATEGORY: SCIENCE

WHAT THIS ACTIVITY IS ABOUT

Optical illusions can be fun and irritating, all at the same time. One moment you may see something one way and then, all of a sudden, it looks completely different. Sometimes, you just cannot believe your eyes: what you see is just....impossible!

In this activity, you will appear to have a hole in the middle of your hand. Don't worry, there will be no pain or bleeding, we promise. But you will be astounded to see right through your hand as though it wasn't even there.

If you want to know the science behind this activity, skip to "WHAT'S GOING ON" for a sneak-peek and some clues.

Also, see the LINKS section for more online information.

VOCABULARY - WORDS USED IN THIS ACTIVITY

Optical Illusion – visual images that seem to differ from reality.

OTHER IMPORTANT WORDS

Visual Perception – one of the senses. The ability to detect light and see an image as a whole, rather than as individual parts.

1 REVIEW KIT CONTENTS

This activity is provided free of charge. You will need to supply:

- The cardboard tube from a roll of toilet paper or paper towels
- Your hand
- An eyeball (you may leave the eyeball in your head. In fact, we recommend this).

2 EXPERIMENTS AND OBSERVATIONS

Hold the cardboard tube up to your left eye. Bring your right hand (palm open and facing your nose) up along the right side of the tube, about halfway along its length.

Look off into the distance with both eyes.

DO YOU SEE A HOLE IN YOUR HAND? _____

DO YOU THINK YOU WILL SEE THE HOLE IF YOU MOVE THE TUBE TO YOUR RIGHT EYE? _____

TRY IT. WHAT DID YOU OBSERVE?

LINKS TO MORE INFORMATION:

The web is full of examples of optical illusions. Try Googling "optical illusions" and see what you come up with. More examples of illusions and their explanation can be found at:

<http://faculty.washington.edu/chudler/chvision.html>
<http://kids.niehs.nih.gov/games/illusions/index.htm>

3 WHAT'S GOING ON?

An optical illusion occurs when your eyes see one thing but your brain interprets (or thinks) that it is seeing something else. This happens because your brain has trained itself to recognize what your eyes see in a certain way. When something new is introduced (as in looking through the cardboard tube with one eye), the brain has a hard time figuring out what is going on.

In this activity, the left eye is prevented from seeing the hand while the right eye sees normally. The left eye sees a hole, the right eye sees a hand, and your brain does the best it can in putting both images together. And voila....you end up with a hole in your hand.

The mission of **THE GEEK LAB** is to create excitement about learning science and to make science fun and promote creativity and a passion for exploring. These activity kits will help kids learn about the scientific method and to gain confidence in the field of science, and to experience the mystery and excitement of scientific endeavor.

Please visit us at www.TheGeekLab.com for free online activities and to purchase more activity kits.



Contact us, or have more fun, at:

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info@thegeeklab.com

You can find free science activities and order more kits on our website.

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Specialty Concepts Inc.
8954 Mason Ave.
Chatsworth, CA 91311

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