



## TOILET PAPER X-RAY TUBE

### SCIENCE SAFETY

PLEASE follow these safety precautions when doing any science experiment.

- **ALWAYS** have an adult present.
- **ALWAYS** wear the correct safety gear while doing any experiment.
- **NEVER** eat or drink anything while doing any experiment.
- **REMEMBER** experiments may require marbles, small balls, balloons, and other small parts. Those objects could become a CHOKING HAZARD. Adults are to perform those experiments using these objects. Any child can choke or suffocate on uninflated or broken balloons. Keep uninflated or broken balloons away from children.

### INGREDIENTS

- Toilet Paper Tube

### INSTRUCTIONS

**STEP 1:** Using your right hand, hold the toilet paper tube against your right eye, so you can see through the tube. Keep both eyes open.

**STEP 2:** Hold your left hand, palm toward your face, hand wide open, against the left side of the tube, keep both eyes open, and observe. What do you see? Describe how this model allows you to receive different types of information through your sense of sight, process the information in your brain, and respond to the information.

### EXPLANATION

As you look through the toilet paper x-ray tube, a hole appears in your left hand. This is an optical illusion caused by your brain taking what your right eye observes, what your left eye observes, and putting the images together to create a picture. This confuses your brain, creating a picture with a hole in your hand.



### SCIENCE BACKGROUND

An object can be seen when light reflected from its surface enters the eyes. Animals have internal and external body parts, such as eyes, ears, a brain, a heart, and many others, which capture and convey different kinds of information. These internal and external structures serve various functions in growth, survival, behavior, and reproduction. Different sense receptors are specialized, which may be then processed by an animal's brain. Animals are able to use their perceptions and memories to guide their actions. In humans, the optic nerve sends signals from the eye to the brain, which then interprets what we see.

### I CAN STATEMENTS

- ✓ I can use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

### NEXT GENERATION SCIENCE STANDARDS CONNECTION

4 – Structure, Function, and Information Processing

