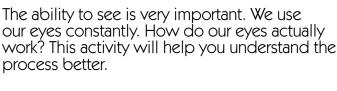
## BALLOON EYE

**FOCUS** Eye Structure

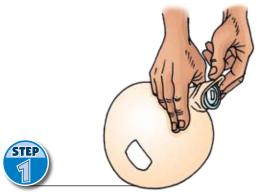
**OBJECTIVE** To explore how an image is created in your eye

**OVERVIEW** The ability to see is very important. We use our eyes constantly. How do our eyes actually





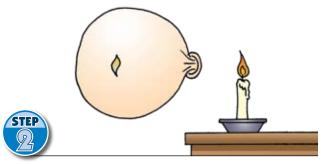




Inflate the balloon about 3/4 full and pinch the neck to keep the air in. Now have a team member slip the lens into the opening. (Be careful! It's easy to cut the balloon with the lens.) When the lens is installed correctly, you should be able to see into the balloon through the lens. Record the results.



Have a research team member gently squeeze the front and back of the balloon to shorten the "eye." Watch what happens to the image. Now squeeze the top and bottom of the balloon to lengthen the "eye." Again, watch what happens to the image. Don't forget to make notes in your journal about what you observe.



Light the candle and point the lens toward the light. You should see an image of the candle on the back of the balloon. Slowly **move** the balloon backward or forward until the image is well focused. Make notes about what you see. Keep the balloon in this exact focused position for Step 3.



Make sure everyone on your team has a chance to work with your Balloon Eye. Continue to observe and discuss what you see. Now review your notes from Steps 2 and 3. **Share** and **compare** observations with your research team.

## WHAT/JUST HAPPENED?

The lens you put in the neck of the balloon simulates the **lens** of your **eye** (front of your eye). It helps **focus** (or concentrate) light onto the **retina** (back of your eye). The retina is where the **image** (whatever you're looking at) is reproduced. The shapes you gave the balloon simulate different vision problems that optometrists can usually fix with glasses or contacts.

Notice the image in the balloon was upside down. That's exactly how images are projected in our eyes! So why don't we "see" everything upside-down? When we're born, our miraculous brain begins learning how to adjust. Ever notice how tiny babies often reach in the wrong place for something they're trying to grab? They're still learning to coordinate their eyes with their brain.

## WHAT WE LEARNED What did the lens represent in Step 1? What did the back of the balloon represent? In Step 2, what was unusual about the image in the balloon? How does this reflect what happens in your eye?

IJ	Describe what happened to the image when you modified the shape of the balloon in Step 3.
0	Based on what you observed in this lesson, how do contact lenses or glasses help correct vision problems?
5	Name three devices (other than glasses or contacts) that use lenses.



The lens of the eye helps focus light onto the retina, creating an image of the object observed. A change in the eye's shape can create vision problems. Optometrists usually fix such problems with glasses or contacts.

## FOOD FOR THOUGHT

Matthew 24:5 This model shows us a lot about the eye and how it works. Just because we see something with our eyes doesn't mean it's true. We can be tricked by optical illusions, models, colors, or other devices.

The opposite is true as well. Just because we don't see something, doesn't mean it doesn't exist! This Scripture talks about a time when many people are going to be deceived. How can you avoid being fooled? By knowing "the real thing." The more time you spend with God, the less likely you are to be fooled by the deceiver. With God, belief isn't based just on our eyesight — it's based on our trust in Him!

<b>ES</b>	SCIENCE LOURNAL NOTES		