When light enters in through the black dot in your eye, your pupil, it makes its way to the back part of the eye, called the retina. The retina is full of photo sensors that then take that light and send messages to the brain along the optic nerve. The optic nerve is a cord that runs from the back of the eye to the back part of our brain. We may think that we just see things with our eyes, but it’s much bigger than that! The brain processes the information received from the eye and then tells us what we are seeing. So really, we see with our brain - we just use our eyes to collect the information.

This is how many optical illusions can work. Our brain wants to make sense of the information the eyes collect. Sometimes our brain tries to fill in the gaps of what it is seeing with an “educated guess.” But sometimes that “guess” doesn’t quite make sense.

Try this activity and then ask your eye doctor what they know about optical illusions the next time you’re at your optometrist!
VISION AND YOUR BRAIN:

HOLE IN THE HAND OPTICAL ILLUSION

Materials needed: A sheet of paper

1. Roll the sheet of paper into a tube (long ways so it looks like a telescope)

2. Hold the tube in your right hand and look through it with your right eye. Be sure to keep both eyes open!

3. Look at a wall several feet in front of you and bring your left hand up to the side of the tube. Make sure that the side of your left hand is touching the side of the tube, so that they are perpendicular.

4. Move your left hand closer to your face. Eventually it will look like there is a hole in your hand!

With this activity one of your eyes is seeing a hole, while the other eye sees your hand. Your eyes and brain work together to add the two images together, creating a hand with a hole in it! This only works if your brain is using both eyes together. Sometimes it will shut off or suppress one of your eyes (due to various potential reasons) and you will only see the hole OR your hand, not both at the same time.