Optical Illusion

Now you see it, now you don't! Make your own optical illusion to see how your brain reacts. Our brain often uses shortcuts to process the information we come in contact with every day. Test your optical illusion and see if it "tricks" your eyes and brain into thinking images on two separate pieces of paper are on a single page!

TEKS:

4.2: Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations.
4.3: The student uses critical thinking and scientific problem solving to make informed decisions.
4.4: The student knows how to use a variety of tools, materials, equipment, and models to conduct science inquiry.

Materials:

- Colored pencils, markers, or crayons
- Dowel, wooden skewer, or pencil
- Glue or tape
- Scissors
- White cardboard (or heavy paper, like cardstock)

How To:

1. Cut out two squares from the white cardboard or cardstock. Make sure they are the exact same size.
2. Draw an image on each square, but before you do so, choose images that pair well together. You are going to make the images seem like they are actually on the same side of one piece of paper! In our example, we drew a fish tank on one square and some fish on the other.
3. Glue or tape the dowel, skewer, or pencil in between the two pictures. The pictures should be facing outward.
4. Hold the dowel, skewer, or pencil between your palms. Rub your hands together to make the picture spin. You want it to spin pretty fast. Do your two pictures look like they are on the same piece of paper?

STEM Explanation:

Have you ever seen an optical illusion before? There are many different types of optical illusions. They use color, light, and patterns to deceive our brains! Our eyes collect information, and the brain processes it in a way that creates a perception that doesn't match what is really there. Understanding why optical illusions work has to do with understanding how the eye works with the brain to tell us what we are seeing. Our eyes act as lenses, like a camera. They focus light and then use the light to create an image that is then transmitted to our brain. The spinning pictures optical illusion works the same way as a cartoon movie or TV show you might watch. Cartoonists draw several still images that differ slightly with each rendering; then the still pictures are moved very quickly to create the illusion that characters and objects are moving on screen.

Career Connection:

Optical engineers design components of optical instruments such as lenses, microscopes, telescopes, and other equipment that use properties of light. They must have knowledge about the physics of light and how light reacts to the outside world and materials in order to control, direct, and manipulate light to behave in a certain way. Optical engineers can work in research or product development. They may make an existing product better or invent something new. Optical engineers may work at electronics companies, computer manufacturers, and medical equipment companies.

Resources:

http://www.science-sparks.com/2013/10/18/make-an-optical-illusion/
http://www.optics4kids.org/home/content/illusions/

