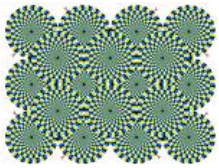
Make Your Own Optical Illusions



Summary:

Have you ever seen an optical illusion? Just as people learn how to read, they can learn how to make sense out of the rays of light that hit the eyes. The brain learns "rules" "rules" of seeing; for example, the farther things are from you, the smaller they appear. But when an object or drawing breaks the rules, or when it could be interpreted in different ways, your brain tends to apply the "rules" and may give you wrong information or one perception of the information that makes most sense.

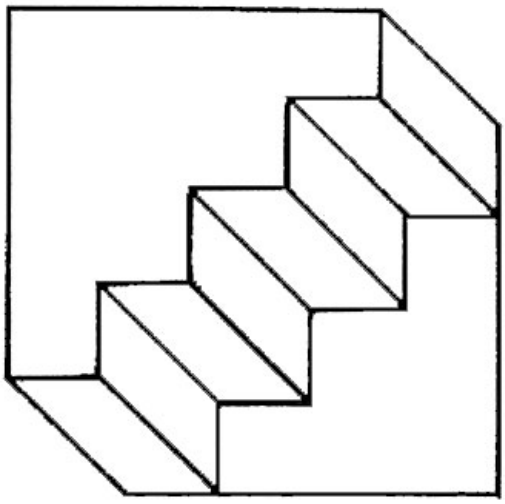
In this activity:

- To understand that optical illusions are made by our brain trying to make sense of the information that our eyes see.
- Look at optical illusions and recognize why they appear the way they do.
- Make an optical illusion and describe how it works.

Materials:

- 2 long pipe cleaners of equal length and equal color. (Example: 2 red pipe cleaners that are 12” long)
- 2 long pipe cleaners of equal length but not equal in color. (Example: 1 purple and 1 green pipe cleaner that are 12” long)
- Scissors to cut pipe cleaner.
- Plenty of friends and family members to show and explain your optical illusion!

Optical Illusion 1: What do you see in the picture below? This is the example optical illusion so the answer will be posted below the picture. However, for the next 3 optical illusions the answer will be posted at the end of the activity.



What did you see? Are the stairs on the floor or on the ceiling?

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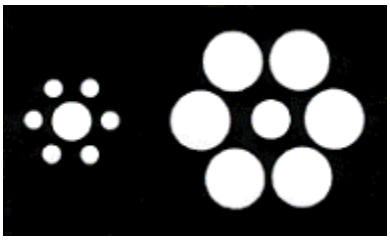
Answer 1: Both perceptions are valid, but it is more likely that you saw the stairs as on the floor because you expect them to be there.

Optical illusion 2: Look carefully at both flowers. Are the centers in both flowers the same size? _____



Optical Illusion 3: What do you see in the picture below?

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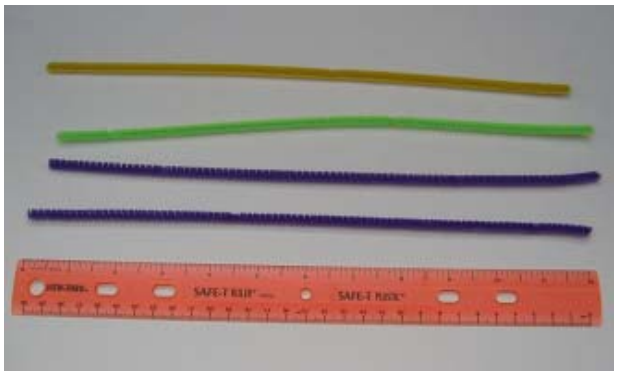
Optical Illusion 4: Describe what you see below

_____

_____

Activity: Making an Arrow Optical Illusion

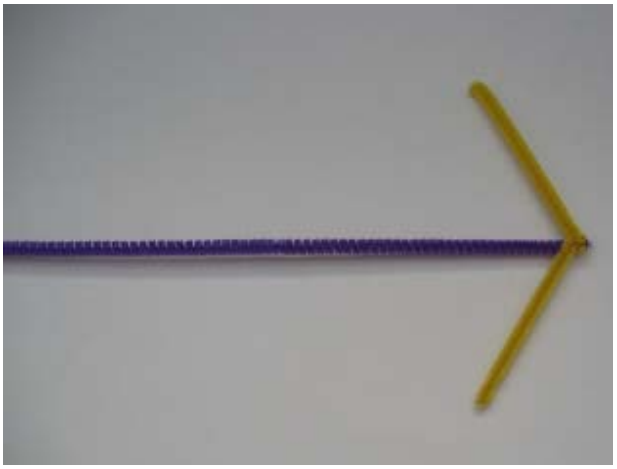


Use 4 equal in length pipe cleaners: 2 of the same color, 2 of differing colors.

1. Take two pipe cleaners that are the same length and the same color. If they aren't the same length and color, the optical illusion will not work.

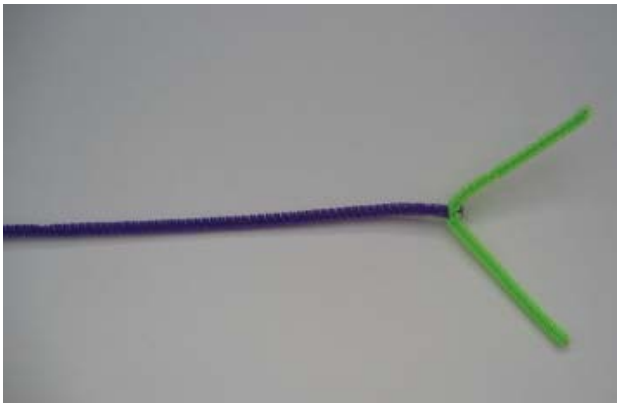
2. Now, cut in half two other pipe cleaners that are a different color. You will use these different colored pipe cleaners to make the ends of your arrows.

3. Wrap the middle of one short pipe cleaner around the end of one long pipe cleaner. Then bend the short one in half so it looks like an arrow. Repeat this process on the other side.



Pipe cleaner with an arrow on one side; be sure to put arrows on both sides of your pipe cleaner.

4. Then, repeat with the other pipe cleaner, but this time, your arrows on the ends will be turned in the opposite direction (an inverted arrow).



On the second pipe cleaner, turn your arrows on each end in the opposite direction. As with the first arrow, be sure to do this process on both sides.

5. Now, take your completed pipe cleaners and hold them up side by side. Then, slowly move your pipe cleaners apart. You have created an optical illusion! Explain what you noticed as you moved them apart below. Also, which pipe cleaner looks longer (not including the arrows)?

_____

_____

6. Now, show your two arrows to a friend or a family member. Repeat the process of moving the arrows away from each other and ask your friend or family member which one looks longer. Have a ruler handy to show them they are of equal length.

Extension:

Search for more optical illusions! There are many sources on the internet which display optical illusions. See how many you can find and also notice how creative they can be.

References and Further Information about Optical Illusions:

http://www.coolopticalillusions.com
http://www.liquidgeneration.com/sabotage/optical_sabotage.asp

http://illusionsetc.blogspot.com/2004_12_01_illusionsetc_archive.html
http://www.teachnet.com/powertools/entertain/puzzles/001907illusions/illusion1.html

Answers to Optical Illusions:

Answer 2: The center circles are exactly the same size although the left center circle appears larger than the right one. Objects can appear larger or smaller when placed next to objects of different sizes. In this case, we judge the size of the center circles in relation to the surrounding circles.

Answer 3: Tilt your head to the right, and you'll see a duck. Then turn your head to the left and you'll see a bunny rabbit.

Answer 4: This is another classic example in the history of optical illusions. Usually, our eyes are used to reading black text on a white background, so at first when you look at these shapes above you see just that - shapes. But, after you look for a little longer you'll see that the white space actually spells a word - LIFT.