

Optical Illusions

Your **sense of vision** provides you with about **75 - 85% of all the information** you have in your brain. Your eyes are very complex organs. They have very complex jobs to do in order for you to see. The parts of your eye must quickly:

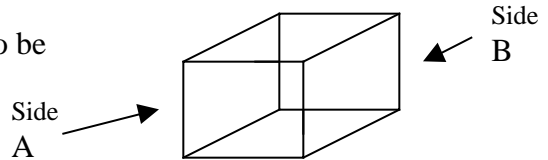
- **Collect light rays**
- **Focus the light rays**
- **Change the rays to nerve impulses**
- **Send those impulses to the brain**

Your brain then must interpret (make meaning of) the light rays so that you understand what your eye is looking at.

Sometimes the brain can be “fooled” by the information the eye is collecting and sending to the brain. When this happens you experience an **optical illusion**. The purpose of this activity is for you to experience some of these illusions. To complete this activity you will need a centimeter ruler.

PART 1

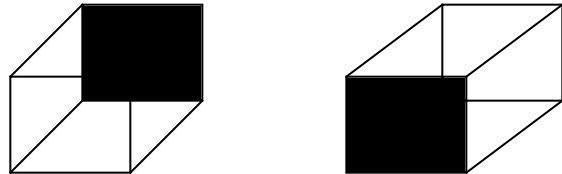
1. Look at this cube. Which side appears to be the front: side A or side B? _____



Keep staring at the cube. Did the sides appear to flip-flop? _____

2. Look at these cubes. Label the side on each cube that you think is the front.

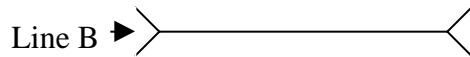
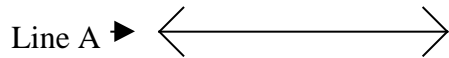
3. Stare at the cubes again. Did they seem to flip-flop? _____



PART 2

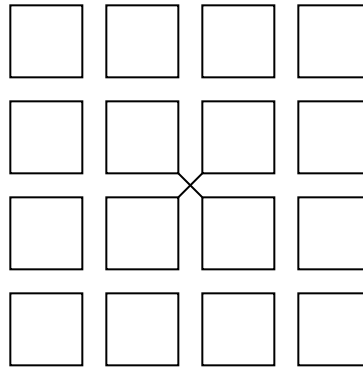
1. Look at these two lines.
2. **Without** using your ruler, which line is the longer: Line A or Line B?

3. **Using your ruler**, which line is the longer: Line A or Line B?



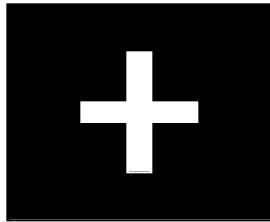
PART 3

1. Stare at the X in the center of this figure for about fifteen seconds.
2. When you're staring, what appears to be the corners of the other squares? _____



PART 4

1. Stare at the picture of the plus sign for about 15 – 30 seconds. Then **without blinking** look at the blank part of this page just of the right of the picture.
2. What "new" picture do you see? _____
3. What's unusual about the colors of this "new" picture?



PART 5

1. Look at the circles in the center of figures A and B.
2. **Without using your ruler**, which circle appears to be bigger: the circle in figure A or the circle in figure B? _____
3. Now **using your ruler**, measure to see which circle is bigger: the circle in figure A or the circle in figure B? _____

Figure A

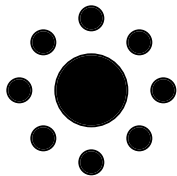
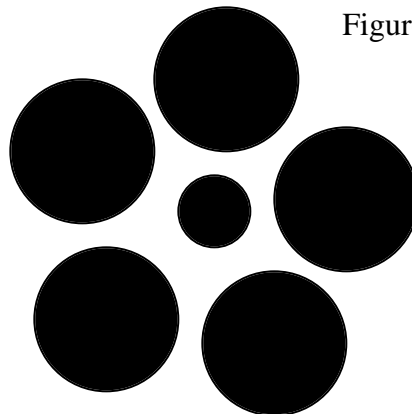
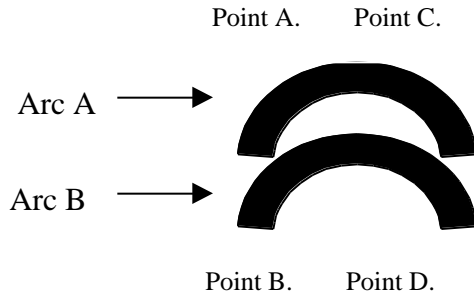


Figure B



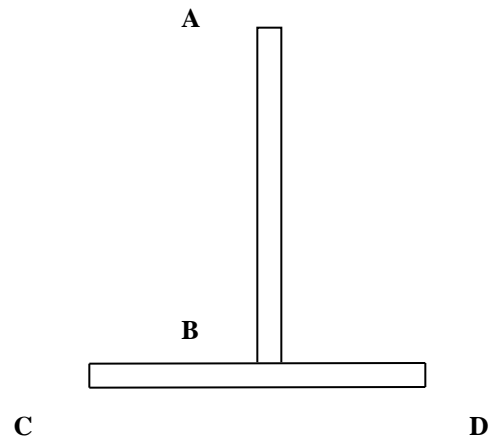
PART 6

1. Look at the two arcs below.
2. Which arc represents part of a circle that is bigger:
Arc A or Arc B? _____
3. Use your fingers of your left hand to block out the left portion of the arcs as marked from point A to point B. At the same time use the fingers of your right hand to block out the right portion of the arcs as indicated from point C to point D.
4. What did you notice about the relative size of the arcs? _____



PART 7

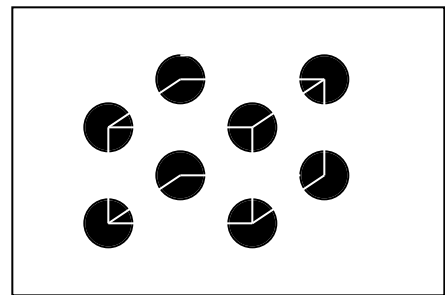
1. Look at this upside-down T.
2. **Without using the ruler**, which line appears longer:
Line AB or Line CD? _____
3. **Using the ruler**, which line is longer:
Line AB or Line CD? _____



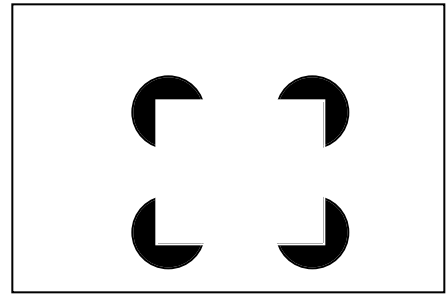
PART 8

1. Look at the figure A.
2. What shape do you see? _____
3. Draw in the shape you saw.

Figure A



4. Look at figure B.
5. What shape do you see? _____
6. Draw in the shape.



PART 9

Use this space to design your own optical illusion. Try using different colors in your drawing as well as different shapes. (If you are good with drawing programs on the computer, ask your teacher if you can use the computer for this part.)

PART 10

If your room has a computer with Internet access, try these neat websites for more illusions:

<http://faculty.washington.edu/chudler/chvision.html>

<http://www.sandlotscience.com/>

<http://www.illusionworks.com/>

<http://www.ads-online.on.ca/illusion/directory.html>

Idea adapted from *Neuroscience for Kids*,

<http://faculty.washington.edu/chudler/neurok.html>