Refraction Art

Explore the concept of refraction while making simple drawings that seem to change.

Suitable for: Preschool – Middle School Ages

Materials:
- Empty 2-Liter Bottle
- Funnel
- Markers
- Clear Tape

Vocabulary:
- Light
- Reflection
- Refraction

Directions:
1. Safety first! Put on your safety goggles!
2. Place your empty glass/vase on a table. You may want to put a tray or disposable tablecloth down as this experiment can be messy!
3. Use the funnel to fill the soda bottle with water and put the cap on the bottle.
4. Draw an arrow on your index card or sticky note pointing to the left.
5. Place the index card or sticky note on a wall behind the soda bottle.
6. Look through the water at the index card. The arrow should like as if it switched from pointing left to right.
7. Try creating other drawings that can change directions.

The Science Behind the Experiment:
Reflection occurs when light bounces off a surface. Refraction occurs when light bends when it passes through different mediums, such as water and plastic. As the light travels through a medium, it becomes concentrated into a focal point, usually near the center. After light passes through the focal point, the rays cross over each other and cause images to appear reversed. Refraction occurs when light travels from one medium into another (i.e. Air to Water, Water to Air).

Make it Awesome:
Watch the change happen! Have someone pour the water into the container while you watch, so you can watch the image change directions!

Extensions:
1. Try drawing pictures with different colors.
2. Try drawing two different pictures on the same page.
3. Try different containers in different sizes.
4. Try dyeing the water different colors. Does that affect?
5. Does the experiment work with other liquids (ex. Vegetable oil)?
6. What other changes can you come up with for this experiment?

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