Light Refraction

Students will be able to bend light to their will using the power of refraction. For this activity, students will use found transparent containers filled with water to explore how different shaped containers affect the way that light travels through them.

The Science Behind It

Light normally travels in a straight line, however using some very basic materials you can bend the light to your will! This activity will explore some of the physics behind light refraction! Light refraction happens because when light travels through different materials it travels at different speeds. While light travels at a constant speed through the air around us, when it passes through a different material, such as glass or water, the speed changes causing the direction of the light to change. The amount the direction changes depends on the angle at which the light passes through the material, if it travels through a bent surface the angle begins to change depending on the relative speed light travels through the new medium from the previous medium. If it enters perpendicular, or straight on through the surface of the new medium, the light will continue straight. This is why you see more refraction on the edges of your glass! For our experiment, we will be exploring how the shape of the object affects how the light refracts through it.

Light Refraction

Materials

- Transparent containers
- Water
- Sheet of lined paper (or something with a pattern)

Instructions

1 Once you've gathered the required materials, begin by filling your transparent container with water.

2 Place the sheet of lined paper or patterned material behind the transparent container.

3 Observe how the lines on the paper shift, are they closer together or further apart?

4 Move the lined paper closer or further to the medium, observe what happens.

5 Explore different shaped materials to see how the light changes direction as it travels through it.