

LAB ACTIVITY

Water Magnifier

Goal: To observe how light changes as it travels through different materials by observing how the size of a pencil and spoon appears to change when the objects are submerged in a beaker of water.

PRE-LAB DISCUSSION

1. Recall that light is energy, what key term could be used to describe the property of this energy that makes it possible for Adrienne to see her image in the mirror?

2. What do you think refraction is? Talk with your table partners. _____

3. Do you think light travels in air at the same rate as it travels in water? _____
4. In which does light travel faster, air or water? _____

MATERIALS

For each group
400 mL beaker

Pencil

Spoon

Ruler

Water

For each student

Goggles

Lab apron

PROCEDURE

1. Fill the **beaker** about half-full with **water**.
2. Dip the top of the **pencil** into the beaker. Observe the pencil from the side of the beaker. Describe your observations.

3. Measure the thickness of the **spoon** using a **ruler**. Record your measurement.

Dip the head of the spoon into the water, and observe the spoon from the side of the beaker. Describe your observations.

4. Hold a ruler up to the outside of the beaker, and measure the thickness of the spoon in the water. Record your measurement.

5. How does the image of each object change when you look at it through the water in the beaker?

6. Remember that light refracts when it travels from one medium to another. How could this explain your observations of the objects in the water?

SUGGESTED LAB ANSWERS

A. Pre- Lab discussions

1. Reflection

2. The bending of a wave because it enters a different medium where its speed is different.
The speed may decrease or increase.

3. No. Light travels at different rates in air and water.

4. Light travels faster in air (gas) water (liquid).

B. Lab Activity – Answers will vary