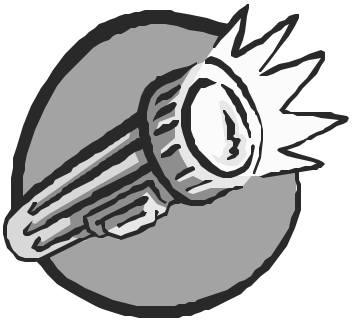
Name: **Date:**

Activity 2.5
Rainbows and the Spectrum of Visible Light



Objectives:

To observe the separation of white light into the colors of the rainbow, and to be able to list the colors in order according to their wavelength.

To observe how some wavelengths of visible light can be bent more than other wavelengths, and to compare your observations to how the gases in the atmosphere transform white light into the colors of the rainbow.

Materials:

- Small aquarium (must have flat sides)
- Flashlight
- Prism
- Eyedropper
- Blocks to raise the flashlight about 2 centimeters off the table
- Water
- Milk
- WEATHERlogs (to record your observations)

Procedure:

1. Use about 5 liters of water to fill the aquarium.
2. Place the flashlight on the blocks, approximately 5 centimeters from the end of the aquarium. The flashlight beam should shine lengthwise through the aquarium.
3. Look at the flashlight from the opposite end of the tank. View the light through the water. Record the color of the light.
4. Add approximately 40 drops of milk to the water. Stir to mix the water and milk. Look at the flashlight through the milky water and record the color of the light.
5. Look at the beam of light from the side. Record your observations.
6. Continue to add drops of milk, approximately 12 drops, to the water. Stir to mix the water and milk. Look at the flashlight through the milky water and record the color of the light.
7. Look at the beam of light from the side. Record your observations.
8. Alternate adding milk and stirring to mix the water and milk until you get to a final color change, which will require approximately 25 drops per liter of water. Do NOT add this all at once. You may find that the water becomes too milky and you can no longer see the light beam. Look at the flashlight every 10 drops to see if the light has changed color. Record the color of the light.

Conclusions (record what you see in your WEATHERlog):

What effects do the droplets of milk have on the beam of light?

In what order did the colors appear?

Why did the colors appear in this order?