Water Level Detector

Introduction

We built a water detector to see how the height of the water affected the light. Water detectors work by sensing the water pressure. When it senses it, the sensor detects the pressure and turns on. We want to see how much water it takes to light the light bulb.

Testable Question: How does the height of the water in a cup affect when the circuit turns on?

Independent Variable: The height of the water.

Control: We are comparing our change from 1/2 a cup of water to 1 cup of water to see if the circuit turns on or off.

Dependent Variable: If the light turns on or off.

Constant Variables: 12 oz. Solo Cup, AA Duracell Batteries, Three 22 Gauge Wires with Alligator Clips Attached (21 Inches), 1.5V Light bulb,1.5V Light bulb holder, 4 TBSP Salt

Hypothesis

The hypothesis for this experiment is…If I change the water level from a 1/2 cup to 1 cup of water, then the light will turn on and be darker than the ½ cup.

We think this because our research shows the water level detector detects the level of the water and will need more to turn on.

Materials List

- 12 oz. Solo Cup
- AA Duracell Batteries
- Three 22 Gauge Wires with Alligator Clips Attached (21 Inches)
- 1.5V Light bulb
- 1.5V Light bulb holder
- 4 TBSP Salt
- AA battery holder
- Tap water
- Large Paper Clips
- Paper and Pencil to record the data

Procedure List

1. Get the materials.

2. Connect one of the red wires with the alligator clips to a large paperclip.

3. Connect the other alligator clip to the wired battery holder.

4.Get another wire with alligator clips and connect it to the other side of the wired battery holder.

5. Connect the other alligator clip to the light bulb holder.

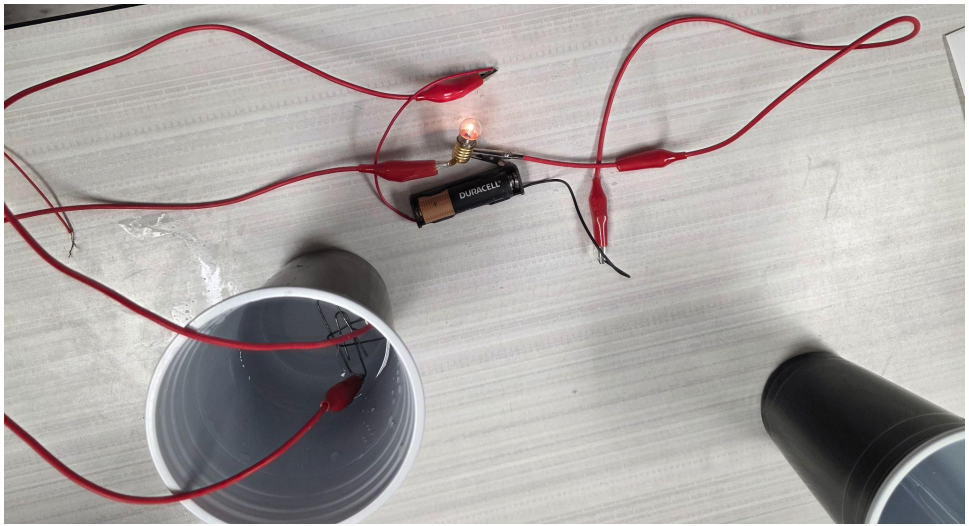
6. Grab the third alligator clip wire and connect the clip to the other side of the light bulb holder.

7. Take the other end of wire and connect it to the other large paper clip.

Procedure List

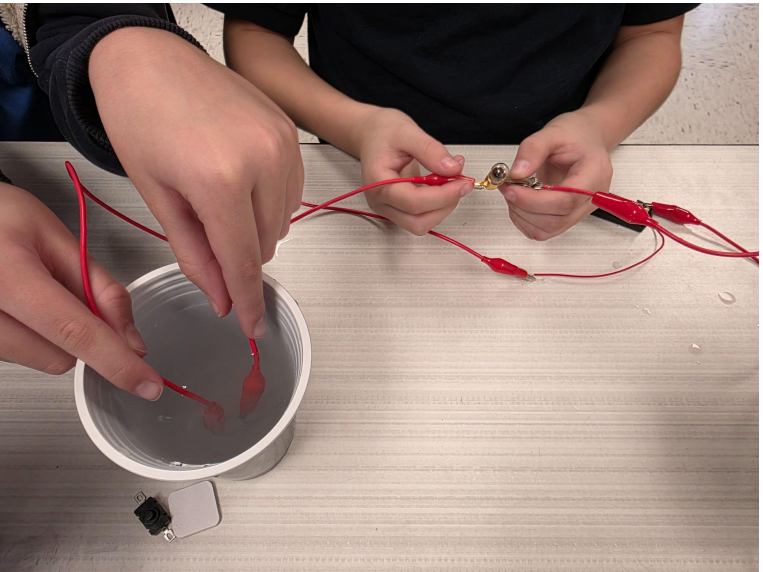
8. Screw in the light bulb.
9. Put in the AA battery.
10. Get the cup and fill it half full with water.
11. Add 4 TBSP of salt to the water.
12. Put the paper clips in the water, not letting them touch.
13. See if the light bulb lights up.
14. Record data with the paper and pencil.
15. Repeat steps 1-14, changing the amount of water to 1 cup.

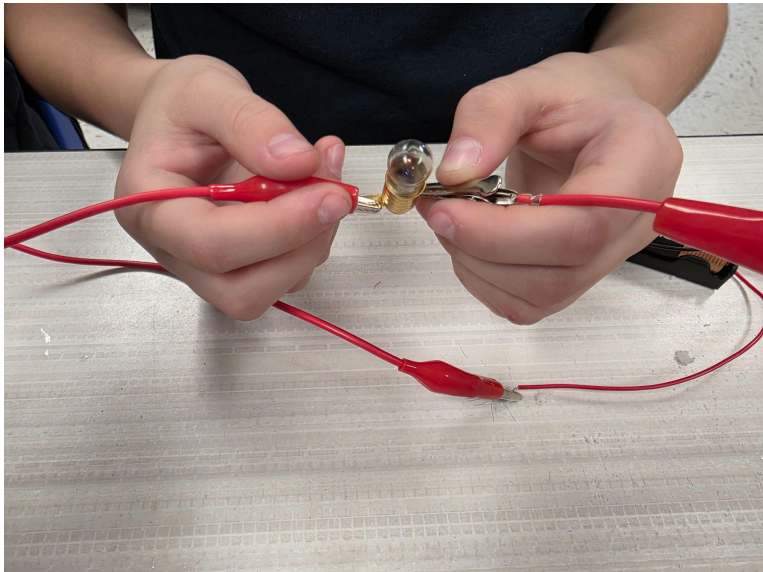
Experiment Pictures/Data Table (½ Cup of Water)



Experiment Pictures/Data Table (1 Cup of Water)

These are pictures of are experiment.





Data Table

These are are notes we took from are experiment.

Water Height	Light Bulb Brightness
½ Cup	Very bright
1 Cup	A little bright

Conclusion

The data **did** support our hypothesis. The data shows that when we put in the ½ cup of water, the light was brighter than the cup of water.

Research Sources

https://www.travelers.com/resources/home/smart-home/how-water-sensors-can-help-prevent-damage