Under Pressure!

Background

People have been diving into the sea in search for knowledge long before 300BC. Long ago Alexander the Great observed living things in the ocean from inside a glass barrel that was lowered a few meters into the ocean. We know that as we dive deeper into water we feel something pressing on our ears. Pressure is a force caused by something that has weight. Pressure on your ears is caused by the weight of the water above you. The deeper you dive the greater the water pressure becomes.

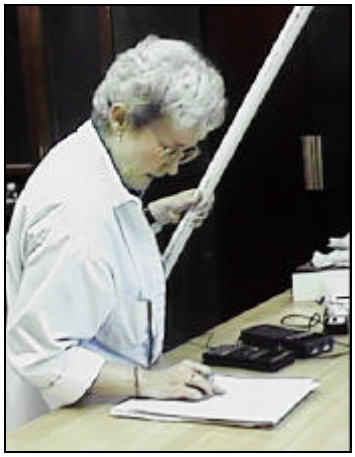
Problem Statement

How does the pressure change the farther down you go into the water?

Hypothesis

Formulate your hypothesis based on the problem statement.

Equipment



Casio* EA100 Data Analyzer
Pressure probe
20 ft. plastic tubing or PVC pipe cased in on the bottom. (length adjusted to your need as pipe will be standing on its end).
Water
Meter Stick
Permanent Marker
*Optional CASIO Graphing Calculator

Procedure

1. Follow the quick reference guide for the Datalog function of the EA100. (You want to set time to 0 sec. This is the manual setting and as many readings as desired can be recorded by pressing the trigger key.)
2. Mark the pipe in meters with permanent marker.
3. Stand pipe on end and fill with water.
4. Use the pressure probe to measure the pressure at varying points along the pipe. Start at the top and work your way down.

5. Record your data on a data table. Make a graph.

Results

1. What happened to the pressure reading as you moved down the pipe?

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2. What was the difference in pressure between each reading?

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3. How could you relate this information to how you feel when you swim in a pool and dive?

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Conclusion

Relate you conclusions to your original hypothesis.

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***Optional Activity**:

Data can be transferred to CASIO* Graphing Calculator, graphed and printed using the computer.