Pressure & Depth Lab:

Investigating how water pressure is related to water depth

From Discovery Education

Hypothesis: If you put 5 holes of the same size in a water bottle from the top of the bottle to the bottom, which hole will spray water the farthest? Why?

Materials

1. Bottle with lid
2. Duct tape
3. Push pin
4. Meter stick
5. Marker
6. Paper towels
7. Butcher paper

Procedure

1. Place butcher paper 1 meter long on ground pointing away from table.
2. Place meter stick on top of paper with zero mark lined up with edge of table.
3. Put duct tape on side of bottle running from mouth to bottom of bottle.
4. Place water bottle on its side and poke a series of 5 holes in the bottle along the tape line. Evenly space them. Start near the top of the bottle and continue down. Label the top hole #1, with the bottle hole #5.
5. Stand the bottle up on the edge of the table with the holes facing the butcher paper. Open the cap of the bottle a slight bit.
6. Mark on the butcher paper where the water from each hole hits the paper. Label with which hole the water came from. Measure the distances and record below.

|  |  |  |
| --- | --- | --- |
| Hole | Distance from top of bottle (“depth” in cm) | Distance sprayed (cm) |
| #1 |  |  |
| #2 |  |  |
| #3 |  |  |
| #4 |  |  |
| #5 |  |  |

Analysis

1. Sketch what happened.
2. From which hole did the water spray the furthest?
3. From which hole did the water spray the shortest distance?
4. For Questions #2 and #3, why do you think this happened?
5. Was there any pattern in the distance the water sprayed as the hole number changed? Explain.
6. Relate the results to the oceans and pressure of water at various depths. Where do you think the pressures is the greatest in the ocean? The least? Explain.