Water Rocket Lab

Guidelines:
- You may work in groups of 1, 2 or 3.
- Do not cut the bottle in any way.
- The top of the rocket is the bottom of the bottle.
- Must fly a minimum of 75 meters.
- Total empty rocket cannot weigh more than 500g.
- Do NOT place anything but water in the rocket.
- Clear two liter bottle.
- If you use teacher duct tape you get 1 meter. If you bring your own use as much as you want.

1. Weight of rocket?

2. Time your rocket was in the air?

3. Distance your rocket flew. Use the cones as your estimation.

4. What was your rocket's velocity?
   a. $$v_0 = \sqrt{\frac{Rg}{\sin 2\theta}}$$
   b. Calculator: **http://earthscience.xyz/Rocket**

5. What was your rocket's acceleration?
   a. $a = \Delta v/t$ (a=change in velocity divided by time.)
      i. To solve for the change, know that the rocket was traveling at 0m/s to begin with so your change in velocity is the answer you got for 4a.

Your goal for the second day is to improve your distance from the first day.

1. What modifications did you make?

2. Weight of rocket?

3. Time your rocket was in the air?

4. Distance your rocket flew. Use the cones as your estimation.

5. Is this distance greater than, less than, or about the same as the previous launch distance?

6. What was your rocket's velocity?

7. What was your rocket's acceleration?

8. If you could launch a third time what modification would you make?