Projectile Lab

Purpose: to determine the graph shapes of motion and velocity of a type 1 projectile, and successfully apply the concepts of projectiles in a type 2 problem.

Procedure:

Part 1:
1) Open interactive Physics 2000 from the science applications folder.
2) Select File open, change to I drive, double click handout, double click strachan, select type 1 Projectile IP.
3) Use the slider to set the initial velocity in the X-direction to 1.0 m/s, run and record the graphs. Determine which graph is of the x-position, y-position, x-velocity, and y-velocity sketch and label them.
4) Reset and change the x-velocity to 3.0 m/s.
5) Sketch the y-velocity graph, label when the mass leaves the table, and when it bounces on your graph and calculate the slope during the time the object falls. You can step the experiment back frame by frame, and click on the arrow → in the top left hand corner to get values of the Vy.
6) Reset the experiment and change Vx to 5.00 m/s. Run and Sketch the graphs of Dx and Vx.

Part 2:
1) All calculations must be done prior to running the experiment. You will have only one chance at successful completion, so double check between you and your partner.
2) A type 2 projectile must have a range of 6.5m and be launched on an angle given by the teacher. Calculate the Vx and Vy needed in order to accomplish this task.
3) When done proceed to your teacher and verify that you have done this correctly. 4 marks for success, 3 marks for a shot that rebounds in off the edge. No marks for any other shot.

Discussion:
1) How does increasing the Vx change the graphs of velocity in part 1 in both horizontal and vertical direction?
2) What is the meaning of the slope calculated in step 5, part 1?
3) Name any "real world" application of projectiles, not including sports or cats (which would of course be a sport).

Provide a meaningful conclusion to this lab.