Name:_____ Period ___ Date:_____

**Lab 70-1   Falling Ball using Python.   V2**

**Important:** Some of these steps should be done only once.  Don't do them again when you continue the lab after logging out and logging back in again.

- Firefox > halverscience.net > Physics - Halverson > Python for Physics > falling_ball.py    Save the file.    (Do once.)

- Move the file to Desktop > my_python.  (Use mouse to drag it from the Downloads folder.) (Do once)

- Run Terminal

  cd Desktop       (Do every time after you log in.)

  cd my_python    (Do every time after you log in.)

  python falling_ball.py         (You should get a ball that falls at constant speed)

  cp falling_ball.py falling_ball 2.py  (This makes a copy and now you will modify the copy)(Do once)

  edit falling_ball 2.py     (Do every time after you log in.)

Study the code.

1. How can you control the downward speed of the ball?

2. In falling_ball2.py, give the ball a horizontal velocity component of 2.5 pixels/looptime.  Run it by typing "python fallingball2.py" in the Terminal.   Show the result for credit.    **GET STAMP --->**

3. Alter falling_ball 2.py to give it an initial y velocity component of 0 pixels/looptime and a gravity of 0.5 pixels/looptime$^2$  and show the result.                **GET STAMP --->**

4. Alter falling_ball2.py to make the ball bounce.                 **GET STAMP --->**

5. Change the code so that it will show the path the ball takes.  What is this shape called?

6. Alter falling_ball2.py to make each bounce lose 25% of the energy per bounce.

                                                      **GET STAMP --->**

7. Extra time?  Extra credit?  Alter falling_ball2.py to make the ball bounce back from the right edge of the window, then bounce from the left edge of the window.     **GET STAMP (optional) --->**