Makoa Johnson, Pd. F, Honors Physics, 9/14/08

Projectile Motion Lab:

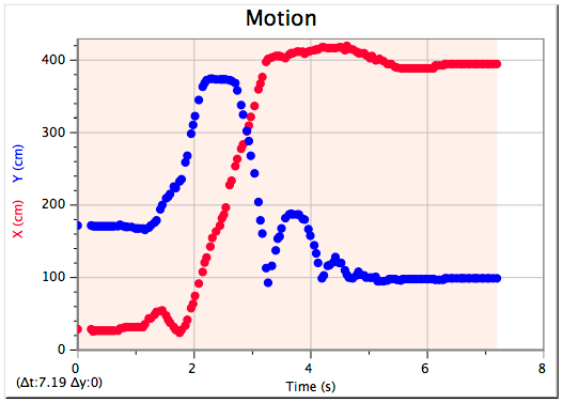
Purpose:
To analyze the motion of a thrown basketball using video and software.

Background:
Projectile motion is defined as motion without self propulsion or friction still under the influence of gravity (formula: Range= Vo^2/g sin (2θ).

Materials:
Laptop with camera
Logger Pro software
Meter stick
Basketball

Procedure:
1. Place the meter stick in a visible location
2. Place laptop facing the meter stick
3. Start video capture in Logger Pro
4. Throw the ball visibly parallel to the computer
5. Stop video and retrieve ball
6. Mark ball location throughout video in logger pro
7. Analyze graph in logger pro
8. Write lab report

Data:



Observations:
The ball bounced nearly vertical the first time and spun back at the thrower at every following contact with the ground.
The top of the ball exited the camera frame at the top of its flight.

Analysis:
The data clearly shows the position vs. time of the ball and shows the increase of velocity on the fall after the ball reached the apex of its flight. The graph also shows the velocity very accurately including the negative velocity when the thrower lifted the ball behind his head...and thus behind the starting position.

Conclusion:
This lab successfully analyzed the motion of a projectile using video and software. To improve the lab you could drop the ball on a more consistent surface than grass...which is what we used. You could also stand further away from the computer to avoid cutting of the top of the balls flight path.