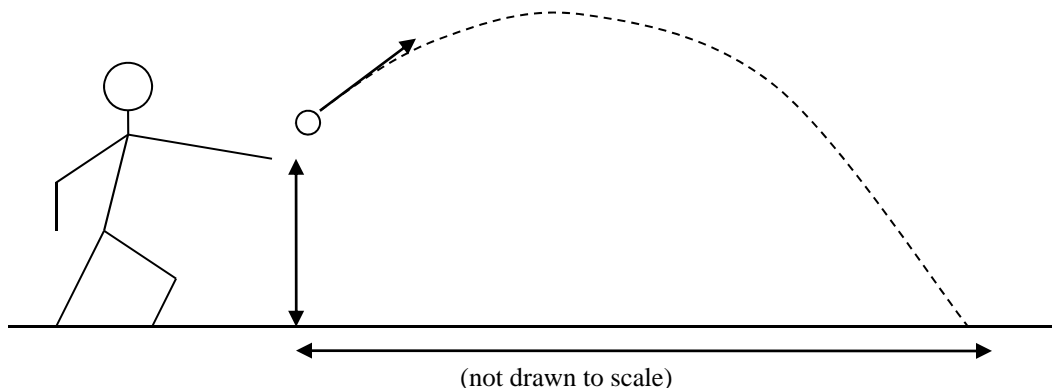


PHYSICS

Lab 2-2: The Projectile Toss

In this experiment, the football field, conveniently marked out in yards, will be used to measure the distance which you and/or other members of your class can throw a baseball. Class members will also time how long the ball is in the air.



From the ball's horizontal landing point, time of flight, and an estimate of the ball's height of release, an initial launch speed and angle of release can be calculated. Because the football field is already marked out in yards (1 yard = 3 feet), calculations will be done in feet for this experiment ($g = 32 \text{ ft/s}^2$)

The report for this assignment need include only:

- A data section containing all of your measurements, including the estimate of release height. Include data for at least 2 different throws (they can be throws by 2 different people or 2 throws by the same person).
- For each of your throws, show
 - i. A neatly labelled, step-by-step set of calculations to determine the initial launch velocity of the ball (magnitude and direction) in ft/s^2
 - ii. A conversion of the launch velocity into the more familiar miles/hr
 - iii. A calculation of the peak height above ground reached by the ball during its flight
- A conclusion briefly discussing the reliability of these results. What important factor has been ignored in these calculations? Does that mean the real initial velocity of the ball is likely to be higher or lower than the one you calculated?

