AP Physics Lab

Lab 3-B: *Range of a Rocket Projectile (2 Dimensions)*

Equipment:

- rocket & air pump launcher
- wooden angle guides
- stopwatch

Purpose:

- Use the time of a rocket launched vertically to calculate its initial velocity.
- Use the initial velocity of a rocket to calculate the maximum range when fired at a given angle.

Procedures:

- Fire the rocket vertically and record its total time of flight.
- Calculate the maximum horizontal distance that the rocket will travel when launched at your assigned angle.
- Set up the rocket launcher at the goal line. Place the flag marker at the expected landing site. If necessary, adjust for wind by directing the rocket right or left.
- Fire the rocket at your assigned angle and observe the results!

Report:

1. Record your assigned angle.

2. Calculate the initial velocity of the rocket.

3. Calculate the total time of flight of the rocket when launched at your assigned angle.

4. Calculate the maximum horizontal range of the rocket when launched at your assigned angle.

5. Draw a diagram showing all important distance and velocity values.