



Concept:

Demonstrates the parabolic path, range and height of a projectile fired at various angles.

Procedure:

1. Launcher and bucket will be pre-set 4 meters apart.
2. Use plunger to place the ball in the launcher at maximum spring tension (Long Range),
3. Pull the launcher string to fire the ball straight up and notice it reaches the maximum height of about 2 meters.
4. Use the finger screws to change the launch angle to 45° and launch the ball into the bucket at the maximum range of about 4 meters.
5. Fire the ball at other angles and notice the ball's range, height and path shape.

Notes and Extras:

- For a more quantitative analysis, derive and calculate before demonstrating. $R_{\theta=45} = 2H_{\theta=90}$ $\frac{H}{R} = \frac{\tan \theta}{4}$

Equipment:

- Projectile Launcher
- Yellow Ball
- Ball Plunger
- Padded Bucket
- Small Bungee Cord
- (2) Stands
- (2) Platforms
- C-Clamp
- 2 Meter Ruler
- Tape
- Tape Measure