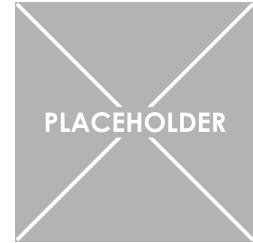


Ballistic Cart

Key words: Projectile, parabola, mechanics, inclined plane



Equipment List:

1. Ballistic cart and ball
2. PASCO track for cart (1.2m - do we have a longer one available?)
3. Books etc for inclined plane (something to elevate one end)
4. (for acceleration in plane?)
5. Masses, string and pulley

How to assemble and operate:

- (Calibrate/aim, need to test first)
- (Check if photogate activated for firing, or string instead)
- Start the cart at one end, and release the spring to impart a constant velocity
- To accelerate instead, use the masses (~50g) and pulley to accelerate the cart - be careful to catch the cart manually
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- Place some books under the starting end of the track to show acceleration on an inclined plane - be careful to catch the cart manually

Description/Theory:

This demonstration illustrates projectile motion from a moving cart. Three kinds of projectile motion can be shown. The cart will be able to catch the ball when moving at a constant velocity on a flat surface and when accelerating down an inclined plane, but will not catch the ball when accelerating on a flat surface. These results can easily be derived from the equations of motion.

Comments/Notes:

Make sure to catch the cart before the end of the track, especially when using accelerations.