

Lesson Plan

<i>Date:</i> Oct. 17, 2012	<i>Teacher:</i> D. Schnell
<i>Subject:</i> Physics	<i>Unit:</i> A – Kinematics/ Projectile Motion
<i>Goal:</i> solve, quantitatively, projectile motion problems near Earth’s surface, ignoring air resistance	<i>Grade:</i> 11
<i>Materials:</i> Steel ball, rail, measuring tape/meter stick, excel spreadsheet or calculators, computer/projector	
<i>Objective:</i> Students will learn to rearrange the kinematics formulae in order to solve for the needed variables. They will perform a simple experiment in order to get realistic numbers to enter into the formulae via spreadsheet. The formulae will be used to analyze the found data to find missing information.	
<i>Background Information:</i> Students should know Earth’s gravity, and algebra.	

Introduction:

Show Buffalo video.

Briefly explain the GLO and SLO for this lesson. *Explain* we will be doing a lesson to test mathematical formulas that model simple projectile motion. *Explain* we want to find out the ball’s velocity right as it leaves the rail. (“Initial” Velocity in X direction).

- Explain x = horizontal motion, y = vertical motion
- Ask who knows gravity on earth, and if there’s any horizontal acceleration
- Ask for two volunteers to rearrange formulae

Setup:

Get in groups of 4

Discuss which variables change, and which are constant. Measure height. Prepare to measure distance.

We first need to find the time it took to fall.

Then the initial x -velocity.

Activities

- Place ball on rail, fling it across. Record where it landed, and take measurement. Record measurement in Excel sheet.
- Repeat, allowing all students a turn if they wish.
- Rearrange formula to give the proper time fallen and initial x -velocity

Closure: Why and where is this useful?

Evaluation – How will you know the children have attained the objective(s) set for this lesson?

They will successfully rearrange formulae, use them to analyze data.

Follow Up – What will the students do next?

Be able to work similar problems with projectiles launched at an angle.

Art of Teaching – What specific area(s) of teaching will you be working on during this lesson and how will you know if you have succeeded?

Demonstrating, practice, question & answer. Students will be engaged and will grasp the concepts.