# Experiment 4: In the Dish

- **Learning Goals**

  After you finish this lab, you will be able to:

  1. Predict the outcome of an experiment using energy conservation and two-dimensional kinematics with constant acceleration.

  2. Revise your predictions if needed based on the outcome.

- **Introduction: Please read all of this BEFORE you come to lab.**

  In this experiment you'll have the ramp that you had previously used for the Gauss Gun labs, only this time there will be no Gauss Gun. Instead, you will simply take one of the steel balls, hold it up against the plastic clip at the top of the ramp, and let it roll. The ball will roll off the end of the ramp and land on the floor.

  Your goal is to predict where the ball will land and place a small Petri dish on the floor where you expect the ball to land. You will get three attempts to do this: **each attempt must be witnessed in person by your TF**. Needless to say, you are not allowed to practice rolling the ball before your actual attempt. You can make any measurement and do any calculations you want before you attempt to get the ball to land in the dish. **If your measurements and calculations are all correct, the ball WILL land in the dish.**
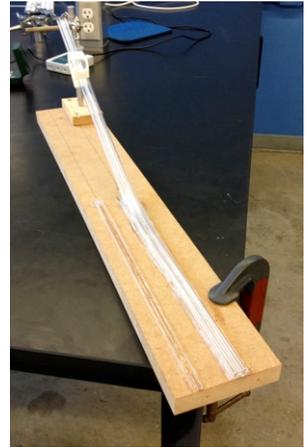
Who are you? Take a picture of your lab group with Photo Both and paste it below along with your names.

- **Materials:**

  You'll have the ramp, a steel ball, a level, several rulers and meter sticks, a plumb bob to measure a straight vertical line, and some paper that you can tape to the floor and mark with your prediction of where the ball will land.

  You must make sure that the end of the ramp is EXACTLY level using the level.

Describe in detail your measurements and calculations. Some of the relevant measurements are shown on the diagram.
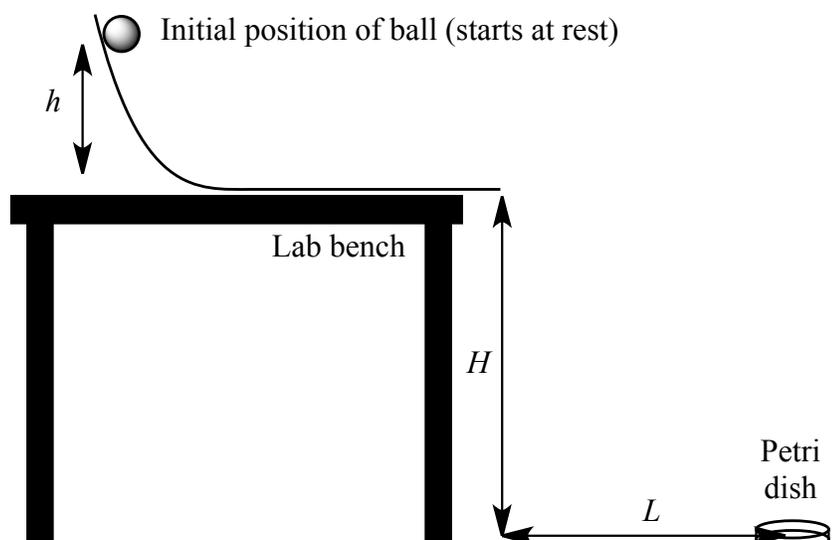
What is the most important thing you learned in lab today?

What aspect of the lab was the most confusing to you today?

Initial position of ball (starts at rest)

h

Lab bench

H

L

Petri dish