Objectives

* Create and solve for the horizontal distance a projectile will travel given the height of the canon, angle launched, and the initial velocity
* Create your own unique problem by choosing a set of initial conditions to solve for an unknown variable of your choice.
* Create procedures for solving for different unknown variables.

Set air resistance to zero on the simulation

Part 1 (solving for horizontal distance given initial conditions of height, Vo, and the angle launched)

1. First create a problem by setting Vo, the launch angle, and the height of the canon to certain values. Test to make sure that the values do not send the object off the screen.
2. Once you have your problem, write a procedure that will allow you to solve for the horizontal distance. *(tip- first solve for the time in flight using one of the kinematic equations. Be very careful with signs)*
3. Solve your problem.
4. Switch you problem with a neighbor (do not show them the answer) and then calculate the horizontal distance that theirs traveled.
5. Test your calculation with the simulation to check for correctness.

Part 2 (Solve for an unknown variable of your choice)

1. Play with the simulation to discover what type of variables can be solved for given certain initial conditions. Choose a variable to solve for other than horizontal distance.
2. Set up a problem with the minimum number of initial conditions needed to solve for your unknown variable.
3. Write down the procedure you need to use to solve your problem.
4. Solve your own problem.
5. Switch with a neighbor group and solve their problem. (If needed, you can ask the group for hints with their procedure)

Part 3 (Writing out procedures)

1. Choose a group who solved for a different variable then your group for Part 2.
2. Write down the procedure, or steps, used to solve. You do not need to solve, only write down the procedure.
3. Repeat these steps with two other groups so you have a total of three procedures. Make sure you clearly label what your initial conditions are and what you are trying to solve for.