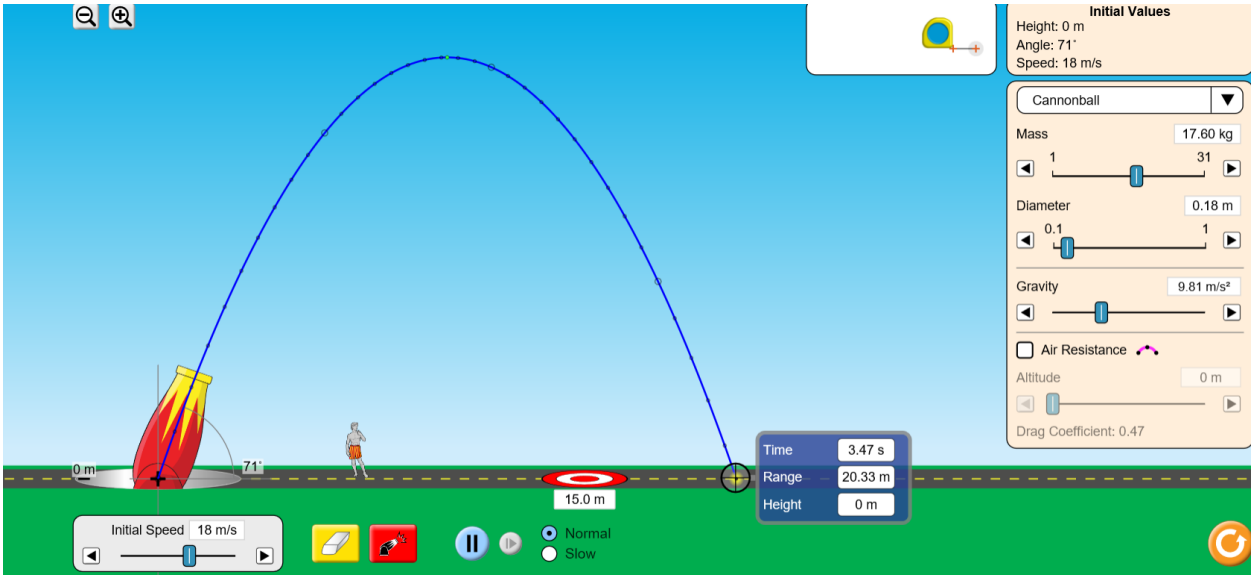
Name:_____

Date:_____

PHET Projectile Motion Simulation:



Today we will look at the relationship that launch angle plays with projectile motion.

In this experiment, we will change the angle of a cannon and see how it affects the distance a cannonball will travel.

<u>Procedure</u>

1. Open the link to the simulation posted in Edmodo. Click the “Play” button and then click on “Lab”.
2. Use the data table to determine what angle the cannon should be placed.
3. After you fire the cannon ball, use the blue data box to measure the distance the canon ball flew.
    a. Do this by lining the circle the left of the blue box up with the spot the cannonball landed.
    b. Range = distance traveled
4. Record the distance the canon ball travels on the data table. Round to the nearest tenth place (ex .1)
5. Select a different projectile from the dropdown box on the right and repeat the above process.

<u>Data Table:</u>

Firing Angle	Distance in Meters (Cannonball)	Distance in Meters (other projectile of choice)
25°		
30°		
45°		
60°		
75°		
90°		

1. What angle gave the most distance for the
    a. Cannonball? _____
    b. Other object? (Identify your projectile) _____
2. Which angle gave the least distance?
    a. Cannonball? _____
    b. Other projectile? _____
3. Write a complete sentence and explain how the launch angle impacts projectile distance.
    _____
    _____

Click the eraser button.

Set your launch angle to 75°.

The default velocity for your prior simulation was 18 m/s. Change the velocity as directed and complete the chart.

Velocity	Distance in Meters (Cannonball)	Distance in Meters (other projectile of choice)
18 m/s		
10 m/s		
15 m/s		
20 m/s		
25 m/s		

4. Explain the role that velocity has with projectile motion.
    _____
    _____

Reset the velocity to 18 m/s and change the canon base height from 0m to 5 m.

5. Explain what happens when you change the height from which you launch a projectile?
    _____
    _____

Analysis: Write at least 3 sentences explaining in detail what factors affect the distance a projectile travels and how.

_____
_____
_____
_____
_____
_____