

Name _____ PHET Projectile-motion Lab

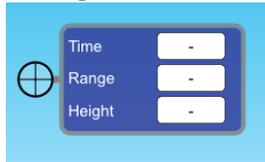
https://phet.colorado.edu/sims/html/projectile-motion/latest/projectile-motion_en.html

PART 1

Click on "Intro"

The cannon height is set at 10m and the angle of the cannon is 0 degrees. The default projectile is a pumpkin but you may change it to any of the other objects in the dropdown menu on the upper right corner of the screen.

Without changing the angle of the cannon, determine the distance for each speed for the



projectile. Use the tool to determine the distance travelled.

When the cross-hairs are on the projectile it will give you a range in meters. That is the number to record on the table. Repeat the procedure after moving the cannon down to 5 meters.

	10m high	5m high
Speed (m/s)	Distance (m)	Distance (m)
0		
5		
10		
15		
20		
25		
30		

*for 25 or 30 m/s you may need to zoom out using the  tool in the upper left of the simulation screen.

Answer these questions.

1. What effect did increasing speed have on the distance the projectile travelled?
2. What effect did the cannon height have on the distance the projectile travelled?
3. Does the distance travelled change by about the same amount each time or by very different amounts each time?
4. If the speed could be changed to 35 m/s, what distance would the projectile would have gone?
5. What effect (if any) did the height of the cannon have on the distance travelled at each speed? Explain.

PART 2

Set height of cannon to 0 m

Set speed to 15m/s. The cannon angle can be changed by clicking and dragging on the end of the cannon. Measure the distance for each angle listed below.

Angle	Distance (m)	Angle	Distance (m)
25	_____	50	_____
30	_____	55	_____
35	_____	60	_____
40	_____	65	_____
45	_____		

Answer these questions

1. What happened to the distance of the projectile as the angle increased from 25-45 degrees?

2. What happened to the distance of the projectile as the angle increased from 45-65 degrees?

3. What angle achieved the maximum distance?