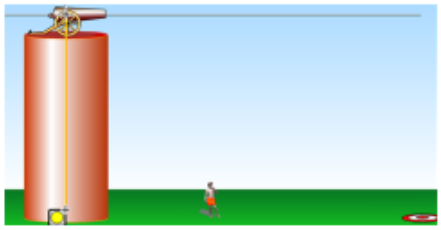
Projectile Investigation using the PhET Simulations

Set up the cannon as in each picture below. Experiment to answer the posed question.

If you increase the horizontal velocity of the cannon ball will it take a longer time to strike the ground?

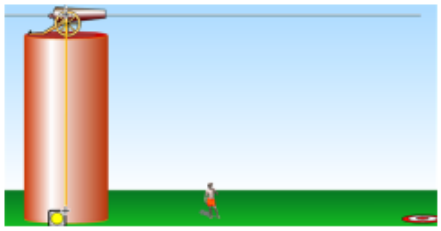


Set the height to 12m and make sure the angle of fire is zero degrees.
Set initial velocity to the values shown in the table

Horizontal Velocity	Time to strike ground
5m/s	
10m/s	
15m/s	

Conclusion

If you increases the mass of the cannon ball will its range will decrease?

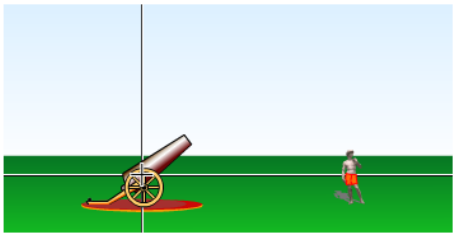


Keep the height to 12m and make sure angle of fire is zero degrees.
Set initial velocity to 20m/s and change the mass of the cannon ball as shown in the table.

Mass kg	Range m
2	
4	
8	

Conclusion

What effect will increasing the angle of launch have on the height and range of the cannon ball?



Set initial velocity to 20m/s and change the angle of launch from 20 degrees to 60 degrees.
Keep the mass constant.

Launch angle	Range| (m)	Max height (m)
20		
30		
40		
50		
60		

Conclusion