Aim:

To compare how high different balls will travel.

Independent variables:

the type of ball

Dependent variables:

distance travelled (time)

Controlled variables:

the force applied and the acceleration

Hypothesis:

The heavier and smaller the ball the further it will travel

Equipment:

Stopwatch, golf ball, ping pong ball, tennis ball, bouncy ball, basketball, ruler

Risks and management

What's the risks in doing this investigation?	Management:
The ball might hit someone	Staying far enough from each group and being careful when throwing it
Losing the ball or damaging a building	Throwing the ball in a clear area, away from building
Hurting yourself when throwing and catching	Stretching before throwing and throw carefully. Instead of catching let it hit the ground

Method:

Throw balls as high as we can and see how long it takes to reach initial position

Results:

Later

Analysis of results:

The calculated height is in our table of results, additionally there were many uncertainties in our experiment with calculation of time and weight.

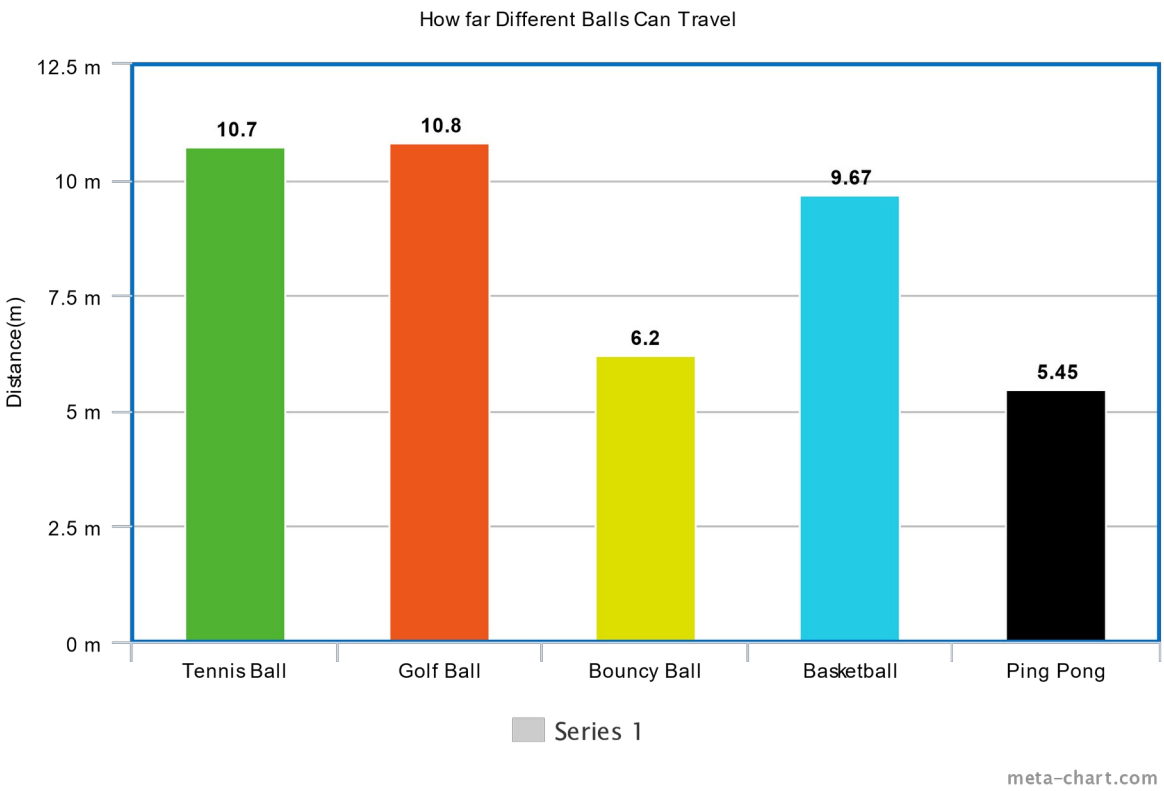
Discussion:

The denser the type of ball was, the further it travelled. As we can see with the quite large difference between the ping pong ball and golf ball even though they were the same size. None of the balls reached the same height. However, the tennis and the golf ball were 0.1 metre off each other. This is due to being less drag on the ball allowing it to go further. Initially it was quite hard to throw the ball vertically up due to heavy wind. Also, it was difficult to throw each ball with the same force and we combatted that with throwing the ball as hard as we could each time. Another difficulty was the constrained space we had, this gave us less space to work with and brought up safety issues. Instead, we should either go to a closed off large space that will combat wind or go to a large area when it isn't windy. This helps dramatically. Additionally, we should most likely use machinery to record time and throw the balls with equal force. This will result in more accurate timing and more precise results.

Conclusion:

The Golf ball travelled the furthest with the tennis ball second, followed by the basketball, then bouncy ball next and last was the ping pong. This proved our hypothesis and satisfied our aim. The implications of these results can help us determine the type of ball we should use for different scenarios. EG, a golf ball is very dense due to it needing to travel far and high, however, a ping pong ball is softer due to it not having to travel far.

Results	Trials	Mass	Distance
Golf	1. 2.88	45.8 g	10.8 m
	2. 3.07		
	3. 2.97		
	Average/2: 1.485		
Ping Pong	1. 2.09	2.3 g	5.45 m
	2. 2.25		
	3. 2.00		
	Average/2: 1.055		
Tennis	1. 2.97	53.9 g	10.7 m
	2. 2.94		
	3. 2.94		
	Average/2: 1.475		
Basket ball	1. 2.75	625 g	9.67 m
	2. 2.64		
	3. 3.00		
	Average/2: 1.405		
Bouncy ball	1. 2.32	90 g	6.2 m
	2. 2.18		
	3. 2.25		
	Average/2: 1.125		


How far Different Balls Can Travel
12.5 m
10 m
7.5 m
5 m
2.5 m
0 m
Distance(m)
10.7
10.8
6.2
9.67
5.45
Tennis Ball
Golf Ball
Bouncy Ball
Basketball
Ping Pong
Series 1
meta-chart.com