Name: _____

Date: _____

Period: _____

Lab - Momentum During Collisions

Procedure:

1. Gather Materials: golf ball, practice golf ball, 5 lengths of track, stopwatch, meter stick, tape, triple beam balance
2. Set up track with one end lifted 20cm.
3. Measure 50cm from end of track & mark with tape.
4. Place Practice golf ball at far end of track.
5. Roll golf ball down track & allow it to collide with Practice Golf Ball
6. Start timer when balls collide
7. Stop & record time when Practice Golf Ball reached 50cm.
8. Repeat 4 times
9. Repeat procedure, but after collision measure time it takes golf ball to travel 50cm
10. Repeat procedure but roll Practice golf ball down ramp and place real golf ball at ramp end.

Data:

Collision	Rolling Ball	Measured Ball	Distance traveled	Time to Travel 50 cm				Average Time (sec)
				Trial 1	Trial 2	Trial 3	Trial 4	
1	Golf	Practice Golf	0.5m					
2	Golf	Golf						
3	Practice Golf	Golf						
4	Practice Golf	Practice Golf						

Data Analysis:

Collision	Measured Ball	Distance Traveled (m)	Average Time (sec) From Above	Average Velocity (m/s)	Mass of Measured Ball (g)	Average Momentum after Collision (gm/s)
1	Practice Golf	0.5m				
2	Golf					
3	Golf					
4	Practice Golf					

30cm ramp height:

Collision	Rolling Ball	Measured Ball	Distance traveled	Time to Travel 50 cm				Average Time (sec)
				Trial 1	Trial 2	Trial 3	Trial 4	
1	Golf	Practice Golf	0.5m					
2	Golf	Golf						
3	Practice Golf	Golf						
4	Practice Golf	Practice Golf						

Data Analysis:

Collision	Measured Ball	Distance Traveled (m)	Average Time (sec) From Above	Average Velocity (m/s)	Mass of Measured Ball (g)	Average Momentum after Collision (gm/s)
1	Practice Golf	0.5m				
2	Golf					
3	Golf					
4	Practice Golf					

40 cm Ramp height

Collision	Rolling Ball	Measured Ball	Distance traveled	Time to Travel 50 cm				Average Time (sec)
				Trial 1	Trial 2	Trial 3	Trial 4	
1	Golf	Practice Golf	0.5m					
2	Golf	Golf						
3	Practice Golf	Golf						
4	Practice Golf	Practice Golf						

Data Analysis:

Collision	Measured Ball	Distance Traveled (m)	Average Time (sec) From Above	Average Velocity (m/s)	Mass of Measured Ball (g)	Average Momentum after Collision (gm/s)
1	Practice Golf	0.5m				
2	Golf					
3	Golf					
4	Practice Golf					

Name: _____

Date: _____

Period: _____

Lab - Momentum During Collisions

Part 2

Rolling Ball	Ramp Height	Momentum Before Collision A		Momentum After Collision			Difference in Momentum Before & After Collisions A - D
				Golf Ball B	Practice Golf Ball C	Total B + C	
Golf Ball	20 cm						
	30cm						
	40cm						
Practice Golf Ball	20cm						
	30cm						
	40cm						

Create a Quadruple Bar Graph showing columns A, B, C, & D for each ball and ramp height. Don't forget to use your graphing rules. It may also be easier to turn your lab notebook 90^{o}.