Domino Derby Lab   Name: _____ Hour _____

Introduction:

Speed is the rate at which an object moves. In this activity, you will relate the falling dominoes to a pulse wave. The distance between dominoes will represent the wave length.

Procedure

1. Count your dominos to make sure you have 25.

2. Trial 1: Set up **25 dominoes** in a straight line. Put the first domino at 0 cm and the 25th domino at approximately 40 cm. Then fill in the gap with the remaining dominos trying to keep equal spacing between the dominoes.

3. Using a stopwatch, time how long it takes for the entire row of dominoes to fall in seconds. The person who pushes down the first domino should also be the timer so that the time starts exactly at the moment the domino is pushed. The stopwatch must then be stopped exactly when the last domino falls. Record this measurement below.

4. Calculate the average speed of this trial. If the average speed is less than 30 cm/s or greater than 75 cm/s, then you must repeat this trial because you have made an error in timing.

5. Repeat steps 2 - 4 three more times using approximately 60 cm for Trial 2, approximately 80 cm for Trial 3 and 100 cm for Trial 4. Record your measurements in the "Length of Row" and "Time to Fall" columns of the table below. Again, if your average speed in any of your trials is less than 30 cm/s or greater than 75 cm/s, you must repeat this trial because you have made an error in timing.

Data Table 40 cm			
Trial #	Length of Row (cm)	Time to Fall (s)	Average Speed (cm/s)
1			
2			
3			
Average Total Speed			

Data Table 60 cm			
Trial #	Length of Row (cm)	Time to Fall (s)	Average Speed (cm/s)
1			
2			
3			
Average Total Speed			

Data Table 80 cm			
Trial #	Length of Row (cm)	Time to Fall (s)	Average Speed (cm/s)
1			
2			
3			
Average Total Speed			

Data Table 100 cm			
Trial #	Length of Row (cm)	Time to Fall (s)	Average Speed (cm/s)
1			
2			
3			
Average Total Speed			

Graphing:

Graph the average total speed data from the four Tables above. Make sure to follow all the graphing rules we've discussed and practiced.
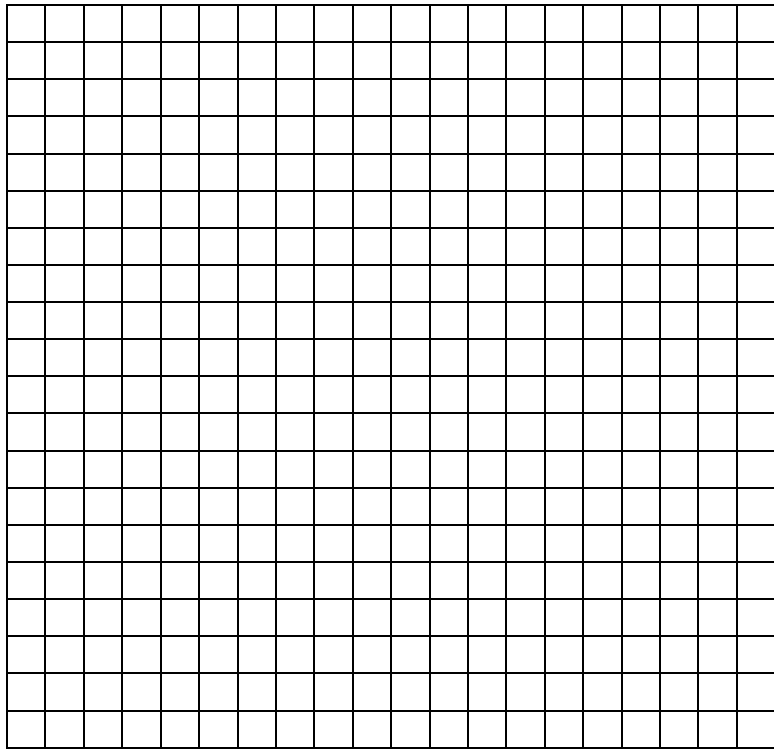
Analysis

1. What is the relationship between length of the domino line and the time it took to fall?

2. What does the slope of the line on your graph represent? _____

3. By looking at the slope of your line, was the speed constant or variable? _____

4. Predict what you think would happen to the time if the distance between the dominoes increased?

5. Should the spacing of your dominos have affected the average speed? _____

6. Looking at the data in your table, why are your average speeds not exactly the same?