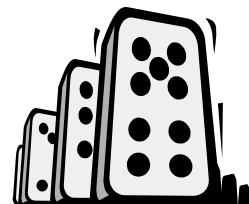Name_____

Domino Dash

Problem: To demonstrate the relationship between speed, time and distance.

Background Information:
<u>Average Speed</u> is the rate of motion calculated by dividing the distance traveled by the amount of time it takes to travel that distance

$$\text{average speed} = \frac{\text{total distance traveled}}{\text{travel time}}$$

If you let *s* stand for the average speed, *d* stand for distance, and *t* stand for time, you can write this equation as follows.

$$s = \frac{d}{t}$$

Because average speed is calculated by dividing distance by time, its units always will be a distance unit divided by a time unit.

Materials:

1 box of 28 dominoes	Stopwatch	Meter stick
Calculator		

Procedure:
1. Set up all 28 dominoes with equal spacing between them. Set the dominoes in a straight line to cause a chain reaction when the first domino is pushed.
2. Measure the length of the domino row. Record this data in the table.
3. Use the stopwatch to measure the time it takes for the entire row of dominoes to fall after the first domino is pushed. Record the data.
4. Calculate the speed at which the dominoes fell. Record.

$$\text{average speed} = \frac{\text{total distance traveled}}{\text{travel time}}$$

5. Set up another row of a different length. Repeat steps 3 – 4.
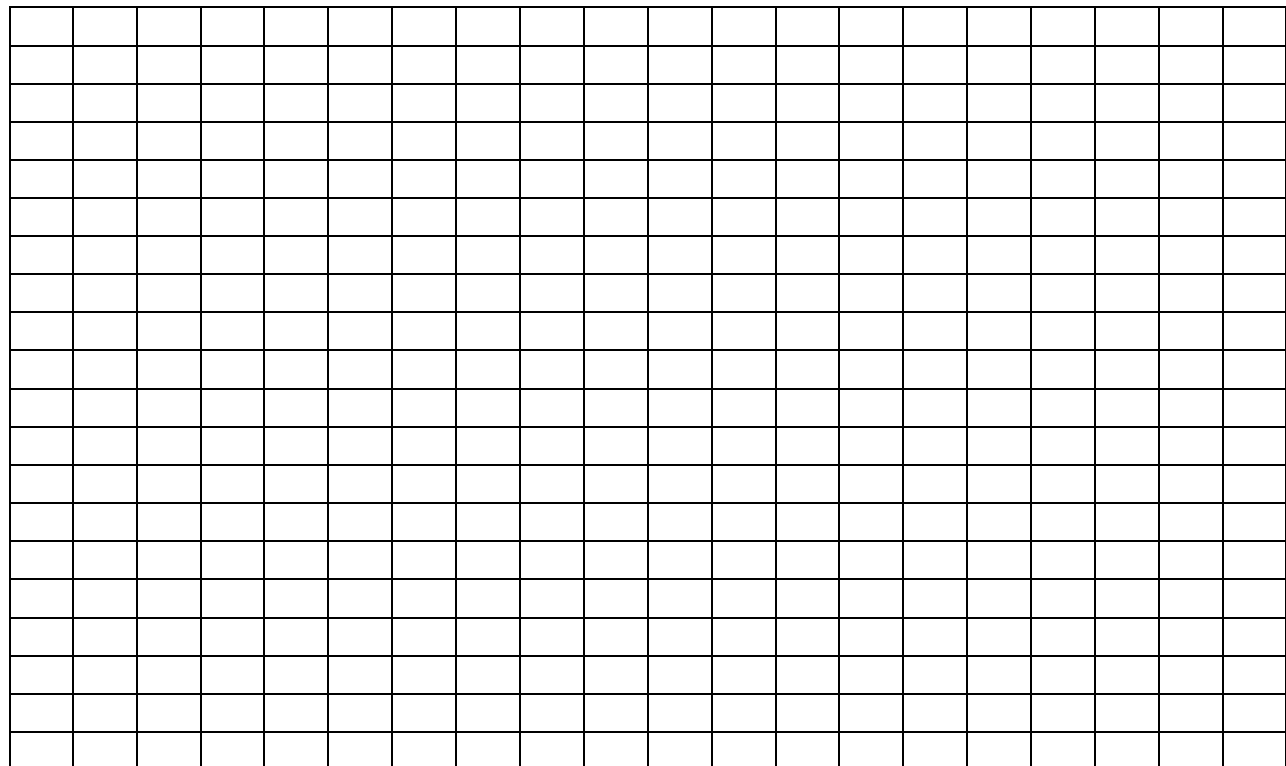6. Repeat for a total of 7 different trials.

Data:

Speed of Falling Dominoes		
Length of domino row (cm)	**Time to fall (sec)**	**Average speed of falling dominoes (cm/sec)**

Data Analysis:

Make a line graph to show the relationship between the length of the domino row and the time it takes to fall. Put the length of the row on the X-axis and the time to fall on the Y-axis.

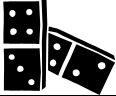Title _____

How did we decide what to put on each axis?

_____

_____

Data Analysis:

What relationship do we see between the variables? In other words, how does the independent variable affect the dependent variable?

_____

_____

_____

_____

Conclusions:

1. What effect does distance have on the speed of a moving object?

   _____

   _____

2. What effect does time have on the speed of a moving object?

   _____

   _____

3. Use your textbook to fill in the graphic organizer:

	Average Speed	*Constant Speed*	*Instantaneous Speed*
Description			
When used			
How alike			
How different			

4. Which definition of speed (average speed, constant speed, instantaneous speed) did we use in this investigation? Why?

_____

_____

_____

_____

_____

_____

_____

_____

5. What was the independent variable in this experiment?

_____

6. What was the dependent variable in this experiment?

_____

7. What are some controlled variables (constants) in this experiment?

_____

_____

8. Why did we use a line graph to display the data?

_____

_____

_____