* + 1. Explain the relationships between independent and dependent variables in a controlled scientific investigation through the use of appropriate graphs, tables, and charts.

8-5.1 Use measurement and time-distance graphs to represent the motion of an object in terms of its position, direction, or speed.

1. The universe is filled with things in motion. Give examples of motion and their speed.
2. Measurement of speed: Detecting motion with a motion sensor.

Plotting Motion graphs Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Write down your walking/jogging speed. \_\_\_\_\_\_\_\_\_\_\_\_\_

2. Complete the table for the distance walked/jogged below.
(Time🡪independent variable, Distance🡪dependent variable)

|  |  |
| --- | --- |
| Time (Hour) | Distance (Mile) |
| 0 |  |
| ¼ (= 0.25) |  |
| ½ (= 0.5) |  |
| ¾ (= 0.75) |  |
| 1.0 |  |
| 1.25 |  |
| 1.5 |  |

3. Plot Distance Versus Time, graph below.

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4. Find the slope of the Distance Versus Time graph. Show all of your work, include units.

5. What is represented by the slope of Distance Versus Time graph?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Make the above graph using Excel.

Interpretation of motion graphs Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Motion graphs of three objects (A, B, and C) are shown below.



1. Name the above graph.
2. Rank the speeds of the objects in increasing order.
3. Determine the speed of object B.

**8-5.2 Use the formula for average speed, *v=d/t,* to solve real world problems.**

**Taxonomy level:** 3.2-B Apply Conceptual Knowledge

1.    Use of Google map to obtain distance and time data for trips, and calculate the average speed.

2.    Use of meter stick and watch to calculating the average speed for walking, running, and jogging.

3.    Use of odometer reading and time interval to calculate average speed for a car ride.