

## Worksheet

**Intitution** : SMA

**Subject** : Physics

**Topic** : Uniform Linear Motion

**Class / Semester** : XI / 1

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**Group** : .....

**Members** : 1) ..... 4) .....

2) ..... 5) .....

3) ..... 6) .....

**A.** Title

Uniform Linear Motion

**B.** Objective

1. Through discussion, students will be able to describe the concept of Uniform Linear Motion.
2. Through discussion, students will be able to formulate the mathematical equations of Uniform Linear Motion.

**C.** Concepts

Concept of uniform rectilinear motion and mathematical equations of Uniform Linear Motion

**D.** Tools and materials

1. Stopwatch
2. Meter
3. Sticky notes

**E.** Activity steps

1. Prepare the tools to be used.
2. Place points A, B, and C on the floor with a distance of 2 meters between each point as shown in the diagram below!



3. Walk from point A to point B at a relaxed pace, count and record the time when reaching point B.
4. Continue walking from point B to point C at a relaxed pace, count and record the time when reaching point C.
5. Turn and walk from point C to point B at a relaxed pace, count and record the time when reaching point B.
6. Continue walking from point B to point A at a relaxed pace, count and record the time when reaching point A.

7. Repeat steps 3 to 4, slightly slowing down the movement from before.

#### F. Analysis

Activity	Distance (m)	Time (s)
A-B	2	
B-C	4	
C-B	6	
B-A	8	

The data in the table is converted into a graph form of the relationship between distance and time at constant speed, resulting in a graph.



Then the analysis of the graph shows that the graph has a shape and direction ... (linear upward/parabolic upward). The graph has a relationship ... (directly proportional/inversely proportional) between distance and time. So the equation becomes

$$v = \frac{\dots}{\dots}$$

With Explanation:

$$\dots = \dots$$

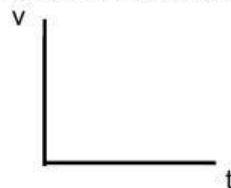
$$\dots = \dots$$

$$\dots = \dots$$

Thus, it is obtained that

Activity	Distance (m)	Time (s)	Velocity
A-B	2		
B-C	4		
C-B	6		
B-A	8		

The data in the table is converted into a graph form of the relationship between velocity and time at a certain distance, resulting in a graph.



Thus, the equation for Uniform Linear Motion becomes

$$s = \dots, \dots$$

With Explanation:

$$\dots = \dots$$

$$\dots = \dots$$

$$\dots = \dots$$

If the initial position of the object is known  $x_0$ , then the distance of the object can be determined by the equation

$$s = \dots + \dots, \dots$$

#### G. Conclusion

1. Explain in your own words the concept of uniform linear motion:

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2. The mathematical equation of uniform rectilinear motion is:

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