



## Grade 7 - Quarter 3\_Week 1-2

Name: \_\_\_\_\_ Grade & Section: \_\_\_\_\_  
Teacher: \_\_\_\_\_ Score: \_\_\_\_\_

### Activity Sheet No. 15: Describing Motion



#### START UP

At the end of this worksheet, the learners will be able to:

1. Describe the motion of an object in terms of distance or displacement, speed or velocity, and acceleration.
2. Differentiate quantities in terms of magnitude and direction
3. Create and show precise interpretation of visual representation of the motion of objects.

Many things around us move. Some move slowly like the turtles and clouds, others move quickly like satellites. Because motion is so common, it seems to be very simple. But in Science, describing motion entails careful use of some definitions.

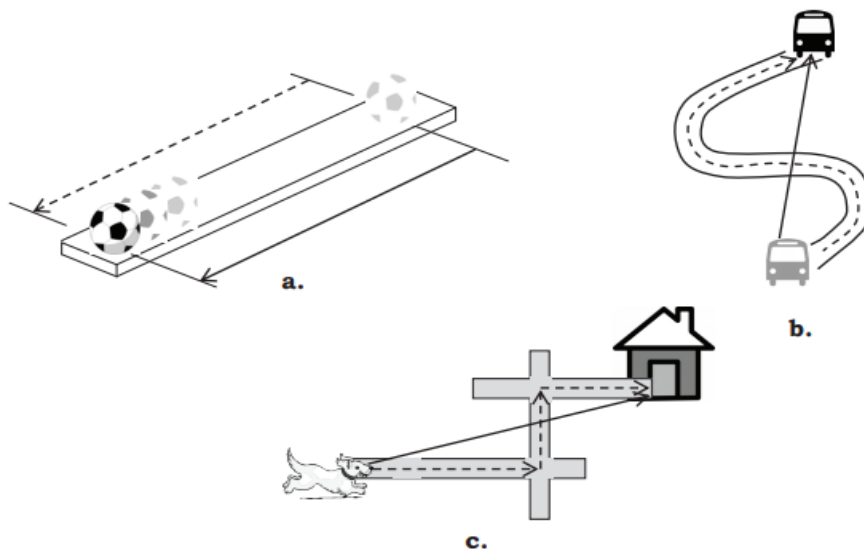


#### CAPTURE

- **Motion**- is defined as the change in position over an interval of time.
- **Point of reference**-exact position of an object:
  - Describing how far the object is from the point of reference
  - Describing the direction relative to the point of the reference
- **Distance**-refers to the length of the entire path that the object travelled
- **Displacement**- refers to the shortest distance between the object's two positions.

distance travelled (represented by broken lines)

displacement (represented by continuous lines)





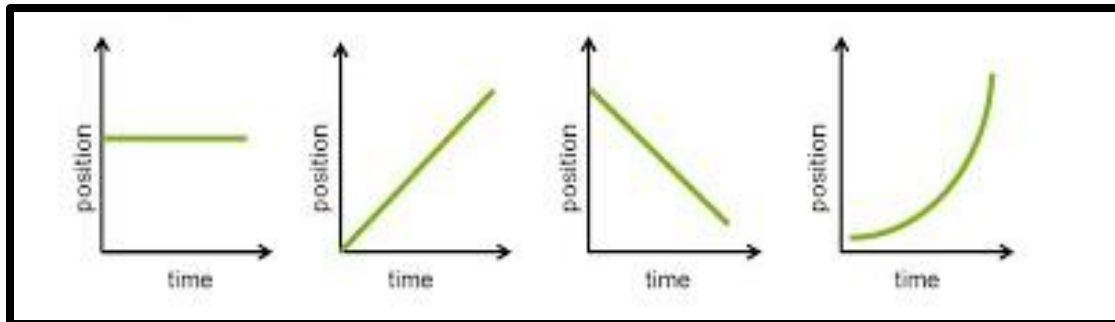
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- **Speed**-refers to the rate of change in distance
  - $\text{Speed} = \frac{\text{distance travelled}}{\text{time of travel}}$  or  $S = \frac{d}{t}$
  - Unit of Speed: miles per hour (mi/h)
    - : kilometers per hour (km/h)
    - : meters per second (m/s)
- **Velocity**- speed with direction
- **Instantaneous speed**- speed at a particular time
- **Speedometer**- is a device used to measure the instantaneous speed of a vehicle
- **Acceleration**- is the change in speed or direction for a period of time

### Position-Time Graph



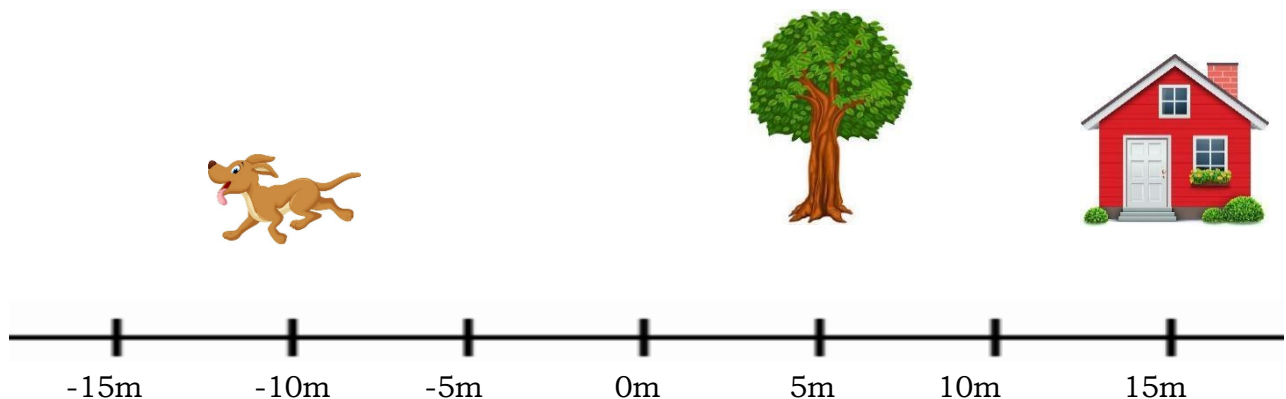
Slope is Zero Velocity is Zero (object at rest)	Slope is positive Velocity is constant, positive	Slope is negative Velocity is constant, negative	Slope is curve Velocity is not constant (object is accelerating)
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<https://sites.google.com/a/vistausd.org/physicsgraphicalanalysis/displacement-position-vs-time-graph>



## INTEGRATE

- I. Consider the diagram in Figure 1. The position of the objects is described in the diagram by their coordinates along the number line.



**Figure 1. Coordinates of different objects along the number**

- Q1. What is the position of the dog? \_\_\_\_\_
- Q2. What is the position of the tree? \_\_\_\_\_
- Q3. What is the position of the dog with respect to the house? \_\_\_\_\_
- Q4. What is the position of the tree with respect to the dog? \_\_\_\_\_
- Q5. What is the distance of the tree from the house? \_\_\_\_\_





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5. When is an object considered to be in motion?

- |   |
|---|
| I. When its position changes with respect to a point of reference.    |
| II. When its distance changes with respect to a point of reference.   |
| III. When its direction changes with respect to a point of reference. |

- A. I and II only  
B. I and III only  
C. II and III only  
D. I, II, and III

6. The velocity of the car per unit time is shown in the table.

Time (hr.)	0	1	2	3	4	5
Velocity (km/h)	0	20	20	60	80	0

Which of the following statements is TRUE?

- A. The car is decelerating between 4-5 hours  
B. The car is accelerating between 1-2 hours  
C. The car returns to its original position after 5 hrs.  
D. The acceleration of the car from 2-3 hours and from 3-4 hours are the same.

7. In Which of the following situations is the object accelerating?

- |  |
|--|
| I. A truck changing direction                  |
| II. A car speeding up in a highway             |
| III. A moving motorcycle comes to stop         |
| IV. A rolling ball moving with a uniform speed |

- A. I and II  
B. I, II, and III  
C. I, II, and IV  
D. I, III, and IV

8. A toy when whirled has a uniform speed and moved in a circular path. Which of the following assumption/s is/are TRUE?

- |                                   |
|-----------------------------------|
| I. The toy has a uniform velocity |
| II. The toy is accelerating       |

- A. I  
B. II  
C. both I and II  
D. neither I and II

9. If you were traveling in your car at 75 mph to the west, you could describe your..

- A. Mass  
B. Time  
C. Distance  
D. Velocity

10. Which of the following statements is TRUE?

- |  |
|--|
| I. The distance travelled by an object can be equal to its displacement  |
| II. The displacement of a moving object can be greater than its distance |

- A. I  
B. II  
C. I and II  
D. None of the above



**15B- Performance Task No. 1**

Direction: Draw the position of your house from the school. Use a broken line (----) to represent *Distance* and continuous line (\_\_\_) that will represent *Displacement*. Please refer to the rubrics below for the basis of scoring.

Criteria	4	3	2	1
1. Content	Shows better understanding of distance and displacement	Shows good understanding of distance and displacement	Shows fair understanding of distance and displacement	Shows poor understanding of distance and displacement
2. Clarity	Illustration is easy to understand	Illustration makes-sense	Illustration is somehow makes-sense	Illustration is hardly makes-sense
3. Creativity	Show expressiveness of imagination	Shows fair expressiveness of imagination	Shows little expressiveness of imagination	Shows poor expressiveness of imagination

Highest Possible Score: 12

Lowest Possible Score: 3



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Understanding Science in Our Times pages 61-75  
Final-K-to-12-MESS-with-CG-Codes page 385