8

DepED
DEPARTMENT OF EDUCATION

Learning Activity Sheet for Science

Quarter 4

Lesson

2

Learning Activity Sheet for Science Grade 8
Quarter 4: Lesson 2 of 8 (Week 2)
SY 2025-2026

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LEARNING ACTIVITY SHEET

Learning Area:	Science	**Quarter:**	4th Quarter
Lesson No.:	2	**Date:**	
Lesson Title/ Topic:	**Distance-Time Graph and Velocity Time Graph**		
Name:		**Grade & Section:**	

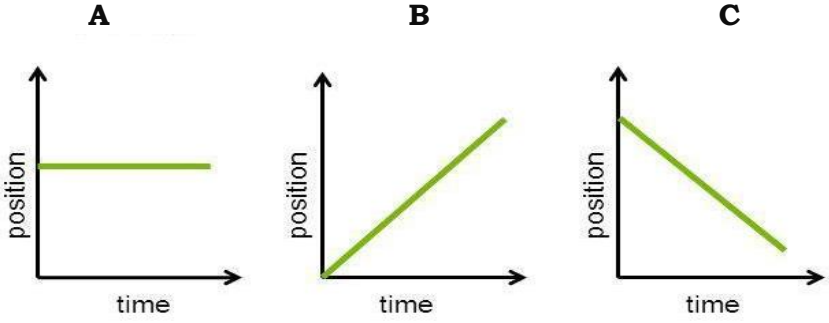
I. Activity No. 2.1: Deal or No Deal (5 minutes)

II. Objective(s): At the end of the activity, you should be able to recall previous knowledge on distance-time graphs learned in Grade 7 and acceleration from the previous lesson.

III. Materials Needed: Worksheet**,** pen, and TV or projector

IV. Instructions:

Let's play a game called Deal or No Deal to review some concepts we learned in Grade 7. It is a "Deal" if the statement is correct; otherwise, it is a "No Deal".

For items 1 to 3, please refer to the distance-time graphs (position-time graphs) below: 	*Is it a Deal or No Deal?*
1. Graph A means the object is not moving.	
2. Graph B means the object's motion is accelerating.	
3. An object moving with constant speed and direction is not accelerating.	
4. The acceleration of an object that is speeding up is positive.	
5. Uniform acceleration means velocity is constant.	

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I. Activity No. 2.2: Matching Type (5 minutes)

II. Objective(s): At the end of the activity, you should be able to define key words for this week's lesson.

III. Materials Needed: worksheet and pen

IV. Instructions:
Match each term with its corresponding definition.

Term	Definition
1. Parabolic	a. A curve shaped like a parabola.
2. Slope	b. The horizontal axis.
3. X-axis	c. The vertical axis.
4. Y-axis	d. The steepness of a line.

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Learning Area:	Science	**Quarter:**	4th Quarter
Lesson No.:	2	**Date:**	
Lesson Title/ Topic:	**Distance-Time Graph and Velocity Time Graph**		
Name:		**Grade & Section:**	

I. Activity No. 2.3: Constructing and Interpreting a Distance-Time Graph (20 minutes)

II. Objective(s): At the end of the activity, you should be able to:

a. construct a distance-time graph, label its axes with appropriate units and quantities, and add its titles; and
b. interpret the distance-time graph.

III. Materials Needed: graphing paper, worksheet, and pencil or pen

IV. Instructions:

1. Use the provided data to construct a distance-time graph. Interpret it after.

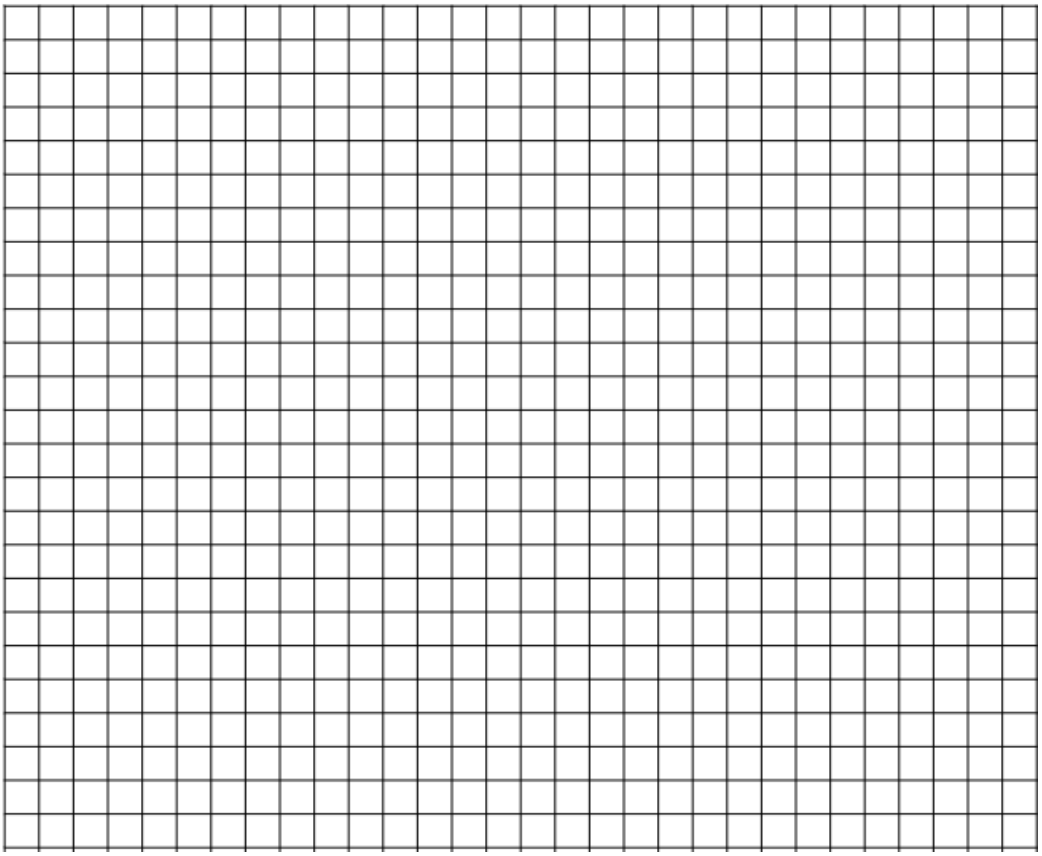
Data of the Distance Traveled by an Object in Uniform Acceleration:

Time (s)	0	1	2	3	4	5
Distance (m)	0	5	20	45	80	125

Steps:

1. Prepare the graph paper.	
2. Label the axes:	X-axis: "Time (s)" ranging from 0 to 5 seconds. Y-axis: "Distance (m)" ranging from 0 to 140 meters.
3. Choose a scale:	X-axis: 1 unit = 1 second. Y-axis: 1 unit = 20 meters.
4. Plot the points:	At (0, 0): plot a point. At (1, 5): plot a point. At (2, 20): plot a point. At (3, 45): plot a point. At (4, 80): plot a point. At (5, 125): plot a point.
5. Connect the points:	Draw a line smoothly connecting the points.
6. Add a title	Title the graph “Distance-Time Graph for an Object in Motion”.

Title: _____



Link: https://incompetech.com/graphpaper/plain/

Interpretation:

1. Look at the shape of the graph. Describe how the distance changes over time.

   _____
   _____
   _____

2. What does the shape of the graph tell you about the car's speed?

   _____
   _____
   _____

3. What can you say about the car's acceleration? Explain your answer.

   _____
   _____
   _____

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Name:		**Grade & Section:**	

I. Activity No. 2.4: My Turn to Construct and Interpret a Distance-Time Graph (20 minutes)

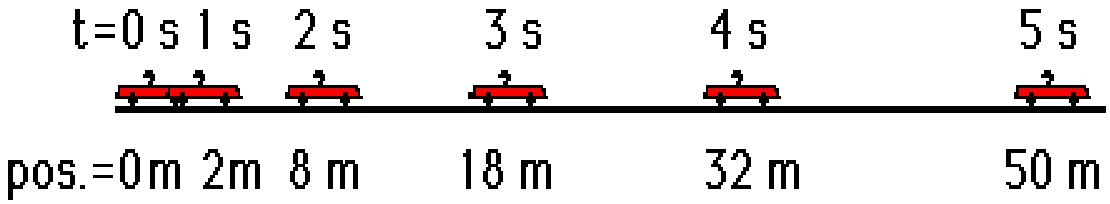
II. Objective(s): At the end of the activity, you should be able to:

a. construct a distance-time graph;
b. label axes with appropriate units and add titles of displacement-time graphs; and
c. describe the distance-time graph.

III. Materials Needed: graphing paper, worksheet, and pencil or pen

IV. Instructions:

Use the provided data to construct a distance-time graph and interpret it after.
Scenario: A car is moving with forward, changing velocity at a constant rate. It covers the distances given below at specific values of time.

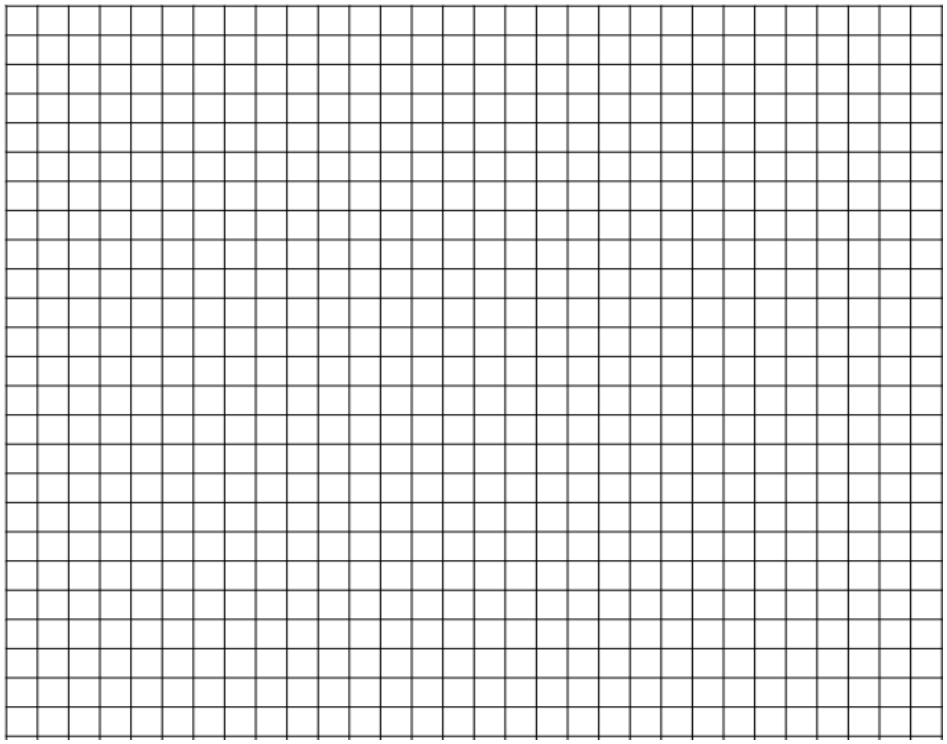


Link: https://www.physicsclassroom.com/class/1DKin/Lesson-3/The-Meaning-of-Shape-for-a-p-t-Graph

Data:

Time (s)	0	1	2	3	4	5
Distance (m)	0	2	8	18	32	50

Title: _____



Link: https://incompetech.com/graphpaper/plain/

Guide questions:

1. How does the distance change between each second? Is it increasing, and if so, by how much?

_____
_____
_____

2. What does the shape of the graph tell you about the car's speed?

_____
_____
_____

3. Is the car accelerating, decelerating, or moving at a constant speed? Explain your answer.

_____
_____
_____

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Lesson Title/ Topic:	**Distance-Time Graph and Velocity Time Graph**		
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I. Activity No. 2.5: The "Moving Man" Simulation

II. Objective(s): At the end of the activity, you should be able to describe motion graphs and
sketch motion graphs

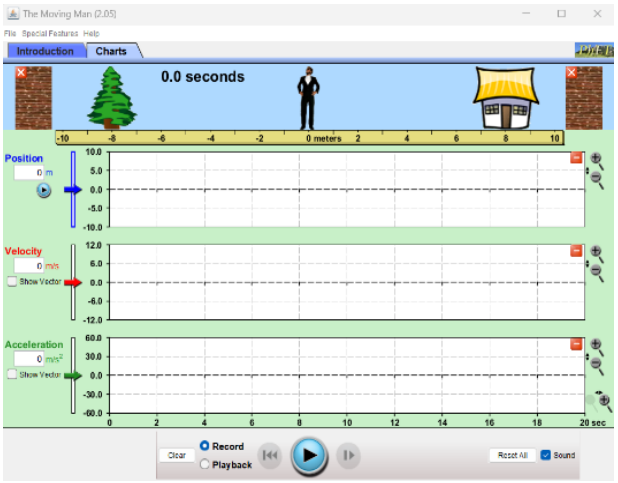
III. Materials Needed:

- Moving Man Simulation from PhET Interactive Simulations
- Worksheet and pen
- Projector/TV

IV. Instructions:

A. Accessing the simulation

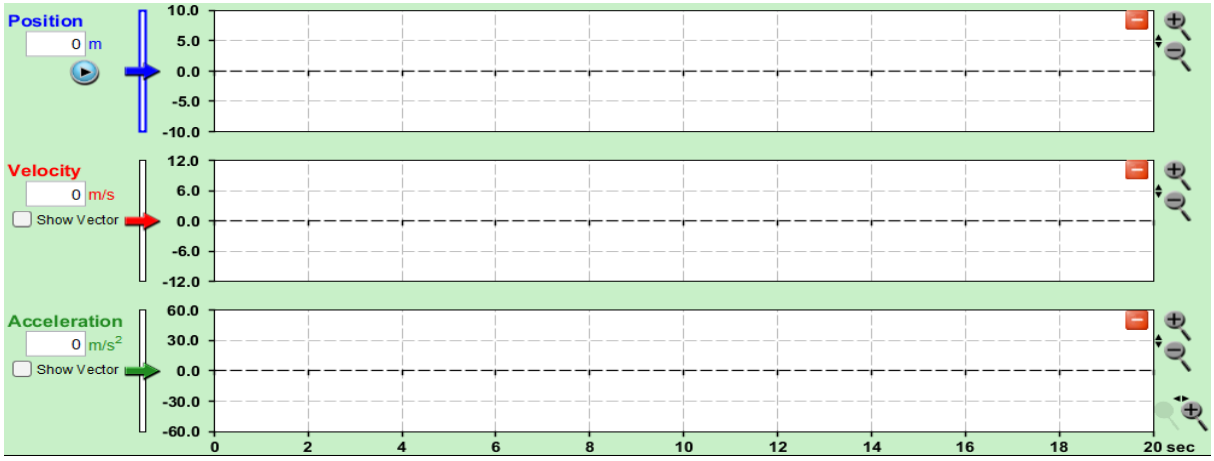
Through a web browser, navigate to http://phet.colorado.edu. Click "Play with Sims," then "Physics," then "Motion," then choose the "Moving Man" simulation. Click "Run now" to start the simulation.



You can also use this link: https://phet.colorado.edu/sims/cheerpj/moving-man/latest/moving-man.html?simulation=moving-man

B. Experimentation

Experiment 1. Set the velocity as 3 m/s. Then copy and draw your result below.

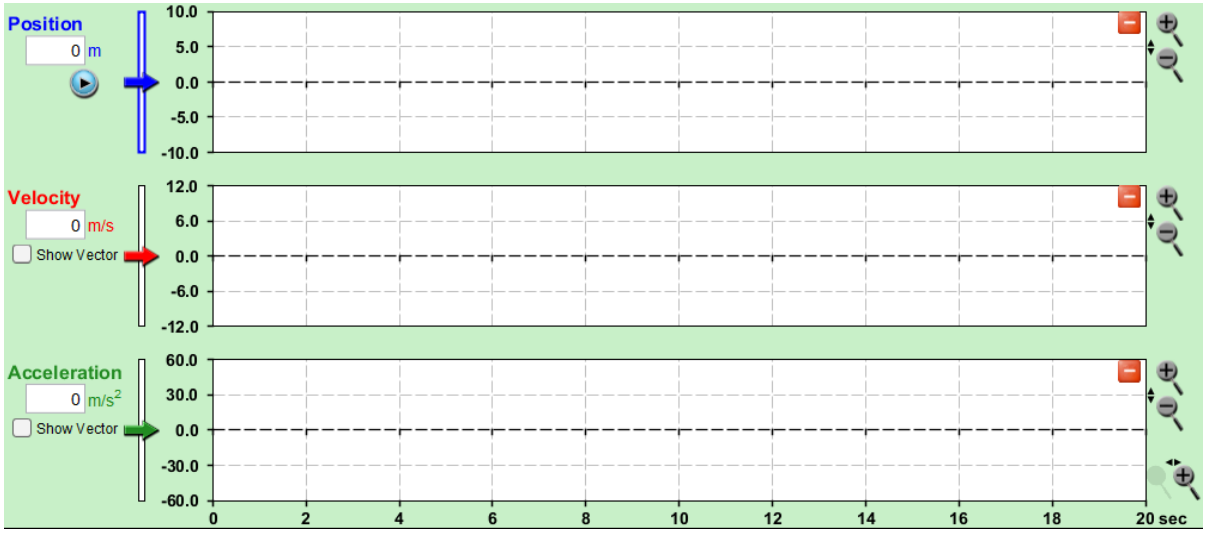


Describe each graph in words.

Position-Time Graph	
Velocity-Time Graph	
Acceleration-Time Graph	

Experiment 2.

Set the velocity as -3 m/s. Then copy and draw your result below.



Describe each graph in words.

Position-Time Graph	
Velocity-Time Graph	
Acceleration-Time Graph	

Question: *What is the difference between the result of #1 and #2?*

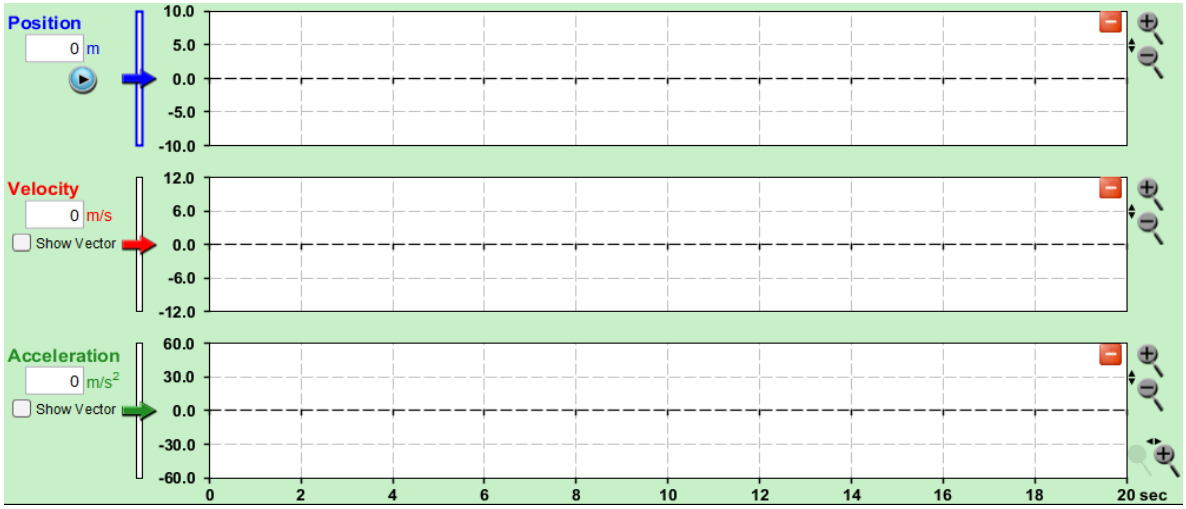
_____

_____

_____

Experiment 3.

Click Reset All. Set the acceleration as 2 m/s^2. Then copy and draw your result below.

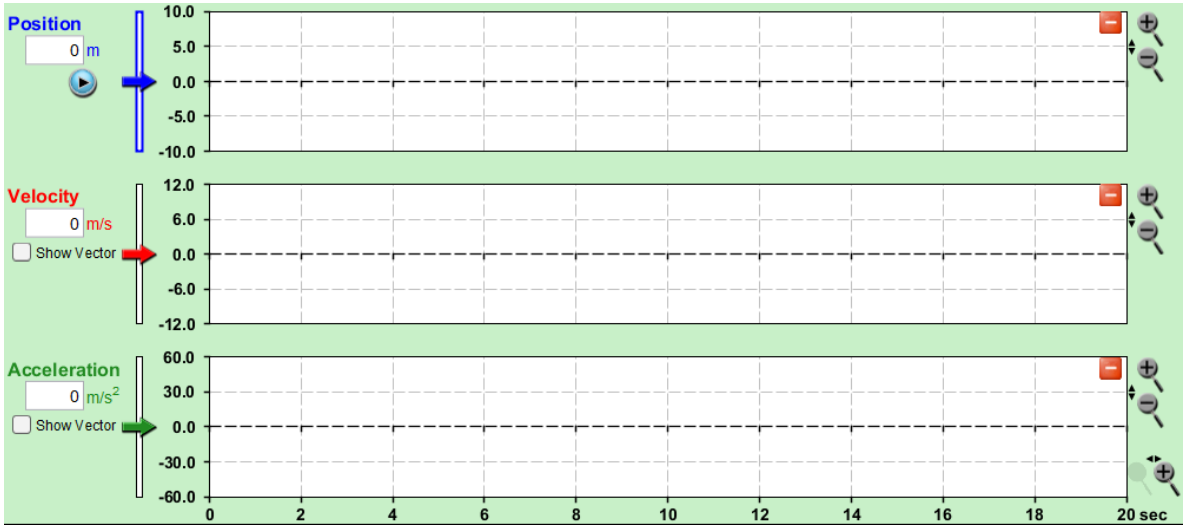


Describe each graph in words.

Position-Time Graph	
Velocity-Time Graph	
Acceleration-Time Graph	

Experiment 4.

Set the acceleration as -2 m/s^2. Then copy and draw your result below.



Describe each graph in words.

Position-Time Graph	
Velocity-Time Graph	
Acceleration-Time Graph	

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Name:		**Grade & Section:**	

I. Activity No. 2.6: Constructing and Interpreting Velocity-Time Graphs (30 minutes)

II. Objective(s): At the end of the activity, you should be able to:

a. construct a velocity-time graph, label its axes with appropriate quantities and units, and add its titles; and
b. interpret a velocity-time graph.

III. Materials Needed: Graphing paper, Worksheet and pencil or pen, Calculator

IV. Instructions:

Part I. Constructing Velocity-Time Graphs. Construct a velocity-time graph using the data of an object's velocity with respect to time.

Time (s)	0	10	20	30	40	50	60	70	80
Velocity (m/s)	0	5	10	15	15	15	10	5	0

A. Construct the Velocity-Time Graph:

1. **Collect Data:** Gather time (t) and velocity (v) data.
2. **Set Up Axes:** Draw and label the x-axis (time) and y-axis (velocity).
3. **Choose Scale:** Set scales for both axes.
4. **Plot Data Points:** Plot each (t, v) pair on the graph.
5. **Connect Points:** Connect points with a line or curve.
6. **Label Graph:** Title the graph and label axes with units.
7. **Interpret:** Analyze the graph's shape for motion insights.

B. Calculating the slope

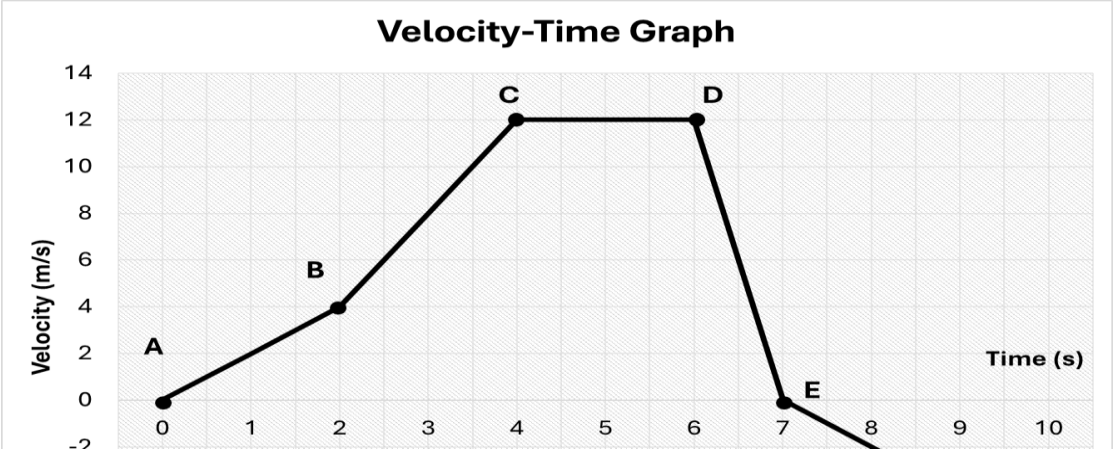
1. Select two points from the line.
2. Calculate the slope of the line using the formula:

$$slope = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

Computation:

Part II. Interpreting Velocity-Time Graphs

A velocity-time graph of a body moving in a straight line is shown in the figure below. Answer the following questions based on the graph.



Guide Questions

1. Compare the motion represented by line segment BC to line segment AB.

   _____
   _____
   _____
   _____

2. Calculate the acceleration of line segments AB and BC. Does it agree with your answer in #2?

3. Describe the velocity and acceleration from 4 s to 6 s.

   _____
   _____
   _____
   _____

4. Describe the velocity and acceleration of represented by line segment DE.

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Name:		**Grade & Section:**	

I. Activity No. 2.7: Brain Dump Exit Ticket

II. Objective(s): At the end of the activity, you should be able to summarize the concepts involving velocity-time graphs of motion with uniform and non-uniform acceleration

III. Materials Needed: worksheet and pen

IV. Instructions:

Recall everything you learned from the lesson and freely write them on the Brain Dump sheet. To help you with the contents that you can include, be guided by the following questions.

Guide questions:

1. What are the steps in constructing a distance-time graph? How about a velocity-time graph?
2. What does the distance-time graph look like for uniform acceleration? How about non-uniform acceleration?
3. What does the velocity-time graph look like for uniform acceleration? How about non-uniform acceleration?

Brain Dump!

Get everything you've learned out of your brain. Put it on paper. Tell it to a friend. It's like a dump truck. Tip the bed over and get that stuff out of the truck! Either way, the information is flowing out of the brain, and that's the key.

Credits:
Dump Truck | Image by brgfx on Freepik
Brain Dump | https://ditchthattextbook.com/infographic/brain-dump-template/