

Science Activity Sheet

Quarter 3 - MELC 2

Week 3

Creating and Interpreting Visual Representation of Motion



Science 7
Activity Sheet No.2 Describing Motion
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Introductory Message

Welcome to **Science 7!**

The **Learning Activity Sheet** is a product of the collaborative efforts of the Schools Division of Sipalay City and DepEd Regional Office VI - Western Visayas through the Curriculum and Learning Management Division (CLMD). This is developed to guide the learning facilitators (teachers, parents and responsible adults) in helping the learners meet the standards set by the K to 12 Basic Education Curriculum.

The **Learning Activity Sheet** is self-directed instructional materials aimed to guide the learners in accomplishing activities at their own pace and time using the contextualized resources in the community. This will also assist the learners in acquiring the lifelong learning skills, knowledge and attitudes for productivity and employment.

For learning facilitator:

The **Science Activity Sheet** will help you facilitate the leaching-learning activities specified in each Most Essential Learning Competency (MELC) with minimal or no face-to-face encounter between you and the learner. This will be made available to the learners with references/links to ease the independent learning.

For the learner:

The **Science Activity Sheet** is developed to help you continue learning even if you are not in school. This learning material provides you with meaningful and engaging activities for independent learning. Being an active learner, carefully read and understand the instructions then perform the activities and answer the assessments. This will be returned to your facilitator on the agreed schedule

Learning Activity Sheet (LAS) No. 2

Name of Learner: _____ Grade and Section: _____

Date: _____

SCIENCE ACTIVITY SHEET No. 2 Creating and Interpreting Visual Representation of Motion

I. Learning Competency

Create and interpret the visual representation of the motion of objects such as tape charts and motion graphs. **(S7F3-IIIb-3)**

II. Background Information for Learners

In your previous lesson, you have learned that everything in the universe is moving. Some move slowly and others move much more quickly. You also know how to describe motion in terms of distance or displacement, speed or velocity and acceleration. Motion means a change in the position of an object with respect to the reference point.

One dimensional motion describes objects moving in straight lines: either forwards or backward, up or down, left or right. In this Activity Sheet, we will learn how to create and interpret the visual representation of the motion of objects by using tape charts and motion graphs.

III. Accompanying DepEd Textbook and Educational Sites

Department of Education. 2014. *K-12 Basic Education Curriculum, Science 7 Learner's Material* 145-147. Pasig City, Philippines

Department of Education. 2017. *K-12 Basic Education Curriculum, Science 7 Teacher's Guide*, 176. Pasig City, Philippines

IV. ACTIVITY PROPER

Activity 1. Create and Interpret! (Distance vs. Time)

There are many ways to understand how motion works. Now let's learn how to create and interpret the visual representation of the motion of objects by tape charts and motion graphs.

Material Needed:

*paper strips *pentel pen *cutter or pair of scissors *ruler

Procedure:

A. Using a tape chart

1. Make four copies of Figure 1.
2. Cut the first copy from 0-1; the second copy from 0-2; the third copy from 0-3, and the fourth copy from 0-4.

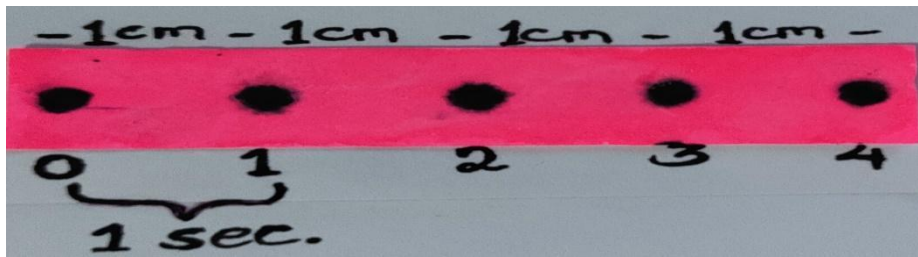


Figure 1. Trail of Dots

3. Paste the four strips side by side on a graphing paper to form a tape chart as shown in Figure 2.

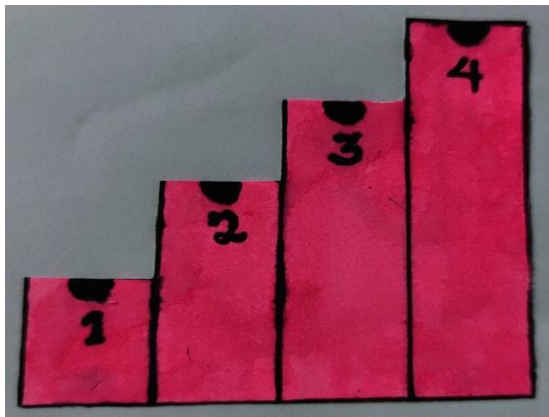


Figure 2. Sample tape chart

B. Using Motion Graphs

1. Join the mid-points of the tops of the tapes with a line as shown in figure 3. You have now converted your tape chart into a distance-time graph.

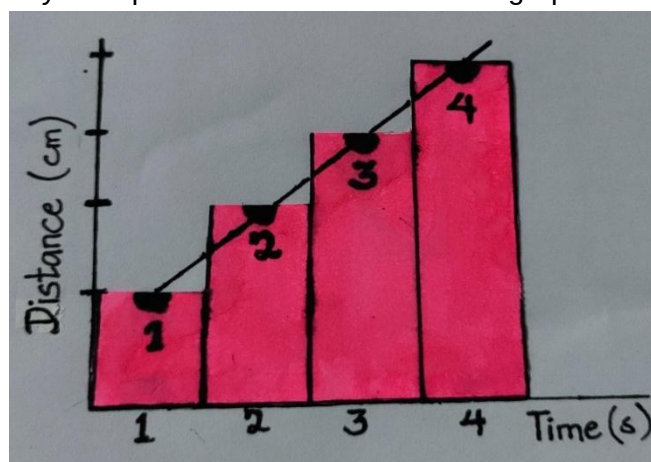


Figure 3. Distance-Time Graph

Directions. Let's interpret the task that we've done by answering the following guide questions. Write your answers in your Science notebook.

Guide Questions:

1. Interpret the length between successive dots based on Activity 1 Figure 1? Write your interpretation in your Science notebook.

2. Compare the length of the tapes based on Activity 1 Figure 3?

3. Interpret the changes in the lengths of two successive tapes based on Activity 1 Figure 3?

4. If each tape represents the distance traveled by the object for 1 second, what 'quantity' does each piece of tape represents? (refer to Figure 3)

5. What does the graph in Activity 1 Figure 3 tell you about the speed of the object?

Activity 2. Create and Interpret! (Speed vs. Time)

1. Make five copies of Figure 1.

2. Cut the first copy from 0-1, the second copy from 0-2, the third copy from 0-3, the fourth copy from 0-4, and the fifth 0-5.

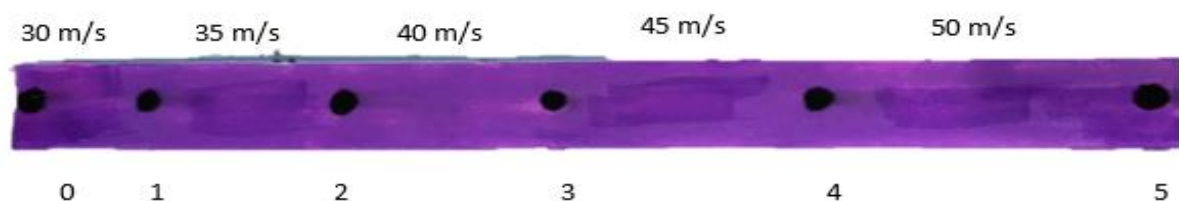


Figure 4. Trail of dots

3. Paste the five strips side by side on a graphing paper to form a tape chart as shown in Figure 5.

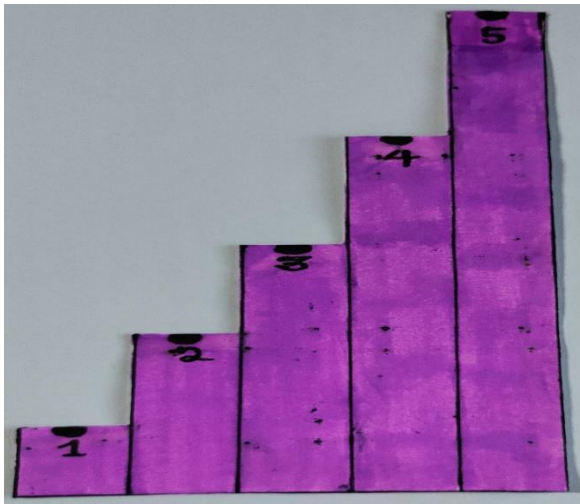


Figure 5. Sample tape chart

B. Using Motion Graphs

2. Join the mid-points of the tops of the tapes with a line as shown in figure 6. You have now converted your tape chart into a speed-time graph.

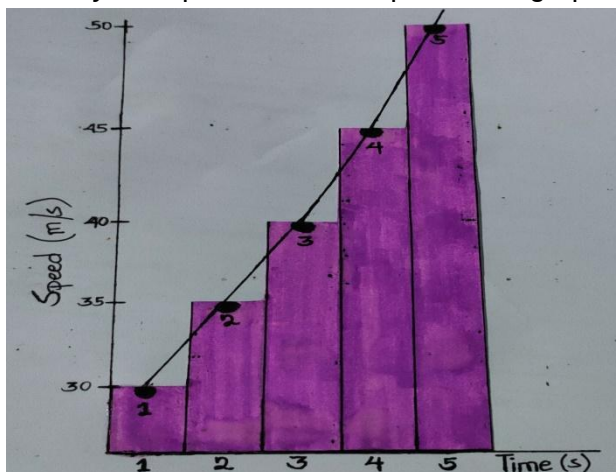


Figure 6. Speed-Time Graph

Directions: Let's interpret the task that we've done by answering the following guide questions. Write your answers in your Science notebook.

Guide Questions:

1. Interpret the length between successive dots based on Activity 2 Figure 4? Write your interpretation in your Science notebook.

2. Compare the length of the tapes based on Activity 2 Figure 6?

3. Interpret the changes in the lengths of two successive tapes based on Activity 2 Figure 6?

4. If each tape represents the speed traveled by the object for 1 second, what 'quantity' does each piece of tape represents? (refer to Figure 6)

5. What does the graph in Activity 2 Figure 6 tell you about the acceleration of the object?

Activity 3: Let's do it!

Directions. Create your tape charts and motion graphs by interpreting the situation below. Write your answer in your Answer Sheet.

It takes four hours for a bus to travel from Sipalay City to Bacolod City. It has an average speed of 50 km/h during the first hour of its travel. It moves at an average speed of 60 km/h during the next one hour and its motion accelerates 10 km/h every hour until the bus reaches its destination.

IV. Reflection

Complete the statement below. Write your reflection in your Answer sheet.

After creating and interpreting visual representation of the motion of objects such as tape charts and motion graphs,

I think _____

I believe _____

I feel _____

I will _____

V. Answer key

Activity 1- Guide Questions
S
1. The length between two successive dots increases uniformly.
2. The length of the strips of tape in the chart increases uniformly.
3. The change in length of the tape is constant. Or the length of the tape increases by the same amount in each time interval.
4. Each strip of tape represents the distance of the object every 1 second or speed.
5. The graph tells us that the speed of the object increases uniformly.

Activity 2 – Guide Questions
1. The length between two successive dots increases uniformly.
2. The length of the strips of tape in the chart increases uniformly.
3. The change in length of the tape is constant. Or the length of the tape increases by the same amount in each time interval.
4. Each strip of tape represents the speed of the object every 1 second or acceleration.
5. The graph tells us that the acceleration of the object is zero due to the constant speed of the object.

Activity 3
A. Using tape charts
B. Using motion graph
*Based on the situation in Activity 3 my interpretation by creating the tape chart and motion graph the speed (or velocity) of the bus are constant accelerating.