**11 Physics Learning Task 2 Motion**

Time Allocation: 30 minutes Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
|  | **1** | **2** | **3** |
| **Designs velocity time graph** | uses appropriate scale | assigns axes labels with units | inputs velocity data into graph |
| **Determines distance** | divides area under velocity time graph into sections | calculates the area of sections | calculates distance |
| **SUVAT**  **Focus on problem** | visualises problem by sketching image | describes problem in own words | applies physics concepts to problem |
| **SUVAT**  **Describes physics** | draws diagrams with coordinates | assign symbols to quantities and identifies unknown | lists quantities in correct units |
| **SUVAT**  **Uses required equations** | identifies required equation | inserts quantities into equation | evaluates answer with value and units |
| **SUVAT**  **Applies skills** | adapts prior skills to new problems | solves problems with novel strategies |  |

### Question 1

A bus accelerates to 11.1 m.s-1 over 15 seconds. It continues at this speed for 40 seconds before taking 9 seconds to accelerate to 16.7 m.s-1. The bus travels at the new speed for an additional 55 seconds before slowing down over 8 seconds to 9.7 m.s-1.

1. Draw the velocity-time graph for the bus’s journey.
2. What distance did the bus travel on the entire trip?

m

1. The bus continues travelling at a speed of 9.7 m.s-1. At a distance of 15 m away from the bus a turtle is sitting in the middle of the road. The bus driver quickly brakes.
   1. If the bus does not run over the turtle, how long does it take for the bus to come to a stop?

* Sketch an image of problem
* Describes problem in own words
* Applies physics concepts to problem
* Insert a diagram with coordinates

s

* 1. What was the average deceleration of the bus?

m s-2