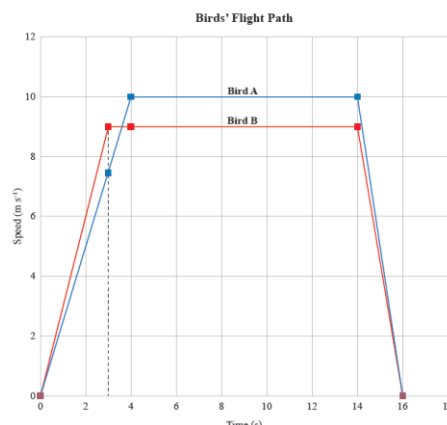


# Science 1.1 AS 90940 Demonstrate understanding of aspects of mechanics

## Writing Excellence answers to **Distance in a speed-time graph** questions

### Distance in a speed-time graph QUESTION

**Question:** In 16 s, **Bird B** travelled 121.5 m.  
How much further did **Bird A** travel in the same time?  
*Show all working.*



### ANSWER

1. divide the area under  $t = \frac{1}{2} \times 10 = 20$  mhe graph (for bird A) in the **smallest number** of rectangles and triangles

(A) 0 – 4 s:  
(B) 4 – 14 s:  
(C) 14 – 16 s:

2. calculate the area for section **A** – a triangle

$$d = \frac{1}{2} \times 4 \times 10 = 20\text{m}$$

Area =  $\frac{1}{2}$  base x height  
Or Distance =  $\frac{1}{2} v \times t$

3. calculate the area for section **B** – a rectangle

$$d = 10 \times 10 = 100\text{m}$$

Area = base x height  
Or Distance =  $v \times t$

4. calculate the area for section **C** – a triangle

$$d = \frac{1}{2} \times 2 \times 10 = 10\text{m}$$

Area =  $\frac{1}{2}$  base x height  
Or Distance =  $\frac{1}{2} v \times t$

5. **add all 3 sections** together and show working plus units

$$20\text{m} + 100\text{m} + 10\text{m}$$

$$\text{Total distance} = 130\text{ m}$$

6. subtract one distance from the other to show the **differences in distance**

$$(\text{Bird A } 130 - \text{Bird B } 121.5 = 8.50\text{ m})$$

7. **compare** between the distances of both birds and state which has flown the furthest

So Bird A has flown 8.50 m further than Bird B.

**NOTE:** The white column is how your answer would appear on your test paper so make sure you **write out complete sentences**. The grey area is just to help you structure your answer and would not appear in the question.