

Investigation using velocity speed time graphs to analyse a journey

Procedure

Start your clock the moment the boy gets on his bike. Record the time, in seconds, when the boy reaches the incidents in the table below.

Results

Incident	Gets on bike	Leaps bike over hedge	Bike swerves in front of lorry	Lorry hits first car	Bike goes down ramp	Bike stops near bridge
Speed (m/s)	0	6	6	9	9	0
Time (s)	0	29	35	59	84	94

Incident	Terminator catches up (lands on road)	Terminator shoots at chain on gate	Terminators bike drops into drain	Lorry's tyre bursts	Lorry explodes
Speed (m/s)	12	12	12	12	0
Time (s)	108	165	214	244	258

Conclusion

- Plot these results on a speed time graph. Speed y axis and time x axis.
- Label each point that the boy changes motion A, B, C, D, E, F, G, H and I (Point A is 0,0)
- Divide the area below the graph into five triangles and 4 rectangles (if in doubt ask for help)

Analysis

Work out the following accelerations

Acceleration A to B _____

Acceleration B to C _____

Acceleration C to D _____

Acceleration D to E _____

Acceleration E to F _____

Acceleration F to G _____

Acceleration G to H _____

Acceleration H to I _____

Work out the following distances

Distance A to B _____

Distance B to C _____

Distance C to D _____

Distance D to E _____

Distance E to F _____

Distance F to G _____

Distance G to H _____

Distance H to I _____

Total distance = _____