Investigation to use speed time graphs to analyse a boy's journey

Procedure

Start your stopwatch the moment the boy sets off on the bike. Record the time, in seconds, when the boy reaches each of the incidents in the results table.

Results

Incident	Bike sets off	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)						

Incident	We first see Terminator	Terminator shoots at gate chain	Terminator's bike drops into drain	Lorry's tyre is burst	Lorry explodes
Speed (m/s)	12	12	12	12	0
Time (s)					

Conclusion

Plot these results on a speed time graph, with time on the x axis and speed on the y axis.

Label each point that the boy changes motion A, B, C, D, E, F, G, H, and I. Point A on the graph is at time 0, speed 0.

Divide the area below the graph line into five triangles and 4 rectangles. Your teacher will show you how on the whiteboard.

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 _____