Guidance for tutors

Outcome	AG2	Student can consistently:	Draw and interpret travel graphs.

How the topic is examined		☐ Examined through test paper questions.
		☐ Questions are equally likely to appear on calculator or non-calculator papers.
		☐ Students may be asked to
		   o Draw or complete a distance-time/travel graph based on information given.
		   o Describe a journey given a graph and answer questions about the journey.
		   o Find the average speed for the journey.
		☐ The distance-time graph or blank grid (with axes) will be given in the question.	

Prior knowledge		☐ Students should be confident with:
		   o Speed (NR6)
		☐ In addition questions involving this topic can have links to:
		   o Estimating the gradient of a curve at a point and the area under the curve.	

Suggested tuition approaches		☐ A travel graph is likely to represent a 'real-life' problem. They usually relate to someone going somewhere (e.g. walking, driving etc…).
		☐ When approaching questions on travel graphs there are some things that students should consider:
		   o What the axes tell you? The x-axis will most likely be time and y-axis distance. However look at the units; this will be useful if you need to find the speed. Sometimes the distance might be (distance travelled) or distance away from a starting point.
		   o Work out the scale. What does one unit on each axis represent? You might want to work this out before you doing anything
		   o What do the lines tell you?
		      ▪ A straight horizontal line usually means something has stopped
		      ▪ The steeper the line the faster something is travelling
		      ▪ A line with negative gradient usually means something is returning home.
		☐ Students should be comfortable in finding the speed at a particular point or average speed over a particular part of the journey. Speed is calculated by dividing distance by the time taken. The units on the graph will tell you the units of the speed. See notes in NR6 for help on speed problems.	

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Common errors and misconceptions	☐ The most common issues that arise with these questions are the ones mentioned above.
	  ○ Students read off values incorrectly or work out the wrong value on a graph. To avoid this they should work out what one small unit is worth before they even do the question (e.g. if 1 hour is spread across 10 small squares – then 1 unit = 6 minutes)
	  ○ When working out the total distance travelled for graphs where the y-axis represents the distance from a starting point, students forget to consider the return journey.
	☐ When working out a speed students struggle with units of time. For example if a question wants miles per hour as the answer and you have 45 minutes encourage students to change this to 0.75 hours before doing any calculation.

Suggested resources	☐ Questions
	  ○ http://www.cimt.org.uk/projects/mepres/allgcse/bkc13.pdf (pp 30 - 39)
	  ○ https://corbettmaths.files.wordpress.com/2013/02/travel-graphs-pdf.pdf
	☐ Video tutorials
	  ○ http://corbettmaths.com/2013/05/25/travel-graphs/
	☐ Past GCSE Questions
	  ○ https://keshgcsemaths.files.wordpress.com/2013/11/69_distance-time-graphs.pdf