



**Advanced Mathematics  
Support Programme®**

Average-speed  
**Displacement**  
Acceleration Distance  
**Velocity**  
Position  
Distance-travelled  
**Speed**

# Exploring kinematics graphs

We know from GCSE:

- **Area** under a velocity-time graph represents displacement
- **Gradient** of a line on a velocity-time graph represents acceleration

# Exploring kinematics graphs

<b>Motion Graph</b>	<b>Gradient</b>	<b>Area</b>	<b>Notes</b>
<b>Displacement - time</b>	<b>Velocity</b>		
<b>Velocity - time</b>	<b>Acceleration</b>	<b>Displacement</b>	<p>Areas below the time axis represent negative velocity.</p> <p><math>v = 0</math> indicates a possible change in direction.</p>
<b>Acceleration - time</b>		<b>Velocity</b>	

# Exploring kinematics graphs

- Fit the cards onto the grid so that each column is a matching set.

# What's wrong with these statements?

'The speed is the gradient of the displacement-time graph.'

'If the acceleration is negative then the particle must be moving backwards.'

'If the velocity-time graph is horizontal the particle is not moving.'

# About the AMSP

- A government-funded initiative, managed by MEI, providing national support for teachers and students in all state-funded schools and colleges in England.
- It aims to increase participation in AS/A level Mathematics and Further Mathematics, and Core Maths, and improve the teaching of these qualifications.
- Additional support is given to those in priority areas to boost social mobility so that, whatever their gender, background or location, students can choose their best maths pathway post-16, and have access to high quality maths teaching.

# Contact the AMSP



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