



Teaching guide: Graphs

Mathematics for GCSE Science

This resource helps you to deliver the mathematical requirements that students are required to demonstrate in the new GCSE Science specifications. It consists of a teaching guide and PowerPoint presentation.

	<p>and other non-linear graphs), and interpret results in cases such as distance-time graphs, velocity-time graphs and graphs in financial contexts}</p> <ul style="list-style-type: none"> • interpret the gradient of a straight line graph as a rate of change; recognise and interpret graphs that illustrate direct and inverse proportion • interpret and construct tables and line graphs for time series data • use and interpret scatter graphs of bivariate data; recognise correlation and know that it does not indicate causation; draw estimated lines of best fit; make predictions; interpolate and extrapolate apparent trends whilst knowing the dangers of so doing.
3. Maths introduction and development	<p>Statistical graphs such as bar charts followed by scatter graphs are introduced at an early age. Linear graphs come later with the introduction of algebra and sequences. Students will first be introduced to coordinates and how to read and plot them in four quadrants. From that they will move on to plotting a straight line using a table of values (derived from the equation of the line). For this they need to have algebraic substitution skills (see Algebra resource.) Once they are familiar with how to use substitution they will then be shown how to use the y-intercept and the gradient to plot a straight line without the need for substitution.</p>
<p>4.Ref AQA All About Maths</p> <p>AQA All About Maths Algebra and graphs</p> <p>AQA All About Maths Real life graphs</p> <p>AQA All About Maths Algebra recap and extension</p> <p>AQA All About Maths Sketching graphs</p>	
5. Misconceptions	<p>Confusing the x and y axes.</p> <p>Incorrectly substituting negative x values into the equation when determining the y coordinate.</p>
6. Some examples of where it is applied in science	<p>Biology</p> <ul style="list-style-type: none"> • Osmosis • Plant organ system • Levels of organisation

	<p>Chemistry</p> <ul style="list-style-type: none">Ionic compoundsCalculating rates of reactionFlame emission spectroscopy <p>Physics</p> <ul style="list-style-type: none">ResistorsHalf-lives and the random nature of radioactive decayThe distance-time relationship
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