

## Long-term planning

### Maths - Year 9

Year 9 Themes	Autumn term 1	Autumn term 2	Spring term 1	Spring term 2	Summer term 1	Summer term 2
Developing mathematical skills to explore and solve more sophisticated problems.	<b>Students will know that</b>	<b>Students will know that</b>	<b>Students will know that</b>	<b>Students will know that</b>	<b>Students will know that</b>	<b>Students will know that</b>
	Percentage change can be used to both change an amount and find an original amount. Probability can be used to predict the outcomes of events. Numbers written in standard form can be used with the four operations.	Linear inequalities can be solved similarly to linear equations. There are several ways to factorise a quadratic equation. Constructions can be used to create accurate diagrams.	Rounding in calculations can lead to measurable errors. Different perspectives of a 3D shape can be used to construct the shape. Pythagoras' theorem can be applied to solve problems. Ratio and proportion can be used to solve worded problems.	Straight line graphs can be interpreted to find their equation. Distance-time graphs can be plotted and read to solve problems.	Quadratic equations can be solved graphically. Missing angles in polygons can be found by using angle facts. Angles can be measured and expressed using bearings. Similarity and congruence in shapes can be used to solve problems.	Data can be used to make conclusions and solve problems. Scatter graphs can be used when handling data. Frequency tables and frequency polygons can be used to present grouped data. Column vectors can be added, subtracted and multiplied by scalars.
	<b>Students will know how to</b>	<b>Students will know how to</b>	<b>Students will know how to</b>	<b>Students will know how to</b>	<b>Students will know how to</b>	<b>Students will know how to</b>
	Find fractions and percentages of amounts. Solve percentage change problems. Give expected results from repeated experiments and calculate experimental probabilities.	Solve linear inequalities. Factorise quadratic equations. Change the subject of formulae. Perform bisectors of lines and angles. Perform calculations related to the volume	Find error intervals. Use plans and elevations to work with 3D shapes. Use and apply Pythagoras' theorem in 2D. Write and simplify ratios.	Plot and find the equation of a straight-line graph. Calculate with speed and rates. Plot and interpret a distance-time graph.	Plot and interpret graphs of quadratic functions. Combine angle facts to find missing angles in polygons. Measure and draw bearings. Apply all 4 transformations to shapes.	Present data and make conclusions. Plot and interpret scatter graphs. Interpret frequency tables with grouped data. Draw and interpret frequency polygons.

	Perform calculations with numbers in standard form.	and surface area of cylinders.	Solve direct and inverse proportion problems.		Use similarity to find unknown sides in similar shapes. Understand and use congruence to solve problems.	Understand and perform operations using column vectors.
	<b>Vocabulary and the concepts they link to</b>	<b>Vocabulary and the concepts they link to</b>	<b>Vocabulary and the concepts they link to</b>	<b>Vocabulary and the concepts they link to</b>	<b>Vocabulary and the concepts they link to</b>	<b>Vocabulary and the concepts they link to</b>
	Equivalent Interest Mutually exclusive Index (indices)	Quadratic Subject Bisector Perpendicular Cylinder	Error Truncate Plan Elevation Proportion	Gradient Intercept Rate of change Conversion	Polygon Bearing Scale Factor Similarity Congruency	Frequency Population Column vector Scalar
	<b>Assessment</b>	<b>Assessment</b>	<b>Assessment</b>	<b>Assessment</b>	<b>Assessment</b>	<b>Assessment</b>
	Year 9 initial assessment Shadow GCSE Paper 1	GCSE Paper 1 (Foundation) End of term 1	Shadow GCSE Paper 2	GCSE Paper 2 (Foundation) End of term 2	End of year Shadow GCSE Paper 3	GCSE Paper 3 (Foundation) End of term 3
	<b>Diversity &amp; development of cultural capital</b>	<b>Diversity &amp; development of cultural capital</b>	<b>Diversity &amp; development of cultural capital</b>	<b>Diversity &amp; development of cultural capital</b>	<b>Diversity &amp; development of cultural capital</b>	<b>Diversity &amp; development of cultural capital</b>
	Uses of standard form in astrophysics calculations.	Uses of quadratic equations when understanding projectile trajectories.	Plans and elevations of famous buildings from different countries.	Write and interpret stories as distance-time graphs.	How similar shapes are used to create aspect ratios for films. How to make an image bigger without changing proportions.	Correlation vs causation with examples in the media.
	<b>Cross-curricular opportunities and enrichment</b>	<b>Cross-curricular opportunities and enrichment</b>	<b>Cross-curricular opportunities and enrichment</b>	<b>Cross-curricular opportunities and enrichment</b>	<b>Cross-curricular opportunities and enrichment</b>	<b>Cross-curricular opportunities and enrichment</b>
		Maths Week England Fibonacci Day Edge Hill University Team Challenge	UKMT Intermediate Challenge Euler's Number Day NSPCC Number Day	Pi Day	Square Root Day Women in Maths Day National Numeracy Day	My Money Week Pythagoras' Theorem Day