

Long Term Plan

KS4: GCSE Mathematics



Year 10

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit:	<p>Number:</p> <ul style="list-style-type: none"> - Ordering - Four Operations - Inverse Ops - Rounding - Order of operations - Roots and powers 	<p>Number:</p> <ul style="list-style-type: none"> - FDP - Measures - Factors/Multiples <p>Ratio:</p> <ul style="list-style-type: none"> - Units - Scale factors/maps - Ratio basics - Percentages - Trigonometry 	<p>Probability:</p> <ul style="list-style-type: none"> - Basic probability - scale/trees/experiments <p>Statistics</p> <ul style="list-style-type: none"> - Basic stats: charts/diagrams etc 	<p>Geometry and Measure</p> <ul style="list-style-type: none"> - Conventional terms and notation - Angles - Properties of shape 2d - Transformations - Perimeter/Area 	<p>Algebra</p> <ul style="list-style-type: none"> - Algebraic manipulation - Substituting - Simplifying 	<p>Algebra:</p> <ul style="list-style-type: none"> - Rearranging - Inputs and outputs - Coordinates - Algebraic graphs - Solving equations and inequalities - Sequences <p style="text-align: center;">Exam prep/review</p> <p style="text-align: center;">Exam prep/Mock exams</p>
Skills, Knowledge and Learning	<p>In this term pupils will build on many of the number skills covered in KS3. Pupils will continue to consolidate their use of the four operations in a range of written and practical contexts to build problem solving and fluency skills. Pupils will also continue to use operations when calculating with power/roots and other mathematical concepts.</p>	<p>In this term pupils will further develop their knowledge of using FDP smoothly working through problems requiring interchange between FDP. Pupils will continue to consolidate and build on their use of measures in practical and written forms and learn to fluently working between different units of measure. In this term pupils will continue to build on their knowledge of ratio. Pupils will learn to use scale factors and maps to greater depth, gain a deeper understanding of proportion (both direct and indirect) and solve a</p>	<p>In this term pupils will continue with their development in Algebra, learning to fluently transition their learning between written algebra and algebra displayed within graphs and charts. Pupils will consolidate their knowledge of sequences, learning how to analyse and identify trends and patterns.</p> <p>Pupil will then have the chance to review past exam papers, working through problem both in teams and on individuals basis, helping to correct misconceptions and allow pupils opportunities to</p>	<p>In this term pupils will work through a range of tasks around angles and shape, bringing together learning from KS3 to solve more complex problems. Pupils will learnt to substitute into key formulae needed to solve area and volume problems, helping to build fluency from their algebra units. Pupils will work with angle facts and properties of shapes to help them mathematically reason and choose the best way to solve problems.</p>	<p>In this term pupils will continue to develop knowledge of algebraic manipulation, simplifying a range of expression containing brackets and or requiring rearrangement. Pupils will learn about algebraic use across a range of other strands for representing unknowns and learnt to build upon prior learning to problem at a higher level.</p>	<p>In this term pupils will continue with their development in Algebra, learning to fluently transition their learning between written algebra and algebra displayed within graphs and charts. Pupils will consolidate their knowledge of sequences, learning how to analyse and identify trends and patterns.</p>

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		range of ratio problems both displayed in written and graphical form. Pupils will continue to build on their algebra learning through the close links between ratio and algebra units.	apply learning to assessment style problems.			
NC/Qualification Objectives	Number: N.1, N.2, N.3, N.6, N.7, N.14, .15, N.16	Number: N.4, N.10, N.12, N.13, Number: N.11 Ratio: R.1, R.2, R.3 R.4, R.5, R.9, R.11, R.12	Probability: P.1-P.8 Statistics: S.1-S.6	Geometry and Measure: G.1, G.3, G.4, G.5, G.6, G.7, G.11, G.12, G.14, G.15, G.16, G.17, G.18	Algebra: A.1, A.3, A.4,	Algebra: A.5, A.7, A.8, A.9, A.10, A.17, A.21, A.23, A.25
Enrichment/ Experiences	<ul style="list-style-type: none"> - Sea life centre – Weighing and measuring feed for animals - Trip to Basingstoke– planning the journey, trains, driving, average speeds - Christmas shopping – Budgeting discounts/sales 					
Curriculum End Point / Goal	By the end of this year, pupils should have covered a large majority of the GCSE foundation curriculum. Pupils should now be able to freely apply a range of learnt skills across different units within maths. Pupils should feel confident to take complex problems, analyse and evaluate these and break them down into manageable chunks, before using correct operation selection to solve the problem. Pupils should be able to reason mathematically and draw conclusions from their work. Pupils should be able to solve problem mentally, through written methods and with the support of a calculator					

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Year 11

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit: Y2	Number: - Four operations - Inverse Ops - Order of operations - Primes/Product notation/Factorisation theorem - Standard form	Number: - FDP - Measures - Approximation/Estimation Ratio: - Ratio advanced - Percentages advanced - Proportion - Growth and Decay	Probability - Advanced probability. - Systematic listing strategies Statistics - Advanced stats – Analyse and compare data distributions Midyear exam work/Mock exams	Geometry and measure: - Constructions - Angles recap - Properties of shape 3d - Area/Volume/SA - Fractions and multiples of π - Congruence/Sim/Pythagoras/Cos/Sin/Tan - Vectors	Algebra - Advanced Substituting - Simplifying - Advanced rearranging - Equation/identity - Algebraic graphs - Solving equations and inequalities - Sequences Exam prep	Exams
Skills, Knowledge and Learning	In this term pupils will focus on application of four operations to any given written or practical situation building all three core skills , whilst consolidating knowledge of order of operations and use of primes including links with pattern analysis	Pupils will learn to consolidate interchanging skills between all of FDP, whilst using FDP in a range of complex multi-step problems helping to build problem solving skills. Pupils will learn to use approximations in a wider range of situations, including more practical use especially when dealing with money. Pupils will consolidate knowledge of ratio and	In this term pupils will extend and build upon their existing knowledge of probability and statistics. Pupils will develop their analysis and reasoning skills further as they unpick statistical data to solve more complex problems. Pupils will develop their use of probability looking at probability experiments whilst fluently using FDP across the board. Pupils will also	Pupils will consolidate knowledge of angles especially in use in practical situations, exploring angles in a range of contexts. Pupils will also learn how to analyse different shapes especially triangles and the relationship between sin/cos/tan. Pupils will learn to apply knowledge of area to a range of complex multi-step word problems that link many	Pupils will learn to work fluently between equations and graphs, drawing out complex pieces of data and using these to solve multi step problems. Pupils will build upon their analysis and evaluation skills, becoming more effective at studying a problem in different ways, drawing conclusions from the represented data. Pupils will begin their end of year exam preparations.	End of year GCSE's exams.

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		proportion, using these across a range of practical problems, including use of proportion in real world shopping. Pupils then build into work on growth and decay building on their use of a range of formulae and having to work backwards through problems.	transfer these skills into the mid year exam practice	of the basic operations of maths.		
NC/Qualification Objectives	Number: N.2, N.3, N.4, N.5, N.9,	Number: N.10, N.12, N.13, N.14, N.16 Ratio: R.5, R.6, R.7, R.8, R.10, R.14, R.16	Probability: P.1-P.8 Statistics: S.1-S.6	Geometry and Measure: G.2, G.3, G.6, G.9, G.13, G.16, G.17, G.18, G.19, G.20, G.21, G.24, G.25 Number: N.8	Algebra: A.2, A.3, A.4, A.5, A.6, A.11, A.12, A.14, A.18, A.19, A.22, A.24	
Enrichment/ Experiences	<ul style="list-style-type: none"> - Cooking shop – Best buys/Weights on ingredients needed - Catching train/bus – using timetables to plan a journey - Local museum – cost of the trip, journey to the museum using public transport 					
Curriculum End Point / Goa	By the end of this year, pupils should feel confident they have the skills, knowledge and learning they need to succeed in using mathematics in their future endeavours. Pupils should be able to analyse mistakes and feel confident in correcting these, be able to transfer their learnt skills and learning fluently between both written and practical tasks, and feel they can use maths outside of the classroom. All basic number skills should be firmly consolidated, with pupils also feeling confident working with many of units of maths that regularly appear in the outside world such as: FDP, using measures and reading and interpreting charts and graphs. Overall we want pupils to feel ready to take post 16.					

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Deliberate Choices

- Algebra moved to end of year due to dual teaching FS
- Starting with number skills as under pinning
- FDP before ratio, as calls upon similar mathematical concepts
- Due to students struggling with recall, units covered in more detail in year 2, with opportunities for stretch. Other units added that are more advanced GCSE topics, with pupils having the foundation knowledge to access
- Teaching short division as carrying of digits much simpler for students processing