



The Grey Coat Hospital

Key Stage Four Curriculum Plan - *Subject: Mathematics (Higher)*

Year 9

Half Term (HT)	Topic Area / Focus
HT1	Algebra – expanding and factorising single and double brackets Binomial expansion (further maths group only) Rounding and estimating – estimate answers to calculations, including use of rounding numbers and formal estimation to 1 significant figure Circles – finding the perimeter and area including with compound shapes with circles Scatter graphs
HT2	Averages and range – finding mean, median and mode from grouped data Simultaneous equations – linear only Fractions – four operations and applications to area/perimeter
HT3	Transformations – translation, rotation, reflection and enlargement (including negative and fractions scale factors) Matrices (further maths group only) Ratio - expressing ratios in form 1:n, using ratio for currency conversions, combining ratios, forming linear equations from ratios Angles between parallel lines – alternate, vertically opposite, corresponding and co-interior angles Sequences – linear and quadratic
HT4	Representing and interpreting data – bar and pie charts, stem and leaf Rearranging equation – up to and including where subject is on both sides Factors, multiples and primes – finding LCM and HCF
HT5	Circle Theorems Probability – sample space diagrams, Venn diagrams and two-way tables
HT6	Indices - index laws Reciprocals Order of operations

Year 10

Half Term (HT)	Topic Area / Focus
HT1	Ratio and algebraic proportion – algebraic direct and inverse proportion, graphs of direct and inverse proportion, harder ratio including questions such as 'ratio of boys to girls in a room is 4:7 16 boys enter and 6 girls leave, the ratio is now 4:5, how many of each are there now in the room' Percentages – percentages of amounts, profit and loss, multipliers, simple and compound interest, reverse percentage Coordinate geometry - using $y=mx+c$ to find equations of straight lines, including finding parallel and perpendicular lines, drawing and plotting graphs, interpreting real life graphs
HT2	Angles in polygons



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	<p>Standard form – all 4 computations with and without a calculator, solving speed, distance and time questions in standard form</p> <p>Surds – simplifying and rationalising</p> <p>Solving Quadratic Equations – via factorising, completing the square and quadratic formula</p> <p>Pythagoras and Trigonometry – all in 2D, up to an including exact trig values</p>
HT3	<p>Cumulative frequency, box plots and histograms</p> <p>Simultaneous equations – quadratic simultaneous equations</p> <p>Constriction, loci and bearings</p> <p>Vectors and proof - column vectors and geometric vectors, solve geometric problems in 2D where vectors are divided in a given ratio</p>
HT4	<p>Quadratic, cubic and other graphs – recognise and draw linear, quadratic, cubic, reciprocal and circle graphs from their shape or equation, solving simultaneous equations from their graphs.</p> <p>Differentiation (further maths group only)</p> <p>Further trigonometry – 3D trigonometry</p>
HT5	<p>Accuracy and bounds – finding upper and lower bounds, calculations with upper and lower bounds</p> <p>Probability - Venn diagrams and tree diagrams (including conditional probability)</p>
HT6	<p>Algebraic fractions – simplifying, adding/subtracting and multiplying/dividing, solving quadratic equations arising from algebraic fractions</p> <p>Inequalities – solving linear and quadratic inequalities, inequality bounds on graphs</p> <p>Composite and inverse functions</p> <p>Domain and range of functions (further maths group only)</p> <p>Factor Theorem (further maths group only)</p>
Year 11	
Half Term (HT)	Topic Area / Focus
HT1	<p>Graphs of trigonometric functions – recognise, sketch and interpret trigonometric graphs</p> <p>Trigonometric identities (further maths group only)</p> <p>3D forms and volumes – converting between metric volume measures, finding volumes and surface area of prisms, finding volume and surface area of cylinders, cones and spheres</p> <p>Collecting data – capture-recapture problems</p>
HT2	<p>Iteration – use iteration to find the next term in a sequence, use iteration to find approximation to equations</p> <p>Reciprocal/exponential graphs, transformations and area under a curve– recognise and interpret exponential and reciprocal functions, transform functions in the form $y=f(x)$, estimating area under graphs by dividing into trapezia</p> <p>Drawing and sketching of functions (further maths group only)</p> <p>Similarity and Congruency – congruent shapes, similar shapes including area and volume scale factors</p>
HT3	<p>Circle Theorems and Circle Geometry– proofs of circle theorems, finding the equations of tangents to circles</p>



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	<p>Equations of Circles (further maths group only)</p> <p>Multiplicative reasoning - Set up and use equations to solve word and other problems involving inverse proportion and relate algebraic solutions to graphical representation of the equations.</p> <p>Transformations – revision of all 4 transformations</p>
HT4	<p>Quadratic simultaneous equations</p> <p>Revision</p>
HT5	<p>Revision</p>
HT6	<p>No further lessons take place</p>