



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
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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 Standard form – all 4 computations with and without a calculator, solving speed, distance and time questions in standard form Surds – simplifying and rationalising Solving Quadratic Equations – via factorising, completing the square and quadratic formula Pythagoras and Trigonometry – all in 2D, up to an including exact trig values
HT3	Cumulative frequency, box plots and histograms Simultaneous equations – quadratic simultaneous equations Constriction, loci and bearings Vectors and proof - column vectors and geometric vectors, solve geometric problems in 2D where vectors are divided in a given ratio
HT4	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. Differentiation (further maths group only) Further trigonometry – 3D trigonometry
HT5	Accuracy and bounds – finding upper and lower bounds, calculations with upper and lower bounds Probability - Venn diagrams and tree diagrams (including conditional probability)
HT6	Algebraic fractions – simplifying, adding/subtracting and multiplying/dividing, solving quadratic equations arising from algebraic fractions Inequalities – solving linear and quadratic inequalities, inequality bounds on graphs Composite and inverse functions Domain and range of functions (further maths group only) Factor Theorem (further maths group only)
Year 11	



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

Half Term (HT)	Topic Area / Focus
HT1	Graphs of trigonometric functions – recognise, sketch and interpret trigonometric graphs Trigonometric identities (further maths group only) 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 Collecting data – capture-recapture problems
HT2	Iteration – use iteration to find the next term in a sequence, use iteration to find approximation to equations 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 Drawing and sketching of functions (further maths group only) Similarity and Congruency – congruent shapes, similar shapes including area and volume scale factors
HT3	Circle Theorems and Circle Geometry – proofs of circle theorems, finding the equations of tangents to circles Equations of Circles (further maths group only) 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. Transformations – revision of all 4 transformations
HT4	Quadratic simultaneous equations Revision
HT5	Revision
HT6	No further lessons take place