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| **Year 7** | **Half term 1** **Learning Overview****(6 weeks)** | **Half term 2****Learning Overview****(6 weeks)** | **Half term 3** **Learning Overview****(6 weeks)** | **Half term 4** **Learning Overview****(6 weeks)** | **Half term 5** **Learning Overview****(6 weeks)** | **Half term 6** **Learning Overview****(6 weeks)** |
| **Algebraic Thinking** | **Place Value and Proportion** | **Applications of number** | **Directed Number****Fractional Thinking** | **Lines and Angles** | **Reasoning with Number** |
| **Sequences (2)** | Recognise linear and non-linear sequencesGenerate sequences from a term to term ruleFind missing numbers in a sequence | **Place value and ordering integers and decimals (3)** | Understand and use place valueCompare and order numbersRound to powers of 10 and 1 significant figure**H – Write 1 significant figure numbers in standard form** | **Solving problems with addition & subtraction (2)** | Formal methods for adding and subtracting integers and decimalsAddition and subtraction in context – perimeter, financial problems, tables, bar charts, line graphs**H – addition and subtraction in standard form** | **Operations and equations with directed number (3)** | Four operations with directed number2 step equationsOrder of operations – with directed numbers**H – Roots of positive numbers and explore higher powers and roots** | **Constructing, measuring and using geometric notation (3)** | Geometric notationDraw lines, angles and simple shapesStandard ruler and compass constructionsIdentify parallel and perpendicular lines and polygons up to decagonConstruct and use pie charts | **Developing number sense (2)** | Mental arithmetic strategies for integers, decimals and fractionsEstimation to check calculationsFactors to simplify calculationsCalculator strategies to solve problems |
| **Understand and use algebraic notation (2)** | Function machines to represent expressionsSubstitution into expressionsUse technology to represent 1 and 2 step functions graphically | **Fraction, decimal and equivalence (3)** | Interchange between fractions and decimals below 1Convert between simple fractions, decimals and percentagesEquivalent fractionsSimplify fractionsUse and interpret pie charts**H – Explore fractions, decimals and percentages greater than 1** | **Solving problems with multiplication and division (3)** | Order of operationsUse factors and multiplesMetric measure conversionProblem solving in context – area of triangles, rectangles, parallelograms, finding the mean**H – area of a trapezium****H – multiplying and dividing by positive powers of 10****H – multiplying by 0.1 and 0.01** | **Addition and subtraction of fractions (3)** | Review equivalent fractionsConvert mixed numbers to fractionsAdding and subtracting fractions – common denominator /any denominatorAdding and subtracting improper fractions and mixed numbersAdd and subtract decimals and fractions**H – Add and subtract simple algebraic fractions** | **Developing geometric reasoning (3)** | Properties of angles at a point, angles at a point on a straight line and vertically opposite anglesProperties of angles in a triangle and quadrilaterals**H – Derive and use angle sum in any polygon****H – Investigate parallel lines****H.- Simple angle proofs** | **Sets and probability (2)** | Create Venn diagramsUnion and intersection of setsLanguage of probabilitySample space diagrams for a single eventProbability scale Calculate probabilities of a simple eventSum of probabilities is 1**H – Complement of sets** |
| **Equality and equivalence (2)** | Meaning of equality and equivalenceSimplify expressions with like termsSolve 1 step equations | **Fractions & percentages of amounts (1)** | Fractions of amountsFind percentages of amounts – mental methods and calculator methodsUse given fractions to find the whole, other fractions**H – explore percentages over 100% and fractions greater than 1** | **Prime numbers and proof (2)** | Number definitions – multiple, factor, prime, square and triangular numbersHCF and LCMProduct of prime factorsMake and test conjectures and use counter examples to disprove a conjecture**H – Use Venn diagrams to find HCF and LCM** |

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| **Year 8** | **Half term 1** **Learning Overview****(6 weeks)** | **Half term 2****Learning Overview****(6 weeks)** | **Half term 3** **Learning Overview****(6 weeks)** | **Half term 4** **Learning Overview****(6 weeks)** | **Half term 5** **Learning Overview****(6 weeks)** | **Half term 6** **Learning Overview****(6 weeks)** |
| **Proportional Reasoning** | **Representations** | **Algebraic techniques** | **Developing Number** | **Developing Geometry** | **Reasoning with Data** |
| **Ratio and Scale (2)** | Ratio notationSolve problems in the form 1:n, n:1 and m:nDivide in a given ratioSimplify fractionsCompare ratio and fractionsUnderstand Pi as a ratio**H – express ratio in the form 1:n****H –Gradient as a ratio** | **Working in the Cartesian plane (3)** | Coordinates in all 4 quadrantsDraw lines parallel to the axesRecognise and use lines of the form $y=x, y=kx, y=x+a$Link $y=kx$ to direct proportion problemsGraphs with a negative gradientLink graphs to linear sequencesPlot graphs of the form $y=mx+c$Gradient of lines in the form $y=kx$Non-linear graphs**H –mid-point of a line segment** | **Brackets, equation and inequalities (4)** | Form algebraic expressionsDirected number with algebraMultiply out/factorise single bracketExpand multiple single brackets and simply the expressionForm and solve equations with bracketsForm and solve inequalitiesIdentify and use formulae, expressions, identities and equations**H – Expand a pair of binomials****H – Form and solve equations and inequalities with unknowns on both sides** | **Fractions and percentages (3)** | Key fractions decimals and percentages Fractions, decimals and percentages of an amount without a calculator/with a calculatorConvert between decimals and percentages greater than 100%Percentage decrease and increase with a multiplierExpress one number as a fraction or a percentage of another without a calculator/calculator Percentage changeSolve percentage problemsH - **Find the original amount given the percentage less than 100%/greater than 100%**H - **Choose appropriate methods to solve complex percentage problems** | **Angles in parallel lines and polygons (3)** | Parallel lines and the transversal Alternate and corresponding angles, interior, alternate and corresponding anglesSolve complex problems with parallel line anglesConstruct triangles and special quadrilateralsProperties of special quadrilaterals, calculate with sides and angles,properties of diagonals of quadrilateralsSum of the interior and exterior angles in any polygon**H- prove simple geometric facts****H – construct angle bisectors, perpendicular bisector of a line segment** | **The Data Handling Cycle (4)** | Statistical enquiryQuestionnairesDraw and interpret – pictograms, bar charts, vertical line charts, multiple bar charts, pie charts and line graphsChoose an appropriate diagram for a set of dataRepresent and interpret grouped quantitative dataFind and interpret the rangeCompare distributions using chartsMisleading graphs |
| **Multiplicative change (2)** | Direct proportionConversion graphsConvert between currenciesRelationships between similar shapesScale factors and draw and interpret scale diagramsInterpret maps using ratio and scale factors**H –direct proportion graphs** | **Representing data (2)** | Scatter graphs and linear correlationLine of best fitIdentify non-linear relationships and different types of dataUngrouped and grouped frequency tablesRepresent grouped discrete data and continuous data grouped into equal classesTwo-way tables | **Sequences (1)** | Generate sequences given a rule in words or a simple algebraic ruleGenerate sequences given a complex algebraic ruleFind the nth term for a linear sequence | **Standard Index Form (2)** | Positive and negative powers of 10Standard form - compare and order numbers, mental methods and calculator methodsAdd, subtract, multiply and divide numbers in standard form**H –negative indices/fractional indices** | **Area of Trapezia and circles (2)** | Calculate area of triangles, rectangles, parallelograms and trapeziumsPerimeter and area of compound shapes (including shapes with semi-circles)Area of a circle and part circle using calculator and non-calculator methods | **Measures of location (2)** | Understand and use the mean, median and modeChoose the appropriate averageIdentify outliersCompare distributions using averages and the range**H – calculate the mean from ungrouped and grouped frequency tables** |
| **Multiplying and dividing fractions (2)** | Multiply fractions by an integerProduct of a pair of unit fractions/any pair of fractionsDivide a fraction by a unit fractionThe reciprocalDivide any pair of fractionsMultiply and divide improper and mixed fractionsMultiply and divide algebraic fractions | **Tables and probability (1)** | Sample space diagrams with more than 1 eventFind the probability from sample space diagrams, 2-way tables and Venn diagramsProduct rule for finding outcomes | **Indices (1)** | Add and subtract expressions with indicesSimplify algebraic expressions by multiplying or dividing indicesUse the addition and subtraction laws for indices**H – Explore powers of powers** | **Number Sense (1)** | Rounding numbers – powers of 10, 1 significant figure, decimal placesEstimationOrder of operationsCalculate with moneyConvert metric lengths and units of weight and capacityProblems using time and the calendar**H – error interval notation****H – convert metric units of area and volume** | **Symmetry & reflection (1)** | Recognise line symmetryReflect shapes in horizontal/vertical and diagonal lines (shapes touching and not touching the line) |

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| **Year 9** | **Half term 1** **Learning Overview****(6 weeks)** | **Half term 2****Learning Overview****(6 weeks)** | **Half term 3** **Learning Overview****(6 weeks)** | **Half term 4** **Learning Overview****(6 weeks)** | **Half term 5** **Learning Overview****(6 weeks)** | **Half term 6** **Learning Overview****(6 weeks)** |
| **Reasoning with Algebra** | **Constructing in 2 and 3 dimensions** | **Reasoning with Number** | **Reasoning with Geometry** | **Reasoning with Proportion** | **Representations** |
| **Straight line graphs (2)** | Review use of tables of values, lines parallel to the axes and also $y=x$ and $y=-x$Compare gradients and interceptsUnderstand and use $y=mx+c$, including finding the equation of the line from a graphGradients and intercepts of real-life graphs**H – writing equations in the form** $y=mx+c$**H – explore perpendicular lines****H – Model real life graphs using inverse proportion** | **Three dimensional shapes (3)** | Names of 2D and 3D shapesRecognise prisms (language of edges and vertices)Nets of cuboids and 3D shapesPlans and elevationsReview area of 2D shapesSurface area – cubes, cuboids, triangular prisms, cylinderVolume of cubes, cuboids, prisms and cylinders**H – explore volume of comes, pyramids and spheres** | **To include test in Week 16****Numbers (2)** | Review – working with directed number, HCF and LCM, adding, subtracting, multiplying and dividing fractions, standard formProblems with integers, fractions and decimalsIdentify integers, real and rational numbers**H – surds** | **Deduction (2)** | Review angles in parallel linesSolve angle problems - using chains of reasoning, with algebraConjectures with angles and shapes**H – link constructions and geometrical reasoning** | **Enlargement and similarity (2)** | Recognise enlargement and similarityEnlarge a shape – by positive scale factor (integer from a point and fractional)Similar shapes – missing sides and angles**H – enlarge a shape by negative scale factor****H – problems with similar triangles****H – explore ratios in right angled triangles** | **Probability (2)** | Review single event probabilityRelative frequency (including convergence)Expected outcomesIndependent eventsDiagrams to calculate probabilities (including two-way tables, Venn diagrams, tree diagrams)**H – tree diagrams (and to solve without replacement problems)** |
| **Forming and solving equations (2)** | Review understanding of solving 1 and 2 step equations and inequalities, including with bracketsInequalities with negative numbersEquations and inequalities with unknowns on both sidesRearranging formulae – 1 step and 2 step**H – Rearrange complex formulae** | **Constructions and Congruency (3)** | Review drawing and measuring angles, scale drawing, constructing trianglesStandard loci – from a point, from a straight line, equidistant from 2 points, distance from 2 linesConstructions – perpendicular bisector, perpendicular bisector from a point, perpendicular to a point, angle bisectorIdentify congruent shapesExplore and identify congruent triangles | **Using percentages (2)** | Review - equivalent fractions, decimals and percentages, percentage increase and decrease, change as a percentageRecognise and solve percentage problems – calculator and non-calculator**H – problems with repeated percentage change** | **Rotation and translation (2)** | Rotational symmetryCompare and contrast rotational symmetry with line symmetryRotate a shape – about a point on a shape, about a point not in a shapeTranslationCompare the rotation and reflection of shapes**H – find the results of a series of transformations** | **Solving ratio & prop problems (2)** | Review - direct proportion, conversion graphs, ratio problemsInverse proportion problemsSolve best buy problems**H – graphs of inverse relationships****H – problems involving ratio and algebra** | **Algebraic Representation (2)** | Draw and interpret quadratic graphsInterpret graphs – reciprocal and piece-wiseRepresent inequalities (number line, graphically shaded regions)**H – graphs of simultaneous equations** |
| **Testing conjectures (2)** | Review knowledge of factors, multiples and primesTrue or false statementsDeveloping reasoning skills for always, sometimes and never statementsIntroduction to the show that methodConjectures about number/algebra – introduction to proofExpand a pair of binomialsIntroduction to formal proofs | **Maths and money (2)** | Problems with bills and bank statementsCalculate simple and compound interestSolve problems with valued added tax, exchange rates and unit pricingCalculate wages and taxes | **Pythagoras (2)** | Review squares and square rootsIdentify and calculate the hypotenuse of a right-angled triangleDetermine whether a triangle is non-right angledCalculate missing sides in a non-right-angled trianglePythagoras’ theorem on the coordinate axesExplore proofs of Pythagoras’s theorem**H – Pythagoras’ theorem in 3D shapes** | **Rates (2)** | Speed, distance and time problems – calculator and non-calculator Distance time graphsDensity, mass and volume problemsFlow problems and graphsRates of change (including units)**H – convert compound units** | **End of year revision and assessment** |  |

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| **Year 10** | **Half term 1** **Learning Overview****(6 weeks)** | **Half term 2****Learning Overview****(6 weeks)** | **Half term 3** **Learning Overview****(6 weeks)** | **Half term 4** **Learning Overview****(6 weeks)** | **Half term 5** **Learning Overview****(6 weeks)** | **Half term 6** **Learning Overview****(6 weeks)** |
| **Similarity** | **Developing Algebra** | **Geometry** | **Proportions and Proportional Change** | **Delving into Data****Using Number** | **Using Number** **Expressions** |
| **Congruence, similarity and enlargement (3)** | Review - enlargement, parallel line rules to find missing anglesSimilar shapes – identify similar shapes, missing sides and angles in similar shapes, similar trianglesDifference between congruence and similarityCongruent triangles**H – enlarge shape by negative scale factor****H – Area and volume of similar shapes****H – proof for congruent triangles****H – mixed problems similar shapes** | **Equations and inequalities**  | Review – form and solve one and two-step equations and inequalities, straight line graphs Understand meaning of a solutionSolutions to inequalities on a number lineSolve equations using straight line graphsForm and solve equations and inequalities with unknowns on both sides (including brackets, fractional expressions)**H - Set notation to show solutions to inequalities****H - Represent solutions to single/multiple inequalities on a graph****H - Factorisation to solve quadratic equations****H – Solve quadratic inequalities in 1 variable** | **Angles and bearings (2)** | Review – basic angle rules (at a point, angles at a point on a straight line, vertically opposite anglesReview angles in quadrilaterals, triangles and other regular polygonsUnderstand and use bearings**H – Sine and Cosine rules to find angles and sides** | **Ratios and fractions (2)** | Review formal methods for working with simplifying ratio, ratio of amounts and fraction arithmetic, including fractions of amountsReview using ratios, including with mixed unitsReview best buy problemsRelate ratios to fractionsUnderstand and use proportion as equality of ratiosExpress a multiplicative relationship between two quantities as a ratio or a fraction**H – Area and volume ratios** | **Collecting, representing and interpreting data (4)** | Review finding the averages and spread of data, statistics diagrams to compare distributions, correlation and the line of best fitUnderstand the dangers of extrapolationUnderstand sampling methods and the possible limitationsConstruct and interpret frequency polygonsConstruct and interpret tables and line graphs for time series dataEvaluate measures of location and dispersion (including outliers)Use statistical diagrams and measure to compare distributions **H - construct and interpret diagrams for grouped data – histograms equal and unequal class widths), cumulative frequency curves,** **H – box plots****H – use quartiles and the inter-quartile range** | **Types of number and sequences (2)** | Review factors, multiples, primes and prime factorisationReview understanding of arithmetic and geometric sequences including recognising key sequences (triangular numbers, square numbers)Review using term to term rule, position to term rule and the nth term for linear sequences**H – Find the nth term for quadratic sequences** |
| **Trigonometry (3)** | Review Pythagoras’ theoremExplore ratios in similar right-angled trianglesWork fluently with the hypotenuse, opposite and adjacent sidesUse the trigonometric ratios to calculate missing sides and anglesSolve problems requiring trigonometry**H – trigonometry in 3D shapes****H – use of formula for area of non-right-angled triangles** | **Simultaneous equations (4)** | Determine whether $(x,y)$ is a solution to a pair of linear simultaneous equationsLinear simultaneous equations – by substitution, graphically, elimination methodForm and solve a pair of linear simultaneous equations**H – Determine whether** $(x,y)$ **is a solution to both a linear and a quadratic equation****H – Solve simultaneous equations (one linear, one quadratic) – graphically, algebraically****H – solve a pair of simultaneous equations with a third unknown** | **Working with circles (2)** | Review area and circumference Name parts of a circle and perform related calculations (arc length and area of a sector)Find areas and volumes related to circles – cylinder, cone, sphere, hemisphere**H – derive and prove the first four circle theorems****H – understand and use the equation of a circle** | **Percentages and Interest (2)** | Review conversion between fractions, decimals and percentage, finding percentages and percentage changes as a fraction or a decimal, finding one number as a percentage of another, simple and compound interestEvaluate exponential change (e.g. depreciation)Solve finding the original value problems**H – Solve problems involving growth and decay** | **Non-calculator methods (2)** | Review use of four operation with integers & decimals with or without contextWorking with exact answers (for example with area and volume, exact trigonometric values, exact answers in terms of $π$)Evaluate calculations involving percentagesSolve problems involving financial mathematics | **Indices and roots(2)** | Review positive integer powers and associated real roots including recognising powers of 2, 3 4 and 5Review the rules of indicesReview knowledge of numbers in standard form and be able to perform calculations**H – Calculate exactly with surds. Simplify surds and rationalise the denominator****H – Understand and use fractional indices****H – work with rational and irrational numbers, including recurring decimals into fractions****H – work with accuracy including upper and lower bounds** |
| **Vectors (2)** | Review translations as 2D vectorsVector notationVector arithmetic Diagrammatic and column representations of vectors**H – Construct geometric proofs and arguments with vectors** | **Probability (2)** | Review four operations with fractionsReview single event probability, independent events, tree diagrams and include tree diagrams without replacementReview comparing theoretical and experimental probabilities, finding probabilities from frequency trees, tables and Venn diagramsUnderstand and work with mutually exclusive events**H – calculate and interpret conditional probability (using expected frequencies with two-way tables, tree diagrams and Venn diagrams)** | **Manipulating Expressions (2)** | Review collecting like terms, simplifying expressions involving sums, products and powers, laws of indices |

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| **Year 11** | **Half term 1** **Learning Overview****(6 weeks)** | **Half term 2****Learning Overview****(6 weeks)** | **Half term 3** **Learning Overview****(6 weeks)** | **Half term 4** **Learning Overview****(6 weeks)** | **Half term 5** **Learning Overview****(6 weeks)** | **Half term 6** **Learning Overview****(6 weeks)** |
| **Graphs** | **Algebra** | **Reasoning & QLA from PPE** | **Revision and Communication** | **Revision** | **Examinations** |
| **Gradients and lines (2)** | Review knowledge of straight lines, including the gradient and intercept, parallel linesFind the equation of straight lines in the form $y=mx+c$Find the equation of a line through 2 given points or through 1 point and a given gradientRecognise, sketch and interpret graphs of linear functions **H – understand and use equations of perpendicular lines** | **Expanding and Factorising (2)** | Review expanding a single bracket and binomialsReview factorising into a single bracketFactorise quadratics in the form $x^{2}+bx+c$ including the difference of two squaresSolve quadratic equations Simplify complex algebraic expressions including algebraic fractions**H – solve quadratic equations by completing the square and using the quadratic formula****H – factorise quadratics in the form** $ax^{2}+bx+c$ | **Multiplicative (2)**  | **H – solve problems involving variation with powers** | **Transforming & Constructing (2)** | **H – understand and use trigonometric graphs****H – sketch translations and reflections of the graph of a given function** |  |  |
| **Non-linear graphs (2)** | Plot and read from quadratic graphsUnderstand and find roots, intercepts, turning points of quadratic functions graphicallyPlot cubic and reciprocal graphs (also in context)Recognise, sketch and interpret graphs of quadratic functions **H – deduce turning points by completing the square****H – Understand and use exponential graphs****H – find the equation of the tangent to a curve** | **Changing the subject (2)** | Review solving linear equationsChange the subject of a formula including perimeter, area and volume formulaeFind the volume of a pyramid**H – change the subject of a formula where the subject appears more than once****H – solve equations by iteration** | **Geometric (2)**  | **H – construct formal geometric proofs including for circle theorems** | **Listing and describing (2)**  | **H – Product rule for counting** |
| **Using graphs (2)** | Reflect shapes in a given lineConstruct and interpret speed, distance and time graphsConstruct and interpret real life graphs**H - estimate the area under a curve** | **Functions (2)** | Find inputs and outputs of functionsShow that algebraic expressions are equivalentSolve problems using kinematic formulae**H – work with composite and inverse functions** | **Algebraic (2)** | **H – construct formal algebraic proofs****All groups to follow bespoke plan based on QLA results from November PPE** | **Show that . . . (2)****All groups to follow new bespoke plan based on February PPE** | **H – formal proof with congruent** **triangles** |  |