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| Flat_BL@2x-100 | Wollaston School: 2023 Curriculum Map for Mathematics  Curriculum Lead: Rachel Lynch | cid:image001.png@01D52C2F.ED74AF70 |
| **Curriculum Aim and scope**:  **Key Stage 3:** We will build on the work that has been covered in the primary schools as well as beginning to introduce some lower level GCSE topics as part of the higher end challenging curriculum.  Those working below the expected level will continue to build on their numeracy skills whilst following an appropriate curriculum designed to improve proficiency in shape, data and algebra so students are prepared for the start of GCSE in year 9.  Homework will be set weekly and will include questions designed to master essential skills each term.  Development of problem solving and reasoning skills will be enhanced alongside the teaching of the main curriculum.  Students will be encouraged to become more independent learners as they will have access to on-line mathematical learning resources which they will use in school and for homework.  Links to literacy will include the spelling and definitions of new words associated with mathematics.  Students work will be checked for spelling, punctuation, and grammar.  There will be three assessment points throughout the year.  **Key Stage 4:** We teach GCSE at two tiers ‘Higher’ and ‘Foundation’. The content is prescribed but our aim is to develop problem solving skills and relate mathematics to real life needs. | | |

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| **Year** | **Term** | **Unit** | **Description of what is being taught including end learning goals** | **Links to National Curriculum** | **Subject Specific Terminology and Key Words** | **Prior knowledge (including previous key stage/retrieval required** | **Assessment and Homework**  **(How is the learning being checked- how do you know it is is being remembered?** |
| **Year 7** | 1 | Unit 1: Place Value  Unit 2: Written Methods | Understanding place value including decimals  Rounding to nearest 10,100,1000  Rounding to decimal places and significant figures  Multiplying and dividing with powers of 10  Introduction of standard form and bounds  Understand and know how to use written methods including with decimal numbers  Understand factors, multiples  HCF and LCM  Prime factor decompositions | N1  N2  N8  N13  N4  N3 | Figures  Place value  Positive  Round  Whole number  Decimal  Ordinary number  Standard form  Bounds  Significant figures  Add  Subtract  Multiply  Divide  Integer  Column method  Factor  Multiple  Highest common factor  Lowest common multiple  Prime number | Understand place value  Ordering and comparing numbers  Rounding  Multiplying and dividing by powers of 10  Written methods with integers  Times tables  List multiples and factors  Identify common multiples & factors  Define prime numbers and prime factors  Recall prime factors up to 19 | Weekly Sparx HW  Unit tests |
|  | 2 | Unit 3: Perimeter, area and units  Unit 4: Angles and 2D Shapes | Perimeter and area of all 2D shapes including circles  Perimeter and area of compound shapes  Problem solving questions involving area and perimeter  Conversion between units  Drawing and measuring angles  Angle facts: Angles around a point, vertically opposite angles angles on a straight line, angles in a triangle, angles in a quadrilateral and angles in polygons both regular and irregular  Identify the symmetries of all 2D shapes and name them | G1  G2  N12  G3  G7  G10  G11  G12 | Estimate  Convert  Perimeter  Area  Rectangle  Triangle  Parallelogram  Compound shape  Trapezium  Circumference  Pi  Protractor  Acute  Obtuse  Right angle  Reflex  Straight line  Degrees  Quadrilateral  Poylgons  Irregular | Convert between units  Recognise when it is possible to use formulae for area of shapes  Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles | Weekly Sparx HW  Unit tests  End of term cumulative assessments (topics from term 1 and 2) |
|  | 3 | Unit 5: Fractions  Unit 6: Fractions, decimals and percentages | Equivalent fractions  Ordering fractions  Simplifying fractions  Mixed number into improper fraction and vice versa  Add and subtract fractions including mixed numbers  Equivalent fractions, decimals and percentages  Ordering FDP  Fraction of an amount  Percentage of an amount  Percentage increase/decrease including simple interest  Percentage change | N2  N4  N9  N10  N11  R8 | Equivalent  Ascending  Descending  Mixed number  Improper fraction  Simplifying  Ascending  Descending  Depreciates  Annum | Use common factors to simplify fractions  Compare and order fractions  Add and subtract fractions including mixed numbers  Multiply simple pair of fractions  Divide proper fractions by whole numbers  Recall and use simple equivalence between simple f,d,p  Solve problems involving calculations of % | Weekly Sparx HW  Unit tests |
|  | 4 | Unit 7: Intro to Algebra  Unit 8: Coordinates and graphs | Use function machines  Simplify expressions by collecting like terms including powers and also involving multiplication and dividing  Expand single brackets  Factorise into a single bracket  Linear sequences  Plot and read coordinates  Find the midpoint of two points  Draw linear graphs  Read and interpret real life linear graphs  Understand equation of line y = mx + c  Identify parallel lines | A1  A2  A4  A14  A15  A8  A9  A11 | Function  Simplify  Powers  Indices  Expand  Factorise  Linear  Sequence  nth term  Plot  Coordinate  Midpoint  Linear  Gradient  y-intercept  parallel lines | Use simple formulae  Generate and describe linear sequences  Describe positions on the full coordinate grid | Weekly Sparx HW  Unit tests  End of term cumulative assessments (topics from 3 and 4) |
|  | 5 | Unit 9: Order of operations  Unit 10: Ratio and proportion | Use the order of operations to solve simple calculations including brackets  Apply BIDMAS to solve a calculation including powers and roots  Put the brackets into a calculation to make it true  Solve complex BIDMAS calculations  Equivalent ratios  Simplify ratios  Identify the relationship between ratios and fractions  Divide in a given ratio  Best value problems  Simple direct proportion including recipe questions  Simple inverse proportion | N5  N6  R1  R4  R5  R6  R7  R9 | Order  Operations  BIDMAS  Powers  Roots  Equivalent  Simplify  Ratio  Proportion  Direct proportion  Inverse proportion | Use their knowledge of order of operations to carry out calculations  Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples | Weekly Sparx HW  Unit tests |
|  | 6 | Unit 11: Working with data | Calculate averages from a list of data and frequency table  Draw and interpret stem and leaf diagrams  Draw and fill in two way tables  Draw and interpret bar charts  Draw and interpret pictograms  Complete and interpret scatter graphs  **Revision and consolidation of the year** | S1  S2  S3 | Average  Mean  Mode  Median  Range  Frequency  Stem and leaf  Bar charts  Axis  Pictograms  Key  Scatter graph  Correlation | Calculate and interpret the mean as an average  Interpret and construct line graphs | Weekly Sparx HW  Unit tests  End of year assessment |
| **Year 8** | 1 | Unit 1: Number properties  Unit 2: Positive and negative numbers  Unit 3: Rounding and estimation | Index laws for multiplication and division  Understand factors, multiples and prime numbers  HCF and LCM  Prime factor decompositions  Ordering positive and negative numbers  +/-/x/÷ positive and negative integers  Substitute negative integers into expressions and formulae  BIDMAS  Rounding to nearest 10,100,1000  Rounding to decimal places and significant figures  Use rounding to significant figures to estimate in simple calculations including worded problems  Use inequality notation to specify simple error intervals due to rounding | N3  N1  N2  N4  N5  N6  N7  N8  N1  N12  N13  N14 | Prime number  Square number  Cube number  Square root  Cube root  Factor  Multiple  Product  Lowest Common Multiple  Highest Common factor  Index / Indices  Power  Base  Directed Number  Positive  Negative  Inequality  Substitute  Index/Indices  Round  Significant figure  Estimate  Lower bound  Upper bound  Error interval  Inequality  Square root | **KS2**  Times tables  List multiples and factors  Identify common multiples & factors  Define prime numbers and prime factors  Recall prime factors up to 19  **Year 7 Unit 2:**  Should already be familiar with factors, multiples, and HCF/LCM using listing strategies.  Some HA pupils may have seen prime factorisation  **KS2**  Use negative numbers in context, and calculate intervals across zero  **Year 7**  Unit 1: Place Value  Unit 9: Order of Operations  **Year 7**  Unit 1: Place Value – Will have seen rounding to 10/100/1000 and decimal places.  HA pupils will have seen significant figures and started to estimate  **Year 8**  Unit 1: Square roots | Weekly Sparx HW  Unit tests |
|  | 2 | Unit 4: Length and Area  Unit 5: 3D shapes  Unit 6: Compound measures | Calculate the perimeter and area of all 2D shapes including circles  Calculate the perimeter and area of compound shapes  Focusing on functional questions  Calculate the volume and surface area of cubes, cuboids, prisms including cylinders  Convert between units of area and volume  Speed distance time including graphs  Density, mass and volume  Force, pressure and area | G1  G2  N12  G15  G16  N12  R1  R10 | Perimeter  Area  Compound shape  Parallelogram  Trapezium  Radius  Diameter  Circumference  Chord  Sector  Segment  Tangent  Volume  Surface area  Prism  Cylinder  Pi  Formulae  Axis  Units  Speed  Distance  Time  Density  Mass  Volume  Force  Pressure  Area | **Year 7**  Unit 3 Perimeter Area and Units  All pupils will have seen area and perimeter of 2D shapes including trapezium  HA pupils will have looked at circumference and area of circles  **KS2**  Recognise and describe 3D shapes  Calculate the volume of cubes/cuboids  **Year 7/8**  Calculating the area of 2D shapes  **KS2**  Converting units | Weekly Sparx HW  Unit test  End of term cumulative  Assessment (topics from term 3 and 4) |
|  | 3 | Unit 7: Calculations with fractions  Unit 8: Probability | Equivalent fractions  Ordering fractions  Simplifying fractions  Converting mixed numbers into improper fractions and vice versa  Add and subtract fractions including mixed numbers  Multiply and divide fractions including mixed numbers  List outcomes  Apply the property that the probabilities of mutually exclusive outcomes sum to 1  Construct and complete a sample space diagrams  Draw and interpret venn diagrams | N2  N3  N4  P1  P2  P3  P4 | Equivalent  Ascending  Descending  Simplify  Mixed Number  Improper fraction  Outcome  Event  Probability  Mutually exclusive  Sample space  Venn diagram  Intersect  Union  Complement | **KS2/Year 7**  Use common factors to simplify fractions  Compare and order fractions  Add and subtract fractions including mixed numbers  Multiply and divide simple fractions (KS2 or top set in year 7)  Probability will be a new topic but students will need prior knowledge of working with fractions and decimals from KS2 and year 7 | Weekly Sparx HW  Unit tests |
|  | 4 | Unit 9: Algebraic manipulation  Unit 10: Solving equations | Simplify expressions by collecting like terms including powers and also involving multiplication and dividing  Expand and factorise into a single bracket  Expand and factorise into double brackets  Solve linear equations  Understand inequality notation  Solve linear inequalities  Rearranging formulae | A1  A3  A4  A5  A6  A7 | Expression  Simplify  Expand  Factorise  Linear  Quadratic  Solve  Inequality  Rearrange  Changing the subject | **Year 7:**  Unit 7 – intro to algebra  Students would have dealt with single brackets in year 7  **KS2**  find pairs of numbers that satisfy an equation with unknowns | Weekly Sparx HW  Unit test  End of term cumulative  Assessment (topics from term 1 and 2) |
|  | 5 | Unit 11: Angles  Unit 12: Transformations | Apply the sum of angles around a point  Vertically opposite angles  Finding missing angles on a straight line  Finding missing angles in a triangle  Finding missing angles in a quadrilateral and angles in polygons both regular and irregular  Use angle facts to find angles on parallel lines  Transform 2D shapes by:  Reflection  Translation  Rotation  Enlargement  Identify which transformation has occurred | G5  G7  G10  G11  G12  G13  G16  G8  G9 | Angles  Vertically  Straight line  Triangle  Quadrilateral  Polygon  Regular  Irregular  Parallel lines  Corresponding  Alternate  Co-interior angles  Transformation  Reflection Translation  Vector  Rotation  Centre  Enlargement  Scale Factor | **KS2**  Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles  **Year 7**  Unit 4 -Angle facts: Angles around a point, vertically opposite angles angles on a straight line, angles in a triangle, angles in a quadrilateral and angles in polygons both regular and irregular  **KS2**  Students will be familiar with translating and reflecting shapes from KS2 |  |
|  | 6 | Unit 13: Statistics | Calculate averages from a list of data and frequency table  Find averages from stem and leaf diagrams  Read, complete and interpret two way tables  Construct and interpret pie charts  Complete and interpret scatter graphs  **Revision and consolidation of the year** | S1  S2  S3 | Averages  Mean  Median  Mode  Range  Stem and leaf  Key  Two way tables  Pie charts  Protractor  Scatter graph  Correlation  Relationship | **KS2**  Calculate and interpret the mean as an average  Interpret and construct line graphs  **Year 7**  Unit 11 - working with data | Weekly Sparx HW  Unit tests  End of year assessment |
| **Year 9** | 1 | Unit 1: Arithmetic  Unit 2: Powers and roots  Unit 3: Fractions, decimals and percentages | Use formal written methods for +/-/x/÷ involving decimals  +/-/x/÷ positive and negative integers  Problem solving with the above  Apply BIDMAS to solve a calculation including powers  Recognise and define square numbers, square roots, cube numbers and cube roots  Use index laws including fractional and negative  Convert between ordinary form and standard form  +/-/x/÷ with numbers written in standard form  Simplifying surds  Equivalent fractions, ordering fractions and simplifying fractions  Converting mixed numbers into improper fractions and vice versa  Add, subtract, multiply and divide fractions including mixed numbers  Calculate exactly with fractions, including solving problems  Find equivalent fractions, decimals and percentages  Ordering FDP  Change recurring decimals into fractions | N1  N2  N3  N4  N5  N6  N7  N8  N9  N10  N11  N13  N15  N16  R3 | Integer  BIDMAS  Powers  Square numbers  Square roots  Cube numbers  Cube roots  Index Laws  Standard form  Ordinary form  Surds  Simplify  Equivalent  Mixed numbers  Improper fractions  Exact value  Recurring decimals | **Year 7**  Unit 1 – Place value  Unit 2 – Four operations  Unit 5 - Fractions  Unit 6 – FDP  Unit 9 – Order of operations  **Year 8**  Unit 1 – Number properties  Unit 2 – Positive and negative numbers  Unit 7 – Calculations with fractions  Students will be consolidating what they have previously learned in year 7 and 8 on these core skills before extending each unit to a higher level. | Weekly Sparx HW  Unit tests  End of term cumulative assessment |
|  | 2 | Unit 4: Algebraic manipulation  Unit 5: Coordinates and graphs | Simplifying expressions by collecting like terms including powers and also involving multiplication and dividing  Expand and factorise into a single bracket  Expand and factorise into double brackets  Simplify algebraic fractions  Complete the square on an algebraic expression  Plot and read coordinates  Find the midpoint of two points  Draw linear graphs  Read and interpret real life linear graphs  Understand equation of line y = mx + c  Identify parallel lines  Identify perpendicular lines  Find the equation given two points | A1  A3  A4  A5  A12  A13  A8  A9  A10  A11  A12 | Expression  Simplify  Expand  Factorise  Linear  Quadratic  Complete the square  Plot  Coordinate  Midpoint  Linear  Gradient  y-intercept  Parallel lines  Perpendicular lines | **Year 7**  Unit 7 – Intro to algebra  **Year 8**  Unit 9 - Algebraic manipulation  Students will be familiar with collecting like terms, expanding and factorising from year 7 and 8.  **Year 7**  Unit 8 – Coordinates and graphs  Students would have learnt as far as parallel lines if they have been in set 1 or 2 in year 7.  Sets 3 and 4 – as far as drawing straight line graphs | Weekly Sparx HW  Unit tests  End of term cumulative assessment |
|  | 3 | Unit 6: 2D shapes  Unit 7: 3D shapes | Find unknown angles using angle facts  Calculate the area and perimeter for 2D shapes  Use Pythagoras theorem to find a missing length and apply it to solve problems involving area and perimeter of shapes  Use SohCahToa to find missing sides or angles in a right angle triangle  Know the 3D shapes and their nets  Calculate the volume and surface area of cubes, cuboids, prisms including cylinders  Calculate the volume and surface area of pyramids, Spheres, Hemispheres, frustums and cones  Apply Pythagoras to cone problems | G1  G2  G5  G6  G10  G12  G13  G14  G15 | Trapezium  Parallelogram  Symmetry  Pythagoras Theorem  Sine  Cosine  Tangent  Opposite  Adjacent  Hypotenuse  Area  Perimeter  Cube  Cuboid  Prism  Cylinder  Sphere  Pyramid  Cone  Frustum  Volume  Surface area | **Year 7**  Unit 3 – Perimeter & Area  Area & perimeter of 2D shapes and compound shapes  Unit 4 – Angles & 2D Shapes  Basic angle facts  **Year 8**  Unit 4 Length & area  Recap of 2D area  Unit – 11 – Angles  Angles in polygons | Weekly Sparx HW  Unit tests  End of term cumulative assessment |
|  | 4 | Unit 8: Solving equations  Unit 9: Sequences | Solve linear equations  Form and solve linear equations  Change the subject of the formula  Solve quadratics by factorising  Solve simultaneous equations including worded problems  Recognise and continue sequences  Find the nth term of a linear sequence  Find the nth term of a quadratic sequences  Extension: geometric sequences | A1  A3  A4  A5  A7  A12  A13  A14  A15  A16 | Solve  Linear  Quadratic  Subject  Expand  Factorise  Simultaneous  Term  Position  Linear sequence  Arithmetic sequence  Quadratic sequence  Geometric sequence  Nth term  Generate | **Year 8**  Solving Equations  Solving linear equations including x on both side and brackets  Higher – change the subject  **Year 7**  Unit 7 – Introduction to Algebra  Intro to Linear sequences | Weekly Sparx HW  Unit tests  End of term cumulative assessment |
|  | 5 | Unit 10: Percentages  Unit 11: Proportion | Calculate percentages of an amount  Perform a percentage increase/decrease  Find the percentage change  Reverse percentages – solve original value problems  Calculate simple interest and compound interest  Set up, solve and interpret the answers growth and decay problems  Solve best value problems  Adapt a recipe and use this to solve problems  Solve direct proportion problems  Solve inverse proportion problems  Apply statistics to a capture and recapture problem  Form an equation using variables in direct and inverse proportion and use this to solve problems (finding k) | N10  N11  R8  R9  A2  A5  A6 | Percentage  Multiplier  Compound interest  Simple interest  Depreciation  Direct proportion  Inverse proportion | **Year 7**  Unit 6 – FDP  Finding basic percentages of amounts and percentage change  Higher – simple interest  **Year 7**  Unit 10 – Ratio & Proportion  Best value problems, recipe problems, direct proportion problems  Higher – simple inverse problems  **Year 8**  Unit 10 – solving equations  **Year 9**  Unit 8 – Solving equations | Weekly Sparx HW  Unit tests  End of term cumulative assessment |
|  | 6 | Unit 12: Constructions, loci and bearings | Construct triangles  Use constructions to solve simple loci problems  Use scale factors, diagrams and maps  Construct and measure bearings on diagrams  Find bearings  **Revision and consolidation of the year** | G3  G4  G9  R2 | Construct  Locus/Loci  Scale Factor  Bearing | **Year 7**  Unit 4 – Measure Angles  Measure and draw angles accurately  Unit 10 – Ratio and proportion  **Year 8**  Unit 11 – Angles (including measuring accurately)  **Year 9**  Unit 11 - proportion | Weekly Sparx HW  Unit tests  End of year assessment |
| **Year 10**  **Foundation** | 1 | Unit 1: Rounding and error intervals  Unit 2: Percentages  Unit 3: Ratio and proportion | Rounding to nearest 10,100,1000  Rounding to decimal places and significant figures  Error intervals  Estimation  Percentages of an amount  Percentage increase/decrease  Percentage change  Reverse percentages  Simple interest and compound interest  Growth and decay problems  Equivalent ratios  Simplify ratios  Identify the relationship between ratios and fractions  Divide in a given ratio  Best value problems  Simple direct proportion including recipe questions  Simple inverse proportion | N2  N8  Consolidate KS3 content  R6  R1  R3  R4  N7 | Round  Estimate  Truncate  Lower Bound  Upper Bound  Error Interval  Percentage  Multiplier  Profit  Loss  Compound interest  Simple interest  Depreciation  Ratio  Direct Proportion  Inverse proportion  Simplify  Best Value | **Year 7**  Unit 1: Place Value – Will have seen rounding to 10/100/1000 and decimal places.  HA pupils will have seen significant figures and started to estimate  **Year 8**  Unit 1: Square roots  Unit 3: Rounding and estimation  **Year 7**  Unit 6: FDP  **Year 9**  Unit 10: Percentages  **Year 7**  Unit 10: Ratio  **Year 9**  Unit 11: Proportion | Weekly HW  Unit tests  End of term cumulative assessment |
|  | 2 | Unit 4: Perimeter and area  Unit 5: Volume and surface area | Perimeter and area of all 2D shapes including circles  Perimeter and area of compound shapes  Focusing on functional questions  Area of sectors and length of an arc  Volume and surface area of cubes, cuboids, prisms including cylinders  Volume and surface area of pyramids, Spheres, Hemispheres and cones | G3  G7  N4  G5  G8 | Perimeter  Area  Compound  Sector  Arc  Volume  Surface area  Cube  Cuboid  Prism  Cylinder  Pyramid  Sphere  Hemisphere  Cone | **Year 7**  Unit 3: Perimeter, area and units  **Year 8**  Unit 4: Length and area  **Year 9**  Unit 6: 2D shapes  **Year 8**  Unit 5: 3D shapes  **Year 9**  Unit 7: 3D shapes | Weekly HW  Unit tests  End of term cumulative assessment |
|  | 3 | Unit 6: Angles and bearings  Unit 7: Transformations | Angles around a point  Vertically opposite angles  Angles on a straight line  Angles in a triangle  Angles in a quadrilateral and angles in polygons both regular and irregular  Angles in parallel lines  Use scale factors, diagrams and maps  Construct and measure bearings on diagrams  Find bearings  Transform 2D shapes by:  Reflection  Translation  Rotation  Enlargement  Identify which transformation has occurred  Describe directional vectors as column vectors and vice versa  Add and subtract vectors, and multiply vectors by a scalar (use diagrammatic and column representations)  Construct similar shapes by enlargement of a positive integer scale factor from a given point on a coordinate grid | G6  R1  G1  G2  G9  G14  G15  R1 | Vertically opposite  Quadrilateral  Polygon  Regular  Irregular  Exterior angle  Interior angle  Corresponding  Alternate  Co-interior  Scale factor  Bearing  Transformation  Rotation  Reflection  Enlargement  Translation  Invariant  Vector  Centre  Scale factor  Similar | **Year 7**  Unit 4: Angles and 2D shapes  **Year 8**  Unit 11: Angles  **Year 9**  Unit 6: 2D shapes  **Year 8**  Unit 12: Transformations | Weekly HW  Unit tests  End of term cumulative assessment |
|  | 4 | Unit 8: Drawing graphs  Unit 9: Straight line graphs | Plotting coordinates  Drawing linear graphs  Drawing quadratic graphs  Plotting cubic, reciprocal and exponential graphs  Find the midpoint of two points  Read and interpret real life linear graphs  Understand equation of line y = mx + c  Identify parallel lines  Find the equation given two points | A3  A5  A6  A8  A4 | Plot  Sketch  Linear  Quadratic  Cubic  Reciprocal  Exponential  Gradient  Y-intercept  Parallel  Perpendicular | **Year 7**  Unit 8: Coordinates and graphs  **Year 9**  Unit 5: Coordinates and graphs  **Year 7**  Unit 8: Coordinates and graphs  **Year 9**  Unit 5: Coordinates and graphs | Weekly HW  Unit tests  End of term cumulative assessment |
|  | 5 | Unit 10: Compound Measures  Unit 11: Probability | Convert between units  Speed distance time including graphs  Density, mass and volume  Force, pressure and area  List outcomes  Apply the property that the probabilities of mutually exclusive outcomes sum to 1  Sample space  Venn diagrams  Tree diagrams | R2  N1  P1  P2  P3 | Speed  Density  Mass  Volume  Force  Pressure  Probability  Estimated frequency  Relative frequency  Mutually exclusive  Exhaustive  Independent  Sample Space  Venn diagram  Tree diagram | **Year 7**  Unit 3: Perimeter, area and units  **Year 8**  Unit 4: Length and area  Unit 6: Compound measures  **Year 8**  Unit 8: Probability | Weekly HW  Unit tests  End of term cumulative assessment |
|  | 6 | Unit 12: Averages and range | Averages from a list of data and frequency tables  Averages from a stem and leaf diagram  Recap prior content from KS3  **Revision and consolidation of the year** | S4  S5  Recap KS3 content  S1  S2  S6 | Average  Mean  Mode  Median  Range  Inter-quartile range  Upper quartile  Lower quartile | **Year 7**  Unit 11: Working with data  **Year 8**  Unit 13: Statistics | Weekly HW  Unit tests  End of year assessment (Mocks) |
| **Year 11**  **Foundation** | 1 | Unit 1: Multiples and Factors  Unit 2: Algebraic manipulation  Unit 3: Solving equations | Recognise, list and define prime numbers  Understand and can find the multiples and factors    Find the HCF of a set of numbers  Find the LCM of a set of numbers  Solve worded problems involving the lowest common multiple  Perform prime factor decompositions  Use prime factor decomposition to find the HCF or LCM of two numbers  Use function machines and find the output, input or function  Substitute positive and negative integers into expressions and formulae  Substitute positive and negative integers into expressions and formulae, including with powers  Simplify expressions by collecting like terms, including powers  Simplify expressions involving sums, products and powers, including using index laws  Expand and simplify multiple single brackets  Take out common factors to factorise  Expand the product of two binomials  Factorise a quadratic expression of the form x² + bx + c, including using the difference of two squares  Use algebra to construct arguments and prove identities  Change the subject of a formula  Solve linear equations  Form and solve linear equations  Solve quadratics by factorising  Solve simultaneous equations including worded problems | Consolidate KS3 content focusing on more problem solving exam style questions  A1  A2  A3  A12  A12  A13 | Prime factors  Factor  Multiple  Product of prime  HCF  LCM  Prime factor decomposition  Function  Substitute  Expression  Equation  Formulae  Simplify  Like terms  Index  Indices  Expand  Factorise  Identity  Subject  Solve  Simultaneous | **Year 7**  Unit 2: The four operations  **Year 8**  Unit 1: Number properties  **Year 7**  Unit 7: Introduction to algebra  **Year 8**  Unit 9: Algebraic manipulation  **Year 9**  Unit 4: Algebraic manipulation  **Year 8**  Unit 10: Solving equations  **Year 9:**  Unit 8: Solving equations | Weekly HW  Unit tests |
|  | 2 | Unit 4: Indices and standard form  Unit 5: Area, perimeter and right angled triangles | Find integer powers and roots  Use the order of operations to solve calculations including brackets  Apply order of operations to the four operations with negative integers  Convert between ordinary numbers and standard form  Rewrite a number in correct standard form notation  Multiply and divide with numbers written in standard form  Add and subtract with numbers written in standard form  Solve worded problems involving numbers written in standard form  Solve functional problems by finding the area or perimeter of compound shapes made from rectangles  Find the area of 2D shapes  Apply Pythagoras theorem to find an unknown side  Use trigonometric ratios to find an unknown side/angle in a right angle triangle  Identify when to use Pythagoras' theorem and when to use the trigonometric ratios  Know the exact values of trig | N3  N5  G10  G11  R1 | Integer  Power  Index  Root  Ordinary Number  Standard Form  Compound shape  Pythagoras Theorem  Trigonometric ratio  Sine  Cosine  Tangent  Hypotenuse  Opposite side  Adjacent side | **Year 7**  Unit 9: Order of operations  **Year 8**  Unit 1: Number Properties  Unit 2: Positive and negative numbers  **Year 9**  Unit 2: Powers and roots  **Year 7**  Unit 3: Perimeter, area and units  **Year 8**  Unit 4: Length and area  **Year 9**  Unit 6: 2D Shapes  **Year 10**  Unit 4: Perimeter and area | Weekly HW  Unit tests  Mocks |
|  | 3 | **Tailored revision from the mocks analysis** | GCSE Specification  Key topic to prioritise:  Sequences – should have been interweaved when doing algebraic topics in year 10/11 but not covered as a topic in fully since year 9  Fractions |  |  |  |  |
|  | 4 | **Tailored revision from the mocks analysis and a focus on past papers** | GCSE Specification |  |  |  |  |
|  | 5 | **Tailored revision with a focus on past papers** | GCSE Specification |  |  |  |  |
|  | 6 | **Tailored revision for paper 2 and 3** | GCSE Specification |  |  |  |  |
| **Year 10**  **Higher** | 1 | Unit 1: Surds and Indices  Unit 2: Solving quadratics  Unit 3: Drawing graphs and graphing inequalities | Simplify expressions involving sums, products and powers, including using index laws  Fractional and negative indices  Simplify surds  Expand brackets with surds  Rationalise surds  Find and use the nth term of geometric sequences (r^n, where n is an integer and r can be a surd)  Expand double and triple brackets  Solve quadratics by factorising, quadratic formula and completing the square including questions that require rearranging  Solve quadratic inequalities  Understand equation of line y = mx + c  Identify parallel lines  Identify perpendicular lines  Find the equation given two points  Plotting quadratic, cubic, reciprocal and exponential graphs  Represent linear inequalities on graphs | N2  N3  N4  A14  A1  A2  A13  A5  A6  A8 | Product  Power  Index  Indices  Surd  Rational  Irrational  Rationalise  Geometric sequence  Expand  Factorise  Quadratic formula  Inequality  Complete the square  Parallel  Perpendicular  Gradient  Y-Intercept  Linear  Quadratic  Cubic  Reciprocal  Exponential | **Year 8**  Unit 9: Algebraic manipulation  **Year 9**  Unit 2: Powers and roots  **Year 8**  Unit 9: Algebraic manipulation  **Year 9**  Unit 4: Algebraic manipulation  Unit 8: Solving equations  **Year 7**  Unit 8: Coordinates and graphs  **Year 9**  Unit 5: Coordinates and graphs | Weekly HW  Unit tests  End of term cumulative assessment |
|  | 2 | Unit 4: Arcs and sectors  Unit 5: Circle theorems | Finding the area or perimeter of compound shapes including parts of circles  Area of sectors  Length of an arc  Find the perimeter of a sector when given the area or the area when given the perimeter  Recognise and name the parts of a circle  Use the standard circle theorems to find a missing angle including in a complex problem  Prove the standard circle theorems | G3  G7  G4 | Sector  Segment  Arc  Circumference  Diameter  Radius  Chord  Tangent  Alternate segment  Cyclic Quadrilateral | **Year 8**  Unit 4: Length and area  **Year 8**  Unit 4: Length and area | Weekly HW  Unit tests  End of term cumulative assessment |
|  | 3 | Unit 6: Similarity and congruence  Unit 7: Complex transformations of shapes  Unit 8: Conditional probability | Use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS)  Prove two triangles are congruent  Find a missing side length in two shapes that are similar in the context of a problem  Apply the concepts of similarity, including the relationships between lengths, areas and volumes in similar figures  Prove two triangles are similar  Recap transformations of 2D shapes  Enlargements including negative and fractional scale factors  Calculate probabilities from a two way table, including conditional probabilities  Complete Venn diagrams, including when the intersection needs to be calculated  Find conditional probabilities from a Venn diagram  Complete probability tree diagrams and find probabilities | R1  G9  G1  G2  P1  P2  P3  P4  N1 | Similar  Congruent  Scale Factor  Transformation  Rotation  Reflection  Enlargement  Translation  Scale Factor  Vector  Centre  Probability  Independent  Mutually Exclusive  Exhaustive  Conditional  Venn diagram  Probability tree  Two-way table | **Year 8**  Unit 12: Transformations  **Year 8**  Unit 8: Probability | Weekly HW  Unit tests  End of term cumulative assessment |
|  | 4 | Unit 9: Volume and algebra  Unit 10: Bounds and compound measures | Volume and surface area of cubes, cuboids, prisms including cylinders  Volume and surface area of pyramids, Spheres, Hemispheres, cones and frustums  Apply Pythagoras to cone problems  Apply algebra to the formulae for volume and surface area of a complex solids to solve problems  Use inequality notation to specify simple error intervals due to rounding and truncation  Find upper and lower bounds  Convert compound units  Speed distance time including graphs  Density, mass and volume  Force, pressure and area | G5  G8  G9  G10  A12  N2  N8  R1  R2 | Cube  Cuboid  Prism  Pyramid  Cone  Sphere  Frustum  Surface area  Volume  Error interval  Upper bound  Lower bound  Truncate  Estimate  Compound unit  Speed  Density  Mass  Volume  Force  Pressure | **Year 8**  Unit 5: 3D Shapes  **Year 9**  Unit 7: 3D Shapes  **Year 8**  Unit 3: Rounding and estimation  Unit 6: Compound measure | Weekly HW  Unit tests  End of term cumulative assessment |
|  | 5 | Unit 11: Graphs of circles  Unit 12: Linear and quadratic simultaneous equations | Recognise and interpret the equation of a circle with centre at the origin  Calculate whether a given point lies inside, on or outside a circle  Solve problems using the equation of a circle  Find the equation of a tangent to a circle at a given point  Solve problems including find the equation of a tangent to a circle at a given point  Solve two linear simultaneous equations in two variables algebraically  Form and solve two linear simultaneous equations in two variables algebraically  Solve two linear simultaneous equations in two variables graphically  Solve two simultaneous equations (one linear, one quadratic) algebraically and graphically | A10  A12 | Origin  Tangent  Radius  Simultaneous  Equation  Linear  Quadratic | New topic but knowledge from previous circle chapters and coordinate geometry may be helpful  **Year 9**  Unit 8: Solving equations | Weekly HW  Unit tests  End of term cumulative assessment |
|  | 6 | Unit 13: Histograms, cumulative frequency and boxplots | Interpret and calculate quartiles and interquartile range  Find the interquartile range from a stem and leaf diagram  Construct, complete and interpret box plots  Compare boxplots  Construct and interpret a cumulative frequency diagram  Construct and interpret a histogram with unequal class widths  Estimate from a histogram  Apply statistics to a capture and recapture problem | S1  S2  S3  S4  S5  S6 | Lower Quartile  Upper Quartile  Interquartile range  Histogram  Cumulative frequency  Boxplot  Frequency polygon | Mainly new content but the following previous chapters may be helpful  **Year 7:**  Working with data  **Year 8**  Unit 13: Statistics  **Year 9**  Unit 11: proportion | Weekly HW  Unit tests  End of year assessment (Mocks) |
| **Year 11**  **Higher** | 1 | Unit 1: Functions and iteration  Unit 2: Transforming graphs  Unit 3: Advanced Trigonometry | Show that a complex equation has a solution between two values  Find a given xn using iteration  Find approximate solutions to equations using iteration, including using suﬃx notation in recursive formulae  Obtain the output or input of a function using function notation  Write the reverse process of a function as the "inverse function"  Use the succession of two functions as a "composite function", including writing this as a single function  Solve problems involving functions, including using simultaneous equations to find the function machine  Complete the square to find the turning point of quadratic functions  Find the roots, intercepts and turning point of quadratic functions  Use the sketch of a quadratic graph to find the equation using the roots, intercepts and turning point  Describe and sketch translations of functions  Describe and sketch stretches of functions  Describe and sketch reflections of functions  Describe and sketch combined transformations of functions  Interpret the effect combined transformations of functions on specific points  Recap on Pythagoras and trigonometry ratios for right angle triangles  Know the exact values of trig  Apply the Sine rule for non right angle triangles  Apply the Cosine rule for non right angle triangles  Apply the area of triangle rule  Recognise and sketch graphs of trigonometric functions | A3  A11  R6  A5  A7  G10  G11  G12  G13 | Iteration  Function  Inverse function  Composite function  Turning point  Root  Intercept  Translation  Pythagoras Theorem  Trigonometric ratio  Sine  Cosine  Tangent  Hypotenuse  Opposite side  Adjacent side  Sine Rule  Cosine rule | New content but substitution and rearranging skills from previous years will be required for this unit  New content  Useful previous chapters:  **Year 9**  Unit 4: Algebraic manipulation  **Year 10**  Unit 2: Solving quadratics  **Year 8 and 10**  Unit 12/Unit 7: Transformations  **Year 9**  Unit 6: 2D shapes  Students will be familiar with trig in right angle triangles | Weekly HW  Unit tests |
|  | 2 | Unit 4: Vectors  Unit 5: Real life graphs and rates of change  Unit 6: Algebraic proof | Describe directional vectors as column vectors and vice versa  Add and subtract vectors, and multiply vectors by a scalar (use diagrammatic and column representations)  Use vectors to solve geometrical problems, including midpoints  Use vectors to solve geometrical problems, including midpoints and lines divided into a ratio  Use vectors to construct geometrical proofs (lines are parallel, points lie on a straight line)  Complete and read distance-time and speed-time graphs, and find the speed from a distance-time graph  Find the average speed or acceleration on non-standard real-life distance-time or speed-time graphs  Estimate the speed or acceleration on non-standard real-life distance-time or speed-time graphs by finding the gradient of a tangent  Find the areas under line graphs and interpret the results  Estimate the areas under curved graphs and interpret the results  Interpret line graphs for time series data  Use algebra to construct arguments and prove identities  Disprove by counterexample  Express a number property using algebra  Construct simple algebraic proofs  Construct complex algebraic proofs  Construct complex algebraic proofs in a problem solving context | G14  G15  A8  A9  R4  R5  S2  A2 | Vector  Column vector  Magnitude  Scalar  Velocity  Gradient  Acceleration  Tangent  Trapezium  Time Series  Identity  Proof | New content  **Year 8**  Unit 6: Compound measures  **Year 10**  Unit 10: Compound measures  Mainly new content but previous algebraic units will be helpful  **Year 8**  Unit 9: Algebraic manipulation  **Year 9**  Unit 4: Algebraic manipulation | Weekly HW  Unit tests  Mocks |
|  | 3 | **Tailored revision from the mocks analysis** | GCSE Specification  Key topics to prioritise for higher:  Ratio  Recurring decimals  Sequences |  |  |  |  |
|  | 4 | **Tailored revision from the mocks analysis and a focus on past papers** | GCSE Specification |  |  |  |  |
|  | 5 | **Tailored revision with a focus on past papers** | GCSE Specification |  |  |  |  |
|  | 6 | **Tailored revision for paper 2 and 3** | GCSE Specification |  |  |  |  |