Maths Curriculum Overview

Maths Department

Maths

Value	Intent
Ambition	To use mathematical skills to solve difficult problems that students have seen before and problems that they have not yet encountered. To enjoy struggle.
Pride	To work neatly, logically and present work in a conscientious manner. To take pride in your strengths, but to strive to improve areas of weakness.
Happiness	To develop awe and wonder for how mathematical concepts and principles relate to our daily lives. To enjoy good teaching in a well-behaved environment.
Success	To develop high quality numeracy skills as well as the fluency and confidence in Mathematics that allow students to access further education, higher education and a successful lifelong career in their chosen field.

Year 7

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Higher Set A	**Unit 1** ***Page*** **1.1** Whole number arithmetic 1 **1.2** Long multiplication and division 14 **1.3** Decimals 18 **1.4** Using a calculator 34 **1.5** Sequences 45 **1.6** Perimeter and area 51 Unit 1 Mixed review 62	**Unit 2** **2.1** Averages and range 72 **2.2** Fractions 81 **2.3** Fractions, decimals, percentages 89 **2.4** Angles 96 **2.5** Rules of algebra 109 Unit 2 Mixed review 123	**Unit 3** **3.1** Coordinates 134 **3.2** Long multiplication and division 2 140 **3.3** Decimals 2 142 **3.4** Properties of numbers 146 **3.5** Straight line graphs 159 **3.6** Handling data 165 **3.7** Probability 1 179 **3.8** Applying mathematics in a range of contexts 189 Unit 3 Mixed review 197	**Unit 4** **4.1** Constructing triangles 207 **4.2** Two dimensional shapes 211 **4.3** Percentages 217 **4.4** Proportion and ratio 225 **4.5** Negative numbers 231 **4.6** More algebra 235 Unit 4 Mixed review 247	**Unit 5** **5.1**Rotation 255 **5.2** Line symmetry 259 **5.3** Translation 266 **5.4** Number review 269 **5.5** Probability 2 275 **5.6** Interpreting graphs 283 **5.7** Rounding numbers 290 **5.8** Circles 297 Unit 5 Mixed review 303	**Unit 6** **6.1** More equations 313 **6.2** Sequence rules 315 **6.3** Metric and imperial units 321 **6.4** Angles and constructions 328 **6.5** Three dimensional objects 334 Unit 6 Mixed review 340
Core Set P and H	**Unit 1** ***Page*** **1.1** Whole number arithmetic 1 **1.2** Short division 13 **1.3** Long multiplication and division 1 19 **1.4** Using a calculator 23 **1.5** Sequences 30 **1.6** Perimeter and area 38 Unit 1 Mixed review 48	**Unit 2** **2.1** Averages and range 56 **2.2** Fractions 65 **2.3** Fractions, decimals, percentages 74 **2.4** Angles 82 **2.5** Rules of algebra 94 Unit 2 Mixed review 108	**Unit 3** **3.1** Coordinates 119 **3.2** Long multiplication and division 2 125 **3.3** Decimals 1 128 **3.4** Multiplying and dividing with decimals 136 **3.5** Properties of numbers 144 **3.6** Straight line graphs 158 **3.7** Handling data 165 **3.8** Probability 1 177 **3.9** Applying mathematics in a range of contexts 187 Unit 3 Mixed review 194	**Unit 4** **4.1** Constructing triangles 204 **4.2** Two dimensional shapes 206 **4.3** Percentages 214 **4.4** Proportion and ratio 223 **4.5** Negative numbers 230 **4.6** More algebra 237 Unit 4 Mixed review 247	**Unit 5** **5.1** Rotation 256 **5.2** Line symmetry 261 **5.3** Translation 266 **5.4** Number review 270 **5.5** Probability 2 279 **5.6** Interpreting graphs 285 **5.7** Algebra review 291 **5.8** Rounding numbers 293 Unit 5 Mixed review 300	**Unit 6** **6.1** More equations 310 **6.2** Sequence rules 312 **6.3** Metric and imperial units 318 **6.4** Angles and constructions 325 **6.5** Three dimensional objects 331 Unit 6 Mixed review 339
Support Set S	**Unit 1** Square numbers 1 Number sequence 1 2 Using letter symbols 1 4 Prime numbers 1 6 Mental strategies 1 7 Addition/Multiplication facts 8 Numbers 10 Adding and subtracting 1 12 Mental strategies 2 13 Negative numbers 14 Addition and subtraction 16 Adding and subtracting decimals 18 Mental strategies (_ and _) 20 Calculator skills 21 Multiplication and division 22 Measuring length 24 Metric units of length 25 Perimeter 26 Area 27 Area and perimeter 28 Three dimensional shapes 30 3-D shapes problem solving 32 Nets 1 33 Interpreting data 34 Unit 1 Mixed Review 36 Puzzle page – Magic squares 40	**Unit 2** The four operations 1 41 Bar charts 42 Probability 1 44 Probability 2 46 Recognising fractions 48 Equivalent fractions 50 Percentages 52 Finding percentages 56 Decimal fractions 58 Ordering decimals 60 Fractions of quantities 1 61 Decimals, fractions, percentages 1 62 Improper fractions 1 64 Collecting like terms 1 65 Using letter symbols 2 66 Triangles 68 Co-ordinates 1 70 Angles 1 73 Parallel and perpendicular lines 74 Unit 2 Mixed Review 76 Puzzle page – Darts 80	**Unit 3** Multiplication facts for 6 and 9 81 Multiplication facts for 7 and 8 82 Counting on 83 Ordering numbers 84 Multiples 86 Factors 1 88 Prime numbers 2 90 Short multiplication 91 Long multiplication 1 92 Remainders 93 Long multiplication 2 94 Short division 95 Rounding remainders up or down 1 96 Rounding 98 Order of operations 100 Metric units of mass and capacity 102 Estimating metric units 104 Mass problems 105 Capacity problems 106 Units of time 107 Reading clocks 108 Timetables 110 Time problems 112 Real life problems 113 Money problems 114	**Unit 4** Reflective symmetry 1 134 Reflections 1 136 Translations 1 137 Angles 2 138 Angles on a straight line 141 Angles in a triangle 142 Fractions 144 Fractions of quantities 2 147 Fractions and decimals 148 Ratio and proportion 150 Improper fractions 2 151 Ordering fractions 152 Percentages of numbers 153 Doubling and halving 154 Multiplying by partitioning 156 Understanding multiplication 157 Standard method for multiplication 158 Standard method for division 159 Long multiplication 3 160 Divisibility tests 161 Using letter symbols 3 162 The four operations 2 164 Collecting like terms 2 165 Unit 4 Mixed Review 166 Puzzle page – the tile factory 169	**Unit 5** Reflective symmetry 2 170 Reflections 2 171 Translations 2 172 Rotational symmetry 173 Averages and range 174 Bar charts and line graphs 176 Expected probability 179 Probability experiments 182 Data handling project 2 184 Factors 2 186 Multiplication facts for 6, 7, 8, 9 188 Mental strategies 4 190 Mental strategies 5 191 Mental strategies 6 192 Shape problems 193 Adding and subtracting 2 194 Multiplying whole numbers and decimals 196 Long multiplication 4 197 Rounding remainders up or down 2 198 Dividing whole numbers and decimals 200 Calculator, brackets and √__ 201 Unit 5 Mixed Review 202 Puzzle page – Cross numbers without clues 206	**Unit 6** Decimals, fractions and percentages 2 208 The four operations 3 210 Equations 212 Balancing equations 215 Substituting 218 Sequence rules 220 Co-ordinates in four quadrants 223 Missing angles 226 Nets 2 228 Using a calculator 230 Unit 6 Mixed Review 231 Puzzle page – Cross numbers 234

			Charts and graphs 116 Mental strategies 3 119 Data handling project 1 120 Triangular and square numbers 122 Number sequences 2 124 Square numbers and square roots 125 Co-ordinates 2 126 Unit 3 Mixed Review 129 Puzzle page – Cross numbers 133			

Year 8

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Higher Set A	**Unit 1 *Page*** **1.1** Properties of numbers 1 **1.2** Fractions 8 **1.3** Area and perimeter 17 **1.4** Negative numbers 24 **1.5** Sequences 32 **1.6** Using a calculator 43 Unit 1 Mixed review, Puzzles and Problems 1 51	**Unit 2** **2.1** Written calculations 61 **2.2** Estimating and checking answers 70 **2.3** Geometrical reasoning 78 **2.4** Using algebra 85 **2.5** Applying mathematics in a range of contexts 1 96 **2.6** Circles 106 Unit 2 Mixed review, Puzzles and Problems 2 115	**Unit 3** **3.1** Reflection 124 **3.2** Describing data 131 **3.3** Mental calculations 141 **3.4** Using formulas and expressions 146 **3.5** Construction and locus 155 Unit 3 Mixed review, Puzzles and Problems 3 161	**Unit 4** **4.1** Bearings and scale drawing 171 **4.2** Using a spreadsheet on a computer 177 **4.3** Handling data 179 **4.4** Fractions, decimals and percentages 193 **4.5** Interpreting and sketching real life graphs 203 **4.6** Rotation and combined transformations 208 **4.7** Brackets and equations 215 Unit 4 Mixed review, Puzzles and Problems 4 229	**Unit 5** **5.1** Enlargement 238 **5.2** Sequences and formulas 246 **5.3** Applying mathematics in a range of contexts 2 257 **5.4** Pythagoras' theorem 264 **5.5** Drawing and using graphs 271 **5.6** Using ratios 281 Unit 5 Mixed review, Puzzles and Problems 5 292	**Unit 6** **6.1** More algebra 302 **6.2** Volume of objects 310 **6.3** Percentages 2 322 **6.4** Probability 327 **6.5** Drawing three dimensional objects 338 **6.6** Statistical methods 343 Unit 6 Mixed review 346
Core Set P and H	**Unit 1 Page** **1.1** Sequences 1 **1.2** Fractions 4 **1.3** Properties of numbers 13 **1.4** Negative numbers 20 **1.5** Area and Perimeter 27 Unit 1 Mixed Review 34	**Unit 2** **2.1** Rounding off and estimating 44 **2.2** Using Algebra 51 **2.3** Fractions, decimals, percentages 60 **2.4** Geometrical Reasoning 66 **2.5** Construction and Locus 74 **2.6** Circles 79 Unit 2 Mixed Review 87	**Unit 3** **3.1** Written Calculations 96 **3.2** Using a calculator 106 **3.3** Formulas and expressions 113 **3.4** Drawing graphs 120 **3.5** Reflection 129 Unit 3 Mixed Review 137	**Unit 4** **4.1** Describing data 147 **4.2** Rotation and combined transformations 156 **4.3** Interpreting and sketching real-life graphs 165 **4.4** Brackets and equations 171 **4.5** Fractions review 185 **4.6** Handling data 190 Unit 4 Mixed Review 201	**Unit 5** **5.1** Ratio and proportion 210 **5.2** Negative numbers review 216 **5.3** Sequences – the *n*th term 218 **5.4** Enlargement 226 **5.5** Congruent shapes, tessellation 232 **5.6** Drawing graphs review 236 **5.7** Area review 241 Unit 5 Mixed Review 247	**Unit 6** **6.1** Percentages 256 **6.2** Probability 263 **6.3** Measures 273 **6.4** Algebra review 276 **6.5** 3–D Objects 283 **6.6** Bearings and scale drawing 287 **6.7** Decimals review 294 **6.8** Volume 297 Unit 6 Mixed Review 302
Support Set S	**Part 1** Adding and subtracting 1 1 Long multiplication 1 3 Long division 1 4Negative numbers 5 Factors and multiples 8 Triangular and square numbers and square roots 10 Cubes and higher powers 12 Sequences 14 Sequence rules 16 Labels for lines, angles and shapes 19 Missing angles 22 Using a protractor 24 Constructing triangles 26 Angles and parallel lines 28 Quadrilaterals 30 Prime numbers 33 Equivalent fractions 34 Using letter symbols 1 36 Collecting like terms 1 38 Substitution and formulas 1 40 Review section 1 42 Puzzle page – number messages 46	**Part 2** Ordering fractions 47 Decimals and fractions 48 Adding and subtracting fractions 1 49 Fractions of quantities 51 Percentages 53 Percentage increase and decrease 55 Multiplication and division facts 58 Mental strategies 1 (× and ÷) 60 Mental strategies 2 (× and ÷) 61 Mental strategies 1 (decimals, fractions and %) 62 Probability 64 Probability experiments 67 Outcomes 69 Metric measures – length 72 Metric measures – capacity 74 Reading scales 75 Perimeter and area – rectangles 77 Perimeter and area – triangles/ rectangles 81 Surface area of cuboids 84 Volume of a cuboid 87 Shape and measure problems 89 Review section 2 91 Puzzle page – distorted grids 95	**Part 3** Vertical and horizontal straight lines 98 Straight line graphs 1 102 Graphs from real life 105 Decimal fractions 110 Multiplying and dividing by 10 and 100 112 Rounding 114 Estimating 116 Mental strategies 2 (decimals, fractions and %) 117 Adding and subtracting 2 118 Multiplying by a decimal 120 Short division 122 Using a calculator 123 Review section 3 125 iv Puzzle page – cross numbers without clues 128	**Part 4** Reflections 130 Rotation 132 Translations 133 Enlargements 134 Using letter symbols 2 137 Equations 1 139 Substitution and formulas 2 143 Data – hypotheses 145 Average and range 1 146 Pie charts 1 148 Stem and leaf diagrams 151 Interpreting data 153 Data handling project 1 157 Review section 4 159 Puzzle page – cross number puzzle 163	**Part 5** Mental strategies 3 (decimals, fractions, %) 164 Adding and subtracting fractions 2 166 Order of operations 169 Estimation 170 Adding and subtracting 3 172 Long multiplication/division 3 173 Metric measures 174 Equations 2 176 Vertical and horizontal lines 2 178 Straight line graphs 2 181 Graphs from real life 2 184 Investigations 187 Review section 5 189 Puzzle page – tangrams 192	**Part 6** Ratio 194 Dividing in a given ratio 196 Unitary method 198 3-D shapes 200 Nets 203 Scale drawings 206 Co-ordinates 209 Constructing triangles 2 213 Surface areas and volumes of cuboids 215 Data in groups and frequency diagrams 217 Pie charts 2 220 Interpreting and comparing data 223 Data handling project 2 227 Review section 6 228 Puzzle page – who am I? 232

Year 9

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Higher Set A	**Unit 1** **1.1** Working with numbers 1 **1.2** Using algebra 12 **1.3** Congruent shapes and construction 23 **1.4** Geometrical reasoning 26 **1.5** Data handling 34 **1.6** Multiplying brackets 44 Unit 1 Mixed Review	**Unit 2** **2.1** Using fractions 56 **2.2** Working with indices 64 **2.3** Standard form 71 **2.4** Applying mathematics in a range of contexts 1 78 **2.5** Scatter graphs 85 **2.6** Trial and improvement 89 Unit 2 Mixed Review 96	**Unit 3** **3.1** Shape and space – mixed problems 106 **3.2** Sequences – finding the rule 115 **3.3** Rounding, errors and estimates 123 **3.4** Drawing and visualising 3D shapes 132 **3.5** Percentage change 138 Unit 3 Mixed Review 146	**Unit 4** **4.1** Transformations, single and combined 158 **4.2** Reading and interpreting charts and graphs 164 **4.3** Area and volume 171 **4.4** Collecting and interpreting data 182 **4.5** Applying mathematics in a range of contexts 2 189 **4.6** Simultaneous equations 196 Unit 4 Mixed Review 204	**Unit 5** **5.1** Trigonometry 216 **5.2** Inequalities 232 **5.3** Probability 239 **5.4** Gradient of a line, $y = mx + c$ 249 **5.5** Mathematical reasoning and proof 254 Unit 5 Mixed Review 260	**Unit 6** **6.1** Drawing and using curved graphs 270 **6.2** Compound measures 274 **6.3** Locus 280 **6.4** Changing the subject of a formula 285 **6.5** Similar shapes 290 Unit 6 Mixed Review 298
Core Set P and H	**Unit 1 Page** **1.1** Written calculations 1 **1.2** Using algebra 10 **1.3** Geometrical reasoning 18 **1.4** Fractions 26 **1.5** Scatter graphs 31 **1.6** Index Laws 34 Unit 1 Mixed Review 42	**Unit 2** **2.1** Using a calculator 51 **2.2** Circles 56 **2.3** Construction and scale drawing 63 **2.4** Solving equations 66 **2.5** Estimating 72 **2.6** Fully functional 1 77 Unit 2 Mixed Review 82	**Unit 3** **3.1** Drawing graphs and $y = mx = c$ 93 **3.2** Area 100 **3.3** Transformations 108 **3.4** Charts and graphs 115 **3.5** Drawing and visualising 3D shapes 123 **3.6** Volume 126 Unit 3 Mixed Review 134	**Unit 4** **4.1** Percentages 146 **4.2** Equations Review 156 **4.3** Finding a rule 163 **4.4** Averages and range 170 **4.5** Ratio and map scales 178 **4.6** Locus 184 **4.7** Fully functional 2 189 Unit 4 Mixed Review 196	**Unit 5** **5.1** Pythagoras' theorem 206 **5.2** Number Review 211 **5.3** Probability 219 **5.4** Interpreting graphs 226 **5.5** Compound measures 235 **5.6** Algebra review 242 **5.7** Errors in Measurement 248 Unit 5 Mixed Review 253	**Unit 6** **6.1** Shape and Space review 264 **6.2** Practice exam papers 276 **6.3** Simultaneous equations 287 **6.4** Collecting and interpreting data 294 **6.5** Inequalities 299 **6.6** Fully functional 3 303 Unit 6 Mixed Review 307
Support Set S	**Unit 1** Sequences 1 Sequence rules 3 Using words for functions 4 Graphs from real life 5 Straight lines 1 8 Ordering decimals 10 Fractions of quantities 12 Ordering fractions 14 Adding and subtracting fractions 16 Changing into percentages 19 Ratio 1 22 Unitary method 1 24 Percentage increase and decrease 34 Decimals, fractions and percentages 38 Mixed number work 40 Rounding off 42 Collecting like terms and brackets 45 Equations 48 Puzzle page – Cross numbers without clues 49	**Unit 2** Parallel and perpendicular lines 51 Missing angles 53 Angles and parallel lines 55 Angles in quadrilaterals and special triangles 58 Go for a swim (functional) 61 Quadrilaterals 62 The circle 63 Constructing triangles 66 Construction 70 Two-way tables 73 Pie charts 75 Average and range 79 Comparing data 81 Data handling project 1 84 Tables, graphs and charts 87 Order of operations 90 Addition and subtraction 91 Multiplication and division 92 Units 1 and 2 Mixed Review 93 Puzzle page – Cross number puzzles 97	**Unit 3** Coordinates and midpoints of lines 98 Metric measures 102 That 14th Party! (functional) 104 Area of triangles and rectangles 108 Areas made from triangles and rectangles 111 Surface areas and volumes of cuboids 115 Time 118 Estimation 121 Addition/subtraction of whole numbers and decimals 125 Multiplication and division 126 Calculator cross numbers 127 Problem solving 1 129 Negative numbers 132 Factors, multiples and prime numbers 135 Square/cube numbers and square roots 136 Puzzle page – Who am I?	**Unit 4** Probability 141 Probability game 144 Symmetry 146 Enlargements 148 Scale drawings 151 Ratio 2 154 Puzzle page – Operator squares 156	**Unit 5** Revision 1 – Place value, ×/÷ by 10, 100, 1000, estimation 157 Revision 2 – Adding, subtracting, multiplying and dividing 158 Revision 3 – Negative numbers, division with remainders 160 Revision 4 – Fractions 161 Revision 5 – Decimals 163 Revision 6 – Percentage, ratio 164 Revision 7 – Sequences, factors, multiples, primes, square numbers 165 Revision 8 – Coordinates 167 Revision 9 – Formulas and collecting terms 168 Revision 10 – Equations and brackets 169 Revision 11 – Metric units 171 Revision 12 – Time and reading scales 172 Revision 13 – Shapes and symmetry 173 Revision 14 – Transforming shapes 175 Revision 15 – Perimeter, area, volume 175 Revision 16 – Angles 178 Revision 17 – Pictograms and grouping data 179 Revision 18 – Mode, median, mean and range 181	**Unit 6** Problem solving 2 210 Unitary method 2 213 Quadrilaterals and the isosceles triangle 214 Stem and leaf diagrams 220 3D objects, plans and elevations 223 Surface areas and volumes of cuboids 2 226 Bearings 228 Puzzle page – Square tile patterns 231

					Revision 19 – Pie charts, stem/leaf diagrams 182 Revision 20 – Probability 184 Running a Cinema (functional) 186 Test paper one 188 Test paper two 196 Collecting like terms and brackets 204 Substitution and formulas 206 Straight lines 2 207 Puzzle page – the chess board problem 209	