| Porters Grange | Mathematics Progression at Porters Grange |  |  |  |  |  |
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| White <br> Rose Maths | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Place Value <br> Number | (Within 10) <br> Sorting objects <br> > Counting objects <br> > Counting objects from a larger group <br> > Representing objects <br> > Recognise numbers as words <br> > Count on from any number <br> > 1 more <br> > Count backwards within 10 <br> > 1 less <br> > Compare groups by matching <br> > Fewer, more, same <br> > Less than, greater than, equal to <br> > Compare numbers <br> > Order objects and numbers <br> > The number line (Within 20) <br> > Count within 20 <br> > Understand 10 <br> > Understand 11, 12 and 13 <br> > Understand 14,15 and 16 <br> > Understand 17, 18 and 19 | > Numbers to 20 <br> > Count objects to 100 by making 10's <br> > Recognise tens and ones <br> > Use a place value chart <br> > Partition numbers to 100 <br> > Write numbers to 100 in words <br> Flexibly partition numbers to 100 <br> Write numbers to 100 in expanded form <br> 10's on the number line to 100 10's and 1's on a number line to 100 Estimate numbers on a number line <br> > Compare objects <br> > Compare numbers <br> > Order objects and numbers <br> Count in 2's, 5's and 10's <br> Count in 3's | > Represent numbers to 100 <br> > Partition numbers to 100 <br> > Number line to 100 <br> > Hundreds <br> > Represent numbers to 1,000 <br> > Partition numbers to 1,000 <br> - Flexible partitioning numbers to 1,000 <br> > Hundreds, tens and ones <br> > Find 1,10 or 100 more or less <br> > Number line to 1,000 <br> - Estimate on a number line to 1,000 <br> > Compare numbers to 1,000 <br> > Order numbers to 1,000 <br> > Count in 50's | Represent <br> numbers to 1,000 <br> Partition numbers to 1,000 <br> > Number line to 1,000 <br> $>$ Thousands <br> > Represent <br> Numbers to <br> 10,000 <br> > Partition numbers to 10,000 <br> > Flexible portioning of numbers to 10,000 <br> > Find 1, 10, 100 and 1,000 more or less <br> > Number line to 10,000 <br> > Estimate on a number line to 10,000 <br> > Compare numbers to 10,000 <br> > Order numbers to 10,000 <br> > Roman numerals <br> $>$ Round to the nearest 10 | Roman numerals to 1,000 <br> $>$ Numbers to 10,000 <br> > Numbers to 100,000 <br> > Numbers to 1,000,000 <br> > Read and write numbers to 1,000,000 <br> > Powers of 10 <br> $>10 / 100 / 1,000 /$ <br> 10,000/100,000 <br> more or less <br> > Partition numbers <br> to 1,000,000 <br> > Number line to <br> 1,000,000 <br> > Compare and order numbers to 100,000 <br> > Compare and order numbers to 1,000,000 <br> > Round to the nearest 10, 100 or 1,000 <br> Round within 100,000 <br> > Round within 1,000,000 |  |




|  | > Make doubles <br> > Make equal groups grouping <br> > Make equal groups sharing | Introduce the multiplication symbol <br> > Multiplication sentences <br> > Use arrays <br> > Make equal groups - grouping <br> > Make equal groups - sharing <br> > The 2 times-table <br> > Divide by 2 <br> > Doubling and halving <br> > Odd and even numbers <br> > The 10 times-table <br> > Divide by 10 <br> > The 5-times table <br> $>$ Divide by 5 <br> > The 5 and 10 times-tables | $>$ Sharing and grouping <br> > Multiply by 3 <br> $>$ Divide by 3 <br> > The 3-times table <br> $>$ Multiply by 4 <br> $>$ Divide by 4 <br> > The 4-times table <br> > Multiply by 8 <br> $>$ Divide by 8 <br> > The 8-times table <br> > The 2, 4 and 8 <br> times-tables <br> > Multiples of 10 <br> > Related <br> calculations <br> Reasoning about multiplication <br> Multiplying a 2digit number by a 1-digit number no exchange <br> > Multiplying a 2digit number by a 1-digit numberwith exchange Link multiplication and division <br> Divide a 2-digit number by a 1digit number - no exchange <br> Divide a 2-digit number by a 1digit number flexible partitioning <br> $>$ Divide a 2-digit number by a 1digit numberwith remainders <br> > Scaling <br> > How many ways? | 9 times-table and division facts <br> - The 3, 6 and 9 times tables <br> > Multiply and divide by 7 <br> > 7 times-table and division facts <br> > 11 times-table and division facts 12 times-table and division facts Multiply by 1 and 0 <br> > Divide a number by 1 and itself <br> > Multiply three numbers <br> > Factor pairs <br> > Use factor pairs <br> > Multiply by 10 <br> > Multiply by 100 <br> > Divide by 10 <br> > Divide by 100 <br> > Related facts multiplication and division <br> > Informal written methods for multiplication <br> > Multiply a 2-digit number by a 1digit number <br> > Multiply a 3-digit number by a 1digit number <br> > Divide a 2-digit number by a 1digit number (1) <br> > Divide a 2-digit number by a 1digit number (2) <br> > Divide a 3-digit number by a 1digit number <br> > Correspondence problems | Multiply by 10, 100 and 1,000 <br> Divide by 10, 100 <br> and 1,000 <br> > Multiples of 10 , <br> 100 and 1,000 <br> > Multiply up to a 4digit number by a 1-digit number <br> > Multiply a 2-digit number by a 2-digit number (area model) <br> > Multiply a 2-digit number by a 2-digit number <br> > Multiply a 3-digit number by a 2-digit number <br> > Multiply a 4-digit number by a 2-digit number <br> > Solve problems with multiplication <br> $>$ Short division <br> $>$ Divide a 4-digit number by a 1-digit number <br> > Divide with remainders <br> $>$ Efficient division <br> > Solve problems with multiplication and division | Square and  <br>  cube numbers <br>  Multiply up to <br>  a 4-digit <br>  number by a <br>  2-digit <br>  number <br> $>$ Solve <br>  problems with <br>  multiplication <br> $>$ Short division <br> $>$ Division using <br>  factors <br> $>$ Introduction <br>  to long <br>  division <br> $>$ Long division <br>  with <br>  remainders <br> $>$ Solve <br>  problems with <br>  division <br> $>$ Solve multi- <br>  step problems <br> $>$ Oder of <br>  operations <br> $>$ Mental <br>  calculations <br>  and <br>  estimation <br> $>$ Reason for <br>  known facts |
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|  |  |  |  |  |  | Find pairs of values Solve problems with two unknowns |
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| Length and Height <br> (Year 1 and 2) <br> Volume <br> (Year 1) <br> Length and Perimeter (Year 3 and 4) <br> Area <br> (Year 4) <br> Perimeter and Area (Year 5) <br> Volume (Year 5) <br> Area, Perimeter and Volume (Year 6) <br> Measurement | Compare lengths and heights <br> Measure length using objects <br> Measure length in centimetres Full and empty Compare volume | Measure in centimetres <br> Measure in metres <br> Compare heights and lengths Order lengths and heights <br> Four operations with lengths and heights <br> Four operations with volume and capacity | Measure in metres and centimetres <br> Measure in <br> millimetres <br> Measure in centimetres and millimetres <br> Metres, centimetres and millimetres <br> Equivalent <br> lengths (metres and centimetres) <br> Compare lengths <br> Add lengths <br> Subtract lengths <br> What is perimeter? <br> Measure <br> perimeter <br> Calculate <br> perimeter | Measure in <br> kilometres and <br> metres <br> Equivalent <br> lengths <br> (kilometres and <br> metres) <br> Perimeter on a <br> grid <br> Perimeter of a <br> rectangle <br> Perimeter of <br> rectilinear shapes <br> Find missing <br> lengths in <br> rectilinear shapes <br> Calculate the <br> perimeter of <br> rectilinear shapes <br> Perimeter of regular polygons <br> Perimeter of polygons <br> What is area? <br> Count squares <br> Make shapes <br> Compare areas | Perimeter of rectangles <br> Perimeter of rectilinear shapes <br> Perimeter of polygons <br> Area of rectangles Area of compound shapes <br> Estimate area Cubic centimetres Compare volume Estimate volume Estimate capacity | Shapes - <br> same area <br> Area and perimeter <br> Area of a triangle counting squares <br> Area of a right-angled triangle Area of any triangle Area of a parallelogram Volume counting cubes Volume of a cuboid |
| Mass, Capacity | Heavier and lighter <br> Measure mass <br> Compare mass <br> Measure capacity | Compare mass <br> Measure in grams <br> Measure in <br> kilograms | Use scales <br> Measure mass in grams |  |  |  |


| and Temperature Measurement | > Compare capacity | Four operations with mass <br> Compare volume and capacity <br> Measure in millilitres <br> > Measure in litres <br> > Four operations with volume and capacity <br> > Temperature | Measure mass in kilograms and grams <br> Equivalent masses <br> (kilograms and grams) <br> > Compare mass <br> > Add and subtract mass <br> > Measure capacity and volume in millilitres Measure capacity and volume in litres and millilitres Equivalent capacities and volumes (litres and millilitres) Compare capacity and volume <br> > Add and subtract capacity and volume |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Converting Units <br> Measurement |  |  |  |  | Kilograms and kilometres <br> > Millimetres and millilitres <br> > Convert unit of length <br> > Convert between metric and imperial units <br> > Convert units of time <br> > Calculate with timetables | Metric <br> measures <br> Convert <br> metric <br> measures <br> > Calculate with metric measures <br> > Miles and kilometres Imperial measures |
| Time <br> Measurement | $>$ Before and after <br> > Days of the week <br> > Months of the year <br> > Hours, minutes and seconds <br> > Tell the time to the hour | O'Clock and half past <br> Quarter past and quarter to <br> Tell time past the hour <br> Tell time to the hour | Roman numerals to 12 <br> Tell the time to 5 minutes <br> Tell the time to the minute Read time on a digital clock | Years, months, weeks and days Hours, minutes and seconds Convert between analogue and digital times |  |  |


|  | Tell the time to the half hour | Tell the time to five minutes Minutes in an hour Hours in a day | Use a.m and p.m <br> Years, months <br> and days <br> Days and hours <br> > Hours and minutes - use <br> start and end <br> times <br> Hours and minutes - use durations <br> Minutes and seconds <br> Units of time <br> Solve problems with time | Convert to the 24 hour clock Convert from the 24 hour clock |  |  |
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| Money <br> Measurement | Unitising <br> Recognise coins <br> Recognise notes <br> Count in coins | Count money pence <br> Count money pounds (notes and coins) <br> > Count money pounds and pence Choose notes and coins <br> Make the same amount <br> Compare amounts of money <br> Calculate with money <br> Making a pound Find change <br> Two-step problems | Pounds and pence <br> Convert pounds and pence <br> $>$ Add money <br> > Subtract money <br> $>$ Find change | Write money using decimals <br> Convert between pounds and pence <br> Compare amounts of money <br> Estimate with money <br> Calculate with money <br> Solve problems with money |  |  |
| Shape <br> Geometry | Recognise and name <br> 3-D shapes <br> Sort 3-D shapes <br> Recognise and name <br> 2-D shapes <br> Sort 2-D shapes <br> Patterns with 2-D <br> and 3-D shapes | Recognise 2-D and <br> 3-D shapes <br> Count sides on 2-D <br> shapes <br> Count vertices on <br> 2-D shapes <br> Draw 2-D shapes <br> Lines of symmetry <br> on shapes <br> Use lines of <br> symmetry to <br> complete shapes <br> Sort 2-D shapes | Turns and angles <br> Right angles <br> Compare angles <br> Measure and draw accurately <br> Horizontal and vertical <br> Parallel and perpendicular Recognise and describe 2-D shapes <br> Draw polygons | Understand angles as turns <br> Identify angles <br> Compare and order angles <br> Triangles <br> Quadrilaterals <br> Polygons <br> Lines of symmetry <br> Complete a symmetric figure | Understand and use degrees <br> Classify agles <br> Estimate angles <br> Measure angles up to 180 <br> Draw lines and angles accurately <br> Calculate angles around a point <br> Calculate angles on a straight line | Measure and classify angles Calculate angles Vertically opposite angles Angles in a triangle Angles in a triangle special cases |


|  |  | Count faces on 3-D shapes <br> > Count edges on 3- <br> D shapes <br> > Count vertices on 3-D shapes <br> $>$ Sort 3-D shapes <br> > Make patterns with 2-D and 3-D shapes | Recognise and describe 3-D shapes <br> > Make 3-D shapes |  | Lengths and angles in shapes <br> > Regular and irregular polygons <br> > 3-D shapes |  | Angles in a triangle missing angles Angles in quadrilaterals Angles in polygons Circles Draw shapes accurately Nets of 3-D shapes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Position and Direction <br> Geometry | Describe turns <br> Describe position - <br> left and right <br> Describe position forwards and backwards <br> > Describe position above and below <br> > Ordinal numbers | Language of position <br> Describe <br> movement <br> > Describe turns <br> > Describe movement and turns <br> > Shape patterns with turns |  | Describe position using coordinates <br> Plot coordinates Draw 2-D shapes on a grid Translate on a grid Describe translation on a grid | Read and plot coordinates <br> > Problem solving with coordinates <br> > Translation <br> > Translation with coordinates <br> > Lines of symmetry <br> $>$ Reflection in horizontal and vertical lines |  | The first quadrant Read and plot points in four quadrants Solve problems with coordinates Translations Reflections |
| Statistics |  | > Make tally charts <br> > Tables <br> > Block diagrams <br> > Draw pictograms <br> (1-1) <br> Interpret <br> pictograms (1-1) <br> Draw pictograms <br> (2, 5 and 10) <br> Interpret <br> pictograms (2, 5 <br> and 10) | Interpret <br> pictograms <br> Draw pictograms <br> > Interpret bar <br> charts <br> > Draw bar charts <br> > Collect and represent data <br> > Two-way tables | Interpret charts <br> Comparison, sum and difference <br> Interpret line <br> graphs <br> > Draw line graphs | Draw line graphs <br> Read and interpret <br> line graphs <br> > Read and interpret tables <br> > Two-way tables <br> $>$ Read and interpret timetables |  | Line graphs Dual bar charts Read and interpret pie charts Pie charts with percentages Draw pie charts The mean |

