

Church Lane Primary School  
 and Nursery

Mathematics Curriculum

2020/2021

Year 6

Year 6 – Mathematics curriculum

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| Subject area | Overview | Lessons | Equipment | Key Vocab |
| Place Value | Numbers up to 10,000,000 | Numbers to 1,000,000 | Base 10 equipment  Place value cards  Digit cards  Flash cards | Partition, partitioned, partitioning  Interval  Estimate  Compare, comparison, comparing  Order, ordering  Negative, positive  Accurate, accurately, exactly, approximately |
| Numbers to 10,000,000 (1) |
| Numbers to 10,000,000 (2) |
| Number line to 10,000,000 |
| Comparing and ordering numbers to 10,000,000 |
| Rounding numbers |
| Negative numbers |
|  |  |  |  |  |
| Four operations | Addition, subtraction, multiplication and division | Problem solving using written methods of addition and subtraction (1) | Place value counters  Printed place value grids  Base 10 equipment | Add, subtract, sum, total, difference  Method, column, columnar  Multiply, multiplication, product, approximation  Divide, division, divisor, dividend, remainder  Factor, multiple  Inverse grid method  Fraction, simplify, numerator, denominator |
| Problem solving using written methods of addition and subtraction (2) |
| Multiplying numbers up to 4 digits by a 1-digit number |
| Multiplying numbers up to 4 digits by a 2-digit number |
| Dividing numbers up to 4 digits by a 2-digit number (1) |
| Dividing numbers up to 4 digits by a 2-digit number (2) |
| Dividing numbers up to 4 digits by a 2-digit number (3) |
| Dividing numbers up to 4 digits by a 2-digit number (4) |
| Dividing numbers up to 4 digits by a 2-digit number (5) |
| Dividing numbers up to 4 digits by a 2-digit number (6) |
|  |  |  |  |  |
| Four operations | Addition, subtraction, multiplication and division | Common factors | ‘follow me’ cards  Counters  Multiplication grids | Factor, common factor  Multiple, common multiple  Prime  Squared, cubed  Order of operations, brackets  Inverse operations |
| Common multiples |
| Recognising prime numbers up to 100 |
| Squares and cubes |
| Order of operations |
| Brackets |
| Mental calculations |
| Mental calculations (2) |
| Reasoning from known facts |
|  |  |  |  |  |
| Fractions, decimals and percentages | Fractions | Simplifying fractions (1) | Fraction strips | Whole, part  Numerator, denominator, common denominator  Equivalent  Simplify, simplest form  Factor, highest common factor, lowest common factor  Compare  Order, ascending, descending  Less than, greater than  Proper fraction, improper fraction  Mixed number  convert |
| Simplifying fractions (2) |
| Fractions on a number line |
| Comparing and ordering fractions (1) |
| Comparing and ordering fractions (2) |
| Adding and subtracting fractions |
| Adding and subtracting fractions (2) |
| Adding fractions |
| Subtracting fractions |
| Problem solving – adding and subtracting fractions (1) |
| Problem solving – adding and subtracting fractions (2) |
|  |  |  |  |  |
| Fractions, decimals and percentages | Fractions | Multiplying a fraction by a whole number | Fractions strips  Fractions circles | Numerator, denominator  Multiply, divide  Proper fraction, improper fraction, mixed number, whole number  Whole, part  Order of operations |
| Multiplying a fraction by a fraction (1) |
| Multiplying a fraction by a fraction (2) |
| Dividing a fraction by a whole number (1) |
| Dividing a fraction by a whole number (2) |
| Dividing a fraction by a whole number (3) |
| Four rules with fractions |
| Calculating fractions of amounts |
| Problem solving – fractions of amounts |
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| Geometry | Position and direction | Plotting coordinates in the first quadrants |  | Plotting, coordinates, quadrant, point, axis, x-axis, y-axis, grid, x-coordinate, y-coordinate  Vertices, vertex, square, side, rectangle, triangle, equilateral, oblong, shape, irregular, hexagon, identical, similar, parallelogram  Perimeter, metre, distance, length, long  Horizontal, vertical  Halfway, line, properties, value, reason  Negative, positive  Translation, reflection, original, left, down, up, right, mirror, away, diagonal |
| Plotting coordinates |
| Plotting translations and reflections |
| Reasoning about shapes with coordinates |
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| Fractions, decimals and percentages | Decimals | Multiplying by 10, 100 and 1000 | Base 10 equipment  Place value grids  Place value counters  Measuring equipment  Whiteboards  Plates  cups | Multiply, divide  Decimal  Place holder  Place value, tenths, hundredths, thousandths  Factor, multiple, product  Group, share  Numerator, denominator  Convert, simplify, equivalent  Divisor, dividend, quotient, remainder |
| Dividing by 10, 100 and 1000 |
| Decimals as fractions |
| Fractions as decimals (1) |
| Fractions as decimals (2) |
| Multiplying decimals (1) |
| Multiplying decimals (2) |
| Dividing decimals (1) |
| Dividing decimals (2) |
|  |  |  |  |  |
| Fractions, decimals and percentages | Percentages | Percentage of (1) | Base 10 equipment  counters | Percent, percentage  Parts, whole  Decimals  Fraction, equivalent fraction, tenth, hundredth, half quarter  Less than, greater than  Divide, share, multiply  Convert, compare, order, simplify |
| Percentage of (2) |
| Percentage of (3) |
| Percentage of (4) |
| Finding missing values |
| Converting fractions to percentages |
| Equivalent fractions, decimals and percentages (1) |
| Equivalent fractions, decimals and percentages (2) |
| Mixed problem solving |
|  |  |  |  |  |
| Algebra | Algebra | Finding a rule (1) | Cubes  Counters  Small sticks | Pattern, growing pattern  Sequence  Rule  Term  Algebra, algebraic  Expression  Formula, formulae  Substitute  Generalise  Operation  Calculation, calculate  Equation  Inverse  Solution  Represent  value |
| Finding a rule (2) |
| Using a rule (1) |
| Using a rule (2) |
| Using a rule (3) |
| Formulae |
| Solving equations (1) |
| Solving equations (2) |
| Solving equations (3) |
| Solving equations (4) |
| Solving equations (5) |
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| Measure | Imperial and metric measures | Metric measures | Weighing scales  Measuring jugs  rulers | Metric, imperial, length, mass, volume, capacity, distance  Measure, convert, equivalent, approximate, ratio  Conversion  (metric units)  (imperial units) |
| Converting metric measures |
| Problem solving – metric measures |
| Miles and kilometres |
| Imperial measures |
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| Measure | Perimeter, area and volume | Shapes with the same area | Rulers  Measuring tapes  Squared paper | Perimeter, distance, area, space, volume  Centimetres, metres, square centimetres, square metres, cube (cm), cube (m)  Rectangle, square, triangle, rectilinear shape, sides, length, width, parallelogram, cube, cuboid  Measure, combine, total, double, estimate |
| Area and perimeter |
| Area and perimeter (2) |
| Area of a parallelogram |
| Area of a triangle |
| Area of a triangle (2) |
| Area of a triangle (3) |
| Problem solving – area |
| Problem solving – perimeter |
| Volume of a cuboid (1) |
| Volume of a cuboid (2) |
|  |  |  |  |  |
| Ratio and proportion | Ratio and proportion | Ratio (1) | Red and yellow counters  1p and 5p coins  Red and yellow cubes | Ratio, ratio notation, 1:2  Proportion  Part, whole. Total  Group  Fraction  Unequal, equal  Simplest form, simplify  For every *x* there are *y*  Similar  Enlarge, enlargement  Scale, map scale, scale factor |
| Ratio (2) |
| Ratio (3) |
| Ratio (4) |
| Scale drawings |
| Scale factors |
| Similar shapes |
| Problem solving – ratio and proportions (1) |
| Problem solving – ratio and operations (2) |
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| Geometry | Properties of shape | Measuring with a protractor | Protractor | Degrees, measurement, length  Angle, obtuse, acute, reflex, right angle, interior  Protractor, baseline, crosshairs, scale  Vertex, edge, face  Parallel  Properties  Triangle, isosceles, equilateral, scalene  Regular, polygon, quadrilateral, parallelogram, kite, rhombus, trapezium  Diameter, radium, circumference, concentric, centre  Perimeter  Pyramid, tetrahedron, cylinder, prism, cuboid, cube |
| Drawing shapes accurately |
| Angles in a triangle |
| Angles in a triangle (2) |
| Angles in a triangle (3) |
| Angles in polygons |
| Angles in polygons (2) |
| Vertically opposite angles |
| Equal distance |
| Parts in a circle |
| Nets (1) |
| Nets (2) |
|  |  |  |  |  |
| Problem solving | Problem solving | Problem solving – place value | Place value counters | Partition  Estimate, round, compare  Equivalent, common denominator  Percentage, ratio, proportion, convert  Coordinates, vertex (vertices), reflection, translation  Sum of interior angles |
| Problem solving – negative numbers |
| Problem solving – addition and subtraction |
| Problem solving – four operations (1) |
| Problem solving – four operations (2) |
| Problem solving – fractions Problem solving – decimals |
| Problem solving – percentages |
| Problem solving – ratio and proportion |
| Problem solving – time (1) |
| Problem solving – time (2) |
| Problem solving – position and direction |
| Problem solving – properties of shape (1) |
| Problem solving – properties of shape (2) |
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| Statistics | Statistics | The mean (1) | Counter  Cubes  Marsh-mallows | Average, mean, set, share  Pie chart, segment, whole, section, degree, angle, right angle  Tally chart, bar chart  Fraction, percentage  Line graph, axis/axes, estimate, accurate, interpret, increase, above, below zero, value, x-axis, y-axis, minus, between, plot, point, vertical, horizontal, construct, convert/ conversion, straight, equivalent, predict, curve  More, equal, eve, size, total, share, great(er/est), calculate, divide, highest, compare, lowest, group, data, represent, balance, odd, different/ difference, least, inverse, operation, advantages, disadvantages, largest, half, scale, quarter, frequency, smallest, part, same, more, category, results, exact |
| The mean (2) |
| The mean (3) |
| Introducing pie charts |
| Reading and interpreting pie charts |
| Fractions and pie charts (1) |
| Fractions and pie charts (2) |
| Percentages and pie charts |
| Interpreting line graphs |
| Constructing line graphs |
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At the end of each **unit**, please allow ALL pupil to independently complete the end of unit assessment. This can be found on your PowerMaths online account.

* Click on your unit (left hand side)
* Scroll down to the bottom of the screen to find ‘assess’ menu.
* Print off end of unit test and stick it in their book.

At the end of each **term** (Autumn, Spring, Summer), please complete the end of term assessments from White Rose Maths. These can be find using the web address: <https://whiterosemaths.com/resources/assessment/primary-assessment/end-of-term-primary/>

Displays should be a ‘working wall’ including **up-to-date** information and pupil work. It should also include questions and challenges. It **must** show the **progressive journey** your class have been on throughout that unit.

All classrooms should follow the colour co-ordinated questions:

Orange – fluency (no worded response necessarily required, although KS2 should request pupils to answer using Stem sentences E.G 2 + 2 = The total of 2 plus 2 is 4)

Blue – reasoning – there should be a written worded response which is grammatically coherent with correct punctuation.

Green – problem solving – the children should show their workings (journey). We should be looking for and encouraging systematic approaches, using all prior knowledge not ‘trial and error’

**Next steps** should take learning to the next level. For example: a child has only completed fluency questions, their next step could be a reasoning or a pupil that has only completed fluency supported, then a fluency independently is a good next step.  
  
**Immediate interventions or pre-**learning should take place regularly with **ALL** pupils.