

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 equipmentPlace value cardsDigit cardsFlash cards | Partition, partitioned, partitioningIntervalEstimateCompare, comparison, comparingOrder, orderingNegative, positiveAccurate, 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 countersPrinted place value gridsBase 10 equipment | Add, subtract, sum, total, differenceMethod, column, columnarMultiply, multiplication, product, approximationDivide, division, divisor, dividend, remainderFactor, multipleInverse grid methodFraction, 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’ cardsCountersMultiplication grids | Factor, common factorMultiple, common multiplePrimeSquared, cubedOrder of operations, bracketsInverse 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, partNumerator, denominator, common denominatorEquivalentSimplify, simplest formFactor, highest common factor, lowest common factorCompareOrder, ascending, descendingLess than, greater thanProper fraction, improper fractionMixed numberconvert |
| 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 stripsFractions circles | Numerator, denominatorMultiply, divideProper fraction, improper fraction, mixed number, whole numberWhole, partOrder 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 |
|  |  |  |  |  |
| Geometry | Position and direction | Plotting coordinates in the first quadrants |  | Plotting, coordinates, quadrant, point, axis, x-axis, y-axis, grid, x-coordinate, y-coordinateVertices, vertex, square, side, rectangle, triangle, equilateral, oblong, shape, irregular, hexagon, identical, similar, parallelogramPerimeter, metre, distance, length, longHorizontal, verticalHalfway, line, properties, value, reasonNegative, positiveTranslation, reflection, original, left, down, up, right, mirror, away, diagonal |
| Plotting coordinates |
| Plotting translations and reflections |
| Reasoning about shapes with coordinates |
|  |  |  |  |  |
| Fractions, decimals and percentages | Decimals | Multiplying by 10, 100 and 1000 | Base 10 equipmentPlace value gridsPlace value countersMeasuring equipmentWhiteboards Platescups | Multiply, divideDecimalPlace holderPlace value, tenths, hundredths, thousandthsFactor, multiple, productGroup, shareNumerator, denominatorConvert, simplify, equivalentDivisor, 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 equipmentcounters | Percent, percentageParts, wholeDecimalsFraction, equivalent fraction, tenth, hundredth, half quarterLess than, greater thanDivide, share, multiplyConvert, 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) | CubesCountersSmall sticks | Pattern, growing patternSequenceRuleTermAlgebra, algebraicExpressionFormula, formulaeSubstituteGeneraliseOperationCalculation, calculateEquationInverseSolutionRepresentvalue |
| 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) |
|  |  |  |  |  |
| Measure | Imperial and metric measures | Metric measures | Weighing scalesMeasuring jugsrulers | Metric, imperial, length, mass, volume, capacity, distanceMeasure, convert, equivalent, approximate, ratioConversion(metric units)(imperial units) |
| Converting metric measures |
| Problem solving – metric measures |
| Miles and kilometres  |
| Imperial measures |
|  |  |  |  |  |
| Measure | Perimeter, area and volume | Shapes with the same area | RulersMeasuring tapesSquared paper | Perimeter, distance, area, space, volumeCentimetres, metres, square centimetres, square metres, cube (cm), cube (m)Rectangle, square, triangle, rectilinear shape, sides, length, width, parallelogram, cube, cuboidMeasure, 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 counters1p and 5p coinsRed and yellow cubes | Ratio, ratio notation, 1:2ProportionPart, whole. TotalGroupFractionUnequal, equalSimplest form, simplifyFor every *x* there are *y*SimilarEnlarge, enlargementScale, 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, lengthAngle, obtuse, acute, reflex, right angle, interiorProtractor, baseline, crosshairs, scaleVertex, edge, faceParallelPropertiesTriangle, isosceles, equilateral, scaleneRegular, polygon, quadrilateral, parallelogram, kite, rhombus, trapeziumDiameter, radium, circumference, concentric, centrePerimeterPyramid, 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 | PartitionEstimate, round, compareEquivalent, common denominatorPercentage, ratio, proportion, convertCoordinates, vertex (vertices), reflection, translationSum 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) |
|  |  |  |  |  |
| Statistics  | Statistics | The mean (1) | CounterCubesMarsh-mallows | Average, mean, set, sharePie chart, segment, whole, section, degree, angle, right angleTally chart, bar chartFraction, percentageLine 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, curveMore, 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.