

Church Lane Primary School
 and Nursery

Mathematics Curriculum

2020/2021

Year 5

Year 5 – Mathematics curriculum

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| Subject area | Overview | Lessons | Equipment | Key Vocab |
| Place Value | Numbers to 100,000 | Numbers to 10,000 | Place value countersBase 10 equipment | Ones, tens, hundreds, thousands, ten thousandsPlace value, positionPartition, equivalentEstimate, closer to, betweenRoundNext multiple, previous multiple, nearest multiple to 10, 100, 1,000 or 10,000Compare, order, greater than, less thanRoman numerals |
| Rounding to the nearest 10, 100 and 1,000 |
| 10,000s, 1,000s, 100s, 10s and 1s (1) |
| 10,000s, 1,000s, 100s, 10s and 1s (2) |
| The number line to 100,000 |
| Comparing and ordering numbers to 100,000 |
| Rounding numbers within 100,000 |
| Roman numerals to 10,000 |
|  |  |  |  |  |
| Place value | Numbers to 1,000,000 | 100,000s, 10,000s, 1,000s, 100s, 10s and 1s (1) | Place value countersBase 10 equipmentPlace value cards | Place valuesOnes - millionsPartitioning, partitionNumber line, countNegative / positive numberMinusRounding, round up, round downEstimateCompare, order, sequence, ruleAscending, descendingLess than, greater than, nearest |
| 100,000s, 10,000s, 1,000s, 100s, 10s and 1s (2) |
| Number line to 1,000,000 |
| Comparing and ordering numbers to 1,000,000 |
| Rounding numbers to a 1,000,000 |
| Negative numbers |
| Counting in 10s, 100s, 1,000s and 10,000s |
| Number sequences |
|  |  |  |  |  |
| Addition and subtraction | Adding and subtracting | Adding whole numbers with more than 4 digits (1) | Place value counters | Add, subtract1s (ones), 10s (tens), 100s (hundreds), 1000s (thousands), 10,000s (ten thousands), TotalDifferenceInverseRoundMentallyestimate |
| Adding whole numbers with more than 4 digits (2) |
| Subtracting whole numbers with more than 4 digits (1) |
| Subtracting whole numbers with more than 4 digits (2) |
| Using rounding to estimate and check answers |
| Mental addition and subtraction (1) |
| Mental addition and subtraction (2) |
| Using inverse operations |
| Problem solving – addition and subtraction (1) |
| Problem solving – addition and subtraction (2) |
|  |  |  |  |  |
| Multiplication and division | Multiplying and dividing | Multiples |  100 squareBlank countersSorting circles | Multiples, factorPrime number, composite numberSquare (x2), Cube (x3)Multiply, multiplication, timesDivide, divisionInverse operationPlace valueOnes, tens, hundreds, thousands, tens of thousands |
| Factors |
| Prime numbers |
| Using factors |
| Squares |
| Cubes |
| Inverse operations |
| Multiplying whole numbers by 10, 100, 1,000 |
| Dividing whole numbers by 10, 100, 1,000 |
| Multiplying and dividing by multiples of 10, 100 and 1,000 |
|  |  |  |  |  |
| Multiplication and division | Multiplying and dividing | Multiplying numbers up to 4 digits by a 1-digit number | Place value gridsPlace value counterscounters | Total, sum, remainderPlace value, partitionMultiply, divide, add, subtractFactor, multiple |
| Multiplying 2-digit numbers (1) |
| Multiplying 2-digit numbers (2) |
| Multiplying 2-digit numbers (3) |
| Multiplying a 3-digit number by a 2-digit number |
| Multiplying a 4-digit number by a 2-digit number |
| Dividing up to a 4-digit number by a 1-digit number (1) |
| Dividing up to a 4-digit number by a 1-digit number (2) |
| Division with remainders (1) |
| Division with remainders (2) |
| Problem solving – division with remainders |
|  |  |  |  |  |
| Fractions, decimals and percentages | fractions | Equivalent fractions | Number cardsBlank paper (to fold) | EquivalentNumerator, denominatorWhole, fractionSimplify, expandMultiply, divide, multiplication, division, multiple, factor, remainder, improper, mixed numberConvertGreater than, less than, equal toDivisor, dividend, quotient |
| Converting improper fractions to mixed numbers |
| Converting mixed numbers to improper fractions |
| Number sequences |
| Comparing and ordering fractions (1) |
| Comparing and ordering fractions (2) |
| Fractions as division (1) |
| Fractions as divisions (2) |
|  |  |  |  |  |
| Fractions, decimals and percentages | fractions | Adding and subtracting with the same denominator | Fraction shapes (circles)Fraction stripsPaper plates | Fractions, whole, part, equal parts, equivalentAdd, sum, total, subtract, differenceDivide, multiply, multipleNumerator, denominator, common denominatorSimplify, convertProper fraction, improper fraction, mixed numberMethod, multi-step, efficient |
| Adding and subtracting fractions (1) |
| Adding and subtracting fractions (2) |
| Adding fractions (1) |
| Adding fractions (2) |
| Adding fractions (3) |
| Subtracting fractions (1) |
| Subtracting fractions (2) |
| Subtracting fractions (3) |
| Subtracting fractions (4) |
| Problem solving – mixed word problems (1) |
| Problem solving – mixed word problems (2) |
|  |  |  |  |  |
| Fractions, decimals and percentages | fractions | Multiplying fractions (1) | Measuring jugsbeakers | Operators, add, subtract, multiply, divideFraction, improper fraction, mixed numberDenominator, numeratorConvert, simplifying, equivalentWhole, partFactor, multiple |
| Multiplying fractions (2) |
| Multiplying fractions (3) |
| Multiplying fractions (4) |
| Calculating fractions of amounts |
| Using fractions as operators |
| Problem solving – mixed word problems |
|  |  |  |  |  |
| Fractions, decimals and percentages | Decimals and percentages | Writing decimals (1) | Place value countersBase 10 equipment | Decimal placeTenths, hundredths, thousandthsDecimal pointPlace valueDigitsFractionsPercent RoundingImproper fractionsMixed numbersConvertExchange |
| Writing decimals (2) |
| Decimals as fractions (1) |
| Decimals as fractions (2) |
| Understanding thousandths |
| Writing thousandths as decimals |
| Ordering and comparing decimals (1) |
| Ordering and comparing decimals (2) |
| Rounding decimals |
| Understanding percentages |
| Percentages as fractions and decimals |
| Equivalent fractions, decimals and percentages |
|  |  |  |  |  |
| Fractions, decimals and percentages | decimals | Adding and subtracting decimals (1)  | Bar modelNumber linePart-whole model | Add, subtract, multiply, divideOnes, tenths, hundredths, thousandthsDifference, group, share, compare, representDecimal, decimal point, decimal place, digitColumn, place value, exchangeMass, weight, length, width, cost, height |
| Adding and subtracting decimals (2) |
| Adding and subtracting decimals (3) |
| Adding and subtracting decimals (4) |
| Adding and subtracting decimals (5) |
| Adding and subtracting decimals (6) |
| Adding and subtracting decimals (7) |
| Adding and subtracting decimals (8) |
| Decimal sequences |
| Problem solving – decimals (1) |
| Problem solving – decimals (2) |
| Multiplying decimals by 10 |
| Multiplying decimals by 10, 100 and 1,000 |
| Dividing decimals by 10 |
| Dividing decimals by 10, 100 and 1,000 |
|  |  |  |  |  |
| Measure | Area and perimeter  | Measuring perimeter | RulerMeasuring tapesTrundle wheelsMetre rulersPaper stripsstraws | Perimeter, distance, area, spaceScale, actual area/ actual size, convertCentimetre, metre, square cm, square mSquare, rectangle, rectilinear shape, sides, length, widthMeasure, combine, brackets, total, double, estimate, array |
| Calculating perimeter (1) |
|  Calculating perimeter (2) |
| Calculating area (1) |
| Calculating area (2) |
| Comparing area |
| Estimating area  |
|  |  |  |  |  |
| Measure  | Converting units | Metric units (1) | Measuring wheelsSets of scalesDigit cards | Mass, capacity, length, time, quantityMetric units, gram, kilogram, millilitre, litre, millimetre, centimetre, metre, kilometreImperial units, ounces, pound, stone, pint, gallon, inch, foot, yardsSecond, minute, hour, day, week, month, yearConvert, equal to, equivalent, approximately, per, measure, remainder, multipleTimetable, 24-hour, digital, duration |
| Metric units (2) |
| Metric units (3) |
| Metric units (4) |
| Imperial units of length |
| Imperial units of mass |
| Imperial units of capacity |
| Converting units of time |
| Timetables |
| Problem solving - measure |
|  |  |  |  |  |
| Measure | Volumeandcapacity | What is volume? | CubesIsometric paperVariety of measuring itemsDifferent size bottlesDifferent size containers | Volume, capacity, solid, liquid, container3D shapesCalculate, estimate, compare, count, accurately, order, amount, irregular, prediction, exactUnit, cubes, units of measurement, measureLess, more, less than, more than, largest, smallest, least, greatest, equalSpace insideHeight, length, width, size, tallLayer, sliceMultiple, total, take away, whole, part, almost half, identicalLitre, millilitre  |
| Comparing volumes |
| Estimating volumes |
| Estimating capacity |
|  |  |  |  |  |
| Geometry | Properties of shape | Measuring angles in degrees | Arrow spinnerMini-figures | Angle, turnWhole turn, half turn, quarter turnAcute angle, right angle, obtuse angle, reflex angleDegrees90 degrees180 degrees360 degreesInterior angleprotractor |
| Measuring with a protractor (1) |
| Measuring with a protractor (2) |
| Drawing lines and angles accurately |
| Calculating angles on a straight line |
| Calculating angles around a point |
| Calculating lengths and angles in a shape |
|  |  |  |  |  |
| Geometry | Properties of shape | Recognising and drawing parallel lines | Rulerssticks | ParallelPerpendicularAngle, right angle, interior angleGridRegular, irregularPolygon, quadrilateral 2D, 3Dviewpoint |
| Recognising and drawing perpendicular lines |
| Reasoning about parallel and perpendicular lines |
| Regular and irregular polygons |
| Reasoning about 3D shapes |
|  |  |  |  |  |
| Geometry | Position and direction | Reflection | MirrorsSquared paperSquare dotted paperIsometric paperRulerImages of reflections | Reflection, translationMirror lineCoordinate, horizontal coordinate, vertical coordinateHorizontal axis, vertical axis |
| Reflection with coordinates |
| Translation |
| Translation with coordinates |
|  |  |  |  |  |
| Statistics | Graphs and tables | Interpreting tables |  | Line graph, dual line graphHorizontal axis, vertical axis, axis, scaleData, informationRead, interpret, completeTable, two-way table |
| Two-way tables |
| Interpreting line graphs (1) |
| Interpreting line graphs (2) |
| Drawing line graphs |
|  |  |  |  |  |

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.