

Church Lane Primary School  
 and Nursery

Mathematics Curriculum

2020/2021

Year 5

Year 5 – Mathematics curriculum

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Subject area | Overview | Lessons | Equipment | Key Vocab |
| Place Value | Numbers to 100,000 | Numbers to 10,000 | Place value counters  Base 10 equipment | Ones, tens, hundreds, thousands, ten thousands  Place value, position  Partition, equivalent  Estimate, closer to, between  Round  Next multiple, previous multiple, nearest multiple to 10, 100, 1,000 or 10,000  Compare, order, greater than, less than  Roman 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 counters  Base 10 equipment  Place value cards | Place values  Ones - millions  Partitioning, partition  Number line, count  Negative / positive number  Minus  Rounding, round up, round down  Estimate  Compare, order, sequence, rule  Ascending, descending  Less 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, subtract  1s (ones), 10s (tens), 100s (hundreds), 1000s (thousands), 10,000s (ten thousands),  Total  Difference  Inverse  Round  Mentally  estimate |
| 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 square  Blank counters  Sorting circles | Multiples, factor  Prime number, composite number  Square (x2), Cube (x3)  Multiply, multiplication, times  Divide, division  Inverse operation  Place value  Ones, 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 grids  Place value counters  counters | Total, sum, remainder  Place value, partition  Multiply, divide, add, subtract  Factor, 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 cards  Blank paper (to fold) | Equivalent  Numerator, denominator  Whole, fraction  Simplify, expand  Multiply, divide, multiplication, division, multiple, factor, remainder, improper, mixed number  Convert  Greater than, less than, equal to  Divisor, 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 strips  Paper plates | Fractions, whole, part, equal parts, equivalent  Add, sum, total, subtract, difference  Divide, multiply, multiple  Numerator, denominator, common denominator  Simplify, convert  Proper fraction, improper fraction, mixed number  Method, 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 jugs  beakers | Operators, add, subtract, multiply, divide  Fraction, improper fraction, mixed number  Denominator, numerator  Convert, simplifying, equivalent  Whole, part  Factor, 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 counters  Base 10 equipment | Decimal place  Tenths, hundredths, thousandths  Decimal point  Place value  Digits  Fractions  Percent  Rounding  Improper fractions  Mixed numbers  Convert  Exchange |
| 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 model  Number line  Part-whole model | Add, subtract, multiply, divide  Ones, tenths, hundredths, thousandths  Difference, group, share, compare, represent  Decimal, decimal point, decimal place, digit  Column, place value, exchange  Mass, 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 | Ruler  Measuring tapes  Trundle wheels  Metre rulers  Paper strips  straws | Perimeter, distance, area, space  Scale, actual area/ actual size, convert  Centimetre, metre, square cm, square m  Square, rectangle, rectilinear shape, sides, length, width  Measure, 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 wheels  Sets of scales  Digit cards | Mass, capacity, length, time, quantity  Metric units, gram, kilogram, millilitre, litre, millimetre, centimetre, metre, kilometre  Imperial units, ounces, pound, stone, pint, gallon, inch, foot, yards  Second, minute, hour, day, week, month, year  Convert, equal to, equivalent, approximately, per, measure, remainder, multiple  Timetable, 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 | Volume and capacity | What is volume? | Cubes  Isometric paper  Variety of measuring items  Different size bottles  Different size containers | Volume, capacity, solid, liquid, container  3D shapes  Calculate, estimate, compare, count, accurately, order, amount, irregular, prediction, exact  Unit, cubes, units of measurement, measure  Less, more, less than, more than, largest, smallest, least, greatest, equal  Space inside  Height, length, width, size, tall  Layer, slice  Multiple, total, take away, whole, part, almost half, identical  Litre, millilitre |
| Comparing volumes |
| Estimating volumes |
| Estimating capacity |
|  |  |  |  |  |
| Geometry | Properties of shape | Measuring angles in degrees | Arrow spinner  Mini-figures | Angle, turn  Whole turn, half turn, quarter turn  Acute angle, right angle, obtuse angle, reflex angle  Degrees  90 degrees  180 degrees  360 degrees  Interior angle  protractor |
| 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 | Rulers  sticks | Parallel  Perpendicular  Angle, right angle, interior angle  Grid  Regular, irregular  Polygon, quadrilateral  2D, 3D  viewpoint |
| Recognising and drawing perpendicular lines |
| Reasoning about parallel and perpendicular lines |
| Regular and irregular polygons |
| Reasoning about 3D shapes |
|  |  |  |  |  |
| Geometry | Position and direction | Reflection | Mirrors  Squared paper  Square dotted paper  Isometric paper  Ruler  Images of reflections | Reflection, translation  Mirror line  Coordinate, horizontal coordinate, vertical coordinate  Horizontal axis, vertical axis |
| Reflection with coordinates |
| Translation |
| Translation with coordinates |
|  |  |  |  |  |
| Statistics | Graphs and tables | Interpreting tables |  | Line graph, dual line graph  Horizontal axis, vertical axis, axis, scale  Data, information  Read, interpret, complete  Table, 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.