Maths Yearly Overview
Year 5

Autumn Term

Block One: Place value

- Determine the value of each digit in numbers up to 1,000,000 and explain the effect of its position.
- Read, write and represent numbers up to at least 1,000,000 in numerals and words.
- Order and compare numbers up to at least 1,000,000 using appropriate symbols and mathematical language.
- Count forwards and backwards in powers of 10 from any given number up to 1,000,000.
- Round numbers up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000.
- Solve problems involving numbers up to 1,000,000 by identifying missing values, comparing numbers and using place-value clues.
- Solve problems involving rounding, including deciding which place value a number should be rounded to and explaining the effect on the value.
- Use knowledge of powers of 10 to solve problems involving changes in the value of digits when numbers are multiplied or divided by 10, 100 or 1,000.

Block Two: Addition and subtraction

- add and subtract numbers with more than four digits using formal written methods of columnar addition and subtraction.
- Add and subtract numbers mentally using known facts, place value and appropriate mental strategies.
- Choose an efficient mental or written method for addition and subtraction and explain why it is appropriate.
- Use rounding and estimation to check the reasonableness of answers to calculations.
- Solve problems involving addition and subtraction with increasingly large numbers, including finding missing values and interpreting information from different contexts.
- Solve multi-step addition and subtraction problems, deciding which calculations are needed and the order in which they should be completed.
- Identify and correct errors in addition and subtraction calculations using estimation, inverse operations and knowledge of place value.
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Block Three: Fractions (including decimals and percentages)

- Read, write and represent decimals with up to three decimal places, identifying the value of each digit.
- Order and compare decimals with up to three decimal places, using appropriate symbols and mathematical language.
- Round decimals to the nearest whole number and to one decimal place.
- Multiply and divide whole numbers by 10, 100 and 1,000, using place value to explain how the digits change.
- Use place-value knowledge to solve problems involving multiplication and division by 10, 100 and 1,000.
- Solve problems involving ordering, comparing and rounding decimals, including identifying missing values and explaining which decimal is greater or smaller.
- Use decimals in practical contexts, including measures and money, and explain how the position of each digit affects the value of the number.

Block Four: Multiplication and division

- Multiply numbers up to four digits by a one-digit number using a formal written method.
- Multiply two-, three- and four-digit numbers by two-digit numbers using a formal written method, including exchanging where necessary.
- Divide numbers up to four digits by a one-digit number using a formal written method, interpreting remainders appropriately.
- Multiply and divide numbers mentally using known facts, place value and related multiplication and division facts.
- Choose an efficient mental or written method for multiplication and division and explain why it is appropriate.
- Solve problems involving multiplication and division, including problems with missing values and calculations requiring more than one step.
- Solve division problems where remainders need to be interpreted according to the context, including deciding whether to round up, round down or use the remainder.
- Identify and correct errors in multiplication and division calculations, using estimation and knowledge of related facts to check answers.

Block Five: Fractions (including decimals and percentages)

- Identify and write equivalent fractions, using diagrams and known multiplication and division facts to explain the equivalence.
- Recognise, identify and convert between mixed numbers and improper fractions.
- Add and subtract fractions with the same denominator, including fractions greater than one.
- Use equivalent fractions to support addition and subtraction and explain why the denominators remain the same.
- Compare and order fractions, including mixed numbers and improper fractions, using appropriate representations and reasoning.
- Solve problems involving equivalent fractions, mixed numbers and improper fractions, including finding missing values.
- Identify and correct errors when converting between mixed numbers and improper fractions, explaining the mistake made.

Block Six: Place value

- Interpret negative numbers in practical contexts, including temperature, money and changes in value.
- Count forwards and backwards through zero in powers of 10, including with negative numbers.
- Compare and order positive and negative numbers and identify their position on a number line.
- Use knowledge of negative numbers to solve problems involving changes in temperature, levels and other real-life contexts.
- Use powers of 10 to solve problems involving changes in the value of positive and negative numbers.
- Reason about negative numbers by explaining the effect of adding or subtracting multiples of 10, 100 or 1,000.

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Block Seven: Measurement- Time

- Convert between different units of time, including seconds, minutes, hours, days, weeks, months and years.
- Use known relationships between units of time to solve problems involving conversions and durations.
- Solve problems involving different units of time, including calculating durations, start and end times, and comparing lengths of time.
- Interpret timetables and schedules to solve problems involving start times, end times and durations.
- Use all four operations to solve practical problems involving time, including problems involving more than one unit of time.
- Estimate and check answers to time problems and explain whether the answer is reasonable.

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Spring Term

Block One : Addition and subtraction

- Solve multi-step addition and subtraction problems, identifying the operations needed and the order in which they should be carried out.
- Solve problems involving missing information and unknown values, using addition and subtraction to work backwards where appropriate.
- Choose and justify efficient mental or written methods when solving multi-step addition and subtraction problems.
- Use rounding and estimation to check calculations and decide whether an answer is reasonable.
- Identify and correct errors in multi-step addition and subtraction calculations using estimation and checking strategies.
- Interpret solutions in context, explaining what each calculation represents and ensuring the final answer addresses the question.

Block Two: Fractions (including decimals and percentages)

- Compare and order fractions whose denominators are multiples of the same number, using equivalent fractions to justify comparisons.
- Add and subtract fractions with denominators that are multiples of the same number by finding equivalent fractions with a common denominator.
- Multiply proper fractions by whole numbers and represent the calculation using diagrams and number lines.
- Multiply mixed numbers by whole numbers, including converting between mixed and improper fractions where appropriate.
- Solve problems involving comparing, ordering, adding, subtracting and multiplying fractions, including finding missing values.
- Use equivalent fractions to explain and justify methods when calculating with fractions with related

Block Three: Measurement

- Convert between metres and centimetres and use these conversions when measuring and calculating length.
- Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.
- Calculate the perimeter of composite rectilinear shapes by identifying and combining missing side lengths.
- Calculate and compare the area of rectangles using standard units, including cm^2 and m^2.
- Estimate the area of irregular shapes by counting and combining squares and parts of squares.
- Solve problems involving length, perimeter and area, including converting between units and finding missing measurements.
- Compare shapes with different dimensions and explain how changes in length affect their perimeter and area.

Block Four: Fractions (including decimals and percentages)

- Read and write decimals as fractions, including decimals with up to three decimal places.
- Recognise the percentage symbol (%) and understand that percentages are fractions expressed as parts per hundred.
- Write percentages as fractions and decimals and convert between these forms.
- Recognise and use the decimal and percentage equivalents of ½, ¼, fifths, multiples of 10 and multiples of 25.
- Solve problems involving decimals with up to three decimal places, including comparing, ordering and identifying missing values.
- Solve problems requiring the use of fraction, decimal and percentage equivalents of ½, ¼, fifths, multiples of 10 and multiples of 25.
- Explain and justify conversions between fractions, decimals and percentages using diagrams, place value and known equivalent fractions.

Block Five: Measurement- Volume, Capacity and Metric Conversion

- Estimate and compare volume using practical equipment, including 1 cm^3 cubes and blocks to build cuboids and cubes.
- Estimate and compare capacity using appropriate practical measuring equipment and units.
- Convert between common metric units of measure, including kilometres and metres, metres and centimetres, kilograms and grams, and litres and millilitres.
- Use metric conversions to solve practical problems involving length, mass, capacity and volume.
- Choose appropriate units and measuring equipment for different quantities and explain why they are suitable.
- Solve problems involving estimates, conversions and comparisons of metric measures, including identifying missing measurements.
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Block Six: Multiplication and division

- Recognise and use square numbers and cube numbers and understand the notation for squared and cubed numbers.
- Identify multiples and factor pairs of numbers and use them to solve multiplication and division problems.
- Recognise and use the vocabulary of prime numbers, prime factors and composite numbers.
- Establish whether a number up to 100 is prime by identifying its factors.
- Use knowledge of factors, multiples, primes, squares and cubes to solve number problems and identify missing values.
- Explain and justify whether a number is prime, composite, a square or a cube using its properties and factors.

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Summer Term

Block One

Geometry: properties of shapes- Angles

- Recognise that angles are measured in degrees and estimate and compare acute, obtuse and reflex angles.
- Identify angles less than 90° and use knowledge of right angles to describe and compare them.
- Identify angles on a straight line and recognise that they total 180°.
- Identify angles at a point and recognise that they total 360°.
- Identify angles that are multiples of 90°, including right angles, half turns, three-quarter turns and whole turns.
- Use known angle facts to calculate missing angles on a straight line and at a point.
- Solve problems involving angles by selecting and applying known angle facts and explaining the reasoning used.
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Block Two: Multiplication and division

- Solve problems involving multiplication and division using knowledge of factors, multiples, square numbers and cube numbers.
- Solve scaling problems involving simple fractions, including scaling quantities up or down by fractions such as ½, ¼ and ¾.
- Solve problems involving simple rates, including interpreting and comparing quantities in relation to time, distance or other measures.
- Find all possible factor pairs or multiples that satisfy given conditions and present them systematically.
- Find all possible solutions to multiplication and division problems involving scaling or simple rates, and explain how you know that all possibilities have been found.
- Determine whether statements about multiplication and division are always, sometimes or never true, using examples and counterexamples to justify conclusions.

Block Six: Geometry – position and direction/3D shapes

- Identify, describe and represent the position of a shape following a reflection or translation, using appropriate mathematical language.
- Describe the movement of a shape following a reflection or translation and recognise that the shape itself has not changed.
- Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.
- Use 2-D representations to identify and describe the features of 3-D shapes.
- Solve problems involving reflections and translations, describing the position and movement of shapes accurately.
- Reason about 3-D shapes from their 2-D representations and explain how the representation shows the shape.

Block Four: Geometry – properties of shapes/measuring angles

- Use the properties of rectangles to deduce related facts and find missing lengths and angles.
- Distinguish between regular and irregular polygons by reasoning about equal sides and angles.
- Identify and describe the properties of regular and irregular polygons.
- Measure angles accurately in degrees using a protractor.
- Draw given angles accurately using a protractor.
- Use knowledge of shape properties and angle measurements to solve problems involving missing lengths and angles.
- Reason about shapes by identifying whether given measurements and properties are possible and explaining why.

Block Five: Statistics

- Read and interpret information presented in line graphs, including understanding scales and changes over time.
- Solve comparison, sum and difference problems using information presented in line graphs.
- Complete tables using information presented in graphs and other data sources.
- Read and interpret information presented in tables, including timetables.
- Use information from tables and timetables to calculate durations, compare values and find missing information.
- Find all possible answers to questions using information presented in a line graph or table and explain how you know all possibilities have been found.
- Identify patterns and trends in data and use evidence from graphs and tables to make and justify conclusions.
- Identify and correct errors in completed tables or interpretations of graphs, explaining how the error was found.