MATHEMATICS TARGETS - A YEAR 5 MATHEMATICIAN

HOLNE CHASE PRIMARY SCHOOL

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Number, place value, approximation and estimation/rounding
I can count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.
I can read, write, order and compare numbers to at least 1,000,000.
I can determine the value of each digit in numbers up to 1,000,000.
I can read Roman numerals to 1,000 (M) and recognise years written in Roman numerals.
I can round any number up to 1,000,000 to the nearest 10, 100, 1000, 10000 and 100000.
I can interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.
I can solve number problems and practical problems with the above.
Calculations
I can add and subtract numbers mentally with increasingly large numbers.
I can add and subtract whole numbers with more than 4 digits, including using formal written methods.
I can use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.
I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
I can identify multiples and factors, including finding all factor pairs or a number and common factor pairs of two numbers.
I use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
I can establish whether a number up to 100 is prime and recall prime numbers up to 19.
I recognise and use square numbers and cube numbers, and the notation for squared and cubed.
I can multiply and divide numbers mentally drawing on known facts.
I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
I can multiply numbers up to 4 digits by a 1-digit or 2-digit number using a formal written method, including long multiplication for 2-digit numbers.
I can divide numbers up to 4 digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context.
I can solve problems involving multiplication and division including using knowledge of factors and multiples, squares and cubes.
I can solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.
I can solve problems involving multiplication and division including scaling by simple fractions and problems involving simple rates.

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Fractions, decimals and percentages
I can recognise mixed numbers and improper fractions and convert from one form to the other.
I can write mathematical statements >1 as a mixed number.
I can identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.
I can compare and order fractions whose denominators are multiples of the same number.
I can add and subtract fractions with the same denominator and denominators that are multiples of the same number.
I can multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.
I can read and write decimal numbers as fractions.
I recognise and can use thousandths and relate them to tenths, hundredths and decimal equivalents.
I can round decimals with 2 decimal places to the nearest whole number and 1 decimal place.
I can read, write, order and compare numbers with up to 3 decimal places.
I can solve problems involving numbers up to 3 decimal places.
I recognise the percent symbol and understand that percent relates to 'number parts per hundred'.
I can write percentages as a fraction with denominator hundred, and as a decimal.
I can solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions with a denominator or a multiple of 10 or 25.
Measurement
I can solve problems involving converting between units of time.
I can convert between different units of metric measure.
I understand and use approximate equivalences between metric units and common imperial units, such as inches, pounds and pints.
I can measure and calculate the perimeter of composite rectilinear shapes in cm and m.
I can calculate and compare the area of rectangles (incl. squares), and including using standard units (cm^2 and cm^3) to estimate the area of irregular shapes.
I can estimate volume and capacity.
I can use all four operations to solve problems involving money using decimal notation, including scaling.

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Geometry – properties of shapes
I can use the properties of rectangles to deduce related facts and find missing lengths and angles.
I can distinguish between regular and irregular polygons based on reasoning about equal sides and angles.
I can identify 3D shapes, including cubes and other cuboids, from 2D representations.
I know angles are measured in degrees.
I can estimate and compare acute, obtuse and reflex angles.
I can identify angles at a point and one whole turn.
I can identify angles at a point on a straight line and ½ a turn.
I can identify other multiples of 90º.
I can draw given angles and measure them in degrees.
Geometry – position and direction
I can identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.
Statistics
I can complete, read and interpret information in tables, including timetables.
I can solve comparison, sum and difference problems using information presented in a line graph.

Mathematics Targets

Exceeding Year 5 Expectations

I have a concept of numbers well beyond 1,000,000 and their relative association to distances to planets; historical data and geographical aspects.

I can divide whole numbers (up to 4 digits) by 2-digit numbers, using my preferred method.

I can use rounding as a strategy for quickly assessing what approximate answers ought to be before calculating.

I can link working across zero for positive and negative numbers, for example, to work out time intervals between BC and AD in history

I can recognise the symbol for square root (√) and work out square roots for numbers up to 100.

I can calculate number problems algebraically, for example, $2x – 3 = 5$

I can use my knowledge of measurement to create plans of areas around school, such as the classroom , field, outside play area, etc.

I can relate the imperial measures still used regularly in our society to their metric equivalents, for example, miles to Km and lbs to Kg.

I can use a range of timetables to work out journey times on a fictional journey around the world, for example, “How long would it take to reach the rainforests in the Amazon?”

I can collect my own data on a personal project and present information in formats of my choosing using charts, graphs and tables.

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Number, place value, approximation and estimation/rounding

I can read, write, order and compare numbers up to10,000,000.

I can determine the value of each digit in numbers up to 10,000,000.

I can round any whole number to a required degree of accuracy.

I can use negative numbers in context, and calculate intervals across zero.

I can solve number problems and practical problems with the above.

Calculations

I can use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

I can identify common factors, common multiples and prime numbers.

I can perform mental calculations, including with mixed operations and large numbers.

I can multiply multi-digit numbers up to 4 digits by a 2 digit whole number using the formal written method of long multiplication.

I can divide numbers up to 4 digits by a 2 digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.

I can divide numbers up to 4 digits by a 2 digit number using the formal written method of short division where appropriate.

I can solve problems involving addition, subtraction, multiplication and division.

I can use my knowledge of the order of operations to carry out calculations involving the four operations.

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Fractions, decimals and percentages

I can use common factors to simplify fractions and use common multiples to express fractions in the same denomination.

I can compare and order fractions, including fractions >1.

I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.

I can multiply simple pairs of proper fractions, writing the answer in the simplest form.

I can divide proper fractions by whole numbers.

I can associate a fraction with division to calculate decimal fractions equivalents for a simple fraction.

I can identify the value of each digit to 3 decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to 3 decimal places.

I can multiply 1-digit numbers with up to 2 decimal places by whole numbers.

I can use written division methods in cases where the answer has up to 2 decimal places.

I can solve problems which require answers to be rounded to specified degrees of accuracy.

I an recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

Ratio and proportion

I can solve problems involving the relative sizes of two quantities, where missing values can be found using integer multiplication and division facts.

I can solve problems involving the calculation of percentages and the use of percentage comparisons.

I can solve problems involving similar shapes where the scale factor is known or can be found.

I can solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

Algebra

I can express missing number problems algebraically.

I can use simple formulae.

I can generate and describe linear number sequences.

I can find pairs of numbers that satisfy an equation with two unknowns.

I can enumerate possibilities of combinations of two variables.

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Measurement
I can use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation of up to 3 decimal places.
I can convert between miles and kilometres.
I recognise that shapes with the same areas can have different perimeters and vice versa.
I can calculate the area of parallelograms and triangles.
I recognise when it is possible to use the formulae for the area of shapes.
I can calculate, estimate and compare volume of cubes and cuboids, using standard units.
I recognise when it is possible to use the formulae for the volume of shapes.
I can solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate.
Geometry – properties of shapes
I can compare and classify geometric shapes based on the properties and sizes.
I can describe simple 3D shapes.
I can draw 2D shapes given dimensions and angles.
I recognise and build simple 3D shapes, including making nets.
I can find unknown angles in any triangles, quadrilaterals and regular polygons.
I recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
I can illustrate and name parts of circles, including radius, diameter and circumference.
I know the diameter is twice the radius.
Geometry – position and direction
I can draw and translate simple shapes on the co-ordinate plane, and reflect them in the axes.
I can describe positions on the full co-ordinate grid (all four quadrants).
Statistics
I can interpret and construct pie charts and line graphs and use these to solve problems
I can calculate and interpret the mean as an average.

Mathematics Targets

Exceeding Year 6 Expectations

I can compare, order and convert between fractions, decimals and percentages, for example, in contexts related to science, history or geography learning

I can move beyond squared and cubed numbers to calculate problems such as $X \times 10^n$ where n is positive.

I can use $=$, $\neq$, $<$, $>$, $\leq$, $\geq$ correctly.

I can multiply all integers, (using efficient written methods) including mixed numbers and negative numbers.

I can recognise an arithmetic progression and find the n*th* term .

I can use a formula for measuring the area of a shape, such as a rectangle and triangle to work out the area of an irregular shape in the school environment

I can use the four operations with mass, length, time, money and other measures, including the use of decimal quantities.

I can create a scaled model of an historical or geographical structure showing an acceptable degree of accuracy using known measurements.

I can calculate the costs and time involved of a visit to a destination in another part of the world relating to on-going learning in history or geography.

I can collect my own data on a personal project and present information in formats of my choosing, using charts, graphs and tables, and answer specific questions related to my research.

