MATHEMATICS Year 5

All children will access age related curriculum objectives	All children will:	Children, who grasp concepts rapidly, may:
Number Place Value		
Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.	*I can read, write, order and compare numbers to at least 1 000 000 and know the value of each digit.*	*I can read, write, order and compare numbers to at least 1 000 000 independently and know the value of each digit.*
Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.	*I count forwards or backwards in steps 10, 100, 1000, 10000 or 100000 for any given number up to 1000000.*	*I confidently and quickly count forwards or backwards in steps 10, 100, 1000, 10000 or 100000 for any given number up to 1000000.*
Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.	*I can use negative numbers in my work and can count backwards and forwards to and from negative numbers.*	*I can use negative numbers in my work independently and can count backwards and forwards to and from negative numbers.*
Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.	*I can round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.*	*I can round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 and use this to predict and check the answers to calculations*
Solve number problems and practical problems that involve numbers up to 1000000, negative numbers, rounding or jumping in steps.	*I can solve number problems and practical problems that involve numbers up to 1000000, negative numbers, rounding or jumping in steps.*	*I can solve number problems and practical problems in a range of contexts, that involve numbers up to 1000000, negative numbers, rounding or jumping in steps.*
Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	*I can read Roman numerals to 1000 (M) and recognise years written in Roman numerals.*	*I can confidently read Roman numerals to 1000 (M) and recognise and explain years written in Roman numerals.*
Addition Subtraction		
Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).	*I can add and subtract whole numbers with more than 4 digits using written methods such as column addition and subtraction.*	*I can add and subtract whole numbers with more than 4 digits using written methods such as column addition and subtraction in a range of different contexts*
Add and subtract numbers mentally with increasingly large numbers.	*I can add and subtract larger numbers in my head.*	*I can rapidly add and subtract larger numbers in my head.*
Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	*I round numbers to check the accuracy of my solution.*	*I accurately round numbers to check the accuracy of my solution.*
Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	*I can solve addition and subtraction multi-step problems, deciding which operations and methods to use and why.*	*I can independently solve more complex addition and subtraction multi-step problems, deciding which operations and methods to use and why.*

Multiplication Division		
Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.	*I can identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.*	*I can solve problems mentally by identifying multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.*
Know and use the vocabulary of prime numbers, prime factors and composite numbers.	*I know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.*	*I confidently use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers when reasoning about problems and investigations.*
Establish whether a number up to 100 is prime and recall prime numbers up to 19.	*I know whether a number up to 100 is prime and recall prime numbers up to 19.*	*I know whether a number up to 100 is prime and recall prime numbers up to 19, using this to help with maths investigations.*
Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. .	*I can multiply 4 digit numbers by a one- or two-digit number using a written method, including long multiplication for two-digit numbers.*	*I can confidently multiply 4 digit numbers by a one- or two-digit number using a written method, including long multiplication for two-digit numbers to solve a range of problems.*
Multiply and divide numbers mentally drawing upon known facts.	*I multiply and divide numbers mentally drawing upon my times table knowledge and other number facts.*	*I multiply and divide numbers mentally drawing upon my times table knowledge and other number facts to solve practical problems.*
Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.	*I can divide 4 digit numbers by a one-digit number using the written method of short division and find the remainder.*	*I can divide 4 digit numbers by a one-digit number using the written method of short division and find the remainder; writing it as a fraction or decimal.*
Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	*I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.*	*I can quickly and accurately mentally multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.*
Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).	*I know what square numbers and cube numbers are, including the notation for squared (2) and cubed (3).*	*I square numbers and cube numbers are, including the notation for squared (2) and cubed (3) to solve problems.*
Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.	*I can solve multiplication and division problems using my knowledge of factors and multiples, squares and cubes.*	*I can use efficient methods of multiplication and division to solve problems including using my knowledge of factors and multiples, squares and cubes.*
Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.	*I can solve more difficult problems involving addition, subtraction, multiplication and division and a combination of these.*	*I can use efficient methods of calculation to solve more difficult problems involving addition, subtraction, multiplication and division and a combination of these.*
Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	*I can solve problems including scaling by simple fractions and problems involving simple rates.*	*I can solve more complex problems including scaling by fractions and problems involving simple rates.*
Fractions		

Compare and order fractions whose denominators are all multiples of the same number.	*I can compare and order fractions whose denominators are all multiples of the same number.*	*I can compare and order fractions whose denominators are all multiples of the same number, and can use this in different subject areas.*
Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.	*I can name and write equivalent fractions of a given fraction, and show these in a drawing (including tenths and hundredths).*	*I can name and write a range of equivalent fractions of a given fraction independently, and show these in a drawing (including tenths and hundredths).*
Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements greater than 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5].	*I know what mixed numbers and improper fractions are and I can convert from one to the other [for example, 2/5 + 4/5 = 6/5 = 1 1/5].*	*I solve real-life problems involving mixed numbers and improper fractions and I can convert from one to the other [for example, 2/5 + 4/5 = 6/5 = 1 1/5].*
Add and subtract fractions with the same denominator and denominators that 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.*	*In different subjects, I can independently add and subtract fractions with the same denominator and denominators that are multiples of the same number.*
Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	*I use diagrams and some fraction tools to multiply proper fractions (7/10) and mixed numbers (1 7/10) by whole numbers.*	*I can multiply proper fractions (7/10) and mixed numbers (1 7/10) by whole numbers.*
Read and write decimal numbers as fractions [for example, 0.71 = 71/100].	*I can read and write decimal numbers as fractions [for example, 0.71 = 71/100].*	*I can read and write decimal numbers as fractions [for example, 0.71 = 71/100] and simplify them where possible.*
Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.	*I know what thousandths are and how to use them with tenths, hundredths and decimals.*	*I use thousandths, tenths, hundredths and decimals across different subject areas.*
Round decimals with two decimal places to the nearest whole number and to one decimal place.	*I can round decimals with two decimal places to the nearest whole number and to one decimal place.*	*I can confidently round decimals with two decimal places to the nearest whole number and to one decimal place and use this in different subjects to present information.*
Read, write, order and compare numbers with up to three decimal places.	*I can read, write, order and compare numbers with up to three decimal places.*	*I can read, write, order and compare numbers with up to three decimal places independently.*
Solve problems involving number up to three decimal places.	*I can solve problems involving numbers with up to three decimal places.*	*I can solve real-life problems involving numbers with up to three decimal places using efficient methods of calculation.*
Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.	*I know what the per cent symbol is (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.*	*I can confidently relate percentages with their fraction and decimal equivalences.*
Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a	*I work on problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5,*	*I work on real-life and practical problems which require knowing percentage and decimal equivalents of those fractions with a*

denominator of a multiple of 10 or 25.	2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.	denominator of a multiple of 10 or 25.
Measurement		
Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).	I can convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).	I can convert between a wider span of metric measure (for example, kilometre and centimetre; metre and millimetre; gram and kilogram; litre and millilitre) and use this to solve real-life problems.
Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.	I can change metric units to become imperial units such as inches, pounds and pints.	Solve problems in a range of different subjects involving equivalences between metric units and common imperial units such as inches, pounds and pints.
Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	I can calculate the perimeter of multi-shape shapes in centimetres and metres.	I can calculate the perimeter of multi-shape shapes in centimetres and metres and use this to solve practical problems.
Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes.	I can calculate the area of rectangles in square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes.	I can calculate the area of compound rectangles in square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes.
Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water].	I can estimate volume [for example, using 1 cm3 blocks to build cuboids] and capacity [for example, using water].	I can accurately estimate volume [for example in m3] and capacity [for example in quantities of litres]
Solve problems involving converting between units of time.	I can convert between the units of time.	I can convert between different the units of time into one common measurement to solve problems.
Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	I can solve more difficult problems which involve units of measurement, decimal numbers and scales.	I can combine several mathematical operations to solve more difficult problems which involve units of measurement, decimal numbers and scales.
Shape		
Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.	I can Identify 3-D shapes, including cubes and other cuboids, from 2-D drawings.	I can Identify and create 3-D shapes, including cubes and other cuboids, from 2-D drawings and nets.
Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.	I know that angles are measured in degrees and I can estimate and compare acute, obtuse and reflex angles.	I can measure, classify, order and compare acute, obtuse and reflex angles.

Draw given angles, and measure them in degrees (°).	*I can draw a given angle (such as 47°), and then measure them in degrees (°).*	*I can accurately draw a given angle (such as 47°), and then measure them in degrees (°) and use this to construct shapes.*
Identify angles at a point and one whole turn (total 360°).	*I know one whole turn - or a set of angles all around a point - measure a total of 360°.*	*I can solve more difficult problems by finding angles around a point and in one whole turn.*
Identify angles at a point on a straight line and a turn (total 180°).	*I know that a straight line - or angles that add up to a straight line - measure 180°.*	*I know that a straight line - or angles that add up to a straight line - measure 180° and use this to solve real-life problems.*
Identify other multiples of 90°.	*I can identify multiples of 90° (right angles).*	*I can identify multiples of 90° (right angles) and use this to solve problems.*
Use the properties of rectangles to deduce related facts and find missing lengths and angles.	*I can find the missing lengths and angles of a rectangle.*	*I can find the missing lengths and angles of compound rectangles.*
Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	*I know regular shapes have equal sides and angles and irregular shapes do not have equal sides and angles.*	*I can identify and compare regular shapes and irregular shapes independently.*
Position		
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.	*I can reflect or translate a shape on a grid.*	*I can reflect or translate complex shapes on a grid.*
Statistics		
Solve comparison, sum and difference problems using information presented in a line graph.	*I can solve problems using a line graph to find the answers.*	*I can solve problems using a line graph to find the answers across different subjects.*
Complete, read and interpret information in tables, including timetables.	*I can find the information I need from a timetable or large table of data.*	*I can find the information I need from a timetable or large table of data to solve problems.*