

Year 5 Mathematics Overview



Term	National Curriculum 2014 Objectives	Sequence
Autumn 1	<ul style="list-style-type: none"> • read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1000 000 • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • read Roman numerals to 1000 (M) and recognise years written in Roman numerals 	<ul style="list-style-type: none"> • Read numbers to 1 000 000 • Write numbers to 1 000 000 • Order numbers to 1 million • Compare numbers to 1 million • Rounding numbers • Counting in steps of powers of 10 • Solving word problems • Negative numbers • Roman numerals
	<ul style="list-style-type: none"> • add and subtract numbers mentally with increasingly large numbers • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scalings, (measurement) 	<ul style="list-style-type: none"> • addition and subtraction facts • mental addition • mental subtraction • informal methods of adding • formal methods of adding • informal methods of subtracting • formal methods of subtracting • rounding to check answers • solving word problems

Autumn 2	<ul style="list-style-type: none"> multiply and divide numbers mentally drawing upon known facts multiply and divide whole numbers by 10, 100 and 1000 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 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 identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign solve problems involving multiplication and division where larger numbers are used by decomposing them into their factors solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers establish whether a number up to 100 is prime and recall prime numbers up to 19 use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scalings, (measurement) 	<ul style="list-style-type: none"> recall times tables 12 x 12 identify multiples factors square numbers cubed numbers prime numbers multiply by 10s, 100s, 1000s divide by 10s, 100s, 1000s multiply 4 digit number by 1 digit – formal method multiply 4 digit number by 2 digit – formal method long multiplication divide 4 digit number by 1 digit short division solving word problems interpret remainders
	<ul style="list-style-type: none"> measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 (multiplication and division) understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints solve problems involving converting between units of time 	<ul style="list-style-type: none"> measure perimeter of rectilinear shapes – real size measure perimeter of rectilinear shapes – not to scale draw rectilinear shapes & measure their perimeter convert perimeter into different units of measurement equivalence between metric & imperial units

		<ul style="list-style-type: none"> • solve measures problems
Spring 1	<ul style="list-style-type: none"> • calculate and compare the area of squares and rectangles, including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes • estimate volume (e.g. using 1 cm³ blocks to build cubes and cuboids) and capacity (e.g. using water] • use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scalings. 	<ul style="list-style-type: none"> • building solids using unit cubes • drawing cubes and cuboids • understanding & measuring volume • volume of a cuboid & of liquid
	<ul style="list-style-type: none"> • Compare and order fractions whose denominators are all multiples of the same number • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] • 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 • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates, (multiplication and division). 	<ul style="list-style-type: none"> • compare fractions • order fractions • equivalent fractions • convert between mixed numbers & improper fractions • decimals as fractions • add fractions • subtract fractions • multiply fractions • scaling • finding ratio • equivalent ratio • solving word problems

Spring 2	<ul style="list-style-type: none"> • read, write, order and compare numbers with up to three decimal places • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • round decimals with two decimal places to the nearest whole number and to one decimal place • solve problems involving number up to three decimal places • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000, (multiplication and division). • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling, (measurement) 	<ul style="list-style-type: none"> • Read decimal numbers (3 d.p) • Write decimal numbers (3 d.p) • Order decimal numbers (3 d.p) • Convert decimals to 10ths, 100ths, 1000ths & vice versa • Round decimals • Multiply decimals • Divide decimals • Solve word problems
	<ul style="list-style-type: none"> • 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 • solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25 	<ul style="list-style-type: none"> • convert between percentages, decimals and fraction (denominator 100) • solve word problems

Summer 1	<ul style="list-style-type: none"> • know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • draw given angles, and measure them in degrees ($^{\circ}$) • identify: angles at a point and one whole turn (total 360°); angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°); other multiples of 90° • identify 3-D shapes, including cubes and other cuboids, from 2-D representations • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles • 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 	<ul style="list-style-type: none"> • recognise types of angles • estimate angles • measure angles • draw angles • know properties of rectangles & polygons • find missing lengths & angles of rectangles & polygons • identify 3D shapes from photographs • identify 3D shapes from sketches • identify 3D shapes from nets • draw 3D shapes on isometric paper • identify a translation • use mathematical language to describe a translation • draw a translation • identify a reflection • use mathematical language to describe a reflection • draw a reflection • use vocabulary: reflection translation, congruent, congruence, object, image •
	<ul style="list-style-type: none"> • solve comparison, sum and difference problems using information presented in a line graph • complete, read and interpret information in tables, including timetables 	<ul style="list-style-type: none"> • understand the difference between a line graph & a bar-line chart • identify when a line graph is an appropriate way to show data • read values from a line graph • answer questions about data in line graphs • solve problems using information presented in a line graph • complete a table with given information • solve problems using information presented in tables

		<ul style="list-style-type: none"> •
<p>Summer 2</p>	<ul style="list-style-type: none"> • multiply and divide numbers mentally drawing upon known facts • multiply and divide whole numbers by 10, 100 and 1000 • 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 • 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 • identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign • solve problems involving multiplication and division where larger numbers are used by decomposing them into their factors • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. • know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 • use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scalings, (measurement) 	<ul style="list-style-type: none"> • recall times tables 12 x 12 • identify multiples • factors • square numbers • cubed numbers • prime numbers • multiply by 10s, 100s, 1000s • divide by 10s, 100s, 1000s • multiply 4 digit number by 1 digit – formal method • multiply 4 digit number by 2 digit – formal method • long multiplication • divide 4 digit number by 1 digit • short division • solving word problems • interpret remainders

	<ul style="list-style-type: none"> • Compare and order fractions whose denominators are all multiples of the same number • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] • 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 • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates, (multiplication and division). 	<ul style="list-style-type: none"> • compare fractions • order fractions • equivalent fractions • convert between mixed numbers & improper fractions • decimals as fractions • add fractions • subtract fractions • multiply fractions • scaling • finding ratio • equivalent ratio • solving word problems
--	--	---