	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions, Decimals, Ratio and Percentages	Measures	Geometry	Statistics
Y5 Autumn	Read and write numbers to at least 100 000.	Sustain a line of enquiry; make and test a hypothesis.	Use mental strategies to multiply and divide by 4, 9, 20 and 25. **Example:** 450 ÷ 9 66 × 25	Add and subtract 0·1 to/from a number with 1 or 2 decimal places. **Example:** 0·4 + 0·1 34·5 – 0·1	**Convert between different units of metric measure** (length: mm/cm/ m/km). **Example:** 113 mm = 11·3 cm 127 cm = 1·27 m	Use a ruler to measure lines in centimetres and millimetres.	**Complete, read and interpret information in timetables** using 24-hour times. **Example:** Looking at a train timetable: It is 07:53 at St Pancras. How soon can you get to Paris?
	Determine the value of each digit in numbers to at least 100 000 and use to solve place-value additions and subtractions. **Example:** 43 715 + 10 19 473 – 6000	**Add whole numbers with 4 digits, including using the formal written method of columnar addition** (answers > 10 000). **Example:** 8316 + 5477	**Solve problems involving multiplication and division using knowledge of factors,** doubles and halves, and times-tables.	**Compare and order fractions** with the same denominator. **Example:** $^7/_8 > ^5/_8$ $^3/_{10} < ^7/_{10}$	Understand the 24-hour clock, convert times, calculate time intervals and use timetables. **Example:** 13:00 = 1 pm How long between 06:17 and 08:28?	**Know angles are measured in degrees.**	
	Order and compare numbers to at least 100 000. **Example:** 24 987 < 25 199 < 25 857 < 26 008	Use place value and number facts to add and subtract 2-, 3- and 4-digit numbers. **Example:** 147 + 68 3942 – 801	Choose a mental or a written method to solve problems, including word problems, involving multiplication (including 2-/3-digit × 1-digit; 2-digit × 2-digit). **Example:** 150 × 5 34 × 28	**Identify, name and write equivalent fractions,** including simplest forms, **of a given fraction, represented visually, including tenths and hundredths.** **Example:** $^4/_{10} = ^2/_5$ $^{10}/_{100} = ^1/_{100}$	**Begin to calculate the perimeter of rectilinear shapes in cm.**	**Estimate and compare acute, obtuse and reflex angles.** **Example:** 0° < Acute < 90°, 90° < Obtuse <180°, 180° < Reflex < 360°	

Count forward or backwards in steps of powers of 10 for any number up to 100 000. **Example:** 1205, 1305, 1405, … 7745, 7645, 7545, …	Use inverse operations to create new calculations or check answers.	Choose a mental or written method to solve problems, including word problems, involving division (including 2-/3-digit ÷ 1-digit), and spot and explain patterns and relationships. **Example:** Divide multiples of 100 (100 to 900) by numbers 3 to 9. Explain the pattern. 10 people fit in a bus. How many buses do 740 people need?	Recognise and use tenths and hundredths and relate them to decimal equivalents. **Example:** $3/5 = 6/10 = 0\cdot6$ $15/100 = 0\cdot15$		**Draw given angles, and measure them in degrees (°)** using a protractor.	
Round any number up to 100 000 to the nearest 10, 100 and 1000. **Example:** 34 782 rounds to 34 780, 34 800 and 35 000	**Subtract whole numbers with 4 digits, including using the formal written method of columnar subtraction.** **Example:** 4265 – 2931	Recognise which numbers are divisible by 2, 3, 4, 5, 9 and 10.	**Read, write, order and compare numbers with up to 2 decimal places.** **Example:** $3\cdot3 < 3\cdot81$ $8\cdot76 > 6\cdot78$		**Identify angles at a point on a straight line and half a turn (total 180°)**; use mathematical reasoning to explain findings.	

		Begin to **add and subtract numbers mentally with increasingly large numbers.** **Example:** 3568 + 4300 5482 – 402	Use mathematical reasoning to work out a function; use the inverse operation to find answers. **Example:** 2370 □□ = 237 □ × 5 = 45 or 45 ÷ 5 = □			**Identify 90° and other multiples of 90°.**	
		Use mathematical reasoning to work out a function (single operation +/–). **Example:** 3839 □□ = 3889 23·5 □□ = 3·5	Use multiplication facts and place value to multiply and divide multiples of 10 and 100, including answers with 1 and 2 decimal places. **Example:** 280 ÷ 70 0·12 × 10				

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions, Decimals, Ratio and Percentages	Measures	Geometry	Statistics
	Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.	Add whole numbers and 1-place decimals using appropriate mental strategies. **Example:** 3568 + 4300 5·6 + 3·9	**Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers.** **Example:** 12 = 2 × 6; 3 × 4; 12 × 1 36 = 6 × 6; 3 × 12; 9 × 4; 18 × 2; 36 × 1 = 1, 2, 3, 4, 6 and 12	Add and subtract 0·1 or 0·01 to/from numbers with up to 2 decimal places. **Example:** 13·85 + 0.1 15·39 – 0.01	**Convert between different units of metric measure (km / m; cm / m; cm / mm; g / kg; L / ml).** **Example:** 100 g = 0·1 kg 1050 ml = 1·05 litres	Know that the angles in a triangle add up to 180° and devise and test rules to find a missing angle. **Example:** 180° – 20° – 65° = ▢	Sort using a Venn diagram or a table.
Y5 Spring	**Read** and **write numbers to at least 1 000 000.**	Add 1- and 2-place decimal numbers (including money) choosing and using an appropriate method (including columnar addition and mental methods). **Example:** 58·76 + 32·84 45·62 + 7·82	**Multiply and divide numbers mentally drawing upon known facts.** **Example:** 816 ÷ 9 70 × 8	**Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place.** **Example:** 8·47 rounds to 8.5, 8 6·78 rounds to 6.8, 7	Add 2-digit numbers with 2-place decimals, including money, using column addition. **Example:** £51·72 £43·66 +	Describe the properties of triangles (including scalene, right-angled, isosceles and equilateral). **Example:** Equilateral: All sides and all angles are equal (60°).	Begin to read and interpret line graphs, including reading intermediate values.

Order and compare numbers to at least 1 000 000. **Example:** 357886, 771352, 836412 Say a number between 650 000 and 675 000.	Count up to solve 4-digit minus 4-digit subtractions from near multiples of 1000, where column subtraction is awkward; use column subtraction where appropriate. **Example:** 8010 – 3788 9013 – 4867	Use a written method to multiply pairs of 2-digit numbers. **Example:** 24 × 67 78 × 96	**Solve problems involving numbers with up to 3 decimal places,** including in the context of measures. **Example:** Record your heights in m. Standing on top of each other, how tall would you be?	**Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.** **Example:** 12 inches is about 30 cm.	Use mathematical reasoning to identify properties of different polygons, including equal sides and angles and explain findings. **Example:** Draw polygons using dots and marked radii around circles and calculating angles between 2 radii.	
Determine the value of each digit in numbers to at least 1 000 000 and use to solve place value additions and subtractions. **Example:** 940 652 – 20 020 732 546 + 199 999	**Add and subtract numbers mentally with increasingly large numbers.** **Example:** 3465 + 299 6000 – 3867	Multiply and divide numbers by 10 and 100, including decimal numbers and those leading to decimal answers.	Find unit and non-unit fractions of 2 and 3 digit numbers.		Identify and define a polygon; **distinguish between regular and irregular polygons based on reasoning about equal sides and angles.** **Example:** Regular pentagon: 5 equal sides; 5 72° angles	
Order and compare 6-digit **numbers** and place on a number line.	Solve addition 1- step and multi-step problems using mental addition. **Example:** An adult's ticket costs £3·80 more than a child›s, which costs £14·60. How much is the adult's ticket?	**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.**	**Compare and order fractions,** including mixed numbers, **whose denominators are all multiples of the same number.** **Example:** $4^1/_4$, $4^3/_8$, $4^7/_8$ $3^7/_{10} > 3^1/_2$		Identify and define a polygon; **distinguish between regular and irregular polygons based on reasoning about equal sides and angles.** **Example:** Regular pentagon: 5 equal sides; 5 72° angles	

Find square numbers and square roots; find a pattern; write and test a rule. **Example:** Describe the difference between consecutive square numbers.	Use counting on and bonds to 100 to add to any 2-place decimal to find the next whole number. **Example:** $5.71 + \square = 6$ $7.56 + \square = \square$	**Recognise and use square numbers and their notation (^{2}).**	Place fractions on a number line and count in steps of a given fraction, using equivalence. **Example:** $\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{5}{8}, \frac{3}{4}, ...$ $= \frac{1}{8}, \frac{2}{8}, \frac{3}{8}, \frac{4}{8}, \frac{5}{8}, \frac{6}{8},$ ...			
	Subtract amounts of money and other 1- and 2-place decimal numbers in the context of measures.	Choose an appropriate method to divide one number by another, including for larger numbers requiring a written procedure.	**Recognise mixed numbers and improper fractions and convert from one form to the other**; look for patterns and write rules. **Example:** $\frac{20}{7} = 2\frac{6}{7}$ Compare numerators. Are they both odd, both even or one of each?			
	Investigate patterns in addition using knowledge of bonds and a systematic approach. **Example:** $\square . \square \square + \square . \square \square = 5.55$ (knowing: the digits in the hundredths column add to>10; there is a 3 in the tenths column)	Choose an appropriate method to multiply numbers, including for those larger numbers requiring written procedure.	**Multiply proper fractions by whole numbers** in a practical or real-life context.			

		Use columnar addition to add more than 2 numbers with up to 4 digits. **Example:** 4921 + 373 + 582 8364 + 918 + 1008	Use short division to divide 3-digit numbers by 1-digit numbers (including those that leave a remainder). **Example:** 645 ÷ 3 379 ÷ 4			
		Identify patterns and make predictions. **Example:** Reverse 1919 and subtract the smaller (9191 – 1919 = 7272). Reverse 7272 and subtract the smaller (= 4545). Repeat until a 3-digit number (909). Choose a different starting number; identify the same pattern.	Use short multiplication to multiply 3-digit numbers by 1-digit numbers, rounding to estimate answers. **Example:** 4 × 261 427 × 3			

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	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions, Decimals, Ratio and Percentages	Measures	Geometry	Statistics
Y5 Summer	**Interpret negative numbers in context; count forwards and backwards with positive and negative whole numbers, including through 0**; solve problems in the context of temperature. **Example:** –7 + 22 What is the decrease in temperature between –8° and –19°?	**Use rounding to check answers to calculations and determine, in the context of a problem, level of accuracy; use addition to check subtraction.**	**Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.** **Example:** 25·842 × 1000 3872 ÷ 100	Add and subtract 0·1, 0·01 or 0·001 to/from numbers with up to three decimal places.	**Measure and calculate the perimeter of composite rectilinear shapes in cm and m.** **Example:** Divide 'L' and 'T' shapes into rectangles to find their area and perimeter.	Draw given angles and straight lines to given lengths to create a triangle.	Draw line graphs; **solve comparison, sum and difference problems using information presented in a line graph.** **Example:** Using a graph of temperature at different altitudes: What is the temperature at 11 km if it is 26° at sea level?
	Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. **Example:** 385 922: 385 920, 385 900, 386 000, 390 000 and 400 000	Subtract 2-place decimal numbers (including money) using counting up or mental methods. **Example:** £14·75 – £3·49 £26·80 – £13·20	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. **Example:** A rectangle has a 24-square area and 2 6-square sides. How long are the other sides?	Write equivalent fractions and use equivalence to reduce fractions to their simplest form, including writing improper fractions as mixed numbers.	**Solve problems involving time,** telling the time using 12- and 24-hour clocks, and **converting between units of time.** **Example:** A train leaves London at 06:34 and arrives in Paris at 09:23. How long did the journey take?	**Identify 3D shapes, including cubes and other cuboids, from 2D representations.**	Estimate intermediate values on line graphs. **Example:** Using a graph of temperature: Give intermediate temperatures to the nearest degree.

Solve number problems and practical problems that involve all of the above.	Solve addition and subtraction problems, including multi-step and word problems; decide which operations and methods to use and why. Example: Parveen spent £4·25 on a ticket, £2·50 on popcorn and £1·20 on cola. How much change did she get from £10?	Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. Example: A rectangle has 2 11m sides and a 30m perimeter. What is its area?	Compare and order fractions whose denominators are all multiples of the same number. Example: $\frac{5}{8} > \frac{1}{2}$ $\frac{5}{6} > \frac{2}{3}$	Calculate and compare the area of rectangles (including squares), including using standard units, cm^2 and m^2, and pursue a line of enquiry. Example: Find as many squares and rectangles as possible where the area (cm^2) equals the perimeter (cm).	Recognise and use the properties of rectangles to deduce related facts and find missing lengths and angles. Example: Draw a rectangle 6 cm × 12 cm and its diagonals. What are the angles where they cross?
Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. Example: CMXCIX = 999 MMXII = 2012	Add whole numbers with more than 4 digits, including using formal written methods such as columnar addition. Example: 34 261 + 23 585 12 843 + 36 512	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. Example: 5296 ÷ 4 3256 ÷ 3	Read, write, order and compare numbers with up to 3 decimal places. Example: 3·218 < 4·339 0·065 < 0.173	Estimate the area of irregular shapes. Example: Find the area of leaves by drawing round them on squared paper, calculating the area of the contained rectangle and counting the squares around the edges.	Identify, describe and represent the position of a shape following a reflection or translation using the appropriate language; know that the shape has not changed; describe the relationship between the shapes' co-ordinates. Example: A rectangle with corner points (1, 2), (3, 2), (1, 5) and (3, 5) is moved five spaces along the x axis and three spaces up the y axis. What are the new corner points?

| | | | Subtract whole numbers with more than 4 digits, including using formal written methods such as columnar subtraction.

Example:
73 008 – 61 325
45 306 – 27 123 | Use short multiplication to multiply 4-digit numbers by 1-digit numbers, rounding to estimate answers.

Example:
3 × 5243
6 × 4054 | Read and write decimal numbers as fractions.

Example:
0·71 = $^{71}/_{100}$ | Estimate and begin to find volume and capacity.

Example:
Build a cube/cuboid with cubes, noting its base area and number of layers; then estimate its volume by the number of cubes before drawing and labelling it. | Read and mark coordinates in the first two quadrants and plot and join coordinates to create a polygon. | |
|---|---|---|---|---|---|---|---|---|
| | | | Multiply numbers up to 4 digits by a 1- or 2-digit number using a formal written method, including long multiplication for 2-digit numbers.

Example:
17 × 348
18 × 426 | Solve problems involving numbers with up to 3 decimal places.

Example:
Guess the possible weights of the mystery parcel: it is a 3-place decimal between 0 kg and 1kg with at least one 5. | Use all 4 operations to solve problems involving measure using decimal notation, including scaling.

Example:
Children make a scale model of a room (4·2 m × 3·3 m × 2·4 m) and choose furniture to scale, dividing measurements by 10. | | | |

			Identify factors of 2-digit numbers, pursue a line of enquiry and solve problems involving multiplication using their knowledge of factors. **Example:** 20 × 85: double 85, then multiply by 10 (2 and 10 are factors of 20).	**Multiply proper fractions by whole numbers, supported by materials and diagrams,** spot patterns and make generalisations. **Example:** $1 \times \frac{2}{3}$, $2 \times \frac{3}{4}$, $3 \times \frac{4}{5}$, $4 \times \frac{5}{6}$, …			
			Recognise and use cube numbers and their notation (^{3}). **Example:** $4^3 = 4 \times 4 \times 4 = 64$ $5^3 = 5 \times 5 \times 5 = 125$	**Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.** **Example:** 0·865 = 8 tenths, 6 hundredths and 5 thousandths			

			Solve problems (including word problems and problems about measure) **involving multiplication and division, including scaling by simple fractions and problems involving simple rates.** **Example:** My socks shrank to $\frac{1}{3}$ of their normal size. They used to be 18 cm long. How long are they now? A roofer can lay 40 tiles an hour. How many can he lay in 36 hours?	**Add and subtract fractions with the same denominator and denominators that are multiples of the same whole number**, including answers > 1. **Example:** $\frac{7}{8} + \frac{5}{8}$ $\frac{7}{10} - \frac{2}{5}$			
			Multiply numbers up to 4 digits by a 1- or 2-digit number using a formal written method, including long multiplication for 2-digit numbers.	**Recognise the per cent symbol (%) and understand that it relates to 'number of parts per hundred'; write percentages as a fraction with denominator 100 and as a decimal.** **Example:** $15\% = \frac{15}{100} = 0.15$ $30\% = \frac{30}{100} = 0.3$			

Year 5

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Termly Guide for Mathematics

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| | | | Use multiplication to check division. | **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 denominator of a multiple of 10 or 25.**

Example:
$0·5 = {}^1/_2 = 50\%$
$^1/_4$ of 28 children like swimming. What is this as a percentage? How many children is this? | | | |