Maths MTP Year 4
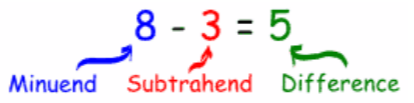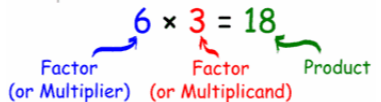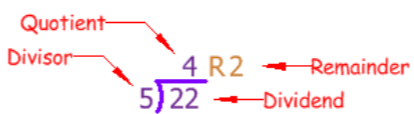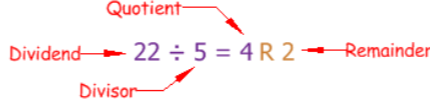
Year 4	Recall: **Children should be able to derive and recall**	Mental calculation skills: **Working mentally, with jottings if needed, children should be able to**	Mental methods or strategies: **Children should understand when to and be able to apply these strategies**	**GUIDANCE DOCUMENTS**
Mental Arithmetic KPIs Tables and known facts	**Addition and Subtraction** • sums and differences of pairs of multiples of 10, 100 or 1000 • addition doubles of numbers 1 to 100, e.g. 38 + 38, and the corresponding halves • what must be added to any three-digit number to make the next multiple of 100, e.g. 521 + ▯ = 600 • pairs of fractions that total 1	**Addition and Subtraction** • add or subtract any pair of two-digit numbers, including crossing the tens and 100 boundary, e.g. 47 + 58, 91 – 35 • add or subtract a near multiple of 10, e.g. 56 + 29, 86 – 38 • add near doubles of two- digit numbers, e.g. 38 + 37 • add or subtract two-digit or three-digit multiples of 10, e.g. 120 – 40, 140 + 150, 370 – 180	**Addition and Subtraction** • count on or back in hundreds, tens and ones • partition: add tens and ones separately, then recombine • partition: subtract tens and then ones, e.g. subtracting 27 by subtracting 20 then 7 • subtract by counting up from the smaller to the larger number • partition: add or subtract a multiple of 10 and adjust, e.g. 56 + 29 = 56 + 30 – 1, or 86 – 38 = 86 – 40 + 2 • partition: double and adjust • use knowledge of place value and related calculations, e.g. work out 140 + 150 = 290 using 14 + 15 = 29 • partition: count on or back in minutes and hours, bridging through 60 (analogue and digital times)	
	Multiplication and Division • multiplication facts to 10 × 10 and the corresponding division facts • doubles of numbers 1 to 100, e.g. double 58, and corresponding halves • doubles of multiples of 10 and 100 and corresponding halves • fraction and decimal equivalents of one-half, quarters, tenths and hundredths, e.g. 310 is 0.3 and 3100 is 0.03 • factor pairs for known multiplication facts	**Multiplication and Division** • double any two-digit number, e.g. double 39 • double any multiple of 10 or 100, e.g. double 340, double 800, and halve the corresponding multiples of 10 and 100 • halve any even number to 200 • find unit fractions and simple non-unit fractions of numbers and quantities, e.g. 38 of 24 • multiply and divide numbers to 1000 by 10 and then 100 (whole-number answers), e.g. 325 × 10, 42 × 100, 120 ÷ 10, 600 ÷ 100, 850 ÷ 10 • multiply a multiple of 10 to 100 by a single-digit number, e.g. 40 × 3 • multiply numbers to 20 by a single-digit, e.g. 17 × 3 • identify the remainder when dividing by 2, 5 or 10 • give the factor pair associated with a	**Multiplication and Division** • partition: double or halve the tens and ones separately, then recombine • use understanding that when a number is multiplied or divided by 10 or 100, its digits move one or two places to the left or the right and zero is used as a place holder • use knowledge of multiplication facts and place value, e.g. 7 × 8 = 56 to find 70 × 8, 7 × 80 • use partitioning and the distributive law to multiply, e.g.13 × 4 = (10 + 3) × 4 = (10 × 4) + (3 × 4) = 40 + 12 = 52	

		multiplication fact, e.g. identify that if 2 x 3 = 6 then 6 has the factor pair 2 and 3	

	Phase 1	Phase 2	Phase 3	Phase 4
Areas to revise	Year 3 KPIs as required (number facts & times tables facts focus)	Phase 1 according to AFL	Phase 2 according to AFL	Phase 3 according to AFL
KPIs covered Formal? Informal? Strategies? Key vocab	**Phase 1:** **Place Value** • Counts in multiples of six, seven, nine, 25 and 1,000 • Can find 1000 more or less than a given number • Rounds any number to the nearest 10, 100 or 1,000 • Orders and compares numbers beyond 1000 • Counts backwards through zero to include negative numbers • Solve number and practical problems that involve understanding of place value with increasingly large positive numbers **Addition and Subtraction** • Add and subtract numbers with up to 4 digits (using mental methods and jottings) **Multiplication and Division** • Recall 2/3/4/5/6/8 multiplication and division facts for multiplication tables	**Phase 2:** **Addition and Subtraction** • Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. • Estimate and use inverse operations to check answers to calculations **Multiplication and Division** • Use place value, known and derived facts to multiply and divide mentally • Recognise and use factor pairs and commutativity in mental calculations **Fractions and Decimals** • Recognises and shows, using diagrams, families of common equivalent fractions • Counts up and down in hundredths: recognises that hundredths arise when dividing an object by 100 and dividing tenths by 10 • Find the effect of dividing a one or two digit number by 10, 100, identifying the value of digits in the answer as ones, tenths and hundredths • Recognise and write decimal equivalents of any number of tenths and hundredths • Recognise and write decimal equivalents to $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}$ • Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number • Add and subtract fractions with the same denominator **Measure** • Converts between different units of measure eg kilometre to metre; hour to minute	**Phase 3:** **Place Value** • Read Roman numerals to 100 and know that over time, the numeral system changed to include the concept of zero and place value **Addition and Subtraction** • Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction **Multiplication and Division** • Multiply 2 and 3 digit numbers by a one digit number using formal written layout • Solve problems involving multiplying and adding, including using the distributive law to multiply 2 digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects **Fractions and Decimals** • Compare numbers with the same number of decimal places up to two decimal places • Rounds decimals with one decimal place to the nearest whole number • Solves simple measure and money problems involving fractions and decimals to two decimal places **Statistics** • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs • Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	**Phase 4:** **Measure** • Measure and calculate the perimeter of a rectilinear figure in centimetres and metres • Find the area of rectilinear shapes by counting squares **Geometry** • Plots specified points and draws sides to complete a given polygon • Describe movements between positions as translations of a given unit to the left/right and up/down • Identifies lines of symmetry in two dimensional shapes presented in different orientations • Complete a simple symmetric figure with respect to a specific line of symmetry • Identify acute and obtuse angles and compare and order angles up to two right angles by size • Compares and classifies geometric shapes based on their properties and sizes

		- Estimate, compare and calculate different measures, including money in pounds and pence - Read, write and convert time between analogue and digital 12 and 24 hour clocks - Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days		

See Calculation Policy for Formal Strategies

Key vocab	**Place Value**	**Addition & Subtraction**	**Multiplication and Division**	**Measure**
	units, ones, tens, hundreds, digit, one-, two- or three-digit number, 'teens' number place, place value, stands for, represents, exchange, the same number as, as many as, equal to Of two objects/amounts: greater, more, larger, bigger, less, fewer, smaller Of three or more objects/amounts: greatest, most, biggest, largest, least, fewest, smallest one more, ten more, one hundred more, one less, ten less, one hundred less compare, order, size first, second, third… tenth… twentieth, twenty-first, twenty-second… last, last but one, before, after, next, between, half-way between above, below	,add, addition, more, plus, make, sum, total, altogether, score, double, near double, one more, two more… ten more… one hundred more, how many more to make…? how many more is… than…? how much more is…? subtract, subtraction, take (away), minus, leave, how many are left/left over? one less, two less… ten less… one hundred less how many fewer is… than…? how much less is…? difference between, half, halve equals, sign, is the same as tens boundary, hundreds boundary unitise Addition: $8 + 3 = 11$ Addend Addend Sum $8 - 3 = 5$ Minuend Subtrahend Difference	lots of, groups of, , times, multiply, multiplication, multiplied by, multiple of, product once, twice, three times… ten times…times as (big, long, wide… and so on),repeated addition, array, row, column, double, halve, share, share equally, one each, two each, three each…group in pairs, threes… tens, equal groups of, , divide, division, divided by, divided into, left, left over, remainder Multiplication: $6 \times 3 = 18$ Factor (or Multiplier) Factor (or Multiplicand) Product Quotient Divisor $5\overline{)22}$ 4 R 2 Remainder Dividend Quotient Dividend $22 \div 5 = 4$ R 2 Remainder Divisor **Fractions** Equivalent Numerator, Denominator part, equal parts, fraction, one whole, one half, two halves one quarter, two… three… four quarters, one third, two thirds, three thirds, one tenth	**Measure** **Measure** Compare Add and Subtract Perimeter Lengths Metres, Centimetres, Millimetres Mass Kilograms, Grams Volume Litres, Millilitres Analogue Clock Morning, Afternoon, Noon, Midnight Seconds, Minutes, Hours O'clock, am, pm Roman Numerals **Statistics** 2D shapes, 3D shapes Recognise Orientations Describe Angles Right angles Degrees ½ turn, ¾ turn, Complete turn Greater than, Less than Horizontal lines Vertical lines Perpendicular lines Parallel lines **Geometry** **shape, pattern, flat, curved, straight, round, hollow, solid, corner, point, pointed, face,**

			side, edge, end, sort, make, build, draw, surface right-angled, vertex, vertices, layer, diagram, cube, cuboid,pyramid sphere, hemi-sphere, cone, cylinder, prism, circle, circular, semi-circle, triangle, triangular, square, rectangle, rectangular star, pentagon, pentagonal, hexagon, hexagonal, octagon, octagonal quadrilateral