



Year 3	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	<p><u>Addition and Subtraction</u></p> <ul style="list-style-type: none"> addition and subtraction facts for all numbers to 20, e.g. $9 + 8$, $17 - 9$, drawing on knowledge of inverse operations sums and differences of multiples of 10, e.g. $50 + 80$, $120 - 90$ pairs of two-digit numbers with a total of 100, e.g. $32 + 68$, or $32 + \square = 100$ addition doubles for multiples of 10 to 100, e.g. $90 + 90$ 	<p><u>Addition and Subtraction</u></p> <ul style="list-style-type: none"> add and subtract groups of small numbers, e.g. $5 - 3 + 2$ add or subtract a two-digit number to or from a multiple of 10, e.g. $50 + 38$, $90 - 27$ add and subtract two-digit numbers e.g. $34 + 65$, $68 - 35$ add near doubles, e.g. $18 + 16$, $60 + 70$ 	<p><u>Addition and Subtraction</u></p> <ul style="list-style-type: none"> reorder numbers when adding identify pairs totalling 10 or multiples of 10 partition: add tens and ones separately, then recombine partition: count on in tens and ones to find the total partition: count on or back in tens and ones to find the difference partition: add or subtract 10 or 20 and adjust partition: double and adjust partition: count on or back in minutes and hours, bridging through 60 (analogue times) 	<ol style="list-style-type: none"> Teaching Children to Calculate Mentally Written Calculation Policy Mental Calculation Policy NCETM Spines Ready to Progress Criteria
	<p><u>Multiplication and Division</u></p> <ul style="list-style-type: none"> multiplication facts for the 2, 3, 4, 5, 8 and 10 times-tables, and corresponding division facts doubles of multiples of 10 to 100, e.g. double 90, and corresponding halves 	<p><u>Multiplication and Division</u></p> <ul style="list-style-type: none"> double any multiple of 5 up to 100, e.g. double 35 halve any multiple of 10 up to 200, e.g. halve 170 multiply one-digit or two-digit numbers by 10 or 100, e.g. 7×100, 46×10, 54×100 find unit fractions of numbers and quantities involving halves, thirds, quarters, fifths and tenths 	<p><u>Multiplication and Division</u></p> <ul style="list-style-type: none"> partition: when doubling, double the tens and ones separately, then recombine partition: when halving, halve the tens and ones separately, then recombine use knowledge that halving and doubling are inverse operations recognise that finding a unit fraction is equivalent to dividing by the denominator and use knowledge of division facts recognise that when multiplying by 10 or 100 the digits move one or two places to the left and zero is used as a place holder 	



	Phase 1	Phase 2	Phase 3	Phase 4
Areas to revise	Year 2 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	<p>Phase 1: Place Value</p> <ul style="list-style-type: none"> Counts from 0 in multiples of 4, 8, 50 and 100 Recognises the place value of each digit in a three-digit number (hundreds, tens, and ones) Compares and orders numbers up to 1000 Find 10 or 100 more or less than a given number Solves number problems and practical problems involving place value knowledge <p>Addition and Subtraction</p> <ul style="list-style-type: none"> Add and subtract numbers mentally, including: <ul style="list-style-type: none"> -a 3 digit numbers and ones -a 3 digit number and tens -a 3 digit numbers and hundreds Solves problems including missing numbers using number facts, place value, and more complex addition and subtraction <p>Multiplication and Division <i>NB(Ensure times tables practice starts in phase 1, revising KS1 expectations and then moving on towards Phase 3 objective)</i></p>	<p>Phase 2: Addition and Subtraction</p> <ul style="list-style-type: none"> Adds and subtracts numbers with up to 3 digits using written methods Estimate the answers to a calculation and use the inverse operation to check answers <p>Measure</p> <ul style="list-style-type: none"> Measures, compares, adds and subtracts lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) Adds and subtracts amounts of money to give change, using both £ and p in practical contexts <p>Geometry</p> <ul style="list-style-type: none"> Identifies right angles, recognises that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identifies whether angles are greater than or less than a right angle Recognises angles as a property of a shape or a description of a turn Identifies horizontal and vertical lines and pairs of perpendicular and parallel lines 	<p>Phase 3: Multiplication and Division</p> <ul style="list-style-type: none"> Write and calculate mathematical statements for \times and \div using the multiplication tables that are known, including 2 digit \times 1 digit, using both mental and formal written method Solves problems involving missing number problems, involving multiplication and division, including integer scaling problems and corresponding problems in which n objects are connected to m objects Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables <p>Geometry Draws shapes and makes 3D shapes using modelling materials; recognises 3D shapes in different orientations and describes them.</p>	<p>Phase 4: Fractions and Decimals</p> <ul style="list-style-type: none"> Recognises and shows, using diagrams, equivalent fractions with small denominators Recognises, finds and writes fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators Counts up and down in tenths: recognises that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 Compares and orders unit fractions with the same denominators Add and subtract fractions with the same denominator within one whole Solves problems involving understanding of fractions <p>Statistics</p> <ul style="list-style-type: none"> Interprets and presents data using bar charts, pictograms and tables Solves one and two step questions using information presented in scaled bar charts and pictograms and tables <p>Measure</p> <ul style="list-style-type: none"> Tells and writes the time from an analogue clock and 12-hour and 24-hour clocks To compare durations of events, for example to calculate the time taken for particular events or tasks
See Calculation Policy for Formal Strategies				
Key vocab	<p>Place Value 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:</p>	<p>Addition & Subtraction , 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...?</p>	<p>Multiplication and Division 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,</p>	<p>Measure Measure Compare Add and Subtract Perimeter Lengths Metres, Centimetres, Millimetres</p>



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

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:

$$\begin{array}{c} \text{Addend} \quad \text{Addend} \quad \text{Sum} \\ 8 + 3 = 11 \end{array}$$

$$\begin{array}{c} \text{Minuend} \quad \text{Subtrahend} \quad \text{Difference} \\ 8 - 3 = 5 \end{array}$$

three each...group in pairs, threes... tens, equal groups of, , divide, division, divided by, divided into, left, left over, remainder

Multiplication:

$$\begin{array}{c} \text{Factor (or Multiplier)} \quad \text{Factor (or Multiplicand)} \quad \text{Product} \\ 6 \times 3 = 18 \end{array}$$

$$\begin{array}{c} \text{Quotient} \\ \text{Divisor} \quad \text{Remainder} \\ 5 \overline{)22} \end{array}$$

$$\begin{array}{c} \text{Quotient} \\ \text{Dividend} \quad \text{Divisor} \quad \text{Remainder} \\ 22 \div 5 = 4 \text{ R } 2 \end{array}$$

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

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
 1/2 turn, 3/4 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