KS1 and KS2 Calculation Policy
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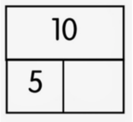
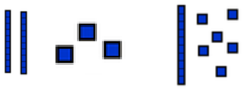
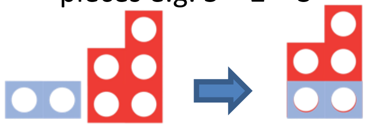
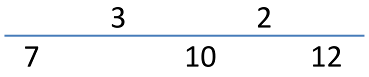
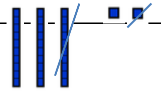
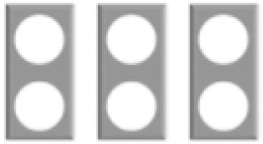
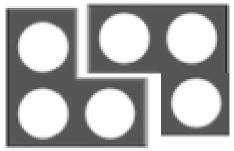
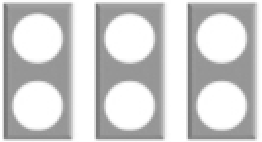
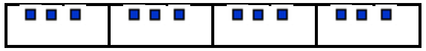
Laura Dunk and Danielle Payne
Maths Subject Leaders

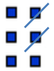
Audience
Teachers, Parents/Carers, Governors

Rationale
This policy contains the main calculation methods that will be taught within our school.
It is intended to support every child develop the key skills of mental calculation and written calculation.
Workshops will be held regularly to demonstrate methods.

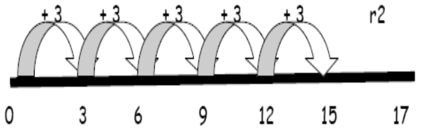
Holymead Primary School Calculation Policy

KS1 (Year 1 and Year 2)

Addition	Subtraction	Multiplication	Division
Recall number bonds to 10 and 20, and for other numbers up to 20 e.g. 8 = 5+3 Using a part part whole picture:  Recognise effect of adding and subtracting zero **Counting on using known facts / number line** TU + U, e.g. 23 + 3 – recall 3+3=6, therefore 23+3=26 **Use of hundred square** TU + multiple of 10 (e.g. 56 + 20) **Partitioning method – with drawings of tens and ones** TU + TU e.g. 23+16 = 39  3+6=9 20+10=30 30+9=39 U+U+U (3+7+2) – look for pairs that make 10 or a double (5+5+2), reorder to start with the biggest number	Recall addition and subtraction facts to 20 (fact families e.g. 3+4=7, 4+3=7, 7–4=3, 7–3=4) Solving 8 – 5 by recalling addition facts that 8 is made up of 5 and 3. Subtract one and two digit numbers (TU-U) by counting back or using known facts e.g. 35 – 3 (5-3=2, so answer is 32) Understand the word difference by visually comparing Numicon pieces e.g. 5 – 2 = 3  Subtracting by counting on / back on a number line to bridge a ten e.g. 12 – 5 is the same as 12 – 2 – 3 as represented on a number line:  Counting back using tens and ones (before column subtraction in Y3) 38 – 13 	Showing multiplication using Numicon  e.g. 3 x 2 (three lots of two)  e.g. 2 x 3 (two lots of three) To know the 2x 5x 10x table written “as lots of” 1x2=2, 2x2=4, 3x2=6 To know that multiplication is commutative e.g. 5 x 3 is the same as 3 x 5 To recall that 0 x a number = 0 e.g. 0x10=0 Inverse facts between multiplication and division using Numicon e.g. 3 x 5 = 15 so 15 ÷ 5 = 3	Recalling of all even numbers to 20 e.g. Half of 12 = 6 Halving two digit even numbers using Numicon e.g. Half of 42 = 21 Linking division to sharing using objects (Year 1) e.g. bricks 6 bricks shared between 3 people Division by counting in groups (Year 2) e.g. 6 ÷ 2 = 3  “How many groups of 2 are there in 6?” e.g. 15 ÷ 5 = 3 Arrow to show how many lots of 5 in 15. Find simple fractions of objects or numbers using sharing ¼ of 12 = 3, therefore ¾ of 12 = 9 

		To recall doubles of all numbers to 10, e.g. double 9 = 18 (and therefore half of 18 = 9)	

KS2 (Year 3 to Year 6)

Addition	Subtraction	Multiplication	Division
Instant recall of all single digit number facts, includes doubles, bridging ten 7+5 (7+3+2 or 2+5+5), near doubles e.g. 6+7 (6+6+1) **Partitioning Method** 34 + 15 30+10=40 4+5=9 =49 **Developing into only partitioning one number** 34 + 15 34+10+5 (Once proficient, this becomes a mental calculation strategy) **Column addition without carrying** **Column addition with carrying (using equipment in year 3 & 4)** 36 +47 83 1 Saying that the carried number is 1 ten	**Instant recall of all single digit subtraction facts e.g. 8 – 5 = 3 (see KS1 strategy)** **Counting back / recall subtraction fact mentally** e.g. 15 – 3 (count back from 15 to 12, or recall 5-3=2, therefore 15-3=12). **Bridging (crossing) a ten mentally** e.g. 15-9 = 6 (count up from 9 up to 15 or find difference by counting back 15-5-1). **Counting up on a number line** to find complements to multiples of 10 or 100 e.g. £1 – 56p +4p +40p 56p 60 £1 **By partitioning a number** e.g. 13 – 5 Either: a) 13 – 3 – 2 (partitioned the 5) b) (10 – 5) + 3 (partitioned 13 into 10 and 3, subtract 5 from 10) **Column Subtraction without exchanging** Pupils must subtract the units first **Column subtraction** with exchanging in any column – e.g. exchanging hundreds and tens and units. Using apparatus in year 3 & 4. ***6*** ***1*** $\cancel{7}$ 6 – 4 8 2 8	**Recall of times tables up to 12x12 by the end of Year 4** **Partitioning Method** 12 x 3 10 x 3=30 2 x 3=6 **30+6=36** **Compact Column Method** 7 2 X 3 2 1 6 **Compact Column method for TU.t x U** 21.8 X 3 65.4 2 **Long multiplication** TU x TU 32 X 15 $1_{1}60$ 320 480 **Derive times tables to support division** e.g. 16 times tables by using doubles, halves, x10, x5 etc **Double / halving method** 16 x 5 is the same as 8 x 10 (Half of 16, but double 5)	**Recall of division facts based on times tables** e.g. 21 ÷3 = 7 **Using Numicon to divide** (see KS1) progressing to a **number line**: How many groups of 3 in 17? e.g. 17 ÷3 = 5 r 2  +3 +3 +3 +3 +3 r2 0 3 6 9 12 15 17 **Dividing using the 'compact' method up to three digit divided by two digit.** 1 4 3 ⟌ 4 $^{1}2$ 1 4 16 ⟌ 2 2 $^{6}4$ **Dividing using long division** 1 4 1 6 ⟌ 2 2 4 – 1 6 0 6 4 – 6 4 0 Write the remainder as a fraction or decimal

Progressing to column addition of money, decimals and larger numbers.	Using a number line to calculate differences:, time, differences between positive and negative numbers.	**Recall factor pairs of two digit numbers** e.g. 24 1 and 24, 2 and 12, 3 and 8, 4 and 6	**Use a bar model to show division or fraction**: 60 ÷ 3 or $\frac{1}{3}$ of 60