KS1 and KS2 Calculation Policy
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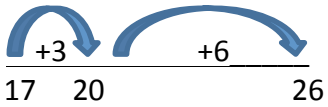
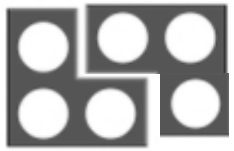
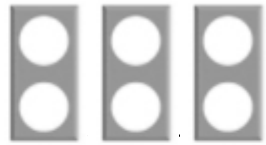
Audience
Teachers, Parents/Carers, Governors

Rationale
This policy contains the written calculation methods that will be taught within our school.
It is intended to support every child develop the key skills of written calculation.
This is alongside their development of mental maths skills and times tables recall which are as equally important.
Workshops will be held regularly to demonstrate methods.

Holymead Primary School Calculation Policy

Calculations (for end of Key Stage 1)

Addition	Subtraction	Multiplication	Division
Number bonds to 10 and 20, and for other numbers up to 20 e.g. 8 = 5+3 Recognise effect of adding and subtracting zero **<u>Counting on using a number line</u>** TU + U (e.g. 23 + 3) **<u>Use of hundred square</u>** TU + multiple of 10 (e.g. 56 + 20) **<u>Partitioning method</u>** TU + TU 34 + 15 30+10=40 4+5=9 40+9=49 U+U+U (3+7+2) – look for pairs that make 10, reorder to start with the biggest number Understand the words sum, total and altogether Pupils count in fractions up to 10 ½, 1, 1 ½, 2 etc	Recall addition and subtraction facts to 20 (fact families e.g. 3+4=7, 4+3=7, 7–4=3, 7–3=4) Subtract one and two digit numbers (TU-U) by counting back on a number line Understand the word difference by visually comparing Numicon pieces Subtracting by counting on to find the difference 26-17 = 9  	Showing multiplication using Numicon  e f two)  e.g. 2 x 3 (two lots of three) **<u>Partitioning Method</u>** 12 x 3 10 x 3 = 30 2 x 3 = 6 To know the 2x 5x 10x table written “as lots of” 1x2=2, 2x2=4, 3x2=6 Inverse facts between multiplication and division using Numicon	Halving numbers e.g. Half of 12 = 6 Halving two digit even numbers using Numicon e.g. Half of 42 = 21 Simple fractions of objects or numbers (half or quarter) Linking division to sharing using objects e.g. bricks Division using grouping (with Numicon) e.g. 6 ÷ 2 = 3  “Ho are there in 6?”

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KS2 Written Calculation Overview

Addition

Partitioning Method
34 + 15
30+10=40
4+5=9
=49

Developing into only partitioning one number
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)

```
  76
 +47
 123
   1
```

Progressing to column addition of money, decimals and four digit numbers.

Subtraction

Counting back mentally e.g. 15 – 3 (count back from 15 to 12).

Counting on mentally e.g. 15-9 (count up from 9 up to 15).

Counting up on a number line to find complements to multiples of 10 or 100 to used for money, fractions, decimals and negative numbers.

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
    7  6   (7 crossed out)
 –  4  8
    2  8
```

Using a number line to calculate differences: negative numbers, time problems, differences between positive and negative numbers.

Multiplication

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
```

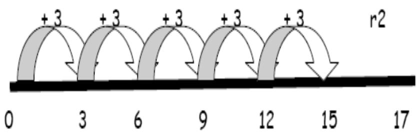
Long multiplication
TU x TU

```
   32
 X 15
 1₁60
  320
  480
```

Division

Year 3 Transition
Using Numicon to divide (see KS1), repeated addition and applying times tables to empty number line.

How many groups of 3 in 17?
e.g. 17 ÷ 3 = 5 r 2



Dividing using the 'compact' method up to three digit divided by two digit.

```
     1   4
 3 | 4  ¹2
```

```
        1   4
 16 | 2  2  ⁶4
```

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