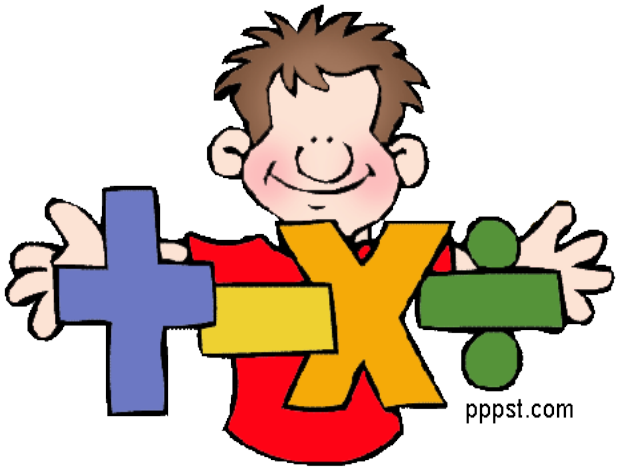
Duncombe PRIMARY SCHOOL

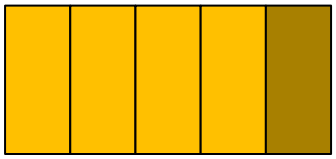
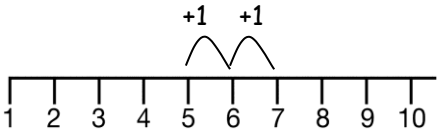
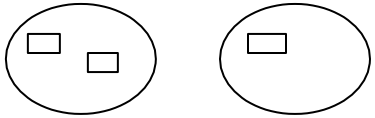
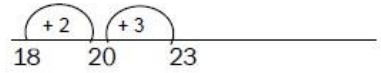
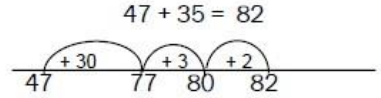
Calculation Policy 2016-2018



Last reviewed: 24 May 2016
Next review: 24 May 2018

Duncombe Primary School Calculation Policy 2016-2018

ADDITION

	EY	Year 1	Year 2
Age related Expectations	Addition as combining 2 groups. 1 more to 5 (point scale 3) 1 more to 10 (point scale 7)	Addition as counting on. U + U (bridging 10) TU + U (bridging 10)	TU + TU (bridging 10s/100s)
Recording strategies	**Practical methods using pictures and objects through play. Number sentences.** **Expose to / introduce + and = sign.** Jane was given 4 balloons. She was given 1 more. How many does she have altogether?  4+1=5  4+1=5	**Practical methods using pictures and objects (less able), bead strings, fingers, numberlines (counting on in 1's)**  5 + 2 = 7 Cover the number you are starting on (largest number first) and jump on. **Written Methods**  2+ 1= 3	**Number lines (efficient jumps) dienes blocks and hundred squares.**   **Partitioning** 47 +35 40 + 30=70 7+ 5=12 70 +12=82

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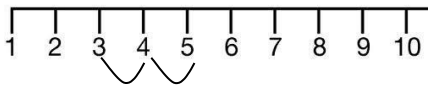
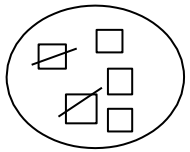
ADDITION

	Year 3	Year 4	Year 5	Year 6
Age related Expectations	TU + TU (bridging 100) HTU + TU (not bridging 1000) HTU + HTU (not bridging 1000)	HTU + HTU (Including bridging 1000) Decimals: Money (£7.85+£3.49)	ThHTU + HTU Decimals up to 2dp (23.8 + 23.65)	Consolidate/extend Y5 including decimals up to 3dp. Children encouraged to use the most efficient method for the question.
Recording strategies	**Number Line (efficient jumps)** **Partitioning** 248 + 132 = 200 + 100 = 300 40 + 30 = 70 8 + 2 = 10 300 + 70 + 10 = 380 **Vertical column method** 18.070 +3.243 21.313 1 1	**Partitioning for Mental Calculations** 22 +42 =64 34 +53 = 87 **Vertical column Method** _____	**Partitioning** 1576 + 1858 = 3434 1000 + 1000 = 2000 500 + 800 = 1300 70 + 60 = 130 6 + 8 = 14 2000 + 1300 + 130 + 14 = 3434 **Vertical column method** **23.8 + 23.65** **23.8** + **23.65** **47.45**	**Vertical column method** 18.070 +3.243 21.313 ~~1~~ 1

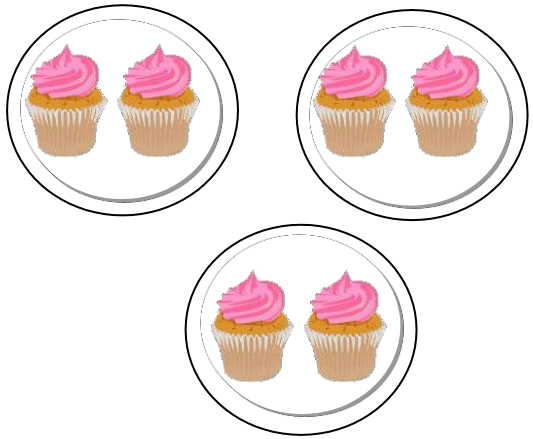
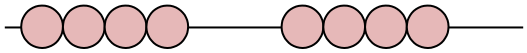
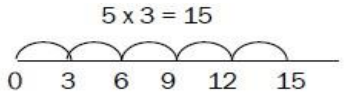
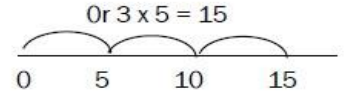
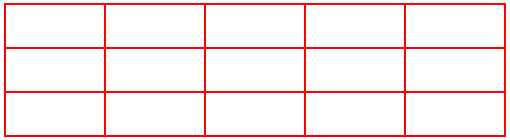
SUBTRACTION

	EY	Year 1	Year 2
Age related Expectations	Subtraction as 'taking away' from a group. 1 less from 5 1 less than 10	Subtraction as 'taking away' and 'difference' (by counting on) U-U TU – U (bridging 10)	Subtraction as the inverse of addition TU – TU (bridging 10s)
Recording strategies	**Practical methods, use songs and rhymes e.g 10 in the bed, expose to and introduce symbol –** Katie was given 6 apples. She ate 1. How many does she have now?  6 – 1= 5 For more able children do two less, three less etc.	**Practical methods, using objects and physically taking away.** **Number lines (jumping back under the line,starting with the largest number, jumps of 1)** 5 – 2 = 3  **Use of number stories** e.g.. Gerald has 5 sweets and eats 2, how many has he got left? **Written Method** 5 - 2 = 3 	**Hundred squares, counting back in 10s and 1s. Dienes blocks. Number lines (jumping back under the line, starting with the largest number, jumps of 10s and 1s.**

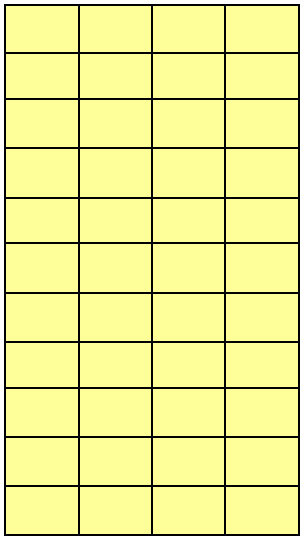
SUBTRACTION

	Year 3	Year 4	Year 5	Year 6
Age related Expectations	TU – TU HTU – TU HTU – HTU	HTU – TU HTU – HTU Decimals: Money (£7.85-£3.49)	ThHTU – HTU Decimals up to 2dp. (2.34- 1.22)	Consolidate/extend, including decimals to 3dp.
Recording strategies	**Number lines Counting on** 326 – 78 **Vertical Column Subtraction** 562 – 243 562 – 241 321	**Number lines (counting on)** 754 – 186= 568 **Vertical Column Subtraction** 5 12 5 6 2 – 244 318 Taking from tens	**Vertical column subtraction** 4 15 2 5 6 2 – 374 2188 Taking from Hundreds/tens 2.34 – 1.22 1.12	**Word problems involving changing units.** E.g. There was 2.5 litres in the jug. Eugene drank 385ml. How much was Left? **Vertical column subtraction** 4 15 2 5 6 2 – 374 2188

MULTIPLICATION

	EY	Year 1	Year 2
Age related Expectations	Count repeating groups of the same size.	Solve practical problems that involve combining groups of 2,5,10.	Multiplication as repeated arrays.
Recording strategies	**Practical activities with objects** 3 plates, 2 cakes on each.   = 6	**Practical activities with objects, introducing term <u>lots of</u>.** There are 3 sweets in one bag. How many are there in 5 bags.  5 lots of 3 Using cubes/beads on strings 2 x 4=8 	**Repeated addition**   **Arrays** (Using pegboard/patterns on square paper) 5x3 or 3x5  **Practical** There are 4 apples in each box. How many apples in 6 boxes?

MULTIPLICATION

<table>
<tr><th></th><th>Year 3</th><th>Year 4</th><th>Year 5</th><th>Year 6</th></tr>
<tr><td>Age related Expectations</td><td>TU X U</td><td>TU X U
Record, support, explain.</td><td>Refine and use efficient methods
HTU X U
TU X TU
U.t X U</td><td>Use efficient methods
TU X TU
HTU X TU, & Decimals</td></tr>
<tr><td>Recording strategies</td><td>Arrays
11x 4
 
Grid Method
13 x 4= 52
<table><tr><td>X</td><td>10</td><td>3</td></tr><tr><td>4</td><td>40</td><td>12</td></tr></table></td><td>Grid Method
43 x 6=258
<table><tr><td>X</td><td>40</td><td>3</td></tr><tr><td>6</td><td>240</td><td>18</td></tr></table>
Vertical method
43
x6
18 (3x6)
+ 240 (40 x 6)
258</td><td>Grid method
47 x 36
(estimate 50 x 40=2000)
<table><tr><td>X</td><td>40</td><td>7</td></tr><tr><td>30</td><td>1200</td><td>210</td></tr><tr><td></td><td>240</td><td>42</td></tr></table>1410
+ 282
1692

Vertical Method
237
x4
28 (7x4)
120 (30x4)
+ 800 (200x4)
948</td><td>Grid Method
5.65 x 9
(Estimate 6 x 9 =54)
<table><tr><td>X</td><td>5</td><td>0.6</td><td>0.05</td></tr><tr><td>9</td><td>45</td><td>5.4</td><td>0.45</td></tr></table>45.0
5.4
+ 0.45
49.85

Gmpact vertical method
4.7
x8
37.6
5

7x 8= 56.carry the 5 tens.40 x 8 =320, add on 5 tens, equals 370.</td></tr>
</table>

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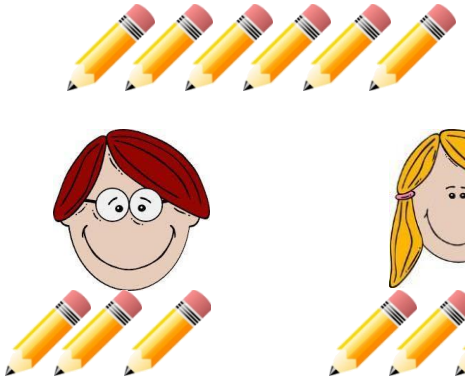
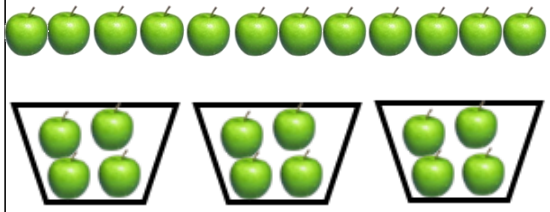
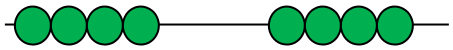
DIVISION

	EY	Year 1	Year 2
Age related Expectations	Understanding that an amount can be shared.	Solve practical problems that involve sharing into equal groups.	Division as sharing and grouping including remainders. TU ÷ U (where divisor is 2,5,10)
Recording strategies	**Practical activities** Sharing objects during role play time, physically getting in groups, introducing term 'grouping' 6 Pencils shared between 2 people 	**Practical activities** How many apples in each bowl if I share 12 apples equally between 3 bowls?  **Number lines/bead strings** 8÷2=4  Begin to use vocabulary halves and quarters.	**Number Lines** 15 ÷ 3 = 5 (3 groups of 5) **Bead strings** 

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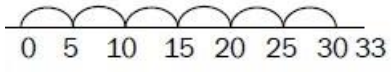
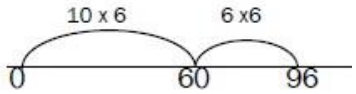
DIVISION

	Year 3	Year 4	Year 5	Year 6
Age related Expectations	TU ÷ U (Where divisor is 2,3,4,5 or 10) Round remainders up/down, depending on the context.	Record, support and explain. TU ÷ U	Refine and use efficient methods. HTU ÷ U	Use efficient methods. HTU ÷ U HTU ÷ TU Decimal ÷ U
Recording strategies	**Number lines (starting from zero)** 33 ÷ 5 = 6 r3  	**Number Lines (starting from zero)** 96 ÷ 6 = 16  	**Chunking & Short Division** 62 ÷ 4 = **15r2** **4 62** **- 40 (4 x 10)** **22** **-20 (4 x 5)** **2** **And then on to** **1 5 r 2** **4 6 2** 2	**Chunking & Short division** 43.4 ÷ 7 = **6. 2** **7 43.4** **- 42.0 (7 x 6)** **1.4** **-1.4 (7 x 0.2)** **0** Does 7 go into 4? No. Does 7 go into 43? Yes. 6 times with 1 left over. Does 7 go into 14? Yes, two. **And then on to** 14.6 ÷ 4 **3 .65** **4 14.6**