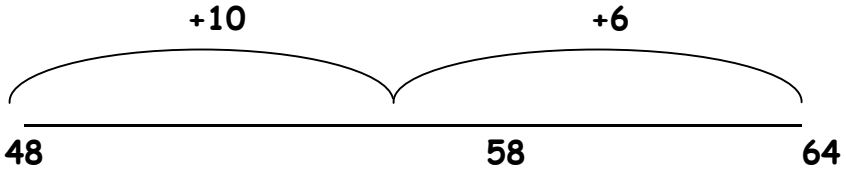
Oakwood Junior School
Calculation Policy

This policy outlines the written calculation methods that will be used for all four number operations in all year groups within school.
It is intended to bring consistency, continuity and progression as methods build upon each other from Year 3 to Year 6. Rapid recall strategies and mental calculation methods will serve to reinforce and supplement these written methods.

Addition

Year 3

Terms 1 and 2
Number lines will be used initially for addition.
e.g. 48 + 16 partition 16 to 10 & 6



Tens are added first and then units, going from left to right.

Term 3
Extended column method will be introduced.
e.g. 48
\+ 16
14 (representing 8 + 6)
50 (representing 40 + 10)
64
With this method units are to be added first which will continue with the standard written method.

Year 4

Term 1
Extended column method as in Year 3 extending to H,T,U. Still adding units first.

Terms 2 & 3
Standard written method
e.g. 435
\+ 24
459

Leading to 'carrying' below the line.

e.g.
```
  625
+  48
  673
   1
```

Extend to use of decimals in context, for example money.

e.g. *know that decimal point must be in line

```
  £4.21
+£3.87
  £8.08
   1
```

Year 5

Standard written method as in Year 4 extending to Th,H,T,U. Include multiple 'carrying'.

e.g.

```
  7648
+1486
  9134
  1 1 1
```

Year 6

Standard written method as in Year 5 extending to numbers with any number of digits.
Extend decimals to numbers with one or two decimal places.

e.g. *know that decimal point must be in line

```
  124.9
+   7.25
  132.15
   1 1
```

All Year Groups

Written methods should be used to add together more than two numbers.

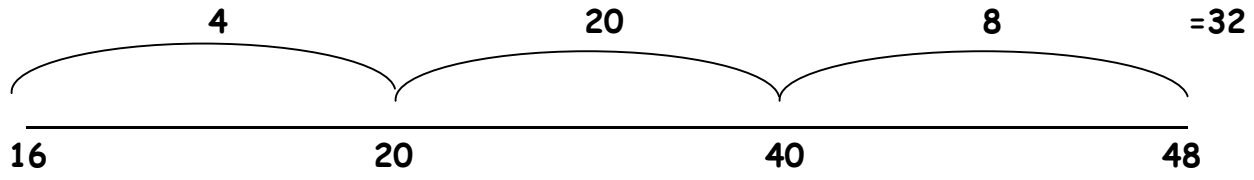
Subtraction

Year 3

Terms 1

Number lines will be used initially for subtraction. Method to be used is the mental strategy of finding the difference by counting up.

e.g. 48-16



(adding i – to next whole ten
ii – within tens
iii – from last whole ten to number)

(Number of steps may vary depending on children).

Term 2 & 3

Standard written method without decomposition.

e.g.
$$\begin{array}{r} 48 \\ -\ 16 \\ \hline 32 \end{array}$$

Year 4

Standard written method introducing decomposition extending to H,T,U.

e.g.
$$\begin{array}{r} 48 \\ -\ 29 \\ \hline 19 \end{array}$$

Demonstrate the place value related process that is involved here.

e.g. 48 → 40 + 8 → 30 + 18
- 29 → - 20 + 9 → - 20 + 9
10 + 9 = 19

e.g. 345 → 300 + 40 + 5 → 300 + 30 + 15
-237 → -200 + 30 + 7 → - 200 + 30 + 7
100 + 0 + 8 = 108

Extend to decimals in context of money.

e.g. *know that decimal point must be in line

£8.95
- £4.38
£4.57

Year 5

Standard written method as in Year 4 extending to Th,H,T,U.
Extend to decimals to any unit of measure with the same number of decimal places.

Year 6

Standard written method as in Year 5 extending to numbers with any number of digits.
Extend to decimals with one or two decimal places.

e.g. 324.9 ← known that extra 0's may need to fill in spaces
- 7.25

324.90 *know that decimal point must be in line
- 7.25
317.65

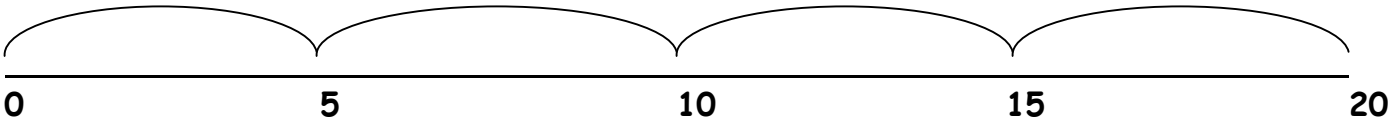
All Year Groups

Written methods should be used to subtract numbers with a different number of digits.
In decomposition use the word 'exchange' NOT borrow.

Multiplication

Year 3

Adding on multiples of a number e.g. 4 x 5 (4 lots of 5)



Leading to

16 x 5 = 10 x 5 = 50*

6 x 5 = 30

30 + 50 = 80

*should get from rapid recall but some children may have to use a number line.

Year 4

Introduction of a grid method for T,U x U

e.g. 23 x 8

x	20	3
8	160	24

= 184

In Term 3 extend to expanded written method

e.g. 23 x 8

```
  23
x  8
  24    (8x3)
 160    (8x20)
 184
```

No decimals in Year 4

Year 5

Term 1

Extend use of grid method to T,U x T,U and H,T,U x U but only as a recap. Then as term 2 and 3.

Terms 2 & 3

Extend Year 4 expanded written method to T,U x T,U and H,T,U x U

e.g. 23
x 28
24 (8 x 3)
160 (8 x 20)
60 (20 x 3)
400 (20 x 20)
644

Extend to standard short multiplication with carrying

e.g. 23 346 *To include decimals with one decimal point
x 8 x 9
184 3114
2 45

Year 6

Extend Year 5 to standard short and long multiplication (Grid method to be retained by less able children).

Long multiplication initially with explanation.

e.g. 352 *starting with unit numbers
x 27
2464 (352 x 7)
3 1
7040 (352 x 20)
1
9504
1

Extending to decimals with two decimal places.

All Year Groups

Approximate answers first is suggested in NNS.

Division

Year 3

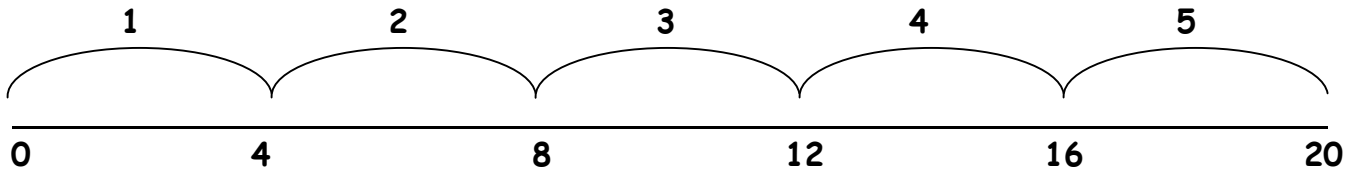
Terms 1 & 2

Introduce division as grouping as in Year 2.

e.g. 20 ÷ 4

1 • • • • •
2 • • • • •
3 • • • • •
4 • • • • •

Then arranging as a number line.



Starting on the left hand side and repeatedly adding the divisor. Tens and units divided by units.

Term 3

Introduction to division layout.

```
   7
4 28
```

Quotient derived from using a multiplication grid or rapid recall facts. No remainders and numbers no greater than 10x the quotient.

Year 4

Division of T,U by U with remainders and where the number is greater than 10x the quotient. Work set out in columns using multiples of the devisor.

e.g. 96 ÷ 6

```
   16
6 96
 -60      10 x 6
  36
 -36      6 x 6
   0      16
```

Term 3

Introduce standard short division

e.g. 96 ÷ 6

```
  16                16
6 96  leading to  6 936
```

Year 5

Standard short division extending to H,T,U ÷ U

e.g. 196 ÷ 6

```
    32  r 4                       32 r 4
 6  196    leading to          6  19₁6
    18
     16
     12
      4
```

Year 6

Extend to standard long division

e.g. 972 ÷ 36

```
       27
 36   972
      72
     252
     252
       0
```

Extend to numbers with 2 decimal places.

Express remainder as a fraction

e.g. 9÷4 = 2.25