The Devonshire Hill Primary School – Calculation Policy – Year 6

Addition

Pencil and paper procedures

Partition

445 + 212 = 657

445 + 212 = (400 + 200) + (40 + 10) + (5 + 2) = 600 + 50 + 7 = 657

Column addition

```
  56
+ 67
 123
  1
```

Expanded column addition

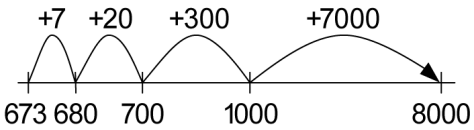
```
  984
+ 757
   11
  130
 1600
 1741
```

Subtraction

Pencil and paper procedures

The counting-up method

8000 – 673 = 7327



Column subtraction

```
 3 1
 4 5 4
-1 7 2
 2 8 2
```

Revert to expanded methods if the children have difficulty

Multiplication

Pencil and paper procedures

Partition

```
 30 + 8          38
 ×   7          ×  7
 210   30×7=210  210
  56    8×7= 56   56
 266             266
```

Column multiplication

```
  1 2
    73
  x 48
   584
 2920
 3504
 1 1
```

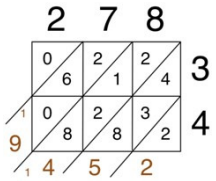
Multiply the units in the multiplier by the units in the multiplicand, writing any tens digits above the tens column. In this case, 3 x 8 = 24, so the tens digit (2) is written above the tens column. Multiply the tens in the multiplier by the units in the multiplicand. In this case, 70x8=560 + 2 tens (20) = 580. Now multiply the units and tens in the multiplier by the tens in the multiplicand. Calculate the total of the two parts to find the answer.

Expanded column multiplication

The part products are set out vertically below the calculation. They are then totalled to give the answer.

```
  46
 X 32
1200 (40 x 30)
 180 (6 x 30)
  80 (40 x 2)
  12 (6 x 2)
1472
```

Chinese method



278 x 34 = 9,452

Division

Pencil and paper procedures

Short division
e.g. 2565 ÷ 5

```
    5 1 3
  5 2 25 6 15
```

Chunking
e.g. 977 ÷ 36

```
 977
- 360  (10 x 36)
--------
 617
- 360  (10 x 36)
--------
 257
- 180  (5 x 36)
--------
  77
-  72  (2 x 36)
--------
   5
```

10+10+5+2=27
Answer: 27 r5

Refine to 20 groups instead of two groups of 10

Long division

```
      5 7 6
  15 | 8 6 4 0
       7 5
       1 1 4
     - 1 0 5
         9 0
```

15 into 8 doesn't go, so look at the next digit.

15 goes into 86 five times, so put a 5 above the 6.
15 x 5 = 75

Take that 75 away from the 86 to get your remainder.
86 – 75 = 11

Next, carry the 4 down to make 114.

15 goes into 114 seven times, so put a 7 above the 4.
15 x 7 = 105

Take 105 from the 114 to get your remainder
114 – 105 = 9

Carry the 0 down to make 90

15 goes into 90 exactly 6 times, so put a 6 above the 0

15 x 6 = 90

8,640 ÷ 15 = 576