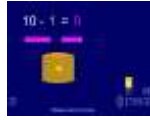# Overview of Progression in Subtraction

FOUNDATION

Calculation Strategies
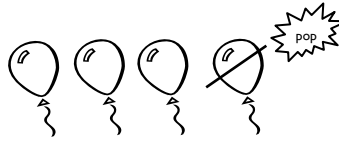
Subtraction as taking away

There were 6 people on the bus. Four people get off. How many are left?

There were 4 balloons. 1 popped. How many are left?

Number Facts

Jill had 10 cars. She parked one in the garage. How many are left outside?

- -

Subtraction as finding the difference

The difference in the number of stripes is?

YEAR 1

Calculation Strategies

Subtraction as taking away

1 **less** than 10 is 9
10 **subtract** 1 equals 9
10 – 1 = 9
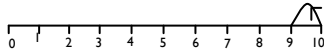
Using moveable objects to physically take-away

6…5, 4
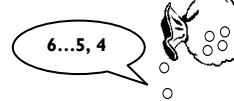
6 **in** the bag, take 2 **out**

- -

Subtraction as finding the difference
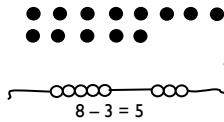
The **difference** between 8 and 5 is 3.
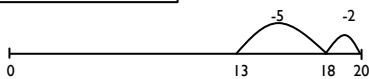
8 – 3 = 5

Which line has the **most** money? How much more?
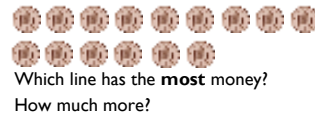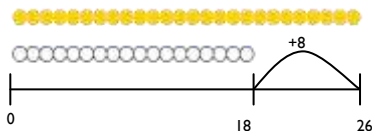
YEAR 2

Calculation Strategies

Subtraction as taking away

20 people on a bus, 7 people get off. How many left on the bus?

-5   -2

0   13   18 20

Subtraction as finding the difference

Find the difference by comparing 2 groups and counting on

+8

0   18   26
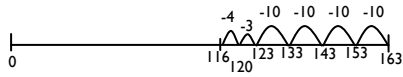
The difference between 18 and 26 is 8.
26 – 18 = 8

Overview of Progression in Subtraction
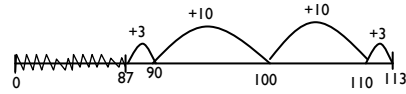
YEAR 3

Calculation Strategies

Subtraction as taking away

163 – 47 = 116
Count back 47 from 163

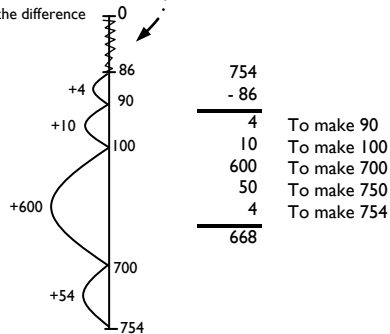**Subtraction as finding the difference**

113 – 87 = 26

"I have taken this 87 away from the 163. Now I can count on to find the difference"
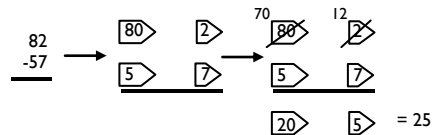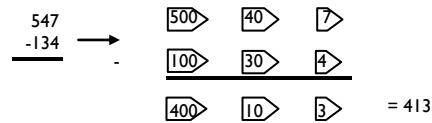
YEAR 4

Calculation Strategies

Finding the difference (Counting up method)

I have taken the 86 away so that I can count on to find the difference


```
 754
- 86
─────
    4    To make 90
   10    To make 100
  600    To make 700
   50    To make 750
    4    To make 754
─────
  668
```

Decomposition (Taking away method)

Expanded decomposition layout – no exchange

547
-134

- 500> 40> 7>
  100> 30> 4>

400> 10> 3>   = 413

82
-57

80> 2>   →   70 12
                80> 2>
5> 7>   5> 7>

20> 5>   = 25

YEAR 5

Calculation Strategies

Finding the difference (Counting up method)


```
 754
- 286
─────
   14    To make 300
  400    To make 700
   54    To make 754
─────
  468
```
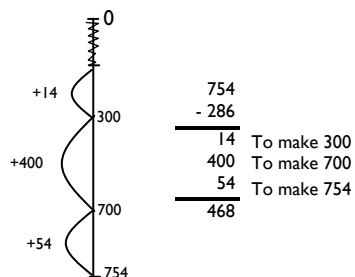
Decomposition (Taking away method)

Exchange Hundreds to Tens

767
-276

-   600 160
    700> 60> 7>
    200> 70> 6>

    500> 90> 1>   = 491

Exchange Tens to Units

794
-276

-   80 14
    700> 90> 4>
    200> 70> 6>

    500> 10> 8>   = 518
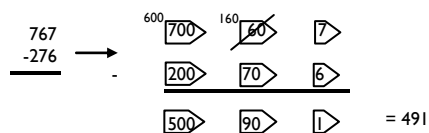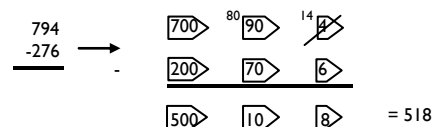
Overview of Progression in Subtraction

YEAR 6

Calculation Strategies

Finding the difference
(Counting up method)

£14.24
- £8.70

754
-286

.30   To make £9.00
£5.00   To make £14.00
£0.24   To make £14.24
£5.54

14 (300)
454 (754)
468

Leading to:

↓

£14.24
- £8.70

.30   To make £9.00
£5.24   To make £14.24
£5.54

+£0.30   £8.70
  £9.00

+£5.00

+£0.24   £14.00
  £14.24

Decomposition

Expanded decomposition - double exchange

754
-286 →

600   140   14
700   50   4
- 200   80   6

400   60   8   = 468

Leading to:
Compact decomposition

$\overset{5\ 13}{6\!\!\!/4\!\!\!/67}$
-2684
3783

YEAR 7

Calculation Strategies

Expanded decomposition:

4632 – 75 = ?

$\overset{500}{}\overset{120}{600}\overset{20}{30}\overset{12}{2}$
4000   70   5

4000   500   50   7

4632 – 75 = 4557

Compact decomposition:

$4\overset{5\ 12}{6\!\!\!/3\!\!\!/}2$
- 7 5
4 5 5 7

Expanded decomposition with decimals:

623.5 – 41.6 = ?

$\overset{500}{}\overset{120}{600}\overset{}{20}\overset{2}{3}\overset{1.5}{0.5}$
40   1   0.6

500   80   1   0.9

623.5 – 41.6 = 581.9

Subtracting fractions:

$\frac{4}{7} - \frac{2}{7} = ?$

Subtraction with negative numbers:

3 – 10 = ?

YEAR 8

Calculation Strategies

Compact decomposition:

11.6 – 9.58 = ?

$\overset{9\ 1\ 5}{1\!\!\!/1.\!\!\!/6\!\!\!/0}$
- 9.5 8
2.0 2

11.6 – 9.58 = 2.02

Subtracting fractions:

$\frac{3}{4} - \frac{1}{8} = ?$

$\frac{6}{8} - \frac{1}{8} = \frac{5}{8}$

Subtraction with negative numbers:

65 – 81 = ?

YEAR 9

Calculation Strategies

Compact decomposition:

$\overset{1\ 2}{0.2\!\!\!/3\!\!\!/0}$
- 0.1 4 3
0.0 8 7

0.23 – 0.143 = 0.087

Subtraction with time:

A train leaves at 14:20 and arrives at 15:44.
How long does the journey take?

+1hr   +24mins
14:20 → 15:20 → 15:44
       1hour and 24mins

Use of calculator:

-6.2 + 3.4 = ?

Algebraic Problems:

If a = 22, b = 16,
a - b = ?

If x + y = 2, x = 6
y = ?

Subtraction with negative numbers:

Continue pattern to solve: 5 - -2 = ?

5 – 4 = 1
5 – 3 = 2
5 – 2 = 3
5 – 1 = 4
5 – 0 = 5
5 - -1 = ?
5 - -2 = ?

Find the mean temperature of:

Mon	Tues	Wed	Thurs	Fri
-3	-1	-1	1	2

Subtracting fractions:

$\frac{3}{4} - \frac{1}{3} = \frac{9}{12} - \frac{4}{12} = \frac{5}{12}$
(lowest common multiple = 12)