Deepdale Community Primary School - Maths Knowledge Organiser

Topic: Addition and Subtraction

Year 6

Key Vocabulary:

- operation
- add
- addition
- total
- plus
- more
- increase
- altogether
- difference between
- subtract
- less
- minus
- decrease
- take away
- how many are left?
- exchange
- estimate
- Inverse
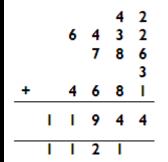- tens boundary
- hundreds boundary
- decimal point

WRITTEN METHOD

Key learning: add numbers that contain different numbers of digits including decimals

In Year 6 children need to be able to use the column method of addition to add several numbers with different numbers of digits and decimals with up to two decimal places

Examples:

```
        4 2
    6 4 3 2
      7 8 6
          3
+   4 6 8 1
  _____
  1 1 9 4 4
  1 1 2 1
```

> Children need to align the digits in the correct place value column

```
  4 0 1 . 2 0
    2 6 . 8 5
+      0 . 7 1
  _____
  4 2 8 . 7 6
          1
```

> When adding decimals with different numbers of decimal places, children should be taught and encouraged to make them the same through identification that 2 tenths is the same as 20 hundredths, therefore, 0.2 is the same value as 0.20.
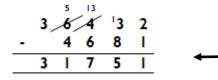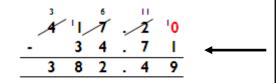

WRITTEN METHOD

Key learning: subtract numbers that contain different numbers of digits

In Year 6 children need to be able to use the column method of subtraction to subtract numbers with different numbers of digits and decimals with up to two decimal places

Examples:

```
       5  13
  3  6  4  3 2
-     4 6 8 1
  _____
  3 1 7 5 1
```

> Children need to align the digits in the correct place value column

```
    3      6     11
  4  1  7 . 2  0
-      3 4 . 7 1
  _____
  3 8 2 . 4 9
```

> When subtracting decimals with different numbers of decimal places, children should be taught and encouraged to make them the same through identification that 2 tenths is the same as 20 hundredths, therefore, 0.2 is the same value as 0.20.

MENTAL METHOD

Key learning: partition and combine multiples of thousands, hundreds, tens and ones to add

Partitioning numbers to add is a core strategy for adding mentally

Example 1:

5124 + 1352 = 6476

In this calculation there are no crossing of boundaries
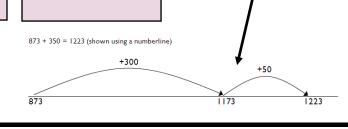
5000 + 1000 = 6000

100 + 300 = 400

20 + 50 = 70

4 + 2 = 6

Example 2:

8.4 + 3.8 = 12.2

3.8

3   0.8

8.4 + 3 = 11.4

11.4 + 0.8 = 12.2

Example 3:

873 + 350 = 1223

873 + 300 = 1173

1173 + 50 = 1223

Shown using a number line

873 + 350 = 1223 (shown using a numberline)

+300   +50

873   1173   1223

MENTAL METHOD

Key learning: partition and combine multiples of thousands, hundreds, tens and ones to subtract

Partitioning numbers to subtract is a core strategy for adding mentally

Example 1:

7584 - 2351 = 5233

In this calculation there are no crossing of boundaries

7000 - 2000 = 5000

500 - 300 = 200

80 - 50 = 30

4 - 1 = 3

Example 2:

13.2 - 4.5 = 8.7

4.5

4   0.5

13.2 - 4 = 9.2

9.2 - 0.5 = 8.7

Example 3:

2132 - 440 = 1692

2132 - 400 = 1732

1732 - 40 = 1692

Shown using a number line

2132 – 440 = 1692 (shown using a numberline)

-400

-40

1692   1732   2132

MENTAL METHOD

Key learning: recall and use addition and subtraction facts to 1 (up to 2 decimal places)

RAPID RECALL: in Year 6 you are expected to know automatically number bonds to 1 up to 2 decimal places . Here are some examples:

0.67 + 0.33 = 1

0.54 + 0.46 = 1

0.35 + 0.65 = 1

0.32 + 0.68 = 1

0.31 + 0.59 = 1

Have you noticed its all about number bonds to 10 and 100!

MENTAL METHOD

Key learning: Use number bonds and related facts to add and subtract decimals

Use your knowledge of the number system to calculate mentally using decimals

Example:

0.75 + 0.56 = 1.31

Use your knowledge of 75 + 56 = 131

(The actual answer will be 100 times smaller because 0.75 is 100 times smaller

Further examples:

0.62 + 0.38 = 1   using knowledge of 62 + 38 = 100

2.8 + 0.43 = 3.23   using knowledge of 280 + 43 = 323

1 – 0.41 = 0.59   using knowledge of 100 – 41 = 59

0.92 – 0.35 = 0.57 using knowledge of 92 – 35 = 57