Notes	**Progression for Written Subtraction** St Agnes Primary	Beg. of Y3

WRITTEN METHODS:

By the end of year 6, children will have a **range** of mental calculation methods and the **one** reliable written method shown in this progression. For some children the number line will be the most efficient and reliable calculation method for them and may even become their written method.

Selection will depend on the numbers involved.

Children should not be made to go on to the next stage if:

1) they are not ready

2) they are not confident

- Children should be encouraged to approximate their answers before calculating.
- Children should be encouraged to check their answers after the calculation using an appropriate strategy.
- Children should be encouraged to consider if a mental calculation would be appropriate before using written methods.

NOTE: When solving the calculation 89 - 57, children should know that 57 is part of the 89. Therefore children , when using any practical equipment, e.g. PV counters or Base 10 would only need to create the 89 which will then be reduced by 57.

Continue to encourage children to practise the skill of partitioning numbers in different ways e. g.

437 = 300 130 7

300 120 17

300 110 27

This process should be demonstrated using arrow cards, base 10, bead strings, Numicon and straws to show and develop understanding of decomposition.

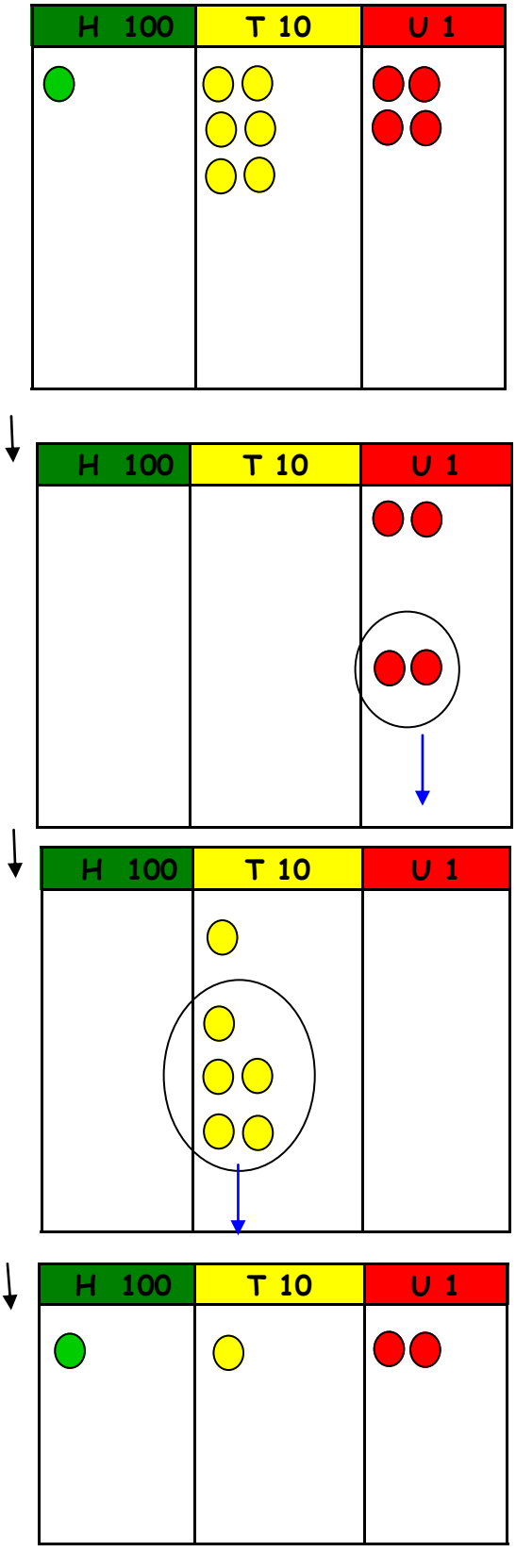
Notes	Progression for Written Subtraction

INFORMAL EXPANDED WRITTEN METHOD

This leads children to the more compact written method developing an understanding of its structure and efficiency. Two and three digit subtraction: Start with subtracting the units, then the tens etc.

No adjustment

164
− 52
2
10
100
112



The amount of time that should be spent teaching and practising the expanded method will depend on how secure the children are in their recall of number facts and with partitioning.

Answer equals 112

Notes	**Progression for Written Subtraction**

Dealing with zeroes

When subtracting from a multiple of 100 consider:

- adjusting to avoid excessive exchanges 700—236 becomes 699—236 = 463 (+1) = 464
- adjusting both numbers keeping the difference consistent 700—236 becomes 699 – 235

```
  700          699   (+1)
- 236    ➡     236
  ---          ---
               463   (+1) = 464
```

```
  700  (-1)          699
- 236  (-1)    ➡     235   = 464
  ---                ---
```

STANDARD WRITTEN METHOD/ COMPACT METHOD

The method doesn't change but the recording is reduced.

Only the children who can calculate independently and efficiently with the expanded method should be introduced to the compact method.

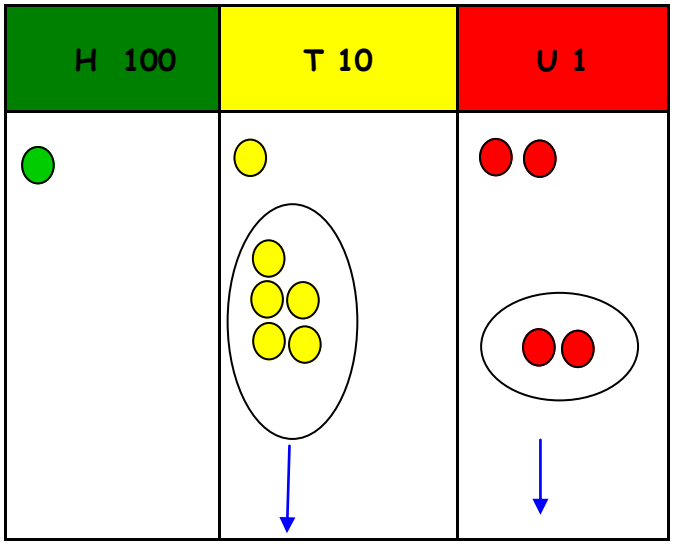
Children should practise this method with no 'adjustment' first.

'Carry' digits are recorded below the line using the words 'carry' ten or 'carry' hundred.

No adjustment

164—52 = 112

```
  164
– 52
  ---
  112
  ---
```

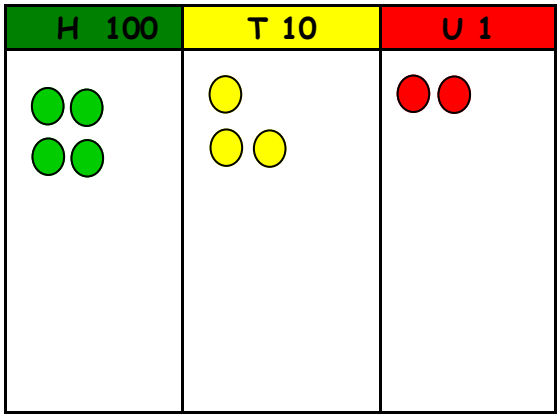


Answer equals 112

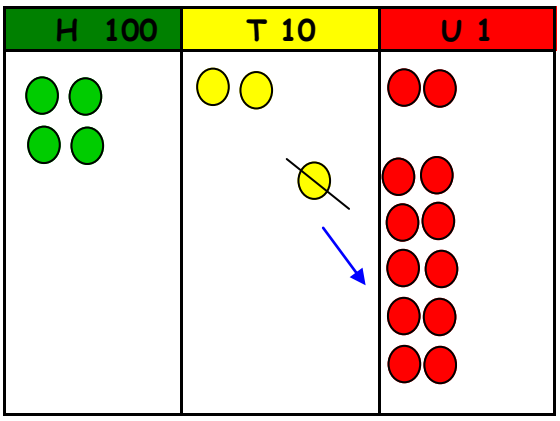
Notes	Progression for Written Subtraction

One adjustment, tens to units

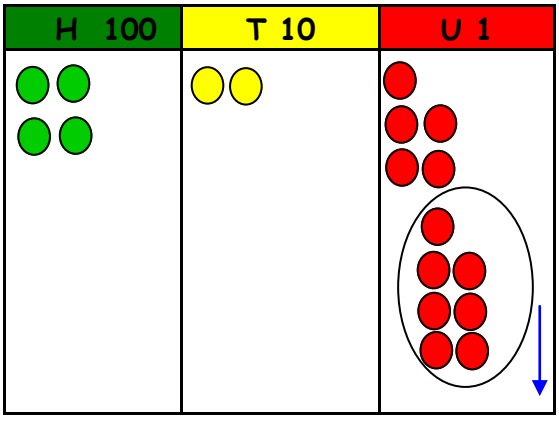
432– 217=

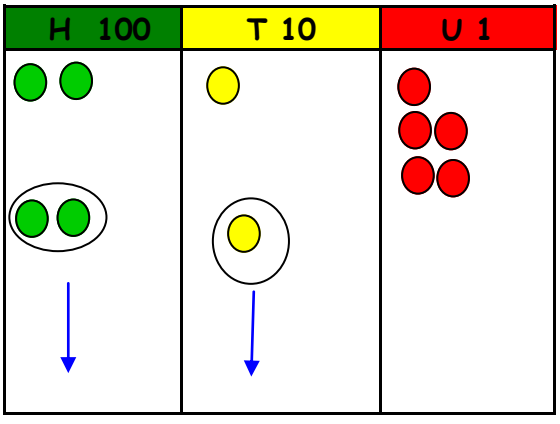


2 subtract 7 is not possible so we have to exchange one ten for ten units:



2 12
4 3 2
- 2 1 7
5





2 12
4 3 2
−2 1 7
2 1 5

Notes	Progression for Written Subtraction

Y3

One adjustment, hundreds to tens

437—182 = 255

NOTE:
Continue to use place value boards and counters until no longer needed.

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

Y3/4

Two adjustments, hundreds to tens, tens to units

432—187 = 245

```
    12
  3  2 12
  4  3  2
-   1  8  7
-----------
    2  4  5
-----------
```

- **Extend method to numbers with at least four digits.**

Y4

```
  5262
- 2141
------
  3121
------
```

```
     11
  4  1 16
  5  2  6  2
-    2  3  7  1
---------------
     2  8  9  1
---------------
```

- **Use the compact method to subtract two or more decimal fractions with at least 4 digits and 2 or 3 decimal places for money/ measures eg time to thousandths of a second e.g.**

Y5

Mo Farrah ran the first two laps of his 10Km race in 96.437seconds. The second lap took 49.295 seconds. How long did it take him to run the first lap?

```
   8 16  3 13
   9  6  4  3 7
-  4  9. 2  9  5
-----------------
   4  7. 1  4  2
-----------------
```

Seconds

- **Know that the decimal points should line up under each other, particularly when adding or subtracting mixed amounts e.g. 43.2m - 2900cm.**

Y6