

Calculation Methods

Year 3

Addition

a) Column addition with no exchange:

$$\begin{array}{r} \text{H T O} \\ + \text{H T O} \\ \hline \end{array}$$

$$\begin{array}{r} 324 \\ + 241 \\ \hline 565 \end{array}$$

Always start by adding the ones column.

b) Column addition with exchange (1 column only).

$$\begin{array}{r} 351 \\ + 285 \\ \hline 636 \\ 1 \end{array}$$

a) Add the ones

b) Add the tens. As there are 13 tens, we need to exchange 10 tens for a hundred so we write this in the hundreds column.

c) Add the hundreds, plus the exchanged value. $3 + 2 + 1 = 6$

c) Column addition with 2 exchanges.

$$\begin{array}{r} 487 \\ + 265 \\ \hline 752 \\ 11 \end{array}$$

As above.

Subtraction

a) Column subtraction with no exchange:

$$\begin{array}{r} \text{H T O} \\ - \text{H T O} \\ \hline \end{array}$$

$$\begin{array}{r} 587 \\ - 241 \\ \hline 346 \end{array}$$

Always start by subtracting the ones column.

b) Column subtraction with 1 exchange:

$$\begin{array}{r} 5 \overset{6}{\cancel{7}} 12 \\ - 324 \\ \hline 248 \end{array}$$

a) $2 - 4$ can't be done so a ten must be exchanged for ten ones.

b) $12 - 4 = 8$

c) $6 \text{ tens} - 2 \text{ tens} = 4 \text{ tens}$

d) $5 \text{ hundreds} - 3 \text{ hundreds} = 2 \text{ hundreds}$.

c) Column subtraction with a double exchange:

$$\begin{array}{r} 3 \overset{9}{\cancel{4}} \overset{18}{\cancel{10}} 8 \\ - 249 \\ \hline 159 \end{array}$$

a) $8 - 9$ can't be done. No tens to exchange so we must use a hundred.

b) Now one of the tens can be exchanged, leaving 9 tens.

c) $18 - 9 = 9 \text{ ones}$

d) $9 - 4 = 5 \text{ tens}$

e) $3 - 2 = 1 \text{ hundred}$

Multiplication

- Know the 2, 5, 10 x tables (Yr 2) and related divisions
- Know the 3, 4, 8 x tables (Yr 3) and related divisions
- Use these facts in informal written methods.

The Rugby Post! (Partitioning) T.O x O

a) 14×3

- Partition 14 into tens and ones

x	10	4	
3	30	12	= 42

- $3 \times 10 = 30$
- $3 \times 4 = 12$
- $30 + 12 = 42$

b) 35×4

- Partition 35 into tens and ones

x	30	5	
4	120	20	= 140

- $4 \times 30 = 120$
as $4 \times 3 = 12$
- $4 \times 5 = 20$
- $120 + 20 = 140$

Division

2 digit divided by 1 digit:

a) $32 \div 4$ Use x tables knowledge

32							
4	4	4	4	4	4	4	4

$4, 8, 12, 16, 20, 24, 28, 32$

$= 8$

b) When a calculation is beyond $10 \times$ the amount

$52 \div 4$

↙ ↓

||||| : = $40 + 12$

: : :	: : :	: : :	: : :
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$= 13$

a) Draw tens and ones
(if you don't have practical equipment).

b) Draw 4 boxes as you are dividing by 4.

c) Share equipment/drawings between the boxes.

d) Exchange a ten for ten ones if needed.

c) Progressing to 'Bus Shelter'

$$\begin{array}{r} 13 \\ 4 \overline{) 52} \\ \underline{4} \\ 12 \end{array}$$

1 group → ↑
 12 left over

a) How many groups of 4 in the tens column?

b) Move the spare ten across.
 $4\text{s into } 12 = 3 \text{ groups.}$