# Decomposition in KS1

Children at The Armstrong Primary School are taught subtraction using the Decomposition Method. This involves the concept of exchange. We teach this method because it can be readily explained through the use of structured apparatus before moving on to more formal recording. The examples below show the decomposition process.
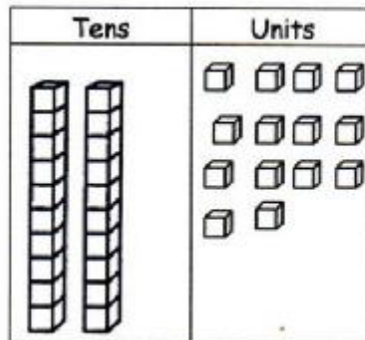
Example 1:
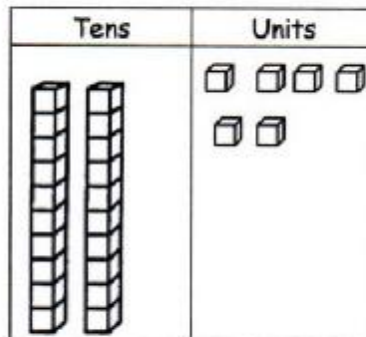
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  T U
  3 4
- 1 8
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1) Put out 3 tens and 4 units

Tens	Units
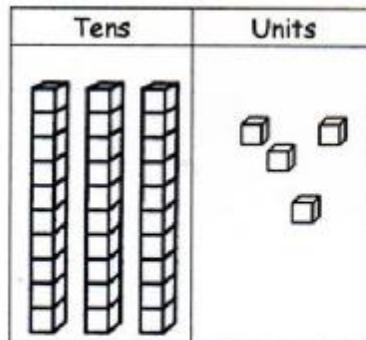
4 units take away 8 units – I cannot do this.

2) **Exchange** a ten for 10 units

Tens	Units

I now have 2 tens and 14 units.

3) **Subtract** the units

Tens	Units

14 units take away 8 units leaves 6 units.

4) Subtract the tens

Tens	Units
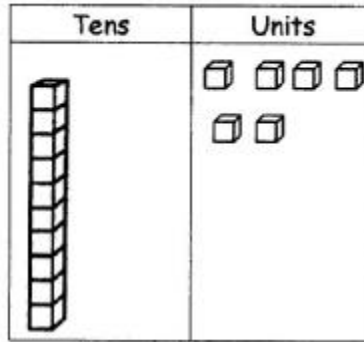
2 tens take away 1 ten leaves 1 ten.

So, the answer to 34 subtract 18 is 16

5) The written recording is:

$$\begin{array}{cc} T & U \\ {}^2\cancel{3}\,{}^1 4 \\ - \quad 1 \; 8 \\ \hline 1 \; 6 \end{array}$$

Example 2: 45 – 29 = ?

$$\begin{array}{cc} T & U \\ 4 & 5 \\ - \; 2 & 9 \end{array}$$

5 take away 9, I cannot do this.

$$\begin{array}{cc} T & U \\ {}^3\cancel{4}\,{}^1 5 \\ - \; 2 \quad 9 \end{array}$$

Exchange a ten for 10 units. I now have 3 tens and 15 units.

$$\begin{array}{cc} T & U \\ {}^3\cancel{4}\,{}^1 5 \\ - \; 2 \quad 9 \\ \hline 6 \end{array}$$

15 units take away 9 units is 6.

So, the answer to 45 subtract 29 is 16

$$\begin{array}{cc} T & U \\ {}^3\cancel{4}\,{}^1 5 \\ - \; 2 \quad 9 \\ \hline 1 \; 6 \end{array}$$

3 tens take away 2 tens is 1 ten.