Decomposition in KS2

Children in Key Stage 2 at The Armstrong Primary School continue to be taught subtraction using the Decomposition Method. This involves the concept of exchange and breaking a number up into manageable parts. The examples below show the decomposition process.

For example, a number is be set out with Hundreds, Tens and Units:

H	T	U
5	2	3

ie. 5 Hundreds = 500
2 Tens = 20
1 Unit = 3

If our sum was 523 take-away 279

	H	T	U
	5	2	3
-	2	7	9

Part a : When subtracting, we always start with the Units. 3 Units take-away 9 Units - 'I cannot do this.'

Part b : Transfer a Ten from the 2 Tens (leaving 1 Ten) and carry it over into the Units column (10 + 3 = 13), so now we have 13 in the Units column.

Part c : Now we can complete this part of the sum, 13 take-away 9 = 4

	H	T	U
	5	~~2~~ 1	13
-	2	7	9
			4

Part d : The next stage of our sum is 1 Ten take-away 7 Tens - 'I cannot do this.'

Part e : Now we transfer 1 Hundred from the Hundreds column (leaving 4 Hundreds) and put it in the Tens column (110). Our sum is really 110 take-away 70.

Part f : Now we can complete this part of the sum, 11 Tens take-away 7 Tens = 4 Tens.

	H	T	U
	~~5~~ 4	~~2~~ 11	13
-	2	7	9
		4	4

Part g: The last part of our sum is 4 Hundreds take-away 2 Hundreds = 2 Hundreds.

	H	T	U
	~~5~~ 4	~~2~~ 11	13
-	2	7	9
	2	4	4

When the sum is 500 - 379, set it out the same way.

H	T	U
5	0	0
- 3	7	9

Part a : 0 take-away 9 - 'I cannot do this.'

Part b : Normally we would transfer a Ten from the Tens column, but there is nothing there so we go to the next column, in this case the Hundreds column. We are splitting up the 500. We stroke out the 5 leaving 4 Hundreds and move a Hundred into the Tens column. The Tens column now has 100 in it (10 Tens = 100).

H	T	U
~~5~~ 4	10	0
- 3	7	9

Part c: We still cannot do the subtraction sum, so we transfer a 10 from the Tens column (leaving 9 Tens in the Tens column) which leaves 10 in the Units column.

H	T	U
~~5~~ 4	~~10~~ 9	10
- 3	7	9

Part d : Again, we start our subtraction from the units Column. We are now able to do our sum. Our sum is now 10-9 which leaves 1.

H	T	U
~~5~~ 4	~~10~~ 9	10
- 3	7	9
		1

Part e : The next part of the sum is now 9 Tens take-away 7 Tens which leaves 2 Tens.

H	T	U
~~5~~ 4	~~10~~ 9	10
- 3	7	9
	2	1

Part f : The last part of our sum is now 4 Hundreds take-away 3 Hundreds which leaves 1 Hundred.

H	T	U
~~5~~ 4	~~10~~ 9	10
- 3	7	9
1	2	1