Chapter 9 - Written Methods for Addition and Subtraction

Sneaky Subtraction-5 minutes and 9 seconds

I'm going to show you a method of subtraction that I call sneaky subtraction. It's sneaky because it really doesn't involve any subtraction at all. This is how it works, here's an example, six hundred and seventy-three subtract one hundred and eighty-seven. Now what we're going to do here is the second number, we're going to make each of the digits up to nine writing in what we need to do that down here. So err…for example the one, the one hundred to make that up to nine we need eight, so we write eight hundreds down there. To make the eight up to nine we need one ten and to make the seven units up to nine, we need two units, which we put down here. Now we add that eight hundred and twelve, to our six hundred and seventy three, which gives one thousand four hundred and eighty-five. Now here's the sneaky bit, we take the one at the beginning there and there always is a one by the way, we cross that off and instead, we add it to the units position. So the four hundred and eighty-five becomes four hundred and eighty six, which believe it or not is the answer to the subtraction. That's sneaky isn't it?

Here's another one, five hundred and three subtract three hundred and seventeen. Now this particular example is quite tricky with decomposition because of the zero in the tens position in five hundred and three, sneaky subtraction, no problem. Here we go. Make each of these digits up to nine, write what we need down here. So the three we need six hundreds, with the one ten we need eight tens to be added down there and with the seven units, we need to add two units to make it up to nine. Add on this six hundred and eight-two to the five hundred and three, there's the answer, one thousand one hundred and eighty-

five. Cross of the one at the beginning add it on, answer one hundred and eighty six. Now you may well wonder what on earth is going on here, well, let me explain with a little clue, what we're effectively doing when we are making those…those digits up to nine is we're squeezing in an add nine hundred and ninety nine into the middle of the calculation. So the answer that we get-one thousand, one hundred and eighty-five is actually nine hundred and ninety nine too large so we have to subtract nine hundred and ninety-nine and subtracting nine hundred and ninety nine is equivalent to subtracting a thousand and adding one and that's what we do in the sneaky step. We subtract a thousand by crossing off the one at the beginning and then we add one to get the final answer.

That's how it works, now you could try this with two digit numbers, four digit numbers, five digit numbers, it's the same principle, have a go, see if you can work it out for yourself. One little hint erm…err…something else to notice to remember, make sure that the two numbers have the same number of digits so if you have for example, four hundred and twenty-three subtract eighty-seven, well what we do we would put a leading zero in front of the eighty-seven-zero hundreds and eighty-seven so that we now have two three digit numbers. Right, you can always do that, now the process is the same, make these digits up to nine and write the answers down there here we go, nine, one, two. Add that on to the four hundred and twenty-three, one thousand, three hundred and thirty-five, remember, we now need to subtract the thousand from this and add one and there's our answer, three hundred and thirty-six.

The method works with decimals as well, you might need to add a few trailing zeros to make sure the two numbers have the same number of digits, other than that, it works in

exactly the same way. Have a go and see if this might become your preferred method for doing subtraction. It is mine.