

Lesson 11

Subtracting Bigger Numbers

note: Lesson 12 on shows how to subtract any sized number from any sized number in any order, easily.

This is the quick guide to the video. For more complete details watch video 11.

Goals:

- To show how to repeatedly subtract a DOUBLE digit number from another number.

Method

We use the same trick as when subtracting from a number in the hundreds.

We re-evaluate it in terms of tens.

1	9	0
-	1	9



This has 3 columns: hundreds, tens and ones.

Re-arrange how we view the sum. Get rid of the hundreds.

Exchange them for tens.

The sum now looks like this:

1 9 0	
- 1 9	



Instead of "one-hundred-and-ninety"
we have "nineteen - oh"

Every time we subtract 19 we will be subtracting
AT LEAST 1
from the tens column
(that's for the 1 ten in the 19).

But if we use the "Add a Complement" strategy
we will need to subtract
AN EXTRA 1 FROM THE TENS COLUMN.

Here is how it proceeds:

19	0		
- 1	9		Note: the complement of 9 is 1
17	1		Can't take 9 from 0. Drop 19 by 1 to 18. Drop it again to 17. Add 1 to 0 to get 1
15	2		Can't take 9 from 1. Drop 17 by 1 to 16. Drop it again to 15. Add 1 to 1 to get 2
13	3		Can't take 9 from 2. Drop 15 by 1 to 14. Drop it again to 13. Add 1 to 2 to get 3.
11	4		Can't take 9 from 3. Drop 13 by 1 to 12. Drop it again to 11. Add 1 to 3 to get 4.
9	5		Can't take 9 from 4. Drop 11 by 1 to 10. Drop it again to 9. add 1 to 4 to get 5
7	6		Can't take 9 from 5. Drop 9 by 1 to 8. Drop it again to 7. Add 1 to 5 to get 6.
5	7		Can't take 9 from 6. Drop 7 by 1 to 6. Drop it again to 5. Add 1 to 6 to get 7.
3	8		Can't take 9 from 7. Drop 5 by 1 to 4. Drop it again to 3. Add 1 to 7 to get 8.
1	9		Can't take 9 from 8. Drop 3 by 1 to 2. Drop it again to 1. Add 1 to 8 to get 9.
0	0		Can take 9 off 9. Drop 1 by 1 to get 0. Leave it there. Take 9 off 9 to get 0.

In the above,

always drop the tens digit by the 1 ten of 19 first.

Then drop it another lot of 1 ten if the units subtraction "won't go"

In the last line

$$9 - 9 = 0$$

So there was no need to reduce the tens digit

nor to use the "Add a Complement" strategy

But we do need to take away the 1 ten of 19

to produce 0 tens

NOTE

**This makes good mental arithmetic practice
which can be practiced while walking to work
or waiting at a bus stop.**

Test to See if You are Correct

Multiply the number you want to subtract by 10

(by putting a zero after it)

then when you subtract

10 times

you should be back to

zero.

for example:

190 - 19 repeatedly ends in 00

180 - 18 repeatedly ends in 00

etc.