

# YR6 ADDITION AND SUBTRACTION KNOWLEDGE ORGANISER

## Key Concepts

- Add whole numbers
- Subtract whole numbers
- Estimate
- Inverse operations

## Key Vocabulary

- add/addition
- subtract/subtraction
- calculate/calculation
- mental calculation
- written method
- Inverse
- estimate
- operation
- total
- amount
- exchange
- regroup



## Addition and Subtraction Vocabulary

add total combined more  
increase plus altogether sum



minus take away reduce less than  
difference decrease fewer than



## Inverse Operations

Inverse means opposite. The opposite of addition is subtraction and therefore the opposite of subtraction is addition. Using an inverse operation is a useful way of checking your answer.



I have calculated that  $214,257 - 15,483 = 198,774$ . How can I check my answer?

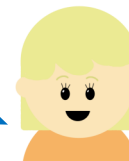
To check the answer to your subtraction, you can use the **inverse**, which is addition. If we add 15,483 to your answer of 198,774 it should total 214,257 - your original number. If it does, you have calculated correctly.



## Estimate Answers

Estimating means to get a rough idea of an answer. We can use estimation to help us check if an answer to a calculation is correct.

I am calculating  $223,478 + 112,983$ . I think the answer is 314,352.



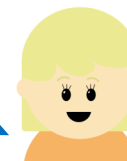
I am also calculating  $223,478 + 112,983$ . I think the answer is 336,461.



Jane and Asha could check their answers by doing the calculation again. However, if they have made a mistake, they may just make the same mistake again.

Instead, they could use **rounding** to check if their answer is correct.

We can round the numbers to the nearest thousand. So  $223,478 + 112,983$  becomes  $223,000 + 113,000$ .



$$223,000 + 113,000 = 336,000$$

Now we compare our estimate to the actual answers given. The answer 336,461 is very close to the estimate of 336,000 so that tells us it is more likely to be correct.



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## Addition - Formal Written Methods

Using counters to show column addition:

	HTH	TTH	TH	H	T	O
	4	1	2	8	4	7
+		1	1	6	2	4
	4	2	4	4	7	1
			1		1	

With column addition and subtraction, you must always start the calculation with the column on the right.  $7 + 4$  is 11. We can not put 11 in the ones column so a ten is placed under the tens column and the one is placed in the ones column. Then, we add the extra ten when we add that column.

## Subtraction - Formal Written Methods

Using counters to show column subtraction:

	HTH	TTH	TH	H	T	O
	4	2	1	4	7	2
-		1	2	2	4	4

In the ones column, we don't have enough to subtract 4 from 2. We need to exchange a ten for ten ones.

To show this, the 7 is changed to a 6 because we now have 6 tens. The 2 becomes a 12. 72 is the same as 60 + 12. We still have the same amount, but it has been regrouped. Now, we can start subtracting.

$12 - 4 = 8$  so 8 is written in the ones column.

In the tens column,  $6 - 4 = 2$  so 2 is written in the tens column.

	4	2	1	4	<del>7</del> <sup>6</sup>	2
-		1	2	2	4	4
					2	8

The hundreds column is a straight forward calculation:  $4 - 2 = 2$ .

Looking at the thousands column, we do not have enough to subtract 2 from 1. We need to exchange one of the ten thousands for 10 thousands. To show this, the 2 (in the ten thousands place) is changed to a 1. The 1 (thousand) becomes an 11.  $11 - 2 = 9$ .

Next, look at the ten thousands column. Now, we have  $1 - 1 = 0$

Finally, looking at the hundred thousands column,  $4 - 0 = 4$

The final answer to the subtraction is 409,228.

	4	<del>2</del> <sup>1</sup>	1	4	<del>7</del> <sup>6</sup>	2
-		1	2	2	4	4
	4	0	9	2	2	8

