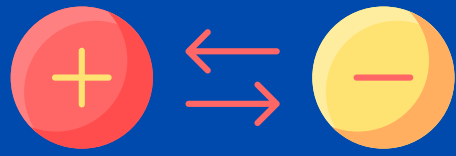


# MATHS- ADDITION AND SUBTRACTION

## YEAR 6



### RECAP

- Add and subtract numbers more than 4 digits using the formal written methods of column addition and subtraction where appropriate.
- Estimate and use inverse operations to check answers to a calculation.
- Solve addition and subtraction multi-step problems in contexts.

### CRUCIAL KNOWLEDGE

- Add and subtract numbers mentally with increasing large numbers.
- Add and subtract whole numbers with more than 4 digits including using formal written methods (column addition and subtraction)
- Use rounding to check answers to calculations and determine, in the context of the problem, levels of accuracy.
- Inverse operations and missing numbers.
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Column Method

Starting with the smallest place value column, subtract each column in turn. Exchange tens, hundreds, thousands and/or ten thousands as needed.

		6	13		
3	5	7	4	2	-
	3	4	7	6	
3	2	2	6	6	

Starting with the smallest place value column, add each column in turn. Exchange tens, hundreds and/or thousands as needed.

4	5	8	6	4	+
2	3	4	9	7	
6	9	3	6	1	

### EXTENDED KNOWLEDGE

- Use inverse operations to solve a range of problems.
- Reasoning problems where there is more than one possible answer.

#### Inverse Operations

This can mean the opposite/ reversing.

The inverse of addition is subtraction.

The inverse of subtraction is addition.

$$17,422 + 5 = 17,427 \quad 17,427 - 5 = 17,422$$

3	4	9	
-	8		5
2	6	1	5

3	4	9	0
-	8	7	5
2	6	1	5

### KEY VOCABULARY

#### Addition

The mathematical operation to find the **sum** of two or more numbers.

$$5,358 + 600 = 5,958 \quad 5,958 = 5,358 + 600$$

#### Column Method

The column method can be an efficient method for addition and subtraction calculations.

The numbers are written beneath each other.

$$\begin{array}{r} 4124 \\ + 2341 \\ \hline 6465 \end{array} \quad \begin{array}{r} 4724 \\ - 2041 \\ \hline 2683 \end{array}$$

#### Approximate

Not completely accurate, but close enough to be used.

#### Efficient

Working in a way without wasting time.

$$18,000 + 400 =$$

An efficient way of adding would be to use place value knowledge, rather than column addition.

#### Subtraction

The mathematical operation in which the **difference** between numbers is found.

Subtraction is reducing one number by another.

$$21,345 - 345 = 21,000 \quad 21,000 = 21,345 - 345$$

#### Place Holder

Zero is used as a place holder to ensure our numbers are written correctly.

The number 2,104 contains 0 tens. We still need to put 0 to hold the tens place, otherwise the number would look like 214.

#### Key Vocabulary

Important words to help you solve word problems. These can be underlined in order to understand what operation and what numbers you have to calculate.

*This is not a key number!*

The number 82 train can hold 3,233 passengers. There are 435 seats available.

How many passengers are on the train?

#### Exchange

Changing one thing for another but keeping the same value.

I can exchange 10 hundreds for 1 thousand.

#### Equals

Equals means the **same amount**.

The symbol shows that two expressions or two values are equal.

#### Estimate

Finding a value (number) that is close to the right answer. A reasonable guess. A calculation can also be involved.

#### Multistep Problems

In multi-step word problems, there may be two or more operations, and you must solve them in the correct order to get a correct answer.

#### Sum

The total after adding 2 or more numbers.

The sum of 245 and 14,000 is 14,245.

#### Sentence Stems

- It can't be... because...
- I noticed that...
- It must be ... because...
- If...then...
- This is different because...
- This is the same because...
- This is true here because...
- I already know that... so...

#### Bar models

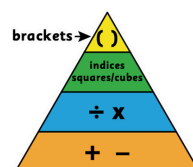
Using **bar models** to **compare addition** calculations can help to find the **missing number**.

$667 + 253 = 467 + \square$	
667	253
467	453

The first part is **200 less**, so the second part must be **200 more**.

#### Order of operations

Calculations must be carried out in a certain order to get to the correct answer. These two diagrams are helpful when remembering that order.



- Brackets** ( )
- Indices**  $3^2$
- Division**  $\div$
- Multiplication**  $\times$
- Addition**  $+$
- Subtraction**  $-$

<b>B</b>	<b>Brackets</b>	$10 \times (4 + 2) = 10 \times 6 = 60$
<b>O</b>	<b>Order</b>	$5 + 2^2 = 5 + 4 = 9$
<b>D</b>	<b>Division</b>	$10 \div 6 + 2 = 10 \div 3 = 13$
<b>M</b>	<b>Multiplication</b>	$10 - 4 \times 2 = 10 - 8 = 2$
<b>A</b>	<b>Addition</b>	$10 \times 4 + 7 = 40 + 7 = 47$
<b>S</b>	<b>Subtraction</b>	$10 \div 2 - 3 = 5 - 3 = 2$