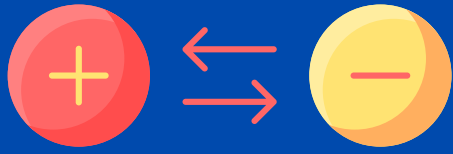# MATHS- ADDITION AND SUBTRACTION
YEAR 5

RECAP

- Add and subtract numbers with up to 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 two step problems in contexts.

CRUCIAL KNOWLEDGE

Add and subtract numbers mentally with increasing large numbers.

Add and subtract whole numbers with more than 4 dig-its 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.

$$35742 - 3476 = 32266$$

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

$$45864 + 23497 = 69361$$

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.

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

$$349\square - 8\square5 = 2615$$

$$3490\square - 8\ 75 = 2615$$

KEY VOCABULARY

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

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

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

Subtraction is reducing one number by another.

$21,345 - 345 = 21,000$ $21,000 = 21,345 - 345$

Equals
Equals means the same amount.

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

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

The numbers are written beneath each other correctly.

$$+\ \frac{\begin{array}{r}4124\\2341\\6465\end{array}}{} \qquad -\ \frac{\begin{array}{r}4124\\2041\\2083\end{array}}{}$$

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.

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

Approximate
Not completely accurate, but close enough to be used.

$18,000 + 400 =$

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?

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.

Efficient
Working in a way without wasting time.

$18,000 + 400 =$

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

Exchange
Changing one thing for another but keeping the same value.

I can exchange 10 hundreds for 1 thousand.

Sum
The total after adding 2 or more numbers.

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

Compensation and adjustment
We can use compensation and adjustment to solve calculations where the number is close to a whole number such as 100 or 1,000.

$8,254 + 99 = 8,353$
We know that $100 - 1 = 99$
To add 99, we can add 100 and subtract 1
$8,254 + 100 = 8,354$
$8,354 - 1 = 8,353$

$12,914 - 999 = 11,915$
We know that $1,000 - 1 = 999$
To subtract 999, we can subtract 1,000 and add 1
$12,914 - 1,000 = 11,914$
$11,914 + 1 = 11,915$

Partitioning
We can use partitioning to add and subtract amounts that are not multiples of 10.

$304 + 603 =$
$300 \quad 4 \quad 600 \quad 3$
$300 + 600 = 900$
$4 + 3 = 7$
$900 + 7 = 907$

$8,060 - 2,010 =$
$8,000 \quad 60 \quad 2,000 \quad 10$
$8,000 - 2,000 = 6,000$
$60 - 10 = 50$
$6,000 - 50 = 6,050$

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.