Knowledge Organiser

Year Group	Subject	Topic
4	Mathematics	Addition and Subtraction

What does addition and subtraction consist of?
In Year 4, pupils will learn to solve addition and subtraction problems involving numbers up to four digits. They will use a variety of different methods, including using objects, diagrams, and formal written methods like column addition and column subtraction. Pupils are expected to These are problems that need two different calculations to be completed before you reach the answer. A two-step work problem might have two different operations (for example, addition and subtraction) or two of the same operation (for example, subtraction and subtraction). Pupils will need to figure out which operations they need for the problem. They will need to be able to choose an efficient method to solve the problem and to be able to check their answer using a different method. When pupils have solved a problem, they will need to use their mathematical reasoning to explain how they solved it and why they used a particular method.

Key Vocabulary
Add
Total
Plus
Sum
More
Altogether
Difference
Subtract
Less
Minus
Take away
Mentally, Orally
Column Addition
Column Subtraction
Exchange
Estimate
Inverse operation
Solve problems
Number facts

Add 4-digit numbers

No exchange

$$\begin{array}{r} 5162 \\ +3427 \\ \hline 8589 \end{array}$$

Starting with the ones, add each column in turn.

One exchange

$$\begin{array}{r} 5162 \\ +3497 \\ \hline 8659 \\ \hline 1 \end{array}$$

Starting with the ones, add each column in turn. When adding
6 tens + 9 tens = 15 tens
= 1 hundred + 5 tens
Place 1 hundred under the hundreds answer and 5 tens in the answer.

Multiple exchanges

$$\begin{array}{r} 5864 \\ +3497 \\ \hline 9361 \\ \hline 111 \end{array}$$

Starting with the ones, add each column in turn. Exchange tens, hundreds and/ or thousands as required.

Subtract 4-digit numbers

No exchange

$$\begin{array}{r} 5789 \\ -\ 3421 \\ \hline 2368 \end{array}$$

Starting with the ones, subtract each column in turn.

One exchange

$$\begin{array}{r} {\scriptstyle 6\ 1} \\ 5749 \\ -\ 3471 \\ \hline 2278 \end{array}$$

Starting with the ones, subtract each column in turn. When subtracting 4 tens -7 tens, exchange 1 hundred to make:
14 tens – 7 tens = 7 tens

Multiple exchanges

$$\begin{array}{r} {\scriptstyle 6131} \\ 5742 \\ -\ 3476 \\ \hline 2266 \end{array}$$

Starting with the ones, subtract each column in turn. Exchange tens, hundreds and/ or thousands as required.

Efficient subtraction

Calculate 6000 – 3617 = 2383

Add and Subtract 1s, 10s, 100s, 1000s

Here is the number 3124

Add 2 thousands = 5124
Add 5 hundreds = 5624
Subtract 2 tens = 5604
Add 5 ones = 5609

Here is the number 6708

Thousands	Hundreds	Tens	Ones
6	7	0	8

Add 3 thousands = 9708
Subtract 4 hundreds = 9308
Add 5 tens = 9358
Subtract 7 ones = 9351

Crossing ones, tens or hundreds

5392 + 4 tens = 5432 crossing tens
5126 – 600 = 4526 crossing hundreds

When crossing ones, tens or hundreds, more than one digit will change.

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Round to Estimate

1635 + 386 = 2021
Round to the nearest ten
1640 + 390 = 2030
Round to the nearest hundred
1600 + 400 = 2000

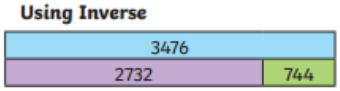
Both give a reasonable estimate, but rounding the nearest ten is more accurate.

9362 – 5729 = 3622
Round to the nearest hundred
9400 – 5700 = 3700
Round to the nearest thousand
9000 – 6000 = 3000

Rounding to the nearest hundred is much more accurate in this case.

Checking Strategies

Using Inverse



3476 – 744 = 2732 can be checked using
2732 + 744 = 3476
This part whole shows the inverse calculations using these three numbers.

1549 + 2688 = 4237	2688 + 1549 = 4237
4237 – 1549 = 2688	4237 – 2688 = 1549

Adding in a different order

420 + 372 + 280 =

Change to

420 + 280 + 372 =

As 420 + 280 = 700

(because 42 + 28 = 70)

420 + 280 + 372 = 700 + 372 = 1072