



Addition and subtraction

MATHS KNOWLEDGE ORGANISER

Useful Diagrams

ESSENTIAL VOCABULARY	
Add/plus/sum/al together	The method of combining the total of two or more numbers.
Subtract/difference/less	The method of taking a value away from a number.
Total	The answer/finished sum.
Column addition	Formal method to solve addition questions.
Column subtraction	Formal method to solve subtraction questions.
Exchange	Regrouping means to exchange 10 of a particular place value column for 1 of the next place value column along.
Estimate	Round numbers to nearest 10, 100 or 1000 to suggest a reasonable answer.
Inverse operation	Addition and subtraction can be used as inverse operations to solve missing number questions.

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

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

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

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

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

$$\begin{array}{r} 61 \\ 5749 \\ -3471 \\ \hline 2278 \end{array}$$

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

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

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

LINKS TO PREVIOUS LEARNING

Year 3:

- add and subtract numbers mentally, including:
 - a three-digit number and ones
 - a three-digit number and tens
 - a three-digit number and hundreds
- add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- estimate the answer to a calculation and use inverse operations to check answers
- solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Stem Sentences

I have _____. I have _____. Altogether I have _____.

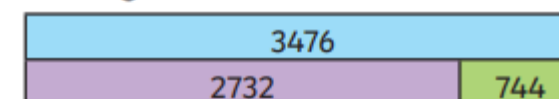
I have _____. I have subtracted _____. Altogether I have _____.

Key Themes

- Whole part model
- Rounding to estimate
- Column subtraction/addition
- Mental addition/subtraction
- Number bonds/complements
- Doubles/near doubles

Any Visual Representations

Using Inverse



$3476 - 744 = 2732$ can be checked using
 $2732 + 744 = 3476$

This part whole shows the inverse calculations using these three numbers.

