



# Addition and subtraction

## MATHS KNOWLEDGE ORGANISER

### Useful Diagrams

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

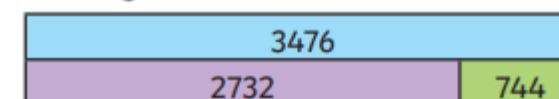
I have \_\_\_\_\_. I have subtracted \_\_\_\_\_. Altogether I have \_\_\_\_\_.

### 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.

