Statutory Requirements	Activity Sheet	Page Number	Notes
Pupils should be taught to: • add and subtract numbers with up to 4 digits using the formal written methods of columnar 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, deciding which operations and methods to use and why.	Cars Column Addition	2	
	Cavemen Column Addition	3	
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Cars Column Addition

Mr and Mrs Vroom have gone to the garage to buy a new car each to get to work in. Below are some of the cars they could buy. Calculate the costs of different combinations of cars.

Red £3625	Blue £2814	Grey £4132	Silver £5892	White £3145	Black £3532

1 Silver & White

```
    £  5  8  9  2
+   £  3  1  4  5
   _____
    £
```

2 Black & Silver

```
    £  3  5  3  2
+   £  5  8  9  2
   _____
    £
```

3 Black & Grey

```
    £  3  5  3  2
+   £  4  1  3  2
   _____
    £
```

4 Grey & White

```
    £  4  1  3  2
+   £  3  1  4  5
   _____
    £
```

5 White & Blue

```
    £  3  1  4  5
+   £  2  8  1  4
   _____
    £
```

6 Grey & Blue

```
    £  4  1  3  2
+   £  2  8  1  4
   _____
    £
```

7 Silver & Red

```
    £  5  8  9  2
+   £  3  6  2  5
   _____
    £
```

8 Black & Blue

```
    £  3  5  3  2
+   £  2  8  1  4
   _____
    £
```

9 Blue & Silver

```
    £  2  8  1  4
+   £  5  8  9  2
   _____
    £
```

Mr and Mrs Vroom have a budget of £7000.
Which combinations of cars could they afford to buy?

_____

_____

Cavemen Column Addition

These cave people from the Stone Age have been collecting lots of food for their tribe to eat. For the entire month, Taruk and Renn have been collecting nuts and insects. Can you calculate how much they have collected of each item altogether? Use column addition to calculate your answers. Show your working out in the space below.

Item	Taruk	Renn	Total
Sunflower Seeds	5287	3142	
Hazelnuts	1438	2592	
Nettle Leaves	3584	1583	
Snails	1305	2358	
Caterpillars	468	967	
Mussels	2549	1348	
Juniper Berries	3462	2344	
Eggs	926	2051	

Show your working out here:
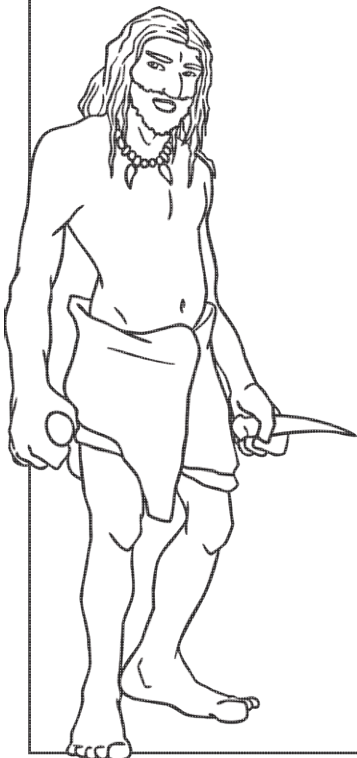
Henry's Homework

Oh dear! Henry's little brother has been playing with stickers and has stuck some stars on Henry's addition homework. Help Henry by calculating the missing numbers in the homework. The first one has been completed.

```
    1   3  ☆2☆  8              6   5   1   8              3   7   2  ☆
+   3   6   2   3          + ☆   2   7   4          +   2  ☆   5   1
  ─────────────────          ─────────────────          ─────────────────
    4   9   5   1              8   7   9   2              6   1   7   9
            1                           1                           1
```

```
    7   2  ☆   6              2   8   6  ☆               5  ☆   1   8
+  ☆   4   8   1          +       5  ☆   8          +   4   2   8   1
  ─────────────────          ─────────────────          ─────────────────
    9   7   1  ☆               3   4   1   2              9   4   9  ☆
            1                    1   1   1                           
```

```
   ☆   2   6   7              3   8   2  ☆               2   7   4  ☆
+   3   2  ☆   5          +   4  ☆   3   1          +   3  ☆   2   3
  ─────────────────          ─────────────────          ─────────────────
    8   5   0   2              8   2   5   8              6   3   6   8
        1       1                 1                               1
```

Explore: Here is an answer. Calculate three ways to make the answer for this sum and fill in the calculations.

```
  ┌───┬───┬───┬───┐        ┌───┬───┬───┬───┐        ┌───┬───┬───┬───┐
  │   │   │   │   │        │   │   │   │   │        │   │   │   │   │
  ├───┼───┼───┼───┤        ├───┼───┼───┼───┤        ├───┼───┼───┼───┤
+ │   │   │   │   │      + │   │   │   │   │      + │   │   │   │   │
  └───┴───┴───┴───┘        └───┴───┴───┴───┘        └───┴───┴───┴───┘
    3   7   6   5              3   7   6   5              3   7   6   5
  ─────────────────          ─────────────────          ─────────────────
```
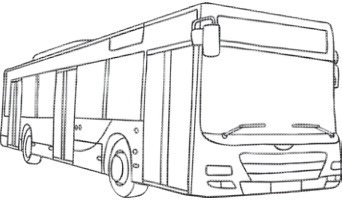
Transport Subtraction

Each of the vehicles below are on a journey. Each have completed part of the journey, but still have a long way to travel. Use column subtraction to calculate how much further each one has to travel to arrive at their destination.

Aeroplane
Journey: 3470 miles
Completed so far: 2140 miles

```
    3  4  7  0
-   2  1  4  0
_____
```

Remaining distance: _____

Bus
Journey: 7845 miles
Completed so far: 3623 miles

```
    7  8  4  5
-   3  6  2  3
_____
```

Remaining distance: _____

Truck
Journey: 7403 miles
Completed so far: 4189 miles

```
    7  4  0  3
-   4  1  8  9
_____
```

Remaining distance: _____
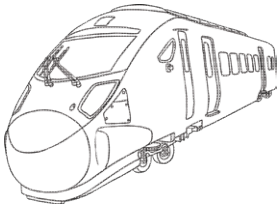
Car
Journey: 6074 miles
Completed so far: 4638 miles

```
    6  0  7  4
-   4  6  3  8
_____
```

Remaining distance: _____

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Train
Journey: 4061 miles
Completed so far: 3623 miles

```
    4  0  6  1
 -  3  6  2  3
 _____
 _____
```
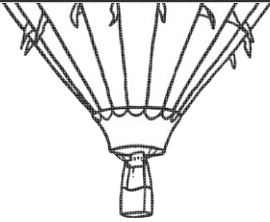
Remaining distance: _____

Helicopter
Journey: 8053 km
Completed so far: 6645 km

```
    8  0  5  3
 -  6  6  4  5
 _____
 _____
```
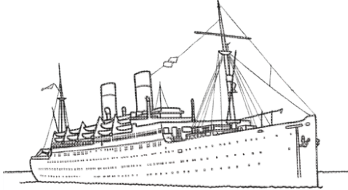
Remaining distance: _____

Hot Air Balloon
Journey: 6502 km
Completed so far: 3679 km

```
    6  5  0  2
 -  3  6  7  9
 _____
 _____
```
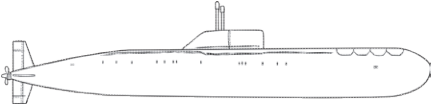
Remaining distance: _____

Ship
Journey: 5082 km
Completed so far: 2674 km

```
    5  0  8  2
 -  2  6  7  4
 _____
 _____
```

Remaining distance: _____

Submarine
Journey: 8604 miles
Completed so far: 4793 miles

```
    8  6  0  4
 -  4  7  9  3
 _____
 _____
```

Remaining distance: _____

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Super Sale

At the department store, there was a special one-day sale on all items. Below you will find the shopping for one customer with the original price and the sale price of each item they bought. Calculate the money saved on each item by using **column subtraction.** Use the space below the table to complete your calculations, and then write your answers on the table.

Item	Original Price	Sale Price	Money Saved
A television	£1467	£623	
A kettle	£24.36	£8.24	
A mirror	£89.43	£11.51	
A new coat	£54.72	£22.16	
Shoes	£72.38	£24.25	
A jumper	£36.00	£12.48	
A dress	£43.56	£12.82	
A new coat	£58.25	£32.43	

Show your working out here:
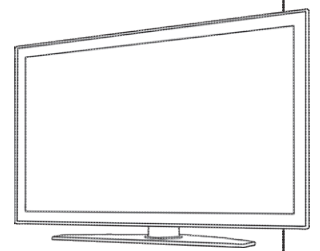
Be the Teacher

Miss Dumencic is marking work, but she has lost the answer sheet. She must check each answer by doing the **inverse operation** (the opposite calculation). Help Miss Dumencic by completing the inverse operation to see if the calculation is correct. Place a tick in the box by the calculations that are correct. The first has been done for you.

1

```
    2   5   9   3
+   3   2   4   4
_____
    5   8   3   7
            1
```

✓

```
    5   8  ¹3   7
-   2   5   9   3
_____
    3   2   4   4
```

2

```
    3   8  ¹2   4
-   2   3   5   2
_____
    1   5   3   2
```

□   +

3

```
    4   9  ¹3   4
-   2   8   4   2
_____
    2   0   9   2
```

□   +

4

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

□   -

5

```
    2  5  4  6
 +  2  6  6  4
 ───────────────
    5  2  1  1
    1  1  1
```

□   -

6

```
    8  0̸ ¹4̸ ¹3
 -  2  3  5  7
 ───────────────
    6  2  8  6
```

□   +

Estimation Station

Euston Station in London is an extremely busy train station. Here are the results for the number of people using this station each day for a week. Round each number to the nearest thousand. Remember, for each number, look at the hundreds column. If it is **5 or more**, you round up and if it is **4 and under**, you round down.
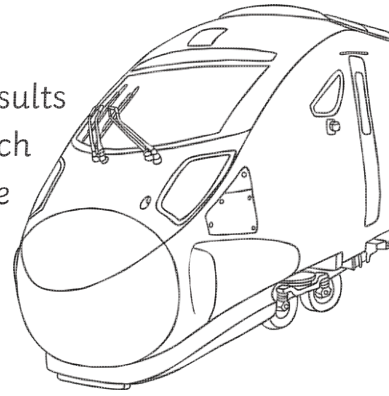
For example: 5<u>7</u>96 rounds up to 6000

Day	Number of visitors	Rounded to the nearest thousand
Monday	5679	
Tuesday	8216	
Wednesday	4423	
Thursday	3758	
Friday	8921	
Saturday	7526	
Sunday	8469	

When completing column addition and subtraction questions, you should try to estimate the answer first as this will give you an indication of what the answer should be. If your answer to the calculation isn't close to your estimation, you may have made a mistake and then you can recalculate the answer. To estimate the answer, you will need to round each number to the nearest thousand then add or subtract the rounded numbers.

For example: 3549 + 4561
Rounded is: 4000 + 5000 = 9000

Use rounding to estimate the answers to the following questions:

1. 4685 + 6258 rounded is _____ + _____ = _____

2. 8254 – 3549 rounded is _____ - _____ = _____

3. 7635 – 6210 rounded is _____ - _____ = _____

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Problem Time

Below are a series of word problems. Use your knowledge of column addition and subtraction to help you solve the problems. Use the space below each one to show your working out.

1. Tony has £46.00.

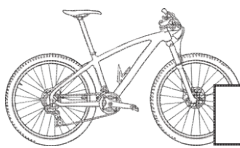|		
T-Shirt £8.92	Jeans £16.45	Sunglasses £5.42

He buys 2 T-shirts, a pair of jeans and a pair of sunglasses.
How much money does he have remaining?

£

2. Pierre Bisicleta is competing in the Tour de France.
Here are the distances for how far he has travelled on the first two days.

Monday 1456 km	Tuesday 1378 km

He needs to achieve a total of 3128km by Wednesday evening.
How much further does he need to cycle to achieve his target?

km

Master Mathematician

Ali and Sarah have both completed the same calculation, but have got different answers. Explain who is correct and how you know it is the correct answer.

$$
\begin{array}{r}
5\ \not{6}\ ^1 2\ 8 \\
-\ 3\ 2\ 7\ 4 \\
\hline
2\ 3\ 5\ 4 \\
\hline
\end{array}
$$

Ali

$$
\begin{array}{r}
5\ 6\ 2\ 8 \\
-\ 3\ 2\ 7\ 4 \\
\hline
2\ 4\ 5\ 4 \\
\hline
\end{array}
$$

Sarah

Who is correct and why?

_____

_____

_____

Challenge: Identify the missing numbers in the bar models below.

1000		
	353	354

2000	
493		794
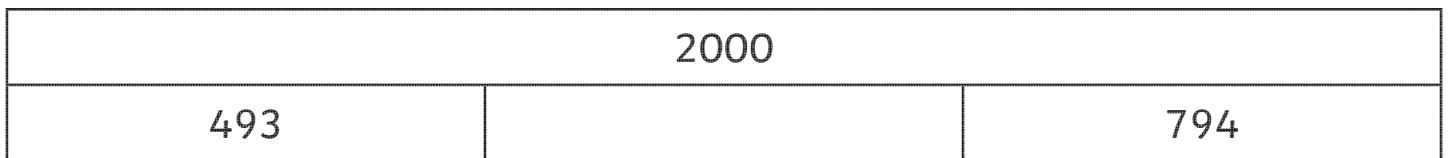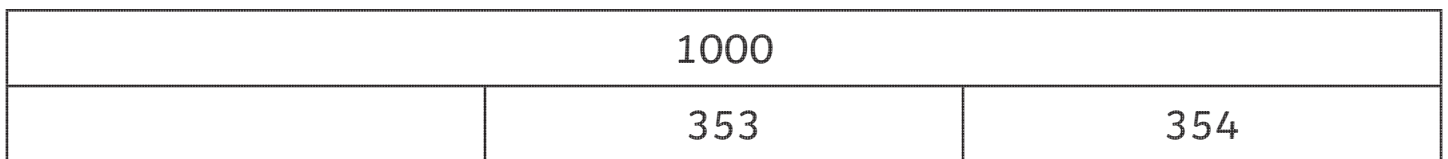
Select your own numbers to make this bar model correct:

5000
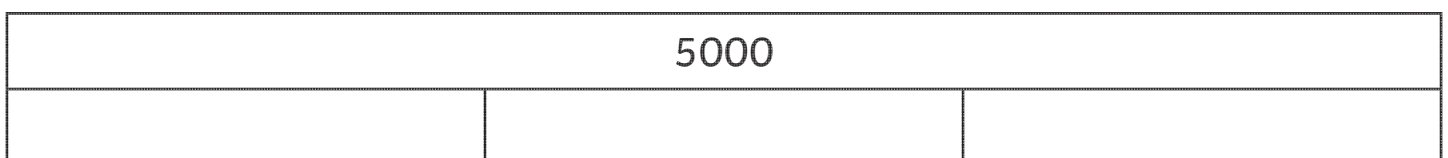
Parent Guide to Addition and Subtraction

In the Year 4 National Curriculum, children are taught to use **column addition** and **column subtraction** to add and subtract 4-digit numbers (including decimal numbers in contexts such as money). The focus of the curriculum is that children will become 'masters' of this method and should be able to apply this method to a range of problems and situations. Therefore, the range of activities in this book will help your child develop their **fluency**, **reasoning** and **problem solving** when using **column addition** and **column subtraction**.

The Column Method
The column method of addition and subtraction is so called because it sets the numbers out into columns based on their place value, e.g. **Hundreds**, **Tens**, **Ones**, tenths etc. (**Note:** If your child isn't secure with place value, it is best to go over this before completing column addition and subtraction.) To begin this method, we always start by adding or subtracting the numbers in the right column and then work along to the left, adding or subtracting the numbers in that column.

When using column subtraction, the **largest number** is always placed above the **smaller number**. Also, you must always subtract the digit below from the number above; this is sometimes a common misconception with children as they sometimes calculate the difference between the two numbers.

$$
\begin{array}{r}
2\ 5\ 6\ 8 \\
+\ 3\ 2\ 5\ 1 \\
\hline
5\ 8\ 1\ 9 \\
{\scriptstyle 1}
\end{array}
\qquad
\begin{array}{r}
5\ \cancel{6}\ ^{1}2\ 8 \\
-\ 3\ 2\ 7\ 4 \\
\hline
2\ 3\ 5\ 4
\end{array}
$$

Borrowing vs Exchanging: During school, you were probably taught to 'borrow' from the next column if you couldn't subtract the bottom number from the top number in a column. However, the current term used is **exchanging** for this procedure. It is best to talk to the classroom teacher to ensure you are consistent with the terminology used in the classroom.

For a fully detailed explanation of column addition and subtraction, please use the following resources on the Twinkl website:

Year 3 Addition and Subtraction Lesson 3b Adding 3 and 3 Digit Numbers Without Carrying PowerPoint

Year 3 Additon and Subtraction Lesson 4d Subtracting 3 Digit Numbers from 3 Digit Numbers PowerPoint

Estimation: Children are encouraged to estimate their answers mentally before completing column addition and subtraction. They can do this by rounding the numbers to the nearest thousand (if using a four-digit number) and then adding or subtracting the rounded numbers. This helps the child as it gives them an indication of what the answer should be. For example:

3549 + 4561 **Rounded is:** 4000 + 5000 = 9000

Please ensure your child is secure with rounding before encouraging him or her to estimate the answers.