1) a) 8919

b) 11 725

c) 39 091

d) 62 829

e) 39 460

2) a) Abdul and Sam

b) Lottie and Ffion

1)

| | | | | | |
|---|---|---|---|---|---|
| | 3 | 2 | 5 | 6 | 1 |
| + | | 7 | 6 | 3 | 5 |
| | (3) | (9) | 1 | 9 | 6 |

| | | | | | |
|---|---|---|---|---|---|
| | 3 | 2 | 5 | 6 | 1 |
| + | | 7 | 6 | 3 | 5 |
| | 4 | 0 | 1 | 9 | 6 |
| | 1 | 1 | | | |

500 + 600 = 1100. Ravi should have regrouped 10 of the hundreds as 1 thousand, recording the regrouped digit under the thousands column. 2000 + 7000 + 1000 = 10 000, thus giving a final total of 40 196.

| | | | | | |
|---|---|---|---|---|---|
| | 3 | 4 | 5 | 8 | |
| + | 5 | 2 | 6 | 7 | 1 |
| | 5 | 7 | 2 | 5 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| | | 3 | 4 | 5 | 8 |
| + | 5 | 2 | 6 | 7 | 1 |
| | 5 | 6 | 1 | 2 | 9 |
| | | 1 | 1 | | |

Ravi has not lined the digits up in the correct place value columns. The value of the 3 is three thousands but he has put it in the ten thousands column.

| | | | | | |
|---|---|---|---|---|---|
| | | 5 | 2 | 3 | 1 |
| + | | 2 | 7 | 8 | 5 |
| | 7 | (1) | 0 | 1 | 6 |
| | | 1 | | | |

| | | | | |
|---|---|---|---|---|
| | 5 | 2 | 3 | 1 |
| + | 2 | 7 | 8 | 5 |
| | 8 | 0 | 1 | 6 |
| | 1 | 1 | | |

Ravi has started correctly but, when he got to 700 + 200 + 100, he has written this in as 1000. He should have recorded the regrouped digit under the thousands column to add this on to 5000 + 2000.

2) Children should be encouraged to look at the numbers they are calculating with and use the most efficient method. They should understand that they should always look at the numbers first to decide whether you can add them mentally. In this case, column addition would not be the most efficient method. A mental method, with jottings if needed, would be the most efficient method. You could use your number bond knowledge to add 1200 to 4800, giving a total of 6 000, and then add 11 000 to give a final total of 17 000.

**1)**

| | | | | | |
|---|---|---|---|---|---|
| | 4 | 2 | 0 | 6 | 7 |
| + | 3 | 9 | 5 | 8 | 2 |
| | 8 | 1 | 6 | 4 | 9 |
| | 1 | | 1 | | |

| | | | | | |
|---|---|---|---|---|---|
| | 7 | 5 | 3 | 1 | 8 |
| + | 1 | 4 | 9 | 7 | 8 |
| | 9 | 0 | 2 | 9 | 6 |
| | 1 | 1 | | 1 | |

**2)** *One possible solution is 6125 + 3715 = 9840.*
*Accept any other solutions which work.*

**1)** Complete these addition calculations. You may want to use place value counters to help you.

**a)**

| | | | | |
|---|---|---|---|---|
| | 3 | 7 | 8 | 5 |
| + | 5 | 1 | 3 | 4 |
| | | | | |

**b)**

| | | | | |
|---|---|---|---|---|
| | 6 | 0 | 5 | 4 |
| + | 5 | 6 | 7 | 1 |
| | | | | |

**c)**

| | | | | | |
|---|---|---|---|---|---|
| | 3 | 4 | 3 | 2 | 3 |
| + | | 4 | 7 | 6 | 8 |
| | | | | | |

**d)** 53 264 + 9565

**e)** 6807 + 32 653

**2)** Five children have been playing a times tables game. Here are their scores:

| Lottie | Sam | Izzy | Abdul | Ffion |
|---|---|---|---|---|
| 32 357 | 30 541 | 34 057 | 31 647 | 33 587 |

**a)** Which two children have a combined score of exactly 62 188?

**b)** Which two children have a combined score of exactly 65 944?

**1)** Ravi has been practising his column method but he has made some mistakes. For each sum, identify the mistakes and explain his errors. Then, carry out the sum yourself in the blank box to find the correct total.

**a)**

| | | | | | |
|---|---|---|---|---|---|
| | 3 | 2 | 5 | 6 | 1 |
| + | | 7 | 6 | 3 | 5 |
| | 3 | 9 | 1 | 9 | 6 |

**b)**

| | | | | | |
|---|---|---|---|---|---|
| | 3 | 4 | 5 | 8 | |
| + | 5 | 2 | 6 | 7 | 1 |
| | 5 | 7 | 2 | 5 | 1 |

**c)**

| | | | | | |
|---|---|---|---|---|---|
| | | 5 | 2 | 3 | 1 |
| + | | 2 | 7 | 8 | 5 |
| | 7 | 1 | 0 | 1 | 6 |
| | | 1 | | | |

**2)** Amy is playing a maths game. She scores 1200 in the first round, 4800 in the next and 11 000 in the final round. Would you use column addition to find her total score? Use the numbers in the question to explain your answer.

**1)** Can you identify the missing digits in these two calculations?

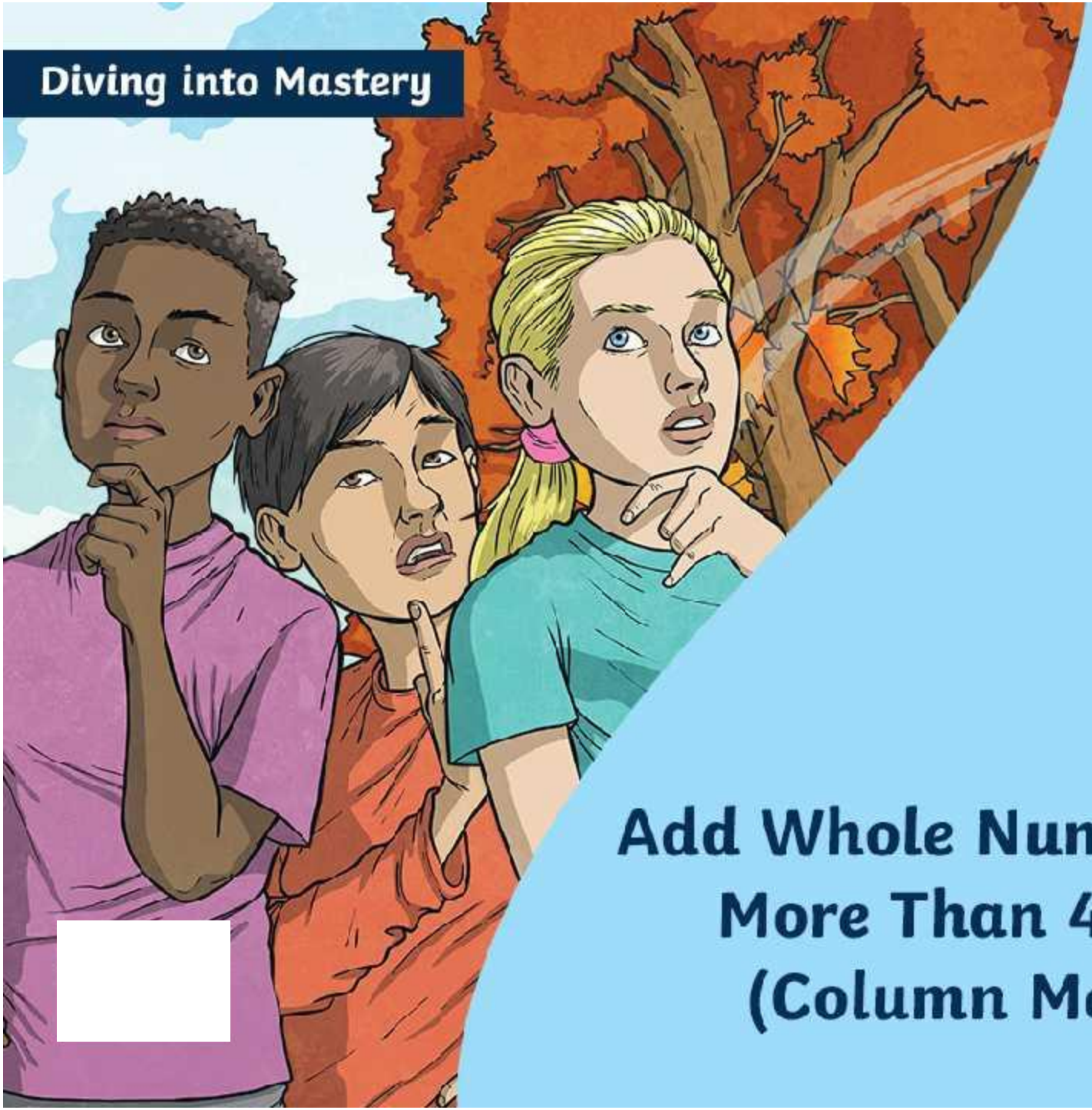
| | | | | | |
|---|---|---|---|---|---|
| | 4 | 2 | □ | 6 | □ |
| + | □ | 9 | 5 | □ | 2 |
| | 8 | 1 | 6 | 4 | 9 |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | □ | □ | 3 | 1 | 8 |
| + | 1 | 4 | □ | 7 | □ |
| | 9 | 0 | 2 | □ | 6 |
| | | | | | |

**2)** Each letter represents a different number between 0 and 9. Can you work out what the letters represent to make the addition calculation work? How many different solutions can you find?

| | | | | |
|---|---|---|---|---|
| | C | L | U | E |
| + | M | I | L | E |
| | P | O | N | Y |
| | | | L | |

Diving into Mastery



# Add Whole Numbers with More Than 4 Digits (Column Method)

# Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:

Diving

Deeper

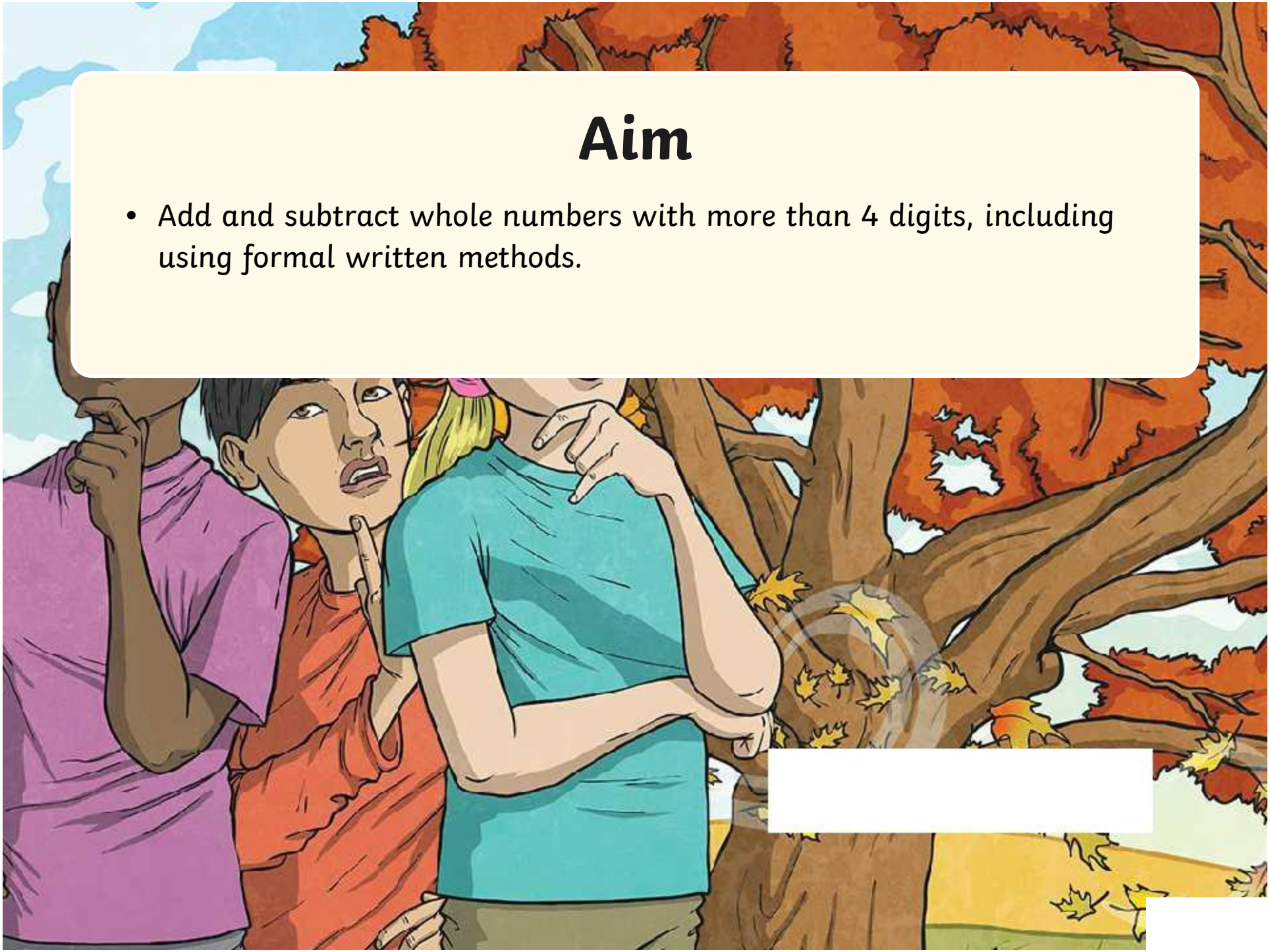
Deepest

These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

# Aim

- Add and subtract whole numbers with more than 4 digits, including using formal written methods.



## Add Whole Numbers with More Than 4 Digits (Column Method)

**Diving**

**Complete these addition calculations. You may want to use place value counters to help you.**

| | | | | |
|---|---|---|---|---|
| | 3 | 6 | 3 | 4 |
| + | 5 | 5 | 6 | 5 |
| | **9** | **1** | **9** | **9** |
| | **1** | | | |

| | | | | | |
|---|---|---|---|---|---|
| | | 8 | 5 | 3 | 2 |
| + | | 7 | 3 | 1 | 5 |
| | **1** | **5** | **8** | **4** | **7** |
| | **1** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | 2 | 5 | 6 | 7 | 8 |
| + | | 8 | 4 | 3 | 7 |
| | **3** | **4** | **1** | **1** | **5** |
| | **1** | **1** | **1** | **1** | |

65 149 + 6547 = **71 686**

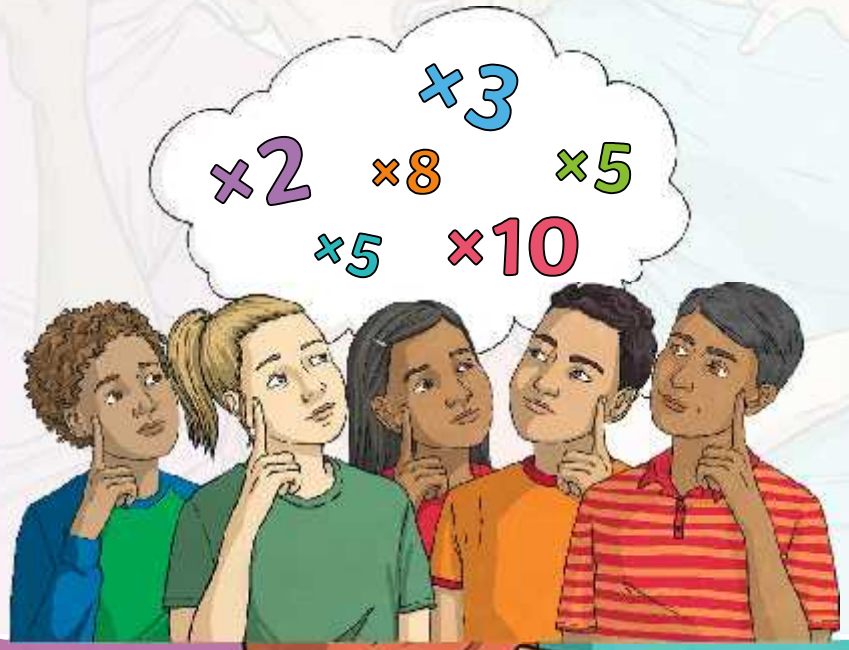
2698 + 25 704 = **28 402**

## Add Whole Numbers with More Than 4 Digits (Column Method)

**Diving**

Five children have been playing a times tables game.
Here are their scores:

| Lottie | Sam | Izzy | Abdul | Ffion |
|---|---|---|---|---|
| 41 035 | 39 541 | 42 658 | 41 982 | 42 608 |




**Which two children have a combined score of exactly 83 693?**

**Izzy and Lottie**

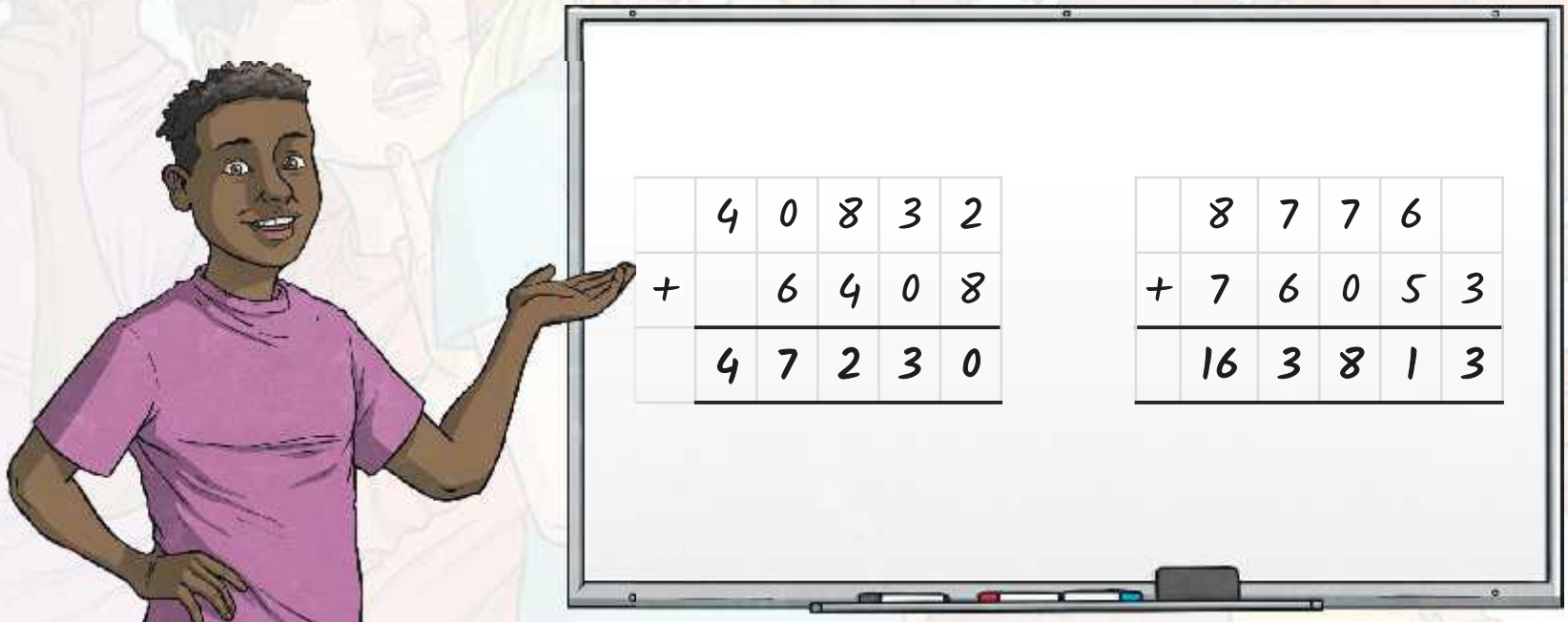
**Which two children have a combined score of exactly 81 523?**

**Sam and Abdul**

## Add Whole Numbers with More Than 4 Digits (Column Method) — Deeper

Andy has been practising column addition but he has made some mistakes.

**For each sum, identify the mistakes and explain his errors.**
**Then, carry out the sum yourself to find the correct total.**



| | | | | | |
|---|---|---|---|---|---|
| | 4 | 0 | 8 | 3 | 2 |
| + | | 6 | 4 | 0 | 8 |
| | 4 | 7 | 2 | 3 | 0 |

| | | | | | |
|---|---|---|---|---|---|
| | 8 | 7 | 7 | 6 | |
| + | 7 | 6 | 0 | 5 | 3 |
| | 16 | 3 | 8 | 1 | 3 |

# Add Whole Numbers with More Than 4 Digits (Column Method)

**Deeper**

**8 + 2 = 10. Andy should have regrouped the ten ones in the tens column, so 30 + 10 = 40.**

| | | | | | |
|---|---|---|---|---|---|
| | 4 | 0 | 8 | 3 | 2 |
| + | | 6 | 4 | 0 | 8 |
| | 4 | 7 | 2 | 3 | 0 |
| | | | | 1 | |

**The correct total is 47 240.**

**Andy has not lined the digits up in the correct place value columns. The value of the 6 is 6 ones, not 6 tens. He should only write one digit in each square.**

| | | | | | |
|---|---|---|---|---|---|
| | 8 | 7 | 7 | 6 | |
| + | 7 | 6 | 0 | 5 | 3 |
| | 16 | 3 | 8 | 1 | 3 |

**The correct total is 84 829.**

## Add Whole Numbers with More Than 4 Digits (Column Method) | Deeper

Amara is playing a maths game. She scores 2400 in the first round, 5300 in the next and 10 600 in the final round.

**Would you use column addition to find her total score?**

**Use the numbers in the question to explain your answer.**

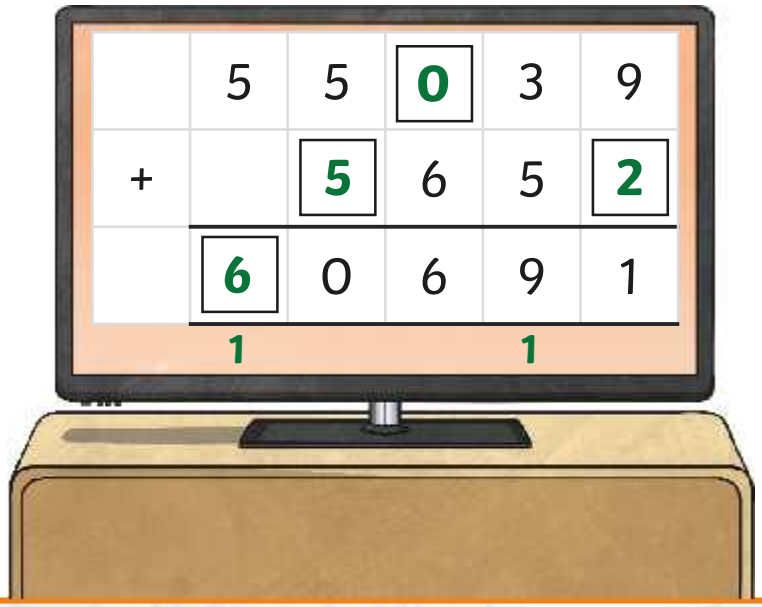
Column addition would not be the most efficient method. You should always look at the numbers first to decide whether you can add these mentally.

A mental method, with jottings if needed, would be the most efficient method. You could use your number bond knowledge to add 2400 to 10 600, giving a total of 13 000, and then add 5300 to give a final total of 18 300.

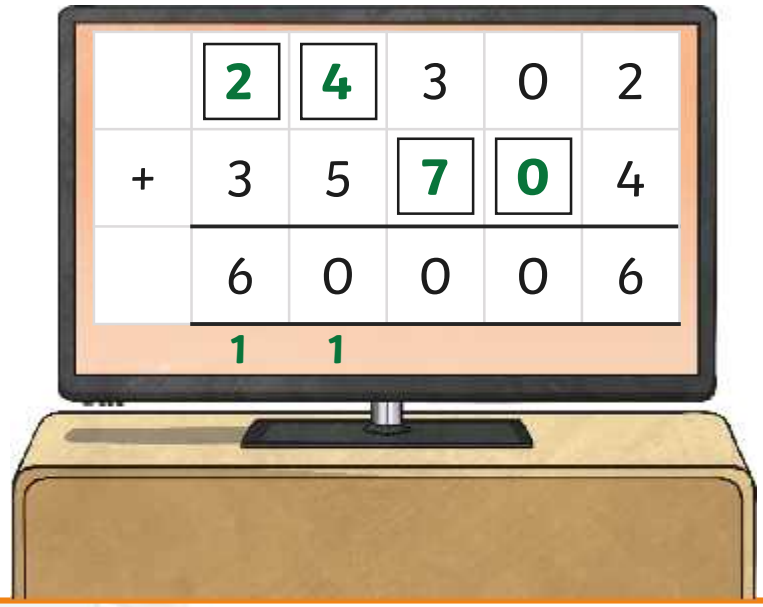
## Add Whole Numbers with More Than 4 Digits (Column Method)

**Deepest**

**Can you identify the missing digits in these two calculations?**



| | | | | | |
|---|---|---|---|---|---|
| | 5 | 5 | **0** | 3 | 9 |
| + | | **5** | 6 | 5 | **2** |
| | **6** | 0 | 6 | 9 | 1 |
| | 1 | | | 1 | |



| | | | | | |
|---|---|---|---|---|---|
| | **2** | **4** | 3 | 0 | 2 |
| + | 3 | 5 | **7** | **0** | 4 |
| | 6 | 0 | 0 | 0 | 6 |
| | 1 | 1 | | | |

## Add Whole Numbers with More Than 4 Digits (Column Method)

**Deepest**

Each letter represents a number between 1 and 9.

**Can you work out what the letters represent to make the addition calculation work?**

There is no regrouping in the calculation.

Click here to get clues for one possible solution.

**Hint 1: E = 4**

**Hint 2: S = 7**

| | | | | |
|---|---|---|---|---|
| | F | L | E | A |
| + | M | O | L | E |
| | P | E | S | T |

***flea + mole = pest***

## Add Whole Numbers with More Than 4 Digits (Column Method) — Deepest

Here is a possible solution.

**How many other solutions can you find?**

| | | | | |
|---|---|---|---|---|
| | F | L | E | A |
| + | M | O | L | E |
| | P | E | S | T |

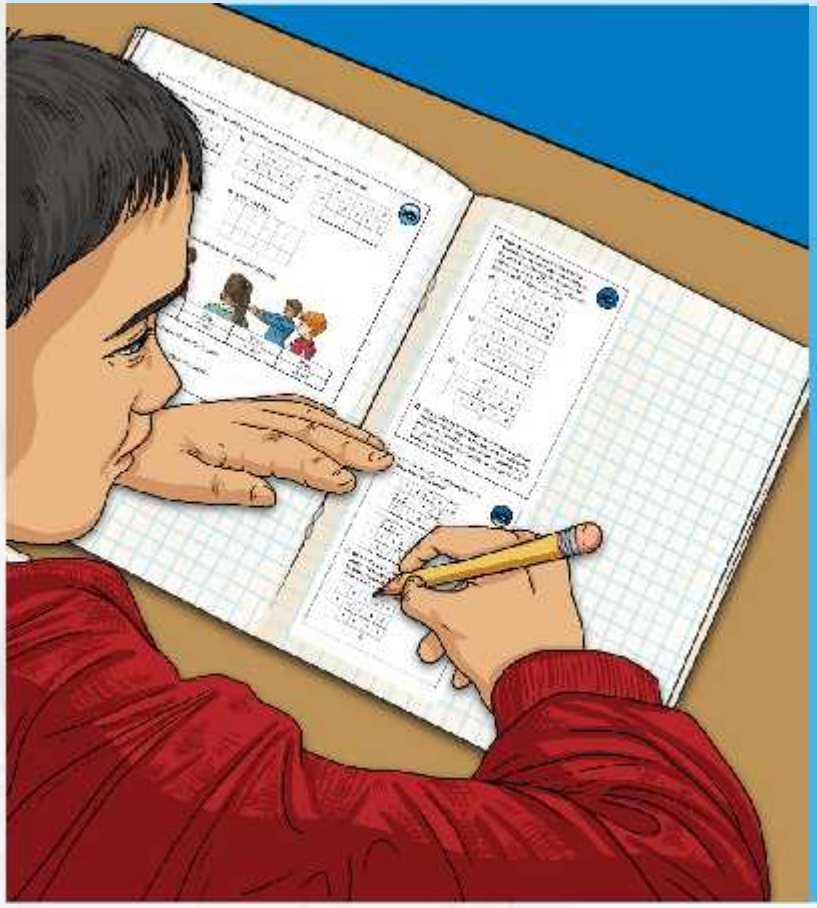
| | | | | |
|---|---|---|---|---|
| | 2 | 3 | 4 | 5 |
| + | 6 | 1 | 3 | 4 |
| | 8 | 4 | 7 | 9 |

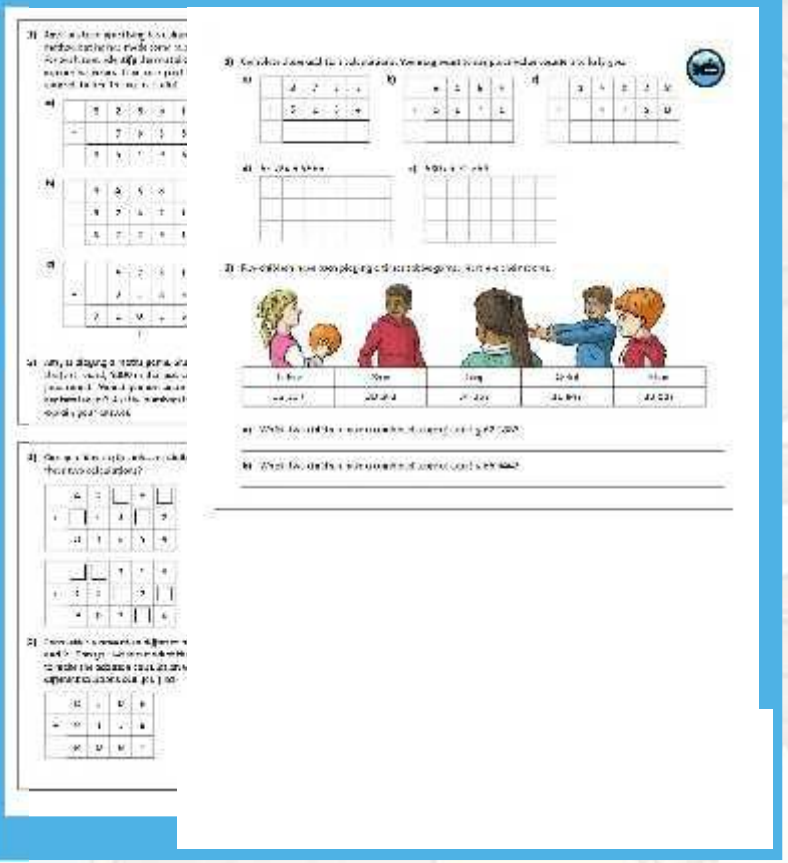
flea + mole = pest

2345 + 6134 = 8479

# Add Whole Numbers with More Than 4 Digits (Column Method)

Dive in by completing your own activity!





**1)** Complete these addition calculations. You may want to use place value counters to help you.

**a)**

| | | | | |
|---|---|---|---|---|
| | 3 | 7 | 8 | 5 |
| + | 5 | 1 | 3 | 4 |
| | | | | |

**b)**

| | | | | |
|---|---|---|---|---|
| | 6 | 0 | 5 | 4 |
| + | 5 | 6 | 7 | 1 |
| | | | | |

**c)**

| | | | | | |
|---|---|---|---|---|---|
| | 3 | 4 | 3 | 2 | 3 |
| + | | 4 | 7 | 6 | 8 |
| | | | | | |

**d)** 53 264 + 9565

**e)** 6807 + 32 653

**2)** Five children have been playing a times tables game. Here are their scores:

| Lottie | Sam | Izzy | Abdul | Ffion |
|---|---|---|---|---|
| 32 357 | 30 541 | 34 057 | 31 647 | 33 587 |

**a)** Which two children have a combined score of exactly 62 188?

**b)** Which two children have a combined score of exactly 65 944?

**1)** Complete these addition calculations. You may want to use place value counters to help you.

**a)**

| | | | | |
|---|---|---|---|---|
| | 3 | 7 | 8 | 5 |
| + | 5 | 1 | 3 | 4 |
| | | | | |

**b)**

| | | | | |
|---|---|---|---|---|
| | 6 | 0 | 5 | 4 |
| + | 5 | 6 | 7 | 1 |
| | | | | |

**c)**

| | | | | | |
|---|---|---|---|---|---|
| | 3 | 4 | 3 | 2 | 3 |
| + | | 4 | 7 | 6 | 8 |
| | | | | | |

**d)** 53 264 + 9565

**e)** 6807 + 32 653

**2)** Five children have been playing a times tables game. Here are their scores:

| Lottie | Sam | Izzy | Abdul | Ffion |
|---|---|---|---|---|
| 32 357 | 30 541 | 34 057 | 31 647 | 33 587 |

**a)** Which two children have a combined score of exactly 62 188?

**b)** Which two children have a combined score of exactly 65 944?

**1)** Ravi has been practising his column method but he has made some mistakes. For each sum, identify the mistakes and explain his errors. Then carry out the sum yourself to find the correct total.

**a)**

| | | | | | |
|---|---|---|---|---|---|
| | 3 | 2 | 5 | 6 | 1 |
| + | | 7 | 6 | 3 | 5 |
| | 3 | 9 | 1 | 9 | 6 |

**b)**

| | | | | | |
|---|---|---|---|---|---|
| | 3 | 4 | 5 | 8 | |
| + | 5 | 2 | 6 | 7 | 1 |
| | 5 | 7 | 2 | 5 | 1 |

**c)**

| | | | | | |
|---|---|---|---|---|---|
| | | 5 | 2 | 3 | 1 |
| + | | 2 | 7 | 8 | 5 |
| | 7 | 1 | 0 | 1 | 6 |
| | | | 1 | | |

**2)** Amy is playing a maths game. She scores 1200 in the first round, 4800 in the next and 11 000 in the final round. Would you use column addition to find her total score? Use the numbers in the question to explain your answer.

**1)** Ravi has been practising his column method but he has made some mistakes. For each sum, identify the mistakes and explain his errors. Then carry out the sum yourself to find the correct total.

**a)**

| | | | | | |
|---|---|---|---|---|---|
| | 3 | 2 | 5 | 6 | 1 |
| + | | 7 | 6 | 3 | 5 |
| | 3 | 9 | 1 | 9 | 6 |

**b)**

| | | | | | |
|---|---|---|---|---|---|
| | 3 | 4 | 5 | 8 | |
| + | 5 | 2 | 6 | 7 | 1 |
| | 5 | 7 | 2 | 5 | 1 |

**c)**

| | | | | | |
|---|---|---|---|---|---|
| | | 5 | 2 | 3 | 1 |
| + | | 2 | 7 | 8 | 5 |
| | 7 | 1 | 0 | 1 | 6 |
| | | | 1 | | |

**2)** Amy is playing a maths game. She scores 1200 in the first round, 4800 in the next and 11 000 in the final round. Would you use column addition to find her total score? Use the numbers in the question to explain your answer.

**1)** Can you identify the missing digits in these two calculations?

| | | | | | |
|---|---|---|---|---|---|
| | 4 | 2 | □ | 6 | □ |
| + | □ | 9 | 5 | □ | 2 |
| | 8 | 1 | 6 | 4 | 9 |

| | | | | | |
|---|---|---|---|---|---|
| | □ | □ | 3 | 1 | 8 |
| + | 1 | 4 | □ | 7 | □ |
| | 9 | 0 | 2 | □ | 6 |

**2)** Each letter represents a different number between 0 and 9. Can you work out what the letters represent to make the addition calculation work? How many different solutions can you find?

| | | | | |
|---|---|---|---|---|
| | C | L | U | E |
| + | M | I | L | E |
| | P | O | N | Y |
| | | | L | |

**1)** Can you identify the missing digits in these two calculations?

| | | | | | |
|---|---|---|---|---|---|
| | 4 | 2 | □ | 6 | □ |
| + | □ | 9 | 5 | □ | 2 |
| | 8 | 1 | 6 | 4 | 9 |

| | | | | | |
|---|---|---|---|---|---|
| | □ | □ | 3 | 1 | 8 |
| + | 1 | 4 | □ | 7 | □ |
| | 9 | 0 | 2 | □ | 6 |

**2)** Each letter represents a different number between 0 and 9. Can you work out what the letters represent to make the addition calculation work? How many different solutions can you find?

| | | | | |
|---|---|---|---|---|
| | C | L | U | E |
| + | M | I | L | E |
| | P | O | N | Y |
| | | | L | |