

Monday

Maths – Add Two 4-Digit Numbers (page 2)

Question 1 - This question requires children to complete **formal written calculations** (also known as column method). The number to be added is written directly under the first number so that the digits line up in columns. To calculate the answer, you begin with adding the ones column (formerly known as units), then move through the columns from right to left until all have been added. If the answer in any column is more than 9, there needs to be an **exchange** (also be known as 'carrying'). This happens when a place value column has a value of 10 or more. For example, if there are 8 ones + 2 ones, the ones column will have a total of 10 ones. You cannot have 10 ones in that column, so 10 ones must be exchanged for 1 ten, leaving 0 ones. This is the case for any column: if there is a value of 10 or more in one column, the 10 is exchanged for one in the column to the left.

Completed calculations shown below. Choose the calculation which has the fewest exchanges: the correct answer is **B**.

A.

	4	8	6	1
+	3	1	3	9
<hr/>				
	8	0	0	0
<hr/>				
		1	1	1

B.

	7	5	8	2
+	1	6	2	7
<hr/>				
	9	2	0	9
<hr/>				
		1	1	

C.

	5	2	0	8
+	3	7	9	2
<hr/>				
	9	0	0	0
<hr/>				
		1	1	1

Question 2 – In this question, the addition calculations are shown in a different format. A is shown as a **formal written calculation** but uses **place value counters** to replace each digit. The **counters** can be used for support or can be replaced by the digits they represent. B shows a **part-whole model** which shows the two parts to be added together to find the whole, which can be written in the empty circle. C shows a **bar model** which also gives two parts to be added together to find the whole. They require children to write an answer in the space after completing the **formal written calculations**.

True or false? C totals the largest number: the correct answer is **true**. The completed calculations are: **A. 5,100, B. 6,211, C. 7,217**

Question 3 – This question asks children to decide whether the digits Arthur has added to the **formal written calculation** are correct or not. They must explain why they have made their choice using a sentence.

Is he correct? The correct answer is **Arthur is incorrect because $3,754 + 3,778 = 7,432$. The numbers should be: $3,654 + 2,768 = 6,422$**

Tuesday

Maths – Subtract Two 4-Digit Numbers (page 4)

Question 1 – This question requires children to look at two calculations and decide which is incorrect. A uses the **formal written subtraction** method (also known as column subtraction). The number to be subtracted is written directly under the first number so that the digits line up in columns. If a digit in the second number is larger than the digit above it, you can increase the value by taking from the next column. This is called an **exchange** (also known as 'borrowing'). An exchange happens when a place value column has a digit on the top row that is lower than the digit on the bottom. For example, we cannot subtract 7 ones from 5 ones. This means a tens counter from the column to the left needs to be exchanged for ten ones in order to complete the subtraction. This makes 15 ones – 7 ones which equals 8 ones. B shows the calculation using **place value counters** which replace each digit of the numbers in the calculation. Children will need to work out the calculations in order to identify the mistake.

Choose the incorrect calculation: the correct answer is **B**. The correct answer 819.

Question 2 – Children are required to complete the three subtraction calculations using **column subtraction** to match them to the correct answer.

Complete the calculations and match to the correct answer.

A.

	3	14	1	
	4	0	6	6
-		6	9	5
	3	3	7	1

B.

	6	14	1	
	7	5	0	4
-	2	6	8	1
	4	8	2	3

C.

		2	15	1
	5	3	6	1
-	2	0	7	9
	3	2	8	2

4,823 3,282 3,371

Question 3 – This question requires children to check Trovak's statement by using the information to complete a subtraction calculation. They must identify the whole (the number they are subtracting from) and the part (the number being subtracted) in order to check whether Trovak is correct. They will also need to write a sentence to explain this alongside their calculation.

Is he correct? Trovak is incorrect. The correct calculation is $8,405 - 3,686 = 4,719$. Accept correctly formatted column subtraction.

	7	13	19	1
	8	4	0	5
-	3	6	8	6
	4	7	1	9

Wednesday

Maths – Efficient Subtraction (page 6)

Question 1 – Children can choose to use a **formal written method** (see Tuesday's maths explanation), **counting on**, **partitioning** or another method they are already familiar with to complete the subtraction calculation. **Counting on** is a subtraction strategy using a number line to count from the smallest number to the largest number. A horizontal line is drawn with the smallest number written at the beginning and the largest number at the end of the line. Small jumps are then made towards the larger number to break up the subtraction into more manageable chunks. **Partitioning** is where a number is split into different parts, usually into hundreds, tens and ones. For example, the number 547 can be partitioned into 500, 40 and 7. Each part can then be subtracted separately before putting the number back together to find the answer.

Solve the calculation and explain the method chosen: the correct answer is 1,200. Children should identify the method they have chosen. Methods may include column method, partitioning or counting on (using a number line, if necessary).

Question 2 – As with question one, children can choose three different methods to complete the calculation to help them think about which is most efficient.

Show three different methods to solve the calculation: the correct answer is 3,334. Methods may include column method, partitioning or counting on (using a number line, if necessary).

Question 3 – Children must think about the methods of subtracting that they know and decide which one will be most efficient to complete the word problem. They must read the problem and identify the whole (the number they are subtracting from) and the part (the number being subtracted) to complete the calculation using their chosen method.

Solve the word problem: the correct answer is 2,411; calculation method will vary according to preference.

Question 4 – Children must think about which method is going to work best with each calculation.

Match the calculation to the chosen method. Suggested answers, discuss reasons why:

Counting On	2,347 – 1,847
Column Method	8,394 – 3,023
Partitioning	7,835 – 6,804

Wednesday

Maths – Efficient Subtraction

Question 5 – Children must think about whether the **formal written method** is the most efficient method for the given calculation or whether another method would be more efficient. They must write a sentence to explain their choice and then create a calculation where the **column method** would be most efficient.

Is this method efficient? The correct answer is **No, the method is not efficient. Counting on in hundreds would be more efficient as the numbers are close and the tens and ones have the same value. A calculation where numbers are not easily subtracted mentally is an appropriate answer.**

Question 6 – Children must read Alan's statement and decide if they agree or disagree with him about the need to use the **column method** to check all subtractions. They must then write a sentence to explain their choice.

Do you agree with Alan? An example correct answer is **the column method is for a specific type of subtraction, not just for checking. However, column method can be used for efficient subtraction.**

Question 7 – Children must read both Ivy and Ted's statements and complete the given calculation using both methods. Then they must decide whose method was quickest and write a sentence to explain why. Ivy's method is to add one to each number in the calculation and **partition** into thousands, hundreds, tens and ones to subtract each separately. Ted's method is to **count on** using a number line.

Which was quickest? The correct answer is **Ivy's method should be quicker as $7,284 - 5,180$ requires no exchanges and can easily be done using partitioning. This can be done on a number line, but is less efficient.**

Thursday

Maths – Checking Strategies (page 8)

Question 1 – Children are required to match the calculation in the first column to its **inverse** in the second column. The **inverse** operation to addition is subtraction and is used to check working out or to find a starting number. For example, the inverse of the addition $13 + 7 = 20$ would be $20 - 7 = 13$ or $20 - 13 = 7$.

Match each calculation to its inverse: the correct answer is **A and F, B and D, C and E**

Question 2 – Children must identify which of the given **formal written calculations** (also known as the column method) can be used to check the answer to the addition calculation. In **formal written calculations** the numbers are written directly under each other so that the digits line up in columns. In addition, if the answer in any column is more than 9, there needs to be an **exchange**. For example, if there are 8 ones + 4 ones, the ones column will have a total of 12 ones. You cannot have 12 ones in that column, so 10 ones must be exchanged for 1 ten, leaving 2 ones in the ones column. This is the case for any column: if there is a value of 10 or more in one column, the 10 is exchanged for one hundred or thousand in the column to the left. In subtraction, if a digit in the second number is larger than the digit above it, you can increase the value by **exchanging** from the next column. For example in $447 - 225$, 5 is smaller than 7 so you need to take 10 from the 40, to turn 5 into 15.

Circle the calculation(s) that can be used to check $3,765 + 5,906 = 9,671$: the correct answer is **B and C. A is incorrectly adding the whole to one of the parts.**

Question 3 – Children must read the statements and decide whether they agree with George or Samira. They must then write a sentence to explain who they agree with and why.

Who do you agree with? Explain why. **They are both correct. George will use an addition as the inverse of the subtraction whilst Samira will subtract the other part from the whole.**