

Reasoning and Problem Solving

Step 1: Add More Than 4-digits

National Curriculum Objectives:

Mathematics Year 5: (5C2) [Add and subtract whole numbers with more than 4 digits, including using formal written methods \(columnar addition and subtraction\)](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Add 4-digit numbers to solve word problems. Includes some exchanging.

Expected Add 4 and 5-digit numbers to solve word problems. Includes exchanging.

Greater Depth Add 5 and 6-digit numbers to solve word problems. Includes exchanging.

Questions 2, 5 and 8 (Problem Solving)

Developing Add the missing place value counters to correctly add 4-digit numbers.

Expected Add the missing place value counters to correctly add 4 and 5-digit numbers.

Greater Depth Add the missing place value counters to correctly add 5 and 6-digit numbers.

Questions 3, 6 and 9 (Reasoning)

Developing Identify and explain the mistake made when adding 4-digit numbers. Includes some exchanging.

Expected Identify and explain the mistake made when adding 4 and 5-digit numbers. Includes exchanging.

Greater Depth Identify and explain the mistake made when adding 5 and 6-digit numbers. Includes exchanging.

[More resources](#) which follow the same small steps as White Rose.

Did you like this resource? Don't forget to [review](#) it on our website.

Reasoning and Problem Solving – Add More Than 4-digits

1a. Josie says,



Last month, I earned £2,512 and received a bonus of £1,086.

Marcus says,

Last month, I earned £1,975 and received a bonus of £1,823.



Who made the most money last month?



PS

1b. Paula says,



Last month, I earned £2,911 and received a bonus of £1,298.

Andrew says,

Last month, I earned £3,012 and received a bonus of £1,016.

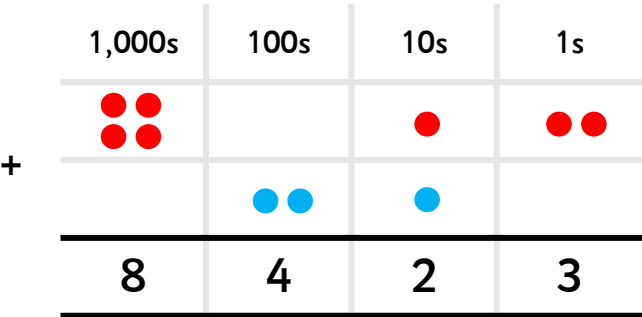


Who made the most money last month?



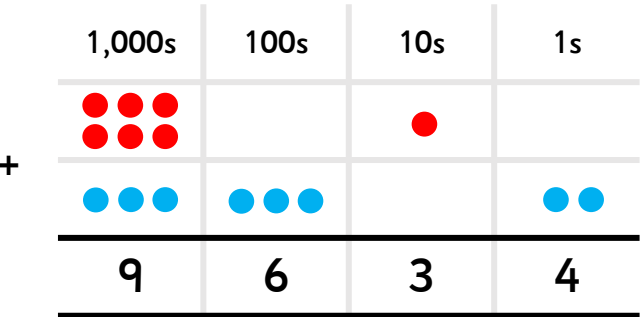
PS

2a. Add the missing place value counters to make this calculation correct.



PS

2b. Add the missing place value counters to make this calculation correct.



PS

3a. Annika completes the sum incorrectly.

$$\begin{array}{r} 5 \quad 5 \quad 8 \quad 8 \\ + 2 \quad 4 \quad 8 \quad 7 \\ \hline 3 \quad 1 \quad 0 \quad 1 \end{array}$$

Explain the mistake she has made.



R

3b. Emilio completes the sum incorrectly.

$$\begin{array}{r} 4 \quad 0 \quad 3 \quad 4 \\ + 3 \quad 2 \quad 1 \quad 6 \\ \hline 7 \quad 2 \quad 4 \quad 0 \end{array}$$

Explain the mistake he has made.



R

Reasoning and Problem Solving – Add More Than 4-digits

4a. Savannah says,



Last year, I earned £28,568 and received a bonus of £7,764.

Oscar says,



Last year, I earned £24,679 and received a bonus of £9,865.

Who made the most money last year?



PS

4b. Dacey says,



Last year, I earned £36,218 and received a bonus of £9,205.

Benji says,



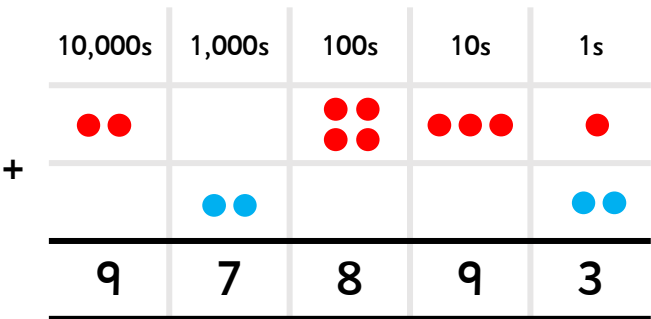
Last year, I earned £39,589 and received a bonus of £7,981.

Who made the most money last year?



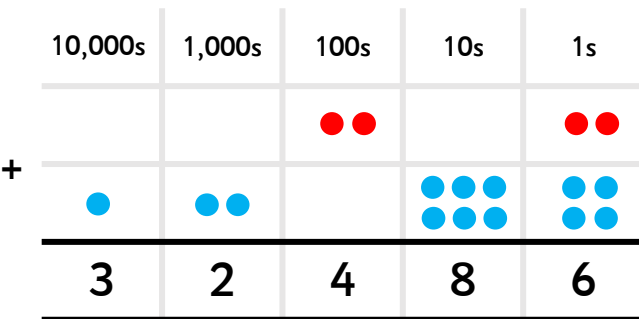
PS

5a. Add the missing place value counters to make this calculation correct.



PS

5b. Add the missing place value counters to make this calculation correct.



PS

6a. Jaiden completes the sum incorrectly.

$$\begin{array}{r} 63218 \\ + 34703 \\ \hline 97915 \end{array}$$

Explain the mistake he has made.



R

6b. Nadine completes the sum incorrectly.

$$\begin{array}{r} 74109 \\ + 13897 \\ \hline 87996 \end{array}$$

Explain the mistake she has made.



R

Reasoning and Problem Solving – Add More Than 4-digits

7a. Lisa says,



Last year, I earned £142,029 and received a bonus of £15,783.

Seth says,



Last year, I earned £134,685 and received a bonus of £21,074.

Who made the most money last year?



PS

7b. Katrina says,



Last year, I earned £136,218 and received a bonus of £19,824.

Majid says,



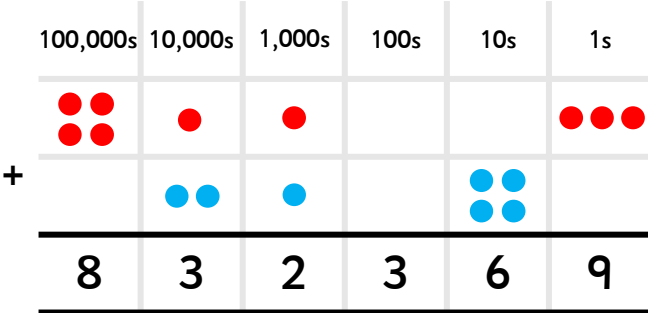
Last year, I earned £139,647 and received a bonus of £17,638.

Who made the most money last year?



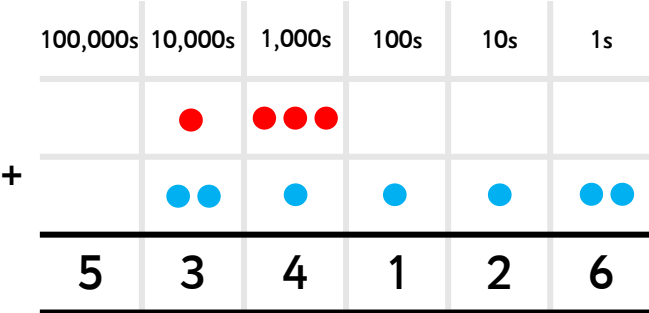
PS

8a. Add the missing place value counters to make this calculation correct.



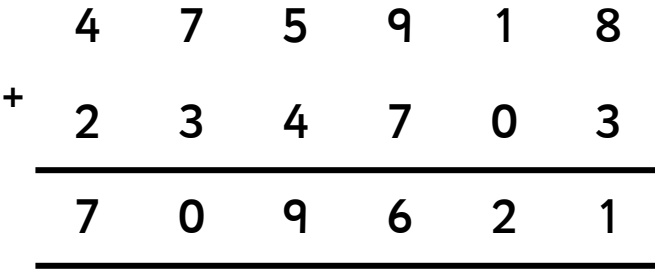
PS

8b. Add the missing place value counters to make this calculation correct.



PS

9a. Erik completes the sum incorrectly.

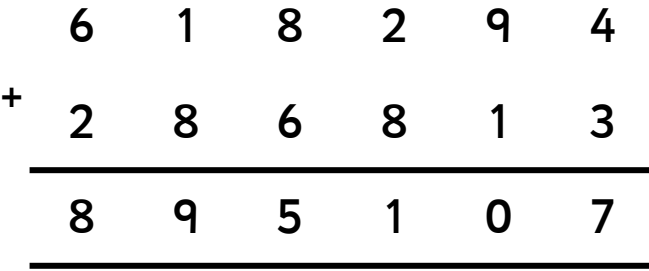


Explain the mistake he has made.



R

9b. Carmen completes the sum incorrectly.



Explain the mistake she has made.



R

Reasoning and Problem Solving – Add More Than 4-digits

Developing

- 1a. Josie made £3,598 and Marcus made £3,798 so Marcus made the most money last month.
- 1b. Paula made £4,209 and Andrew made £4,028 so Paula made the most money last month.
- 2a. $4,212 + 4,211 = 8423$
- 2b. $6,312 + 3,322 = 9,634$
- 3a. Annika has subtracted 2,487 from 5,588 instead of adding the numbers. The correct answer is 8,075.
- 3b. Emilio did not add one ten to the tens column after he added 4 and 6 in the ones column. The correct answer is 7,250.

Expected

- 4a. Savannah made £36,332 and Oscar made £34,544 so Savannah made the most money last year.
- 4b. Dacey made £45,423 and Benji made £47,570 so Benji made the most money last year.
- 5a. $25,431 + 72,462 = 97,893$
- 5b. $20,222 + 12,264 = 32,486$
- 6a. Jaiden subtracted 3 from 8 in the ones column, instead of adding the numbers together. The correct answer is 97,921.
- 6b. Nadine did not add one ten to the tens column after she added 9 and 7 in the ones column. The correct answer is 88,006.

Greater Depth

- 7a. Lisa made £157,812 and Seth made £155,759 so Lisa made the most money last year.
- 7b. Katrina made £156,042 and Majid made £157,285 so Majid made the most money last year.
- 8a. Various possible answers; examples include:
 $411,023 + 421,346 = 832,169$; $411,123 + 421,246 = 832,169$;
 $411,223 + 421,146 = 832,169$; $411,323 + 421,046 = 832,169$
- 8b. Various possible answers; examples include:
 $513,014 + 021,112 = 534,126$; $413,014 + 121,112 = 534,126$;
 $313,014 + 221,112 = 534,126$; $213,014 + 321,112 = 534,126$;
 $113,014 + 421,112 = 534,126$; $013,014 + 521,112 = 534,126$
- 9a. Erik did not add one to the thousands column after he added the digits in the hundreds column. The correct answer is 710,621
- 9b. Carmen did not add one to the ten thousands column after she added the digits in the thousands column. The correct answer is 905,107