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 (Reasoning)
Developing Explain which statement is correct by adding 4 and 5-digit numbers together. Includes some exchanging with no use of zero as a place holder.
Expected Explain which statement is correct by adding 4 and 5-digit numbers together. Includes some exchanging with some use of zero as a place holder.
Greater Depth Explain which statement is correct by adding two 4 and 5-digit numbers together. Includes multiple exchanges with the use of zero as a place holder.

Questions 2, 5 and 8 (Problem Solving)
Developing Calculate missing place value counters in a given calculation. Additions of 4 and 5-digit numbers. Includes some exchanging with no use of zero as a place holder. Visual representation used.
Expected Calculate missing place value counters in a given calculation. Additions of up to three 5-digit numbers. Includes exchanging with some use of zero as a place holder. Presented in column format.
Greater Depth Calculate missing place value counters in a given calculation. Additions of up to three 4 and 5-digit numbers. Includes multiple exchanges with the use of zero as a place holder. Column format used and some examples of unconventional partitioning.

Questions 3, 6 and 9 (Reasoning)
Developing Identify and explain a mistake when adding 4 and 5-digit numbers. Includes some exchanging with no use of zero as a place holder.
Expected Identify and explain a mistake when adding 4 and 5-digit numbers. Includes exchanging with some use of zero as a place holder. Presented in column format.
Greater Depth Identify and explain a mistake when adding up to three 4 and 5-digit numbers. Includes multiple exchanges with the use of zero as a place holder. Linear format used.

More Year 5 Addition and Subtraction resources.

Did you like this resource? Don't forget to review it on our website.

Add More Than 4-Digits

1a. Gary and Jay are comparing their income.

	Earnings	Bonus
Gary	£17,429	£3,846
Jay	£18,283	£1,387

Gary: I earnt more because altogether I earnt above £20,000.

Jay: I must have had a larger income because my earnings were higher than yours.

Who is correct? Explain why.

D R

1b. Jody and Lynette are comparing their income.

	Earnings	Bonus
Jody	£16,381	£1,453
Lynette	£15,392	£2,445

Jody: I only earnt £3 less pounds than you altogether.

Lynette: You must have earnt more money than me because your earnings were almost £1,000 more.

Who is correct? Explain why.

D R

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

	1,000s	100s	10s	1s
	●●● ●●	●● ●●	●	●●● ●●
+		●●● ●●●	●●● ●●●	
1	2	1	9	8

D PS

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

	10,000s	1,000s	100s	10s	1s
	●●	●●●	●●●		●●● ●●● ●●
+			●	●●	●●
	3	9	6	4	1

D PS

3a. Steph completes this sum incorrectly.

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

Explain the mistake she has made.

D R

3b. Phil completes this sum incorrectly.

	2	2	2	9	6
+	2	7	3	8	7
	4	9	7	8	3
			2	1	

Explain the mistake he has made.

D R

Add More Than 4-Digits

4a. Alan and Oscar are comparing their income.

	Earnings	Bonus
Alan	£28,568	£7,099
Oscar	£24,079	£9,865

Alan: I earnt more because £28,568 + £7,099 = £35,667.

Oscar: I earnt more money because my bonus was almost £3,000 more than yours.

Who is correct? Explain why.

E R

4b. Susie and Emma are comparing their income.

	Earnings	Bonus
Susie	£32,056	£5,099
Emma	£30,837	£10,865

Susie: You earnt less money altogether than me because my earnings were higher.

Emma: I earnt more money because my bonus was more than double the amount of yours.

Who is correct? Explain why.

E R

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

	10,000s	1,000s	100s	10s	1s
	●●		●●	●●●	●
	●●●	●●			●●
+	●		●●●		●●●
	7	2	1	8	6

E PS

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

	10,000s	1,000s	100s	10s	1s
	●●	●●●		●●●	●●
+	●●●	●●●		●	
	1	0	0	4	4	2

E PS

6a. Jaiden completes this sum incorrectly.

	6	3	2	1	8
		4	2	8	9
+	3	4	7	0	3
1	0	2	1	1	0
	1	1	1	2	

Explain the mistake he has made.

E R

6b. Tilly completes this sum incorrectly.

	2	0	3	8	3
+	9	5	3	4	7
1	1	5	8	3	0
			2	1	

Explain the mistake she has made.

E R

Add More Than 4-Digits

7a. Sandy and Gabby are comparing their income.

	Earnings	Bonus
Sandy	£75,308	£3,297
Gabby	£68,488	£9,869

Sandy: In total, I earnt £1,298 more than you.

Gabby: Although my bonus was high, you still earnt £248 more than me altogether.

Who is correct? Explain why.

GD R

7b. Mike and Danny are comparing their income.

	Earnings	Bonus
Mike	£68,394	£3,707
Danny	£52,980	£12,383

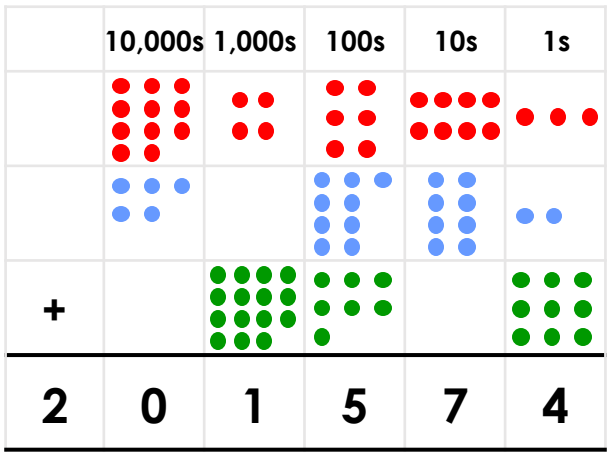
Mike: Even though your bonus was almost four times as much as mine, I earnt £6,738 more than you.

Danny: My total income equals £72,101.

Who is correct? Explain why.

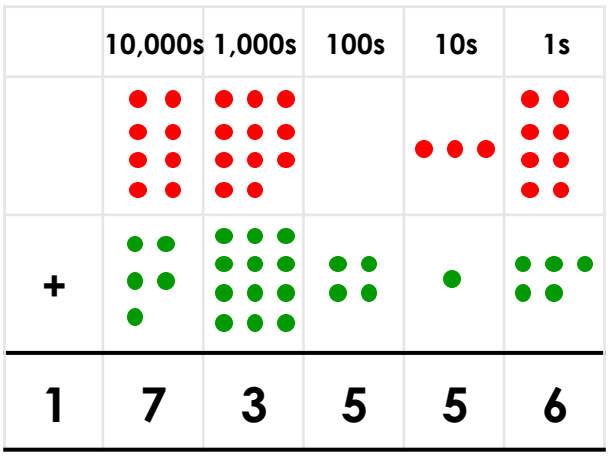
GD R

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



GD PS

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



GD PS

9a. Steve completes this sum incorrectly.

$$63,218 + 4,289 + 34,703 = 102,110$$

Explain the mistake he has made

GD R

9b. Giselle completes this sum incorrectly.

$$20,383 + 95,347 = 115,830$$

Explain the mistake she has made

GD R

Reasoning and Problem Solving
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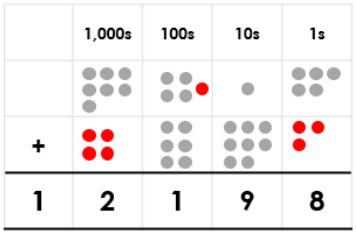
Developing

1a. Gary is correct because his total income was £21,275 which is greater than £20,000. Jay's income was £19,670.

2a. Various answers, for example:

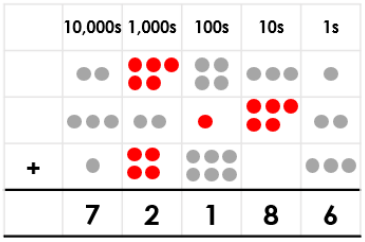


3a. Steph's answer should be 32,215. She has forgotten to exchange the ten hundreds into the thousands column.

Expected

4a. Alan is correct because £28,568 + £7,099 = £35,667 which is greater than Oscar's total of £33,944.

5a. Various answers, for example:

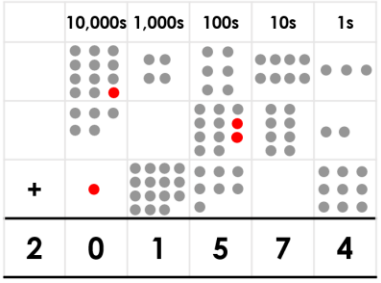


6a. Jaiden's answer should be 102,210. He has forgotten to add the one hundred that he has exchanged from the tens column.

Greater Depth

7a. Gabby is correct because her total was £78,357. Sandy's income was £78,605 which is £248 higher than Gabby's.

8a. Various answers, for example:



9a. Steve's answer should be 102,210. He has added the digits in the hundreds column up incorrectly.

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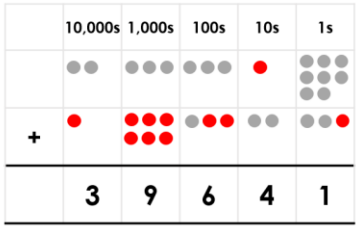
Developing

1b. Jody is correct because her total income was £17,834 which is £3 less than Lynette's income of £17,837.

2b. Various answers, for example:

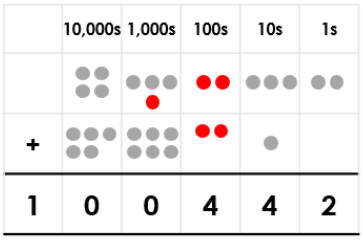


3b. Phil's answer should be 49,683. In the hundreds column, he has exchanged twenty tens (200) instead of ten tens (100).

Expected

4b. Emma is correct because £30,837 + £10,865 = £41,702 which is greater than Susie's total of £37,155.

5b. Various answers, for example:

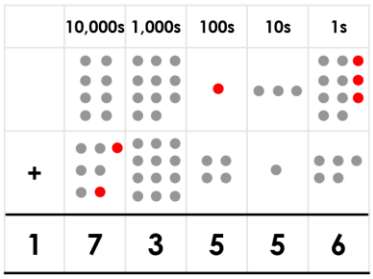


6b. Tilly's answer should be 115,730. In the hundreds column, she has exchanged twenty tens (200) instead of ten tens (100).

Greater Depth

7b. Mike is correct because £65,363 + £6738 = £72,101 which is Mike's total income. Danny's income was £65,363.

8b. Various answers, for example:



9b. Giselle's answer should be 115,730. In the hundreds column, she has exchanged twenty tens (200) instead of ten tens (100).