Reasoning and Problem Solving
Step 3: Add 3-digit and 1-digit Numbers

National Curriculum Objectives:

Mathematics Year 3: (3C1) Add and subtract numbers mentally, including three-digit number and ones

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Fill in one missing column on a place value chart by adding a 3-digit number and a 1-digit number.
Expected Fill in two missing column on a place value chart by adding a 3-digit number and a 1-digit number.
Greater Depth Fill in a place value chart by adding a 3-digit number and a 1-digit number.

Questions 2, 5 and 8 (Problem Solving)
Developing Find all possible ways to complete a calculation involving adding a 1-digit to a 3-digit number by manipulating the digits in the ones column.
Expected Find all possible ways to complete a calculation involving adding a 1-digit to a 3-digit number by manipulating the digits in the ones and tens columns.
Greater Depth Find all possible ways to complete a calculation involving adding a 1-digit to a 3-digit number when given only the answer.

Questions 3, 6 and 9 (Reasoning)
Developing Use knowledge of place value charts to explain an error in a calculation involving adding a 1-digit to a 3-digit number.
Expected Use knowledge of bar models to explain an error in a calculation involving adding a 1-digit to a 3-digit number.
Greater Depth Use knowledge of column addition to explain an error in a calculation involving adding a 1-digit to a 3-digit number.

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.

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Reasoning and Problem Solving – Add 3-digit and 1-digit Numbers

1a. Complete the place value chart to show 145 + 6.

H	T	O
●	● ● ● ● ●	

D PS

1b. Complete the place value chart to show 327 + 5.

H	T	O
● ● ●	● ● ●	

D PS

2a. Find all the ways to complete the following calculation.

		5	
+			4
	4	6	

D PS

2b. Find all the ways to complete the following calculation.

		6	
+			3
	2	7	

D PS

3a. Darcy has shown 216 + 5 in a place value chart but she has made a mistake.

H	T	O
● ●	● ● ● ● ● ●	● ● ● ● ● ●

Explain and correct her error.

D R

3b. Sachin has shown 125 + 6 in a place value chart but he has made a mistake.

H	T	O
●	● ● ●	● ●

Explain and correct his error.

D R

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Reasoning and Problem Solving – Add 3-digit and 1-digit Numbers

4a. Complete the place value chart to show 356 + 8.

H	T	O
●● ●		

E PS

4b. Complete the place value chart to show 467 + 4.

H	T	O
●● ●●		

E PS

5a. Find all the ways to complete the following calculation.

	4		5
+			
	4	6	

E PS

5b. Find all the ways to complete the following calculation.

	6		4
+			
	6	7	

E PS

6a. Callie has shown 358 + 6 in a bar model but she has made a mistake.

352	
358	6

Explain and correct her error.

E R

6b. Corben has shown 437 + 4 in a bar model but he has made a mistake.

431	
437	4

Explain and correct his error.

E R

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Reasoning and Problem Solving – Add 3-digit and 1-digit Numbers

7a. Complete the place value chart to show 864 + 9.

H	T	O

GD PS

7b. Complete the place value chart to show 585 + 6.

H	T	O

GD PS

8a. Find all the ways to complete the following calculation.

	☐	☐	☐
+			☐
	3	2	1

GD PS

8b. Find all the ways to complete the following calculation.

	☐	☐	☐
+			☐
	8	7	6

GD PS

9a. Kiera has calculated 737 + 5 using column addition but she has made a mistake.

	7	3	7
+			5
	7	3	2

Explain and correct her error.

GD R

9b. Micky has calculated 858 + 3 using column addition but he has made a mistake.

	8	5	8
+			3
	8	9	1

Explain and correct his error.

GD R

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Reasoning and Problem Solving – Add 3-digit and 1-digit Numbers

Developing

1a. 1 counter in the ones column.
1b. 2 counters in the ones column.
2a. 456 + 4 = 460, 457 + 4 = 461, 458 + 4 = 462, 459 + 4 = 463
2b. 267 + 3 = 270, 268 + 3 = 271, 269 + 3 = 272
3a. Darcy has added the 5 ones to her tens column by mistake. The correct answer is 221.
3b. Sachin has added 7 ones instead of 6 ones. The correct answer is 131.

Expected

4a. 6 counters in the tens column, 4 counters in the ones column.
4b. 7 counters in the tens column, 1 counter in the ones column.
5a. 455 + 5 = 460, 455 + 6 = 461, 455 + 7 = 462, 455 + 8 = 463, 455 + 9 = 464, 465 + 0 = 465, 465 + 1 = 466, 465 + 2 = 467, 465 + 3 = 468, 465 + 4 = 469
5b. 664 + 6 = 670, 664 + 7 = 671, 664 + 8 = 672, 664 + 9 = 673, 674 + 0 = 674, 674 + 1 = 675, 674 + 2 = 676, 674 + 3 = 677, 674 + 4 = 678, 674 + 5 = 679
6a. Callie has used subtraction rather than addition. The correct answer is 364.
6b. Corben has added the ones correctly but has forgotten to change his tens column. The correct answer is 441.

Greater Depth

7a. 8 counters in the hundreds column, 7 counters in the tens column, 3 counters in the ones column.
7b. 5 counters in the hundreds column, 9 counters in the tens column, 1 counter in the ones column.
8a. 321 + 0 = 321, 320 + 1 = 321, 319 + 2 = 321, 318 + 3 = 321, 317 + 4 = 321, 316 + 5 = 321, 315 + 6 = 321, 314 + 7 = 321, 313 + 8 = 321, 312 + 9 = 321.
8b. 876 + 0 = 876, 875 + 1 = 876, 874 + 2 = 876, 873 + 3 = 876, 872 + 4 = 876, 871 + 5 = 876, 870 + 6 = 876, 869 + 7 = 876, 868 + 8 = 876, 867 + 9 = 876.
9a. Kiera has forgotten to add one to her tens column. The correct answer is 742.
9b. Micky has added his 3 ones to both his tens and ones columns. The correct answer is 861.

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