

Reasoning and Problem Solving

Step 1: 1s, 10s, 100s, 1,000s

National Curriculum Objectives:

Mathematics Year 4: (4C2) [Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Match the word problems to their answer and determine which is incorrect. No exchanging included.

Expected Match the word problems to their answer and determine which is incorrect. Exchanging required for one column.

Greater Depth Match the word problems to their answer and determine which is incorrect. Exchanging required for multiple columns.

Questions 2, 5 and 8 (Problem Solving)

Developing Find the missing numbers in a sequence of 3-digit numbers.

Expected Find the missing numbers in a sequence of 4-digit numbers (including some exchange in one column).

Greater Depth Find the missing numbers in a sequence of 4-digit numbers, identifying when exchanging is needed (including exchanging in two columns).

Questions 3, 6 and 9 (Reasoning)

Developing Find the mistake in the calculation and explain the error when calculating 3 digit-numbers.

Expected Find the mistake in the calculation and explain the error when calculating 4 digit-numbers (including some exchange in one column).

Greater Depth Find the mistake in the calculation and explain the error when calculating 4 digit-numbers, identifying when exchanging is needed (including exchanging in two columns).

[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 – 1s, 10s, 100s, 1,000s

1a. Match the question to the correct answer.

a

Add 200 to 610, then add 30.

195

b

Subtract 300 from 465, then add 30.

1,055

c

Add 1,000 to 555, then subtract 50.

840

Which is incorrect? Write the correct answer.



4 PS

1b. Match the question to the correct answer.

a

Add 1,000 to 950, then subtract 200.

1,105

b

Subtract 500 from 950, then add 1,000.

1,930

c

Add 1,000 to 195, then subtract 90.

1,450

Which is incorrect? Write the correct answer.



4 PS

2a. The sequence starts with 50 and ends with 550. Which numbers are covered by the splat?



50

450



250

What is the sequence increasing by each time? Write the sequence in ascending order.



4 PS

2b. The sequence starts with 105 and ends with 630. Which numbers are covered by the splat?



210

105

630



What is the sequence increasing by each time? Write the sequence in ascending order.



4 PS

3a. Gabriel says:

When I add 250 to 650, I get 1,000.



Gabriel

Correct Gabriel's answer and explain his mistake.



4 R

3b. Lucy says:

When I add 505 to 205, I get 700.



Lucy

Correct Lucy's answer and explain her mistake.



4 R

Reasoning and Problem Solving – 1s, 10s, 100s, 1,000s

4a. Match the question to the correct answer.

a

Add 2,000 to 705, then add 300.

4,005

b

Subtract 700 from 4,665, then add 30.

3,005

c

Add 3,000 to 1,205, then subtract 300.

3,995

Which is incorrect? Write the correct answer.



4 PS

4b. Match the question to the correct answer.

a

Add 1,000 to 4,970, then add 200.

3,075

b

Subtract 500 from 3,465, then add 10.

3,995

c

Add 3,000 to 1,195, then subtract 200.

6,170

Which is incorrect? Write the correct answer.



4 PS

5a. The sequence starts with 1,590 and ends with 2,140. Which numbers are covered by the splat?

1,590



2,140



1,700



What is the sequence increasing by each time? Write the sequence in ascending order.



4 PS

5b. The sequence starts with 2,050 and ends with 7,300. Which numbers are covered by the splat?



3,100



2,050



7,300

What is the sequence increasing by each time? Write the sequence in ascending order.



4 PS

6a. Cian says:

When I subtract 1,250 from 3,150, I get 2,900.



Cian

Correct Cian's answer and explain his mistake.



4 R

6b. Kelly says:

When I add 1,501 to 2,599, I get 4,000.



Kelly

Correct Kelly's answer and explain her mistake.



4 R

Reasoning and Problem Solving – 1s, 10s, 100s, 1,000s

7a. Match the question to the correct answer.

a

Add 2,000 to 3,035, then subtract 140.

4,570

b

Subtract 990 from 5,080, then add 300.

4,390

c

Add 3,000 to 1,910, then subtract 330.

4,895

Which is incorrect? Write the correct answer.



4 PS

7b. Match the question to the correct answer.

a

Add 3,030 to 1,970, then subtract 200.

4,145

b

Subtract 850 from 3,800, then add 1,020.

4,800

c

Add 1,200 to 2,995, then subtract 50.

3,930

Which is incorrect? Write the correct answer.



4 PS

8a. The sequence starts with 1,025 and ends with 7,650. Which numbers are covered by the splat?



2,350

1,025

7,650



What is the sequence increasing by each time? Write the sequence in ascending order.



4 PS

8b. The sequence starts with 9,250 and ends with 3,000. Which numbers are covered by the splat?

3,000



8,000



9,250

What is the sequence decreasing by each time? Write the sequence in descending order.



4 PS

9a. Hannah says:

When I subtract 1,099 from 4,209, I get 3,200.



Hannah

Correct Hannah's answer and explain her mistake.



4 R

9b. Hafsa says:

When I subtract 2,575 from 4,025, I get 2,550.



Hafsa

Correct Hafsa's answer and explain her mistake.



4 R

Reasoning and Problem Solving – 1s, 10s, 100s, 1,000s

Developing

- 1a. $a = 840$, $b = 195$. C is incorrect, the answer is 1,505.
- 1b. $b = 1,450$, $c = 1,105$. A is incorrect, the answer is 1,750.
- 2a. Missing: 150, 350, 550. Sequence: + 100. Order: 50, 150, 250, 350, 450, 550.
- 2b. Missing: 315, 420, 525. Sequence: + 105. Order: 105, 210, 315, 420, 525, 630.
- 3a. The answer is 900. He has added an extra hundred.
- 3b. The answer is 710. She has not added the ones.

Expected

- 4a. $a = 3,005$, $b = 3,995$. C is incorrect, the answer is 3,905.
- 4b. $a = 6,170$, $c = 3,995$. B is incorrect, the answer is 2,975.
- 5a. Missing: 1,810, 1,920, 2,030. Sequence: + 110. Order: 1,590; 1,700; 1,810; 1,920; 2,030; 2,140.
- 5b. Missing: 4,150, 5,200, 6,250. Sequence: + 1,050. Order: 2,050; 3,100; 4,150; 5,200; 6,250; 7,300
- 6a. The answer is 1,900. When he subtracted the hundreds, he didn't exchange the thousands.
- 6b. The answer is 4,100. Kelly has not added the tens and ones.

Greater Depth

- 7a. $a = 4,895$, $b = 4,390$. C is incorrect, the answer is 4,580.
- 7b. $a = 4,800$; $c = 4,145$. B is incorrect, the answer is 3,970.
- 8a. Missing: 3,675, 5,000, 6,325. Sequence: + 1,325. Order: 1,025; 2,350; 3,675; 5,000; 6,325; 7,650.
- 8b. Missing: 6,750, 5,500, 4,250. Sequence: – 1,250. Order: 9,250; 8,000; 6,750; 5,500; 4,250; 3,000.
- 9a. The answer is 3,110. She did not take the nine tens away.
- 9b. The answer is 1,450. She did not exchange in the hundreds or the tens, instead she swapped the subtraction around to $70 - 20$ and $500 - 0$.