Reasoning and Problem Solving
Step 1: Add and Subtract Multiples of 100

National Curriculum Objectives:

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

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Find all of the possible addition or subtraction equations using 4 cards. Cards show multiples of 100 represented as numerals or Base 10.
Expected Find all of the possible addition or subtraction equations using 6 cards. Cards show multiples of 100 represented as numerals or place value counters.
Greater Depth Find all of the possible addition and subtraction equations using 6 cards. Cards show multiples of 100 represented as numerals or words.

Questions 2, 5 and 8 (Problem Solving)
Developing Find all of the possible values for A and B within a function machine. Two steps of addition or subtraction of multiples of 100. One operation used.
Expected Find all of the possible values for A and B within a function machine. Two steps of addition or subtraction of multiples of 100. Different operations used.
Greater Depth Find all of the possible values for A and B within a function machine. Three steps of addition or subtraction of multiples of 100. Different operations used.

Questions 3, 6 and 9 (Reasoning)
Developing Rewrite a word problem to make it addition or subtraction. Equation given to support.
Expected Rewrite a word problem to make it addition or subtraction.
Greater Depth Rewrite a two-step word problem to make it addition or subtraction.

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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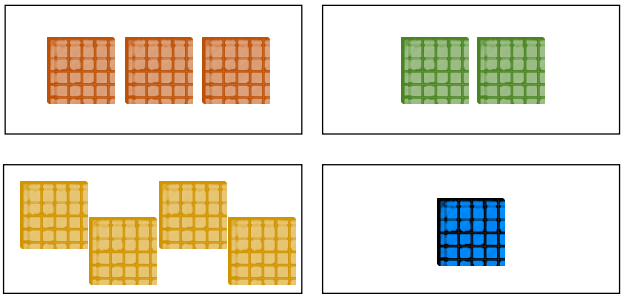
Reasoning and Problem Solving – Add and Subtract Multiples of 100

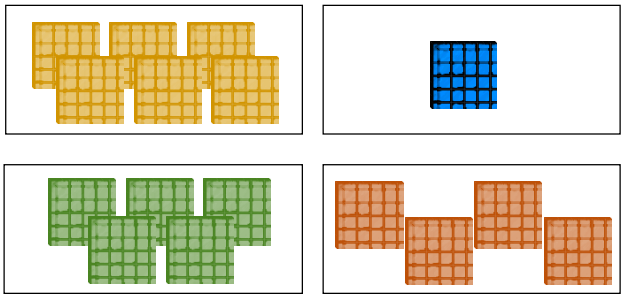
1a. Use these cards to find all of the possible addition equations that will equal 1,000 or less.



D

PS

1b. Use these cards to find all of the possible subtraction equations that will equal 100 or more.



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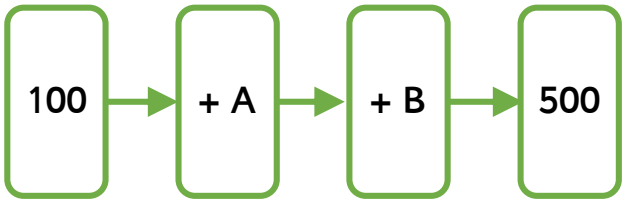
PS

2a. Find all of the possible values for A and B, where A and B are multiples of 100.



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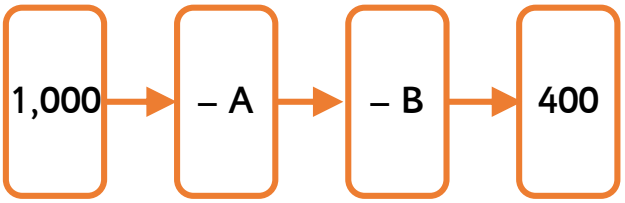
2b. Find all of the possible values for A and B, where A and B are multiples of 100.



D

PS

3a. Rewrite this word problem to make it an addition problem.

There were about 1,000 seeds scattered in field. About 400 grew into flowers. How many didn't grow?

Use this missing number problem to help you.

400 + ☐ = 1,000

Explain your reasoning.

D

R

3b. Rewrite this word problem to make it a subtraction problem.

Carla saved 500 coins in her piggy bank. Julia saved 300 coins in hers. How many coins had they saved altogether?

Use this missing number problem to help you.

☐ – 500 = 300

Explain your reasoning.

D

R

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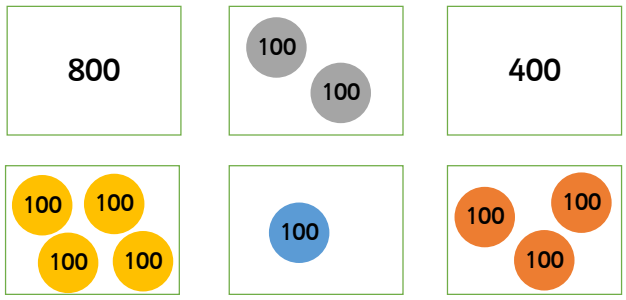
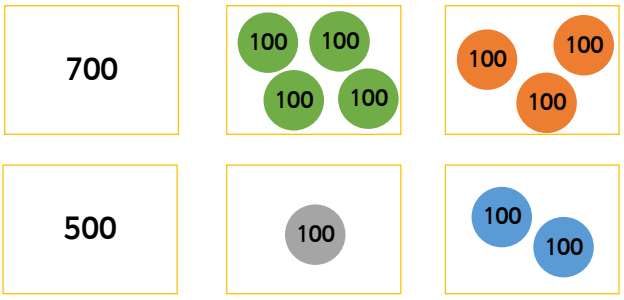
Reasoning and Problem Solving – Add and Subtract Multiples of 100

4a. Use these cards to find all of the possible addition equations that will equal 1,000 or less.



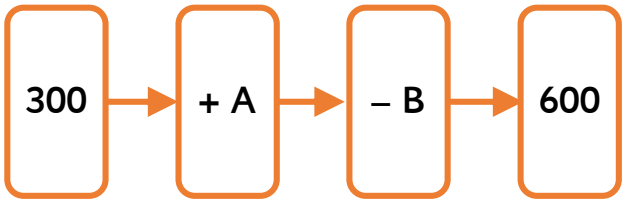
E PS

4b. Use these cards to find all of the possible subtraction equations that will equal 100 or more.



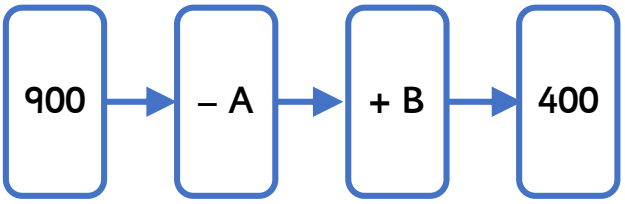
E PS

5a. Find all of the possible values for A and B, where A and B are multiples of 100.



E PS

5b. Find all of the possible values for A and B, where A and B are multiples of 100.



E PS

6a. Rewrite this word problem to make it a subtraction problem.

I put 100g of butter into my mixing bowl then added another 200g. How much butter do I have in my bowl altogether?

What is the answer to your problem? Explain your reasoning.

E R

6b. Rewrite this word problem to make it an addition problem.

A shop had 700 boxes in their stockroom. During her shift, Katie moved 200 boxes into the warehouse. How many were left in the stockroom?

What is the answer to your problem? Explain your reasoning.

E R

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Reasoning and Problem Solving – Add and Subtract Multiples of 100

7a. Use these cards to find all of the possible subtraction equations that will equal 100 or more.

900	500	seven hundred
100	two hundred	200

GD PS

7b. Use these cards to find all of the possible addition equations that will equal 1,000 or less.

two hundred	600	one thousand
200	one hundred	400

GD PS

8a. Find all of the possible values for A and B, where A and B are multiples of 100 less than 1,000.

100 → + A → – B → + C → 300

GD PS

8b. Find all of the possible values for A and B, where A and B are multiples of 100 less than 1,000.

300 → + A → – B → – C → 600

GD PS

9a. Rewrite this word problem to make it an addition problem.

In a school of 1,000 pupils, 300 were in Key Stage 1 and 500 were in Key Stage 2. How many were in Early Years?

What is the answer to your problem? Explain your reasoning.

GD R

9b. Rewrite this word problem to make it a subtraction problem.

A zoo had 600 mammals, 100 reptiles and 200 other animals. How many animals did they have altogether?

What is the answer to your problem? Explain your reasoning.

GD R

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Reasoning and Problem Solving – Add and Subtract Multiples of 100

Developing

1a. Various possible answers; for example: 100 + 200 = 300; 200 + 100 = 300; 300 = 100 + 200; 100 + 300 = 400

1b. Various possible answers; for example: 500 – 100 = 400; 500 – 400 = 100; 100 = 500 – 400; 600 – 100 = 500

2a. A = 100, B = 300; A = 200, B = 200; A = 300, B = 100

2b. A = 100, B = 500; A = 200, B = 400; A = 300, B = 300; A = 400, B = 200; A = 500, B = 100

3a. Possible answer: 400 seeds grew into flowers and 600 didn't. How many seeds were scattered altogether? The missing number is 600 because 1,000 – 400 = 600 so 400 + 600 = 1,000.

3b. Possible answer: Julia and Carla saved 800 coins. Carla saved 500 coins. How many coins did Julia save? The missing number is 800 because 500 + 300 = 800 so 800 – 500 = 300.

Expected

4a. Various possible answers; for example: 400 + 400 = 800, 800 = 400 + 400, 100 + 200 = 300, 200 + 100 = 300, 300 = 100 + 200, 100 + 300 = 400, 800 = 100 + 300 + 400

4b. Various possible answers; for example: 700 – 400 = 300, 700 – 500 = 200, 400 = 700 – 300, 100 = 700 – 400 – 200, 500 – 300 = 200

5a. A = 400, B = 100; A = 500, B = 200; A = 600, B = 300; A = 700, B = 400; A = 800, B = 500; A = 900, B = 600

5b. A = 900, B = 400; A = 800, B = 300; A = 700, B = 200; A = 600; B = 100

6a. Possible answer: I had 300g of butter in my mixing bowl and took out 200g. How much butter was left in the bowl? The answer is 100g because 300 – 200 = 100.

6b. Possible answer: There were 500 boxes in the stockroom and 200 in the warehouse. How many boxes were there altogether. The answer is 700 because 500 + 200 = 700.

Greater Depth

7a. Various answers; for example: 900 – 700 = 200; 500 – 200 – 100 = 200; 200 = 900 – 200 – 500; 700 – 200 = 500

7b. Various answers; for example: 600 + 400 = 1,000; 400 = 200 + 200; 200 + 200 + 200 = 600; 1,000 = 200 + 200 + 600

8a. Various answers; for example: A = 900, B = 1,000, C = 300; A = 900, B = 900, C = 200; A = 900, B = 800, C = 100; A = 800, B = 900, C = 300; A = 800, B = 800, C = 200; A = 800, B = 700, C = 100; A = 700, B = 800, C = 300; A = 700, B = 700, C = 200

8b. Various answers; for example: A = 700, B = 100, C = 300; A = 700, B = 200, C = 200; A = 700, B = 300, C = 100; A = 600, B = 100, C = 200; A = 600, B = 200, C = 100

9a. Possible answer: A school has 200 children in Early Years, 300 children in Key Stage 1 and 500 children in Key Stage 2. How many children were in the school in total? The answer is 1,000 because 200 + 300 + 500 = 1,000.

9b. Possible answer: A zoo had 900 animals altogether. 600 of these were mammals and 100 were reptiles. How many other animals did they have? The answer is 200 because 900 – 600 – 100 = 200.

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