Reasoning and Problem Solving
Step 8: Add and Subtract Capacities

National Curriculum Objectives:

Mathematics Year 3: (3M9d) Add and subtract volume/capacity (l/ml)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Word problem including three capacities where addition/subtraction is required to work out the missing capacities. Measurements given in millilitres in multiples of 100. Calculations do not involve conversions of millilitres and litres.
Expected Word problem including three capacities where addition/subtraction is required to work out the missing capacities. Measurements given in millilitres and litres in multiples of 100. Calculations do not involve conversions of millilitres and litres.
Greater Depth Word problem including three capacities where addition/subtraction is required to work out the missing capacities. Measurements given in millilitres and litres in multiples of 100. Calculations involve conversions of millilitres and litres.

Questions 2, 5 and 8 (Problem Solving)
Developing Calculate the missing digits to make the number problem correct. Two digit cards supplied – both to be used. Tens and ones only.
Expected Calculate the missing digits to make the number problem correct. Two digit cards supplied – both to be used. Hundreds, tens and ones included.
Greater Depth Calculate the missing digits to make the number problem correct. Three digit cards supplied – two to be used, one spare. Hundreds, tens and ones included.

Questions 3, 6 and 9 (Reasoning)
Developing Word problem including two capacities where addition/subtraction is required to determine whether a statement is true or false and why. Measurements given in millilitres in multiples of 100. Calculations do not involve conversions of millilitres and litres.
Expected Word problem including two capacities where addition/subtraction is required to determine whether a statement is true or false and why. Measurements given in millilitres and litres in multiples of 100. Calculations do not involve conversions of millilitres and litres.
Greater Depth Word problem including two capacities where addition/subtraction is required to determine whether a statement is true or false and why. Measurements given in millilitres and litres in multiples of 100. Calculations involve conversions of millilitres and litres.

More resources which follow the same small steps as White Rose.

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Reasoning and Problem Solving – Add and Subtract Capacities

1a. Pete the painter is sorting through his paint pots.

Pot A holds 400ml more than Pot C. Pot C's capacity is 200ml less than Pot B's capacity.

Pot B's capacity = 300ml

What are the capacities of Pot A and C?

D PS

1b. Holly the hairdresser is sorting through her shampoo bottles.

Bottle B holds 100ml more than Bottle A. Bottle C's capacity is 600ml less than Bottle B's capacity.

Bottle A's capacity = 700ml

What are the capacities of Bottle B and C?

D PS

2a. Insert the correct digit to make the calculation is correct.

6	9	
		ml
- 5	2	ml
4	4	ml

D PS

2b. Insert the correct digit to make the calculation is correct.

3	7	
	3	ml
- 1	4	ml
2		ml

D PS

3a. True or false?

Milkshake Recipe

500ml milk
400ml strawberry juice

800ml

Jon says, 'The jug has a capacity large enough to make 1 lot of milkshake.'

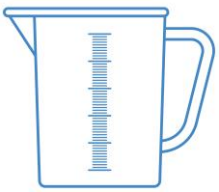
Prove it.
What is the difference between the capacity and amount of liquid?

D R

3b. True or false?

Juice Recipe

400ml water
300ml fresh orange



900ml

Millie says, 'The jug has a capacity large enough to make 1 lot of juice.'

Prove it.
What is the difference between the capacity and amount of liquid?

D R

Reasoning and Problem Solving – Add and Subtract Capacities

4a. Wendy the witch is sorting through her cauldrons.

Cauldron A holds 2l 100ml more than Cauldron C. Cauldron C's capacity is double Cauldron B's capacity.

Cauldron B's capacity = 200ml

What are the capacities of Cauldron A and C?

E PS

4b. William the wizard is sorting through his potions.

Potion B holds 2l 300ml more than Potion A. Potion C's capacity is half Potion B's capacity.

Potion A's capacity = 2l 500ml

What are the capacities of Cauldron B and C?

E PS

5a. Insert the correct digit to make the calculation is correct.

	9	8		
	4	9	ml	
-	3	5	5	ml
	4		4	ml

E PS

5b. Insert the correct digit to make the calculation is correct.

	7	5		
	4	1	5	ml
-	2		8	ml
	1	5		ml

E PS

6a. True or false?

Slime Recipe

1l 100ml glue
1l 300ml washing liquid

4l 900ml

Lu says, 'The jug has a capacity large enough to make 2 lots of slime.'

Prove it.
What is the difference between the capacity and amount of liquid?

E R

6b. True or false?

Smoothie Recipe

2l 300ml tropical juice
1l 100ml vanilla yoghurt

6l 500ml

Sam says, 'The jug has a capacity large enough to make 2 lots of smoothie.'

Prove it.
What is the difference between the capacity and amount of liquid?

E R

Reasoning and Problem Solving – Add and Subtract Capacities

7a. Sal the shopkeeper is sorting through his fizzy drinks bottles.
Bottle A holds 3l 600ml more than Bottle C. Bottle C's capacity is double Bottle B's capacity.

Bottle B's capacity = 1l 300ml

What are the capacities of Bottle A and C?

GD PS

7b. Minnie the manicurist is sorting through her moisturiser bottles.
Bottle B holds 2l 600ml less than Bottle A. Bottle C's capacity is 1l 700ml more Bottle B's capacity.

Bottle A's capacity = 2l 900ml

What are the capacities of Bottle B and C?

GD PS

8a. Insert the correct digit to make the calculation is correct.

6	3	7

		8	ml
-	4	9	2 ml
	1	4	6 ml

GD PS

8b. Insert the correct digit to make the calculation is correct.

9	8	2

	4	6	8 ml
-	1	7	6 ml
	2		ml

GD PS

9a. True or false?

Bubbles Recipe

1l 600ml water
2l 400ml liquid soap

6l 100ml

Joe says, 'The jug has a capacity large enough to make 2 lots of bubbles.'

Prove it.
What is the difference between the capacity and amount of liquid?

GD R

9b. 6a. True or false?

Slime Recipe

5l 700ml glue
1l 100ml washing liquid

3l 700ml

Flo says, 'The jug has a capacity large enough to make half a batch of slime.'

Prove it.
What is the difference between the capacity and amount of liquid?

GD R

Reasoning and Problem Solving – Add and Subtract Capacities

Developing

1a. A = 500ml; C = 100ml
1b. B = 800ml; C = 200ml
2a. 9; 6
2b. 7; 3
3a. False. 500ml + 400ml = 900ml. Difference = 100ml
3b. True. 400ml + 300ml = 700ml. Difference = 200ml

Expected

4a. A = 2l 500ml; C = 400ml
4b. B = 4l 800ml; C = 2l 400ml
5a. 8; 9
5b. 5; 7
6a. True. 1l 100ml + 1l 300ml = 2l 400ml. 2l 400ml x 2 = 4l 800ml. Difference = 100ml
6b. False. 2l 300ml + 1l 100ml = 3l 400ml. 3l 400ml x 2 = 6l 800ml. Difference = 300ml

Greater Depth

7a. A = 6l 200ml; C = 2l 600ml
7b. B = 300ml; C = 2l
8a. 6; 3
8b. 9; 2
9a. True. 1l 600ml + 2l 400ml = 3l. 3l x 2 = 6l. Difference = 100ml
9b. True. 5l 700ml + 1l 100ml = 6l 800ml. 6l 800ml / 2 = 3l 400ml. Difference = 300ml