Reasoning and Problem Solving
Step 6: Litres

National Curriculum Objectives:

Mathematics Year 2: (2M1) Compare and order lengths, mass, volume/capacity and record the results using >, < and =

Mathematics Year 2: (2M2) Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Share a given volume (up to 10l) of liquid between two containers. Limits set with symbols < and >.
Expected Share a given volume of liquid (up to 20l) between three containers. Limits set with symbols <, > and =.
Greater Depth Share a given volume of liquid (up to 50l) between three containers. Limits set with symbols <, > and =.

Questions 2, 5 and 8 (Reasoning)
Developing Compare a given scenario (involving 2 containers) with a simple statement. Explain reasoning or any mistakes found.
Expected Compare a given scenario (involving 3 containers) with a simple statement. Explain reasoning or any mistakes found.
Greater Depth Compare a given scenario (involving 3 containers) with a complex statement. Explain reasoning or any mistakes found.

Questions 3, 6 and 9 (Reasoning)
Developing Approximate a volume reading from scale of 2 or 10, answers of full litre.
Expected Approximate a volume reading from scale of 2, 5 or 10, answers of full litre.
Greater Depth Approximate a volume reading from scale of 2, 5 or 10, answers may involve half litres.

More Year 2 Mass Capacity and Temperature resources.

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

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Reasoning and Problem Solving – Litres

1a. Geoff has 8 litres of water to share between the containers below.

A < 5l

B < 6l

How much could each container hold?

⭐D

PS

1b. Joanne has 4 litres of milk to share between the bottles below.

A > 1l

B < 4l

How much could each container hold?

⭐D

PS

2a. Dion has a cup and a jug. The cup holds half of the jug.

The jug's capacity is double the cup's.

Is Dion correct?
Explain your answer.

⭐D

R

2b. Shamia has a bottle and a carton. The bottle holds 2 litres, the carton holds 4 more.
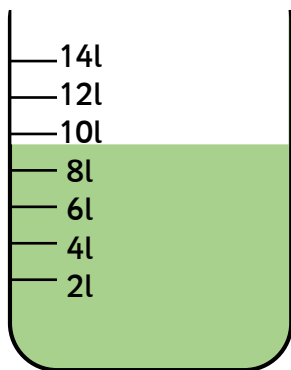
The carton holds more than 5 litres.

Is Shamia correct?
Explain your answer.
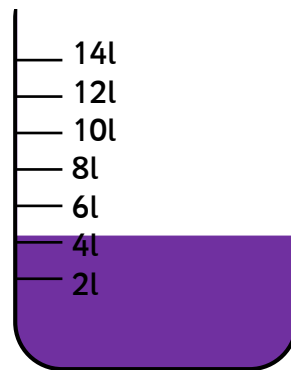
⭐D

R

3a. The liquid doesn't reach an exact line.

14l
12l
10l
8l
6l
4l
2l

What is a good approximation of the volume?

Explain your answer.

⭐D

R

3b. The medicine doesn't reach an exact line.

14l
12l
10l
8l
6l
4l
2l

What is a good approximation of the volume?

Explain your answer.

⭐D

R

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Reasoning and Problem Solving – Litres – Year 2 Developing

Reasoning and Problem Solving – Litres

4a. Jayson has 20 litres of horse feed to share between the barrels below.

A < 23l

B = 4l

C < 5l

How much could each container hold?

4b. Sonita has 15 litres of soil to share between the plant pots below.

A < 8l

B > 9l

C > 2l

How much could each container hold?

5a. Zahra has three containers. The tub holds more than 2l, the bottle holds double what the cup holds.

The bottle has the largest capacity.

Is Zahra correct?
Explain your answer.

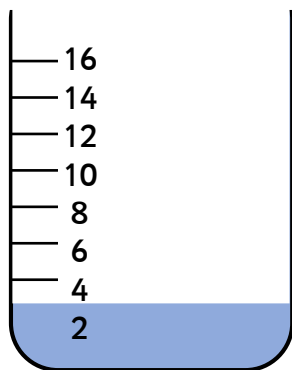**5b.** Ali has three containers. Each one holds an even number of litres.

In total the containers must hold an even number of litres.

Is Ali correct?
Explain your answer.

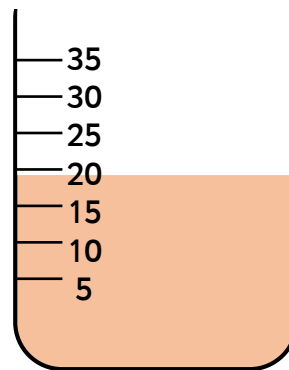**6a.** The water doesn't reach an exact line.

16
14
12
10
8
6
4
2

What is a good approximation of the volume?

Explain your answer.

6b. The juice doesn't reach an exact line.

35
30
25
20
15
10
5

What is a good approximation of the volume?

Explain your answer.

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Reasoning and Problem Solving – Litres – Year 2 Expected

Reasoning and Problem Solving – Litres

7a. Thomas has 35 litres of paint to share between the pots below.

A = 9l

B < 20l

C < 8l

How much could each container hold?

7b. Khairi has 42 litres of mulch to share between the wheelbarrows below.
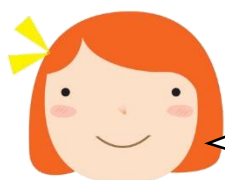
A = 22l

B > 10l

C < 9l

How much could each container hold?

8a. Chloe has three containers. Two containers hold 6l of liquid each. The other holds half of the total of the first two.

Altogether they can hold 15 litres.

Is Chloe correct?
Explain your answer.

8b. Keeley has three containers. In size order each on holds 5 more than the last. The smallest holds 2l.
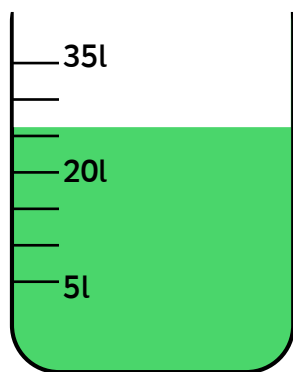
The largest holds 10l.

Is Keeley correct?
Explain your answer.

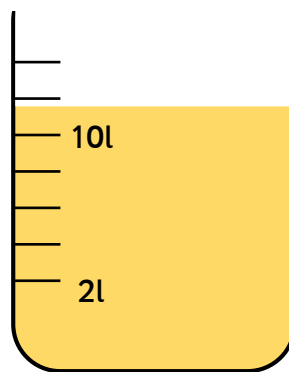**9a.** The plant food doesn't reach an exact number.

35l

20l

5l

What is a good approximation of the volume?

Explain your answer.

9b. The lemonade doesn't reach an exact line.

10l

2l

What is a good approximation of the volume?

Explain your answer.

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Reasoning and Problem Solving – Litres – Year 2 Greater Depth

Reasoning and Problem Solving – Litres

Developing
1a. **Two possible answers: A = 3l, B = 5l or A = 4l, B = 4l**
1b. **Two possible answers: A = 2l, B = 2l or A = 3l, B = 1l**
2a. **Dion is correct, the cup is half of the jug, so 2 cups = 1 jug, therefore the jug is double the capacity of the cup.**
2b. **Shamia is correct, the carton holds 4l more than the bottle which holds 2l, so the carton holds 6l, which is more than 5l.**
3a. **Answers between 9l and 10l would be a good approximation.**
3b. **Answers between 4l and 5l would be a good approximation.**

Expected
4a. **Possible answers: A = 15l, B = 4l, C = 1l; A = 14l, B = 4l, C = 2l; A = 13l, B = 4l, C = 3l or A = 12l, B = 4, C = 4l**
4b. **Possible answers: A = 2l, B = 10l, C = 3l; A = 1l, B = 10l, C = 4l or A = 1l, B = 11l, C = 3l**
5a. **We can't tell if Zahra is correct. We know the bottle is larger than the cup, but we don't know whether this is less or more than the 2l the tub holds.**
5b. **Ali is correct, the sum of any even numbers is even and adding litres is just the same as adding numbers.**
6a. **Answers between 3l and 4l would be a good approximation.**
6b. **Answers between 18 and 20 would be a good approximation.**

Greater Depth
7a. **One possible answer: A = 9l , B = 19l, C = 7l**
7b. **Possible answers: A = 22l, B = 12l, C = 8l; A = 22l, B = 13l, C = 7l; A = 22l, B = 14l, C = 6l; A = 22l, B = 15l, C = 5l; A = 22l, B = 16l, C = 4l; A = 22l, B = 17l, C = 3l; A = 22l, B = 17l, C = 3l; A = 22l, B = 18l, C = 2l or A = 22l, B = 19l, C = 1l**
8a. **Chloe is incorrect. Chloe has added half the first two instead of half of their total. She has worked out 6 + 6 = 12 and added 3 more to get 15l. As the first two have the same capacity (6l), half of their total is 6l. Actually all 3 hold 6l, so altogether they hold 18l.**
8b. **Keeley is incorrect. She has added 5l + 5l = 10l, but forgotten the first holds 2l and each is holding 5 more, she should have calculated 2l + 5l = 7l for the middle sized one, and 7l + 5l = 12l for the largest of the three.**
9a. **Answers of 25l or 26l good approximations.**
9b. **Answers between 11l and 12l would be a good approximation.**

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