

Reasoning and Problem Solving

Step 4: Estimate Capacity

National Curriculum Objectives:

Mathematics Year 5: (5M8) [Estimate volume \[for example, using 1 cm³ blocks to build cuboids \(including cubes\)\] and capacity \[for example, using water\]](#)
Mathematics Year 5: (5M9a) [Use all four operations to solve problems involving measure \[for example, length, mass, volume, money\] using decimal notation, including scaling](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Estimate the capacity of a jar using their knowledge on recognising halves and doubling. Includes numbers less than 100.

Expected Estimate the capacity of a jar using their knowledge on recognising quarters and three quarters. Includes numbers greater than 100.

Greater Depth Estimate the capacity of a jar using their knowledge on recognising quarters and thirds. Includes numbers up to 500.

Questions 2, 5 and 8 (Problem Solving)

Developing Compare 3 containers using inequality statements to estimate capacity. Volumes are in multiples of 100.

Expected Compare 3 containers using inequality statements to estimate capacity. Volumes are in multiples of 50.

Greater Depth Compare 3 containers using inequality statements to estimate capacity. Volumes are in multiples of 5.

Questions 3, 6 and 9 (Reasoning)

Developing Compare containers to say whether an estimation is correct, volumes in multiples of 100.

Expected Compare containers to say whether an estimation is correct, volumes in multiples of 50.

Greater Depth Compare containers to say whether an estimation is correct, volumes in multiples of 5.

More [Year 5 Volume](#) resources.

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Estimate Capacity

1a. Jasper says:

I put 22 sweets in this jar.
I estimate that this jar
has a capacity of 80
sweets.



Do you agree with this estimate?
Explain why.

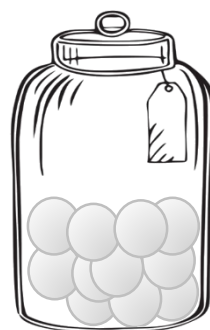


R

Estimate Capacity

1b. Ellie says:

I put 15 balls in this jar. I
estimate that this jar has a
capacity of 50 balls.



Do you agree with this estimate?
Explain why.



R

2a. Estimate the capacity of the
containers to complete the statement.
One of the containers has a capacity of
200ml.



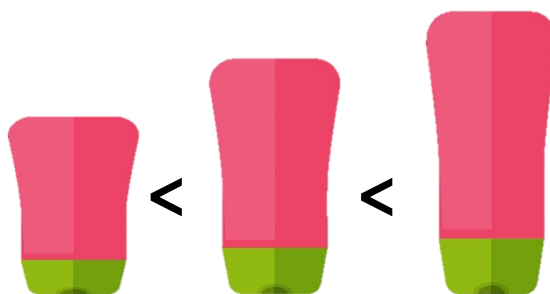
A.

B.

C.

PS

2b. Estimate the capacity of the
containers to complete the statement.
One of the containers has a capacity of
600ml.



A.

B.

C.

PS

3a. Tim has poured 300ml into each of the
containers. He says container C has the
greatest capacity.



A.

B.

C.

Is this a sensible estimation?
Explain your answer.



R

3b. Adam has poured 100ml into each of
the containers. He says container B has
the least capacity.



A.

B.

C.

Is this a sensible estimation?
Explain your answer.

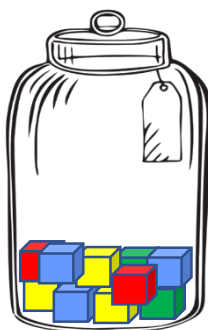


R

Estimate Capacity

4a. Salman says:

I put 32 cubes in this jar. I estimate that this jar has a capacity of 128 cubes.



Do you agree with this estimate?
Explain why.

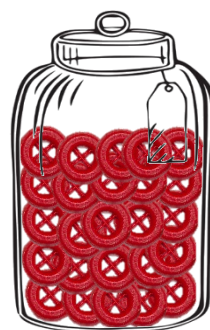


R

Estimate Capacity

4b. Malia says:

I put 120 buttons in this jar. I estimate that this jar has a capacity of 250 buttons.



Do you agree with this estimate?
Explain why.



R

5a. Estimate the capacity of the containers to complete the statement.
One of the containers has a capacity of 450ml.



A.

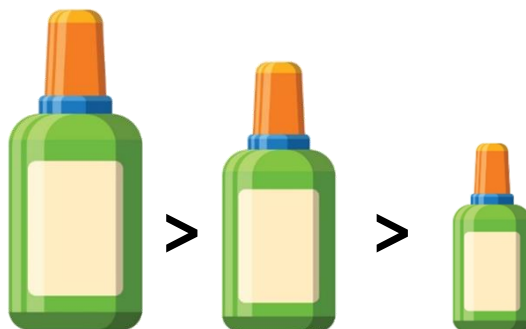
B.

C.



PS

5b. Estimate the capacity of the containers to complete the statement.
One of the containers has a capacity of 750ml.



A.

B.

C.



PS

6a. Jules has poured 250ml into each of the containers. She says container A has the greatest capacity.



A.

B.

C.

Is this a sensible estimation?
Explain your answer.



R

6b. Poppy has poured 550ml into each of the containers. She says container C has the least capacity.



A.

B.

C.

Is this a sensible estimation?
Explain your answer.

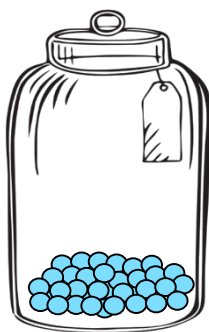


R

Estimate Capacity

7a. Sid says:

I put 62 mints in this jar. I estimate that this jar has a capacity of 150 mints.



Do you agree with this estimate?
Explain why.



R

Estimate Capacity

7b. Maya says:

I put 143 jelly beans in this jar. I estimate that this jar has a capacity of 500 jelly beans.



Do you agree with this estimate?
Explain why.



R

8a. Estimate the capacity of the containers to complete the statement.
One of the containers has a capacity of 385ml.



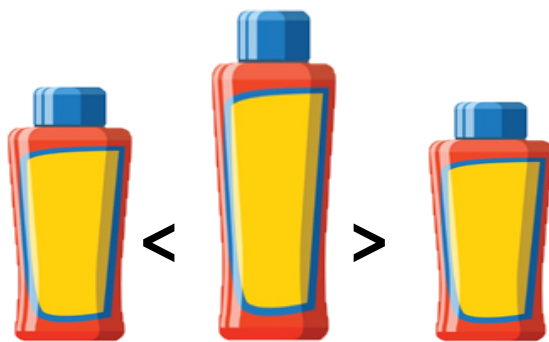
A.

B.

C.

PS

8b. Estimate the capacity of the containers to complete the statement.
One of the containers has a capacity of 135ml.



A.

B.

C.

PS

9a. Sammy has poured 315ml into each of the containers. He says container C has the greatest capacity.



A.



B.



C.

Is this a sensible estimation?
Explain your answer.



R

9b. Bella has poured 155ml into each of the containers. She says container C has the least capacity.



A.



B.



C.

Is this a sensible estimation?
Explain your answer.



R

Reasoning and Problem Solving

Estimate Capacity

Developing

1a. No, because this estimate is too high. The jar is approximately half full. A sensible estimate would be a capacity of around 44 sweets.

2a. Various answers, including: A = 300ml; B = 100ml; C = 200ml.

3a. No, container B has the greatest capacity as it can hold the greatest volume.

Expected

4a. Yes, this estimate is sensible. The jar is approximately a quarter full. $32 \times 4 = 128$.

5a. Various answers, including: A = 300ml; B = 450ml; C = 600ml.

6a. No, container B has the greatest capacity as it can hold the greatest volume.

Greater Depth

7a. No, because this estimate is too low. The jar is approximately one quarter full. A sensible estimate would be a capacity of around 248 mints.

8a. Various answers, including: A = 390ml; B = 285ml; C = 385ml.

9a. No, container A has the greatest capacity as it can hold the greatest volume.

Reasoning and Problem Solving

Estimate Capacity

Developing

1b. No, because this estimate is too high. The jar is approximately half full. A sensible estimate would be a capacity of around 30 balls.

2b. Various answers, including: A = 200ml; B = 400ml; C = 600ml.

3b. No, container A has the least capacity because the volume appears greater than the other containers.

Expected

4b. No, because this estimate is too high. The jar is approximately three quarters full. A sensible estimate would be a capacity of around 160 buttons.

5b. Various answers, including: A = 750ml; B = 500ml; C = 150ml.

6b. No, container B has the least capacity because the volume appears greater than the other containers.

Greater Depth

7b. No, because this estimate is too high. The jar is approximately one third full. A sensible estimate would be a capacity of around 429 jelly beans.

8b. Various answers, including: A = 185ml; B = 235ml; C = 135ml.

9b. No, container A has the least capacity because the volume appears greater than the other containers.