

Equivalent capacities and volumes (litres and millilitres)

Notes and guidance

In the previous two steps, children measured capacity and volume in both litres and millilitres, and read scales using both of these units of measure. In this small step, they build on their understanding of 1 litre being equivalent to 1,000 ml, and this point will be explored in great depth, so the volumes and capacities in the questions will not go over 1 litre.

Children also draw on other previously learnt skills, as they use addition and subtraction to make amounts of millilitres up to 1 litre. They continue to look at fractions of a litre, and should know that $\frac{1}{2}$ of a litre is 500 ml and $\frac{1}{4}$ of a litre is 250 ml.

Things to look out for

- Children may confuse relationships with other units of measure, for example cm and m, and think that there are 100 ml in 1 litre.
- Children may experience difficulties with calculation when dividing 1,000

Key questions

- How many 100 ml containers full of water fill a 1 litre container?
- How many millilitres are equivalent to 1 litre?
- How many equal parts are there?
- What is each interval worth?
- Do you always need to count up the scale to find out how much there is?
- How can you use number bonds to 100 to help?

Possible sentence stems

- There are _____ ml in 1 litre.
- _____ ml + _____ ml = 1,000 ml = 1 litre
I need _____ more millilitres to make 1 litre.
- The capacity/volume is/is not equivalent to 1 litre because ...

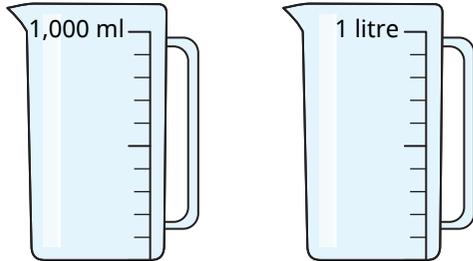
National Curriculum links

- Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)

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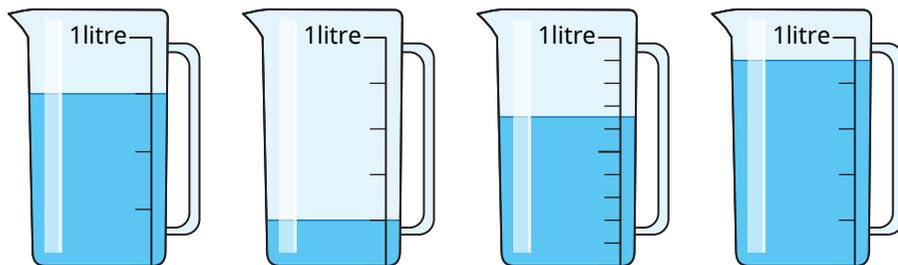
Key learning

- Give children a 100 ml container, a 1 litre container and some water.
Ask them to use the 100 ml container to fill the 1 litre container.
How many times did they need to fill the 100 ml container?
What does this tell them?
- What is the same and what is different about these jugs?

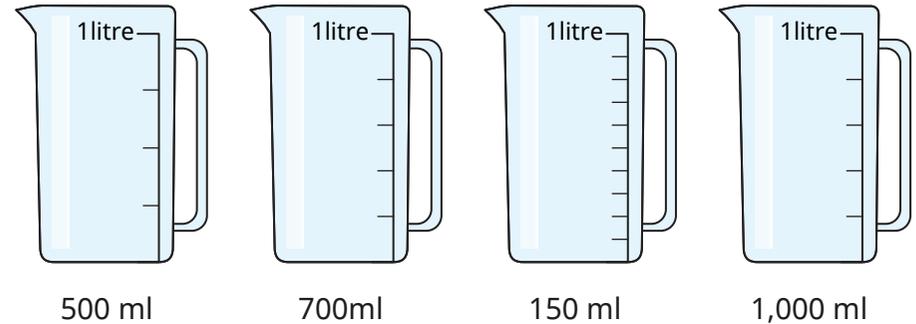


Label the missing divisions on each jug.

- What is the volume of liquid in each jug?
Give your answers in millilitres.



- Shade the jugs to show where the water will reach.



- Complete the number sentences.
 - ▶ $30 \text{ ml} + 70 \text{ ml} = \underline{\quad} \text{ ml}$ ▶ $300 \text{ ml} + 700 \text{ ml} = \underline{\quad} \text{ ml}$
 - ▶ $45 \text{ ml} + 55 \text{ ml} = \underline{\quad} \text{ ml}$ ▶ $450 \text{ ml} + 550 \text{ ml} = \underline{\quad} \text{ ml}$
 - ▶ $100 \text{ ml} - 38 \text{ ml} = \underline{\quad} \text{ ml}$ ▶ $1,000 \text{ ml} - 380 \text{ ml} = \underline{\quad} \text{ ml}$
 - ▶ $21 \text{ ml} + \underline{\quad} \text{ ml} = 100 \text{ ml}$ ▶ $210 \text{ ml} + \underline{\quad} \text{ ml} = 1,000 \text{ ml}$
 - ▶ $\underline{\quad} \text{ ml} + 340 \text{ ml} = 1,000 \text{ ml}$ ▶ $\underline{\quad} \text{ ml} + 340 \text{ ml} = 1 \text{ litre}$
- Tom has a 1 litre bottle of water.
He drinks 350 ml.
How much water is left in the bottle?

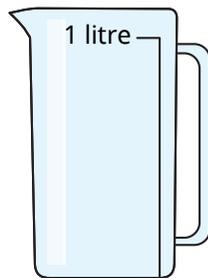
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Reasoning and problem solving

Jo has these bottles.



She uses the bottles to fill this 1 litre jug.

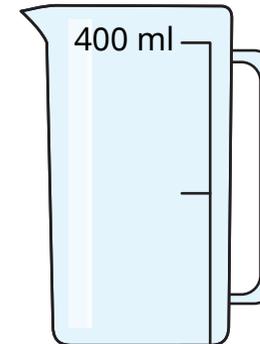


How many different ways can it be done?

Jo can use each bottle more than once.

multiple possible answers, e.g.
500 ml, 2 × 200 ml,
100 ml

Jack is trying to measure 1 litre using this container.



It is not possible!



Do you agree with Jack?
Explain your answer.

No