



G3.79 | PRINCIPLE OF VOLUME CONSERVATION

Geometry & Measurement Concepts - NCERT Chapter 11: Jugs and Mugs

Students will be able to understand the principle of volume conservation (liquids)

40- 50 min

PRE REQUISITES:

G3.78 Know how to estimate, verify and compare capacities in litres

TLM



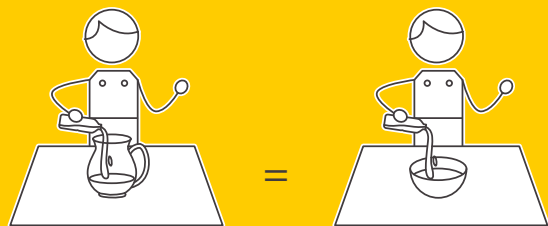
A 1 litre water bottle
A jug (with 2 litres capacity)
A Bowl (with ~1 litre capacity)

MISCONCEPTIONS

Students might not realize that small containers filled to the top do not always have more volume of liquid than bigger containers that are not completely filled

KEY VOCABULARY
None

PLAY



Estimate the amount of water in different glasses

Show students a 1 litre filled water bottle and tell that the bottle holds 1litre water

Call one student to pour water from a bottle into a jug

Ask how much water is there in the jug

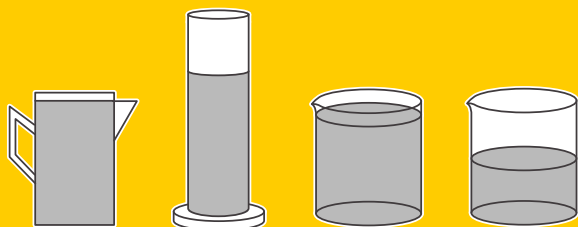
QUESTION

The bottle was completely filled with water but after transferring the water into the jug, the jug is not filled completely. Why is that so?

Call another student to pour water from a jug into a bowl

Ask how much water is there in the bowl. Is it more than what was there in the jug?

PROCESS



Estimate the amount of water in different glasses

Place 2 different sized transparent glasses on the table. One should be empty and one filled with water

Completely pour out water from one glass to another

Explain that volume of water, or the amount of water, doesn't change with the change of the vessel it is kept in

Explain that the same amount of water can fill one glass to the top but might fill another container only half

Emphasize that when we put 1 litre of liquid in a vessel of any capacity the volume of the liquid will remains 1 litre

Divide the water from the glass into 2 similar containers. Explain that dividing the water into two or more containers does not decrease the total amount of water

Explain that if all the water from the two cups was put back into the glass, the glass would be full again

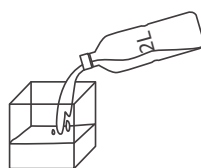
Repeat the activity using other containers available at the school

PRACTICE



Write the question on the black board and ask the students to solve

Help the students solve question 3 from the worksheet. Ask the students to look at the picture and tell which container has more water



Help the students solve question 4 from the worksheet. Narrate the questions and ask the students to find the answers

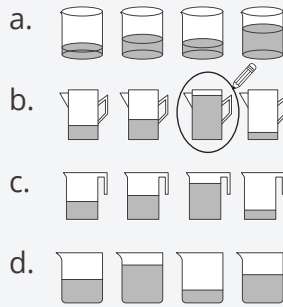
QUESTION

If 2 litre milk is poured into a large vessel, what will be the volume of milk in the large vessel? Will it be more or less than or equal to 2L?

QUESTION

2 litres milk is poured into 3 small glasses. Total volume of the milk in all three containers together will be ____L

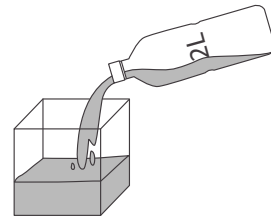
① SOLVED EXAMPLE : Circle the container which has the most volume of water



② Annapurna poured one cup of tea into a big mug and one cup tea into a small glass.

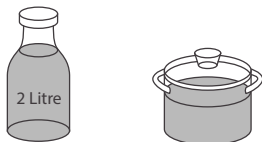
The volume of tea in the mug and the glass is _____ (same/not the same)

③ A bottle has 2 litres of cold drink. When the bottle is emptied in a container, what will be the volume of cold drink in the container?

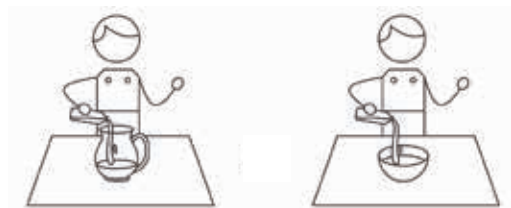


④ a. 2 litres milk is poured into 3 small glasses. The volume of the milk in all three glasses together will be ____L

b. 2 litre milk is poured into a large vessel. What is the volume of milk in the large vessel? More than 2L or less than 2L or equal to 2L?



⑤ 1 litre bottle of honey was poured into a bowl and another 1 litre bottle of honey was poured into a bucket. Which one will have more honey?



⑥ Do you remember the story of thirsty crow? He found some water in a pot but he couldn't dip his beak into the pot. What did he do? Did the volume of water change by putting stones into the pot?