

# Calculating Capacities

- I have a jug and a cup. When they are full, the jug holds **500 ml** and the cup holds **300 ml**.



**500 ml**



**300 ml**

- Neither the jug nor the cup has a scale so when calculating I can only use a full jug and a full cup.

E.g. I cannot use an estimate of half a jug or half a cup.

1. Using both containers I can measure **100 ml** by following the below steps.

- Fill cup (300 ml).
- Pour into jug (300 ml).
- Fill another cup (300 ml) and pour into the jug.  
(300 ml + 300 ml = 600 ml)
- Since jug can only hold 500 ml there is 100 ml left in the cup.

2. Using **both** containers I can measure **400 ml** by following the below steps:

- Fill cup (300 ml) and pour into jug.
- Fill cup (300 ml) again and pour into jug.
- Since jug full capacity is 500 ml, there is still 100 ml left in the cup.
- Empty the jug.
- Pour the 100 ml from cup into the jug.
- Fill the cup (300 ml) and pour the cup into the jug.

$$100 \text{ ml} + 300 \text{ ml} = 400 \text{ ml}$$

### Challenge 1

Using the same containers (the jug and/or the cup) can you make each of these amounts?

- a) 200 ml      b) 500 ml      c) 600 ml      d) 700 ml

### Challenge 2 (you can empty and/or fill bottles more than once)

How can you measure 1 l if you have a 1.5 l bottle and a 4 l bottle?

### Challenge 3 (you can empty and/or fill bottles more than once)

How can you measure 2 l if you have a 2.5 l bottle and a 1 l bottle?

## Game time!

1. **Make** these capacity **flashcards** using rough paper or cereal box carton.
2. **Use 3 different containers** you find at home. (e.g. mug, water bottle, yogurt cup, washing liquid container, etc.)
3. **Measure and know their capacity** when full (to the nearest 5 ml).

25ml

50ml

75ml

1l

1.25l

1.5l

1.75l

2l

2.25l

2.5l

4. **Place** these flashcards **face down**.
5. First player turns **one flashcard** and tries to make that capacity using all containers.
6. If player succeeds s/he **keeps the card**.
7. **Take turns and repeat** until there are no cards left.
8. Player with **most cards wins**.

*Note: Since you are using real containers, some capacities are hard to get or cannot be resolved. The important thing is to keep trying and challenge yourself.*