

Learning Area : Computation of volume of liquid.  
 Learning Objectives : Use and apply fractional computation to problems involving the volume of liquids.  
 Learning Outcomes : Compute volume of liquid from a situation expressed in fraction.

Teaching Aids

Duration: 1 hour

Measuring beaker, coloured liquids.

Set Induction

Teacher shows a beaker of watermelon juice. Teacher pours half of the juice into the beaker.

Step 1

<p><u>Pupils' Activity:</u></p> <p>Pupils name the fraction of the remaining juice.</p> <p>Pupils read the measurement on the beaker.</p> <p>Pupils convert the volume into litre and millilitre.</p> <p>Pupils write the relationship between fraction and volume.</p>	<p><u>Notes To Teachers:</u></p> <p><i>Try to recall the fraction through the names:</i></p> <ul style="list-style-type: none"> <li>○ Half,</li> <li>○ One over two</li> <li>○ One half</li> </ul> <p><i>Guide pupils to say the measurement in correct conversation (basic knowledge) in litre and millilitre.</i></p> <p><i>Eg:</i></p> <p><math>\frac{1}{2}</math> of 1000 ml = 500 ml</p> <p><math>\frac{1}{4}</math> of 1000 ml = 250 ml</p> <p><math>\frac{3}{4}</math> of 1000 ml = 750 ml</p>
<p><u>Teacher's Instruction:</u></p> <ul style="list-style-type: none"> <li>• Can anyone tell me how do you get your answer?</li> </ul>	<p><u>Expected answers from pupils:</u></p> <ul style="list-style-type: none"> <li>• They get their answer from the previous knowledge and from the examples given.</li> </ul>

Step 2

Teacher shows pupils how to compute volume from situation exposed in fraction.

Teacher demonstrates how to solve them.

<p><u>Pupils' Activity:</u></p> <p>Pupils answer question and observe how teacher solve the question</p>	<p><u>Notes To Teachers:</u></p> <ul style="list-style-type: none"> <li>• <i>Show pupils step by step how to calculate.</i></li> <li>• <i>Ask pupils questions for each step.</i></li> <li>• <i>Emphasize to pupils of mean `X`.</i></li> </ul>
<p><u>Teacher's Instruction:</u></p> <ul style="list-style-type: none"> <li>• <i>Let's look at this question. Read the question.</i></li> <li>• <i>Look at the word 'of' .What question must you use for this keyword.</i></li> <li>• <i>Good, rewrite it back in numbers sentence.</i></li> <li>• <i>This is how we solve it.</i></li> </ul> <p>e.g. 1.</p> $\frac{1}{2} \text{ of } 1000 \text{ ml}$ $= \frac{1}{2} \times 1000 \text{ ml}$ $= \frac{1000}{2} \text{ ml}$ $= 500 \text{ ml}$ <ul style="list-style-type: none"> <li>• <i>Teacher show more examples.</i></li> </ul>	<p><u>Expected answers from pupils:</u></p> <ul style="list-style-type: none"> <li>• <math>\frac{1}{2}</math> of 1000 ml</li> <li>• X</li> <li>• Pupils observe</li> </ul>

Step 3

Teacher puts up a few questions and asks the pupils to solve.

<p><u>Pupils' Activity:</u></p> <p>Pupils work in pair to solve the problem.</p> <p>Pupils show their work on the board.</p> <p>Pupils check their answer with their friends.</p>	<p><u>Notes To Teachers:</u></p> <ul style="list-style-type: none"> <li>• <i>Go around the class and pupils work.</i></li> <li>• <i>Assist them when necessary..</i></li> <li>• <i>When checking answer when pupils to show on the board.</i></li> </ul>																																				
<p><u>Teacher's Instruction:</u></p> <ul style="list-style-type: none"> <li>• <i>Now i want you all to try this question.</i></li> </ul> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>No.</th> <th>Question</th> <th>Answer</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><math>\frac{1}{8}</math> of 800 ℓ</td> <td></td> </tr> <tr> <td>2</td> <td><math>\frac{3}{8}</math> of 320 ℓ</td> <td></td> </tr> <tr> <td>3</td> <td><math>\frac{6}{8}</math> of 480 ℓ</td> <td></td> </tr> <tr> <td>4</td> <td><math>\frac{7}{8}</math> of 560 ℓ</td> <td></td> </tr> <tr> <td>5</td> <td><math>\frac{5}{8}</math> of 640 ℓ</td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• <i>Work in pairs.</i></li> <li>• <i>I want one form each pair &amp; show your working on the board.</i></li> </ul>	No.	Question	Answer	1	$\frac{1}{8}$ of 800 ℓ		2	$\frac{3}{8}$ of 320 ℓ		3	$\frac{6}{8}$ of 480 ℓ		4	$\frac{7}{8}$ of 560 ℓ		5	$\frac{5}{8}$ of 640 ℓ		<p><u>Expected answers from pupils:</u></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>No.</th> <th>Question</th> <th>Answer</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><math>\frac{1}{8}</math> of 800 ℓ</td> <td>100 ℓ</td> </tr> <tr> <td>2</td> <td><math>\frac{3}{8}</math> of 320 ℓ</td> <td>120 ℓ</td> </tr> <tr> <td>3</td> <td><math>\frac{6}{8}</math> of 480 ℓ</td> <td>360 ℓ</td> </tr> <tr> <td>4</td> <td><math>\frac{7}{8}</math> of 560 ℓ</td> <td>490 ℓ</td> </tr> <tr> <td>5</td> <td><math>\frac{5}{8}</math> of 640 ℓ</td> <td>400 ℓ</td> </tr> </tbody> </table>	No.	Question	Answer	1	$\frac{1}{8}$ of 800 ℓ	100 ℓ	2	$\frac{3}{8}$ of 320 ℓ	120 ℓ	3	$\frac{6}{8}$ of 480 ℓ	360 ℓ	4	$\frac{7}{8}$ of 560 ℓ	490 ℓ	5	$\frac{5}{8}$ of 640 ℓ	400 ℓ
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**WORKSHEET 1**

Plenary:

Teacher carries out the recreational game, BINGO. Teacher gives instruction on how to play the game. The fastest pupil who strikes BINGO and answer the most questions correctly will be the winner.

**Recreational Game ( BINGO )**

**Answer**

100 ml	27 l	540 ml
200 l	350 ml	39 l
148 ml	54 l	360 ml

**Instructions**

1. Choose a question from 1 to 12.
2. Solve the question and circle the correct answer.
3. When a pupil gets 5 straight or diagonal lines, the game is over.
4. The pupil with the most circled answers will be the winner.

1)  $\frac{2}{3}$  of 150 ml = ..... ml

2)  $\frac{3}{4}$  of 720 ml = ..... ml

3)  $\frac{5}{6}$  of 420 ml = ..... ml

4)  $\frac{2}{5}$  of 370 ml = ..... ml

5)  $\frac{4}{7}$  of 630 ml = ..... ml

6)  $\frac{6}{7}$  of 560 ml = ..... ml

7)  $\frac{3}{5}$  of 45 l = ..... l

8)  $\frac{4}{5}$  of 250 l = ..... l

9)  $\frac{3}{8}$  of 104 l = ..... l



10)  $\frac{3}{7}$  of 126 l = ..... l

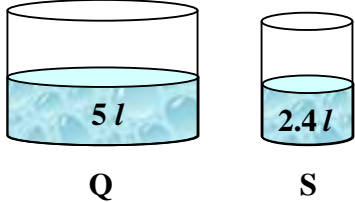
11)  $\frac{1}{4}$  of 100 l = ..... l

12)  $\frac{5}{6}$  of 108 l = ..... l

**WORKSHEET 2**

Worksheet (Extract from Masmetics page 84 – 85)

1	<p>The volume of liquid in beaker A is <math>8\text{ l}</math> while B is <math>2\frac{1}{2}</math> more than beaker A. What is the total volume of liquid in ml?</p>	4	<p>The volume of water in a tank is <math>10.8\text{ l}</math>. Another <math>4\frac{1}{4}</math> more of that volume of water is added into the tank. What is the total volume of water in the tank?</p>
2	<p>Diagram shows a volume of liquid.</p>  <p>How much liquid, in <math>l</math>, is in <math>3\frac{1}{5}</math> of similar glasses?</p>	5.	<p>Diagram shows a volume of liquid.</p>  <p>How much liquid, in <math>l</math>, is in <math>8\frac{1}{2}</math> of similar glasses?</p>
3	<p>A container contains <math>60\text{ l}</math> of liquid. Nora bought <math>4\frac{5}{6}</math> of similar containers. What is the volume, in <math>l</math>, the amount of liquid she buys?</p>	6	<p>The volume of grape juice in a tin is <math>230\text{ ml}</math>. What is the volume of juice, in <math>l</math>, in <math>4\frac{4}{5}</math> similar tins?</p>

7	<p>4.2 l of water in a drum. How much water, in l, is there in <math>8\frac{3}{4}</math> of similar pails?</p>	9	<p>A bottle of cooking oil has a volume of 0.45 l. How much cooking oil, in ml, is there in <math>3\frac{3}{5}</math> bottles?</p>
8	<p>A bottle was filled with 300 ml of soya bean. How much, in l, of soya bean is there in <math>4\frac{5}{6}</math> of similar bottles?</p>	10	<p>Diagram show two beakers.</p>  <p>How much volume of water is there in <math>2\frac{1}{2}</math> of container Q and <math>2\frac{1}{2}</math> of container S?</p>