WORD PROBLEM ON LITRES

Subject

Mathematics

Prepared By

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Grade Level

5

Overview

This lesson plan covers teaching content for;

1. Conversion of liters.
2. Solving word problems on liters.

Objectives

Students should be able to;

1. Convert from metric units to liters.
2. Solve word problems on liters.

Activity Starter/Instruction

1. A liter (or litre) is a metric unit used to measure volume or capacity.
2. Liters are a common measurement often used to measure beverages and other liquids, such as a 2 liter bottle of soda.
3. Sometimes you will need to calculate the volume of an object in liters, given the object's dimensions.
4. Sometimes, you have to convert liters from other Metric Units;
5. Converting milliliters to liters: There are 1,000 milliliters (mL) in 1 liter (L). To convert milliliters to liters, you would divide the number of milliliters by 1,000.
6. Convert centiliters by liters: There are 100 centiliters (cL) in 1 liter. To convert centiliters to liters, you would divide the number of centiliters by 100.
7. Convert deciliters to liters: There are 10 deciliters (dL) in 1 liter.
8. Convert kiloliters to liters: There are 1000 liters in 1 kiloliter (kl). To covert kl to L, multiply the number of kl by 1,000.

Teacher Guide

Day 1/ Lesson 1: 20mins

1. You will need to convert the volume of something that is already given in another unit, such as milliliters or gallons. In all of these instances, through simple multiplication or division, you can easily determine volume in liters.
2. Convert the dimensions to centimeters. If the dimensions are given in meters, inches, feet, or some other unit of measurement, convert each dimension to centimeters (cm) before calculating the volume. This will make it easier to convert to liters.
3. 1 meter = 100 centimeters.
4. 1 inch = 2.54 centimeter.
5. 1 foot = 30.48 centimeters.
6. How you find the volume will depend on the shape of the three-dimensional object you are measuring, since the volume of each type of shape is calculated differently. To find the volume of a cube, you can use the formula
7. Volume = Length × Width × Height
8. The volume of a three-dimensional shape will be in cubic units, such as cubic centimeters (cm³)

Materials Required

- White board
- Marker
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Additional Resources

- https://www.math-only-math.com/worksheet-on-wor measuring-capacity.html
- https://sciencing.com/calculate-liters-6403021.html
- http://www.learnalberta.ca/content/kes/pdf/or_cf_m
- https://www.purplemath.com/modules/mixture2.htm
- https://www.math-only-math.com/worksheet-on-add
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Additional Notes

9. Convert hectoliters to liters: There are 100 liters in 1 hectoliter (hl).
10. Convert decaliters to liters: There are 10 liters in 1 decaliters (dal).

Guided Practice

Day 2/ Lesson 2: 15 Mins

1. How many litres of green mango beans costing ¥4.25/litre must be mixed with 150 litres of yellow mango beans costing ¥6.50/litre to make a mixture which will cost ¥5.00/litre?
2. Set up a table with ingredient, cost per liter, no of liters, and total cost. Total cost is amount of liter (l) × cost per liter (l).
3.

Ingredients	Cost per L	No. of L	Total Cost
Green mango bean	4.25/l	x	4.25x
Yellow mango bean	6.5/l	150	6.5/l(150)
Mixture	5l	X + 150	5(x + 150)

4. In the second column, the total amount of the mixture is the amount of green mango plus the amount of yellow mango.
5. Your equation comes from adding up the last column:
6. The total cost of the green + the total cost of the yellow = total cost of the mixture

9. If a fish tank is 40.64 cm long, 25.4 cm wide, and 20.32 tall you would calculate the volume by multiplying these dimensions together:
   Volume = Length × Width × Height
   Volume = 40.64 × 25.4 × 20.32
   Volume = 20,975 cm³
10. Convert cubic centimeters to liters using the conversion rate
   1 liter = 1,000 cm³
11. If the volume of the fish tank in cubic centimeters is 20,975, to find the volumes in liters
   Calculate 20,975 ÷ 1,000 = 20.975.
12. So, a fish tank that is 40.64 cm long, 25.4cm wide and 20.32 tall has a volume of 20.975 L.

Guided Practice

Day 4/ Lesson 4: 20mins

1. If Sarah drinks 2 liters of water a day, how much will she drink in a week? And a month?
2. How much will she drink in a week?
3. We know 7days makes 1 week
4. 1 day   2 L
   7days   x
5. X = 2 × 7
   X = 14 L
6. Therefore Sarah drinks 14 liters in a day.
7. How much will she drink in a month?
8. Now that we know for a week, and we know that 4weeks makes 1 month
9. 1week   14 L
   4weeks   x
10. X = 14 × 4
   X = 56 L
11. Therefore, Sarah drinks 56 liters in a month.

4.25x + 6.5(150) = 5(x + 150)

4.25x + 975 = 5x + 750

975 − 750 = 5x − 4.25x

225 = 0.75x

X = 225/0.75

X = 300 L

7. Therefore there are 300 liters of green mango bean.

Summary	Assessment Activity	Assessment Activity
1. Select volunteers to solve word problems. 2. Review them with the class and see how well they understand.	1. Students need to understand that with basic mathematical operations, they can solve word problems on liters.	Assess if students can; 1.Convert from different metric unit to liters correctly.