

Lab Framework

Text: AMME

Unit number and title: Unit 1 Measuring Up in Math

Short Description: Students use the Label Method to discover the amount of water they and their family use in a day, week, year. They will be able to make appropriate conversions from metric to English fluid measurements.

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Lab Title

Water, Water Everywhere

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**
Students will use the Label Method to solve a real world problem.
- **Statement of pre-requisite skills needed:** The students need to know: the four step label method; fluid capacity conversions, metric conversions, time conversions.)
- **Vocabulary**
Right, Left, Line 'Em Up, Blow up labels.
- **Materials List**
Family take-home questionnaire
In-class lab worksheet
- **State Standards addressed**
Math: 7.2 Core Content: Proportionality and similarity
7.6 Core Processes: Reasoning, problem solving, and communication
8.5 Core Processes: Reasoning, problem solving, and communication
A1.2 Core Content: Numbers, expressions, and operations (basic)
- **Set-up information:**

Bring in a few store-bought bottles of water and some paper cups. Distribute a small drink of water to each student. Ask why many Americans pay for bottled water rather than drink tap water. Ask for a show of hands: How many students drink only bottled water? How many drink tap water that has been put through a filter? How many drink plain tap water?

Ask the students what else do we use tap water for? They will be able to list those on the take-home questionnaire as well as some others.

At this time distribute the lab worksheets. Students will work in pairs or groups of three or four. Students will have the remainder of the class period to complete the assignment.

When students have completed the lab, follow-up with a discussion about the information they discovered through the lab assignment.

- **Lab organization:**
Students will take home a family questionnaire to provide information to complete the lab assignment.
- **Teacher Assessment of student learning:**
Points given for lab completion and correct problem solving on the lab worksheet.
Extra points given for turning in the family take-home assignment with parent signature.
- **Summary of learning** (to be finished after student completes lab)
 - discuss real world application of learning from lab
 - opportunity for students to share/present learning

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Water, Water Everywhere

In this lab you will discover how much water is used by your family in daily activities. To complete this lab you will need your take-home family questionnaire. The following is additional information you will need:

- For a 10-minute shower: 40 gallons of water
- For a load of wash in a washing machine: 45 gallons
- Brushing your teeth: 1 liter per minute



1. How many showers/baths are taken in your home each week? _____
2. What is the average length of each shower/bath? _____ min.
3. Using the answers to #1 and #2, and the above information, how many gallons of water are used in your household each week? Remember LEFT, RIGHT, LINE 'Em UP, and Blow Up the words you don't need.
4. How many loads of clothes are washed in your home each week?

How many gallons of water are used in your home each week to wash clothes?

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Washington

5. Show how you would figure out how many gallons of water are used each week in your household to brush teeth.

****1 liter is equal to 1.06 quarts****

Applied

6. Add up the above amounts to determine how many gallons of water your household uses each week in those three areas.

Math

7. How many gallons are used in your household each year?

Council

8. How many gallons are used in your household each day?

According to Water Partners International, the average American uses 176 gallons per day. How do you compare?

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Name _____

Period _____

Water, Water Everywhere Take-Home Family Questionnaire

Complete the following questionnaire with your family and return to class with parent signature. You will use the information in your next lab.

1. How many people currently live in your home?

2. How many showers/baths are taken in the average week?

3. What is the average length of your showers/baths?

4. How many loads of clothes are washed, on average, each week?

5. What is the water capacity of your toilet(s)?

** An old style single flush toilet use 13.2 liters of water per flush. Newer toilets use only 6 liters for a full flush and 4 liters with a reduced flush.



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Parent signature