

Lab Plan

Text: Cord

Unit number and title: Unit #3 *Measuring in English and Metric Units*

Short Description: This lab is from the Unit 3 CORD text: *Measuring Volumes*. Students will compare the cost of a consumer product that is sold by a metric volume to the cost of the same product sold by English volume.

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Lab Title

Measuring Volumes

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

- Read measurements taken with common measuring tools
- Use of common measurements of volume in the English system
- Ability to read measurements taken with common measuring tools
- Perform calculation and comparison of units of measure between English and Metric systems
- Students will use tools to measure quantities and solve problems that involve the measurements made

- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)

- Ability to use calculator
- Ability to follow lab procedure directions
- Knowledge of conversion ratios
- Familiarity with English and Metric units of measurement
- Ability to use measuring cup
- Ability to use ruler
- Ability to perform necessary calculations required in lab activity

- **Vocabulary**

No new vocabulary for this lab (new vocabulary for this Unit would have already been covered at this point).

- **Materials List: Provide the enough of the following items to set up 6 workstations.**

- Empty 2-liter soft drink bottle
- Six empty 12-ounce soft drink cans
- Measuring cup marked in ounces (1-cup or 2-cup capacity)
- Funnel
- Package of 8-ounce cups
- Ruler
- Water supply
- Masking tape
- Pencil and paper
- Calculator

- **GLEs (State Standards) addressed**

Math:

1.1.8: Apply estimation strategies in situations involving multi-step computations of rational numbers using addition, subtraction, multiplication, division, powers, and square roots to predict or determine reasonableness of answers.

1.2: Understanding and apply concepts and procedures from measurements

1.2.3: Apply unit conversions within measurement systems, U.S. or metric, to maintain an appropriate level of precision.

2.1.1: Formulate questions to be answered to solve a problem

3.1.1: Analyze, compare, and integrate mathematical information from multiple sources

- **Leadership Skills**

- Set an example of appropriate behavior
- Strive to do the best job possible
- Work cooperatively with others
- Be an active participant
- Participate in all aspects of the lab including clean-up

- **SCAN Skills/Workplace Skills**

- Works with Diversity—works well with men and women from diverse backgrounds
- Participates as a Member of a Team—contributes to group effort
- Performs basic computations
- Demonstrates understanding, friendliness, adaptability, empathy, and politeness in a new and on-going group settings
- Displays high standards of attendance, punctuality, enthusiasm, vitality, and optimism in approaching and completing tasks.
- Discovers a rule or principle underlying the relationship between two or more objects that applies it in solving a problem

- **Set-up information**

- To be included on a lab procedure sheet: the cost of a 2-liter soft drink is \$1.49. The price of a six-pack of 12-ounce soft drinks is \$1.89.
- Provide the procedures outlined in the text on an instructor-prepared document

- **Lab organization**

- Break class into 6 groups of 4 students each (groups assigned by teacher)
- Provide peer evaluation forms to students
- Have groups assign tasks to each member of the group (allow 10 minutes for this)

- **Teacher Assessment of student learning** (scoring guide, rubric)

- Grade lab group papers against answer key
- Have students evaluate each other with evaluation form.

- **Summary of learning** (to be finished after student completes lab)
 - Students fill out peer evaluation forms
 - Evaluate lab by initiating class discussion on likes/dislikes of lab and how to improve
 - Ask students what did they get out of it
 - Ask which is less expensive (what is the best buy) ounces or liters
 - What type of jobs could you apply these skills (after response share career applications)

- **Optional activities**

Students who are absent will be required to make up during Tutorial.

- **Career Applications**

- | | |
|-------------------|---------------------|
| Machinist | Pharmacist |
| Real Estate Agent | Educator |
| Carpenter | Surveyor |
| Banker | Appraiser |
| Cook | Detective |
| Mechanic | Computer Technician |

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LAB TITLE: *Measuring Volumes*

STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**
 - Students will compare the cost of a consumer product that is sold by a metric volume to the cost of the same product sold by English volume
 - Students will calculate the cost per ounce of the soft drink in the six-pack of 12-ounce cans sold for \$1.89
 - Students will calculate the cost per ounce of the soft drink in the 2-liter bottle sold for \$1.49
 - Which is the better buy?
 - Why do you think this is a better choice than the other one?
- **Grouping instructions and roles**
 - Break class into 6 groups of 4 students each (groups assigned by teacher)
 - Have groups assign tasks to each member of the group (allow 10 minutes for this)
- **Procedures** – steps to follow/instructions
 - Provide the procedures outlined in the text on an instructor-prepared document or have students follow procedures from the text on pages 29 to 30
- **Outcome instructions**
 - Outcome instructions are outlined in the text (pages 29 to 30)
- **Assessment instructions** (peer-teacher)
 - Grade papers per the answer key in the text book
 - Have students evaluate each other with evaluation form (instructor to review peer evaluations against instructor's observation)

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Lab Data Collection

Student: _____ Date: _____

Unit: _____

Lab Title:

Criteria: Write the problem/objective in statement form

Data Collection: Record the collected/given data

Calculations: Complete the given calculations to solve for an answer(s)

Summary Statement:

Other Assessment(s)

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