

Lab Framework

Text: Cord Applied Math

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

Short Description: Measuring in English and Metric

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Lab Title

Measuring in English and Metric Units Lab Exercises

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

Today we need to measure the classroom in order to prepare an estimate for the Acme Carpet Company who will be replacing the carpet. This Company needs measurements in both the English System and the Metric System.

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

Understanding how to measure and read the measuring tools and be able to use the correct vocabulary when explaining and drawing the plan for the Canned Carpet Company. You will also need to understand what formulas are need to calculate the area for the carpet.

- **Vocabulary**

Tape Measure
Inches
Fractions
Foot
Yard
Meter
Centimeter
Millimeter

- **Materials List**

Tape Measures, Calculator, Pencil, Paper, and Eraser

- **State Standards addressed**

Math:

A1.1.A Select and justify functions and equations to model and solve problems.

A1.1.B Solve problems that can be represented by linear functions, equations, and inequalities.

- G.3.C Use the properties of special right triangles ($30^\circ-60^\circ-90^\circ$ and $45^\circ-45^\circ-90^\circ$) to solve problems.
- 1.2 Use style appropriate to the audience and purpose. Use voice, word choice, and sentence fluency for intended style and audience.
 - 1.3 Apply writing conventions. Know and apply correct spelling, grammar, sentence structure, punctuation, and capitalization.
 - 2.1 Write for different audiences.
 - 2.2 Write for different purposes, such as telling stories, presenting analytical responses to literature, persuading, conveying technical information, completing a team project, and explaining concepts and procedures.
 - 2.3 Write in a variety of forms, including narratives, journals, poems, essays, stories, research reports, and technical writing.
 - 2.4 Write for career applications.
 - 3.1 Pre-write—generate ideas and gather information.
 - 3.2 Draft—elaborate on a topic and supporting ideas.
 - 3.3 Revise—collect input and enhance text and style.
 - 3.4 Edit—use resources to correct spelling, punctuation, grammar, and usage.
 - 3.5 Publish—select a publishing form and produce a completed writing project to share with chosen audience.
 - 4.1 Assess own strengths and needs for improvement. Analyze effectiveness of own writing and set goals for improvement.
 - 4.2 Seek and offer feedback.

- **Leadership Skills**

The student will analyze the complex responsibilities of the leader and follower and demonstrate the ability to both lead and follow.

- **SCAN Skills/Workplace Skills**

Resources: allocating time, money, materials, space, staff

Interpersonal Skills: working on teams, teaching others, serving customers, leading, negotiating, and working well with people from culturally diverse backgrounds

Information: acquiring and evaluating data, organizing and maintaining files, interpreting and communicating, and using computers to process information

Systems: understanding social, organizational, and technological systems, monitoring and correcting performance, and designing or improving systems

Technology: selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting technologies

THE FOUNDATION. Competence requires: Basic Skills: reading, writing, arithmetic and mathematics, speaking and listening;

Thinking Skills: thinking creatively, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning

Personal Qualities: individual responsibility, self-esteem, sociability, self-management and integrity

- **Set-up information**

Note: At every step of this process ask yourself, “Does my answer make sense?” Keep in mind that a foot is about the length of your foot and a meter is a little longer than a yard.

1. The Recorder: Record the measurements of each wall on a rough drawing of our classroom.

2. The Measuring Team (2 people): Measure the walls as accurately as possible and make sure to double-check your accuracy.

3. The Hunter/Gatherer: Collect all equipment and then return it at the end of the class. You are also responsible for managing this project and making certain that your team is “on task” and “on schedule.”

4. Everyone: Once the measurements are taken then make a drawing of our classroom in your notebook using information from “The Recorder” then label all sides. When you have all this data then calculate the area of our classroom using English Units. Next, convert all wall measurements to Metric Units and then calculate the area of our classroom using Metric Units.

Hint: You will need two drawings of our classroom – one for each set of units.

5. Everyone: When you are finished, write a business letter to the ACME Carpet Company that includes your drawings, your calculations, and your estimate of how much carpeting we will need to replace the existing carpet in our room.

Extension: The ACME Carpet Company gives a 15% discount for schools due to the pre-estimates that students complete. Ms. Sweet is considering a durable carpet with a 10-year warranty that usually sells for \$13.99 per yard. She is also considering another super-durable carpet with a 20-year warranty that sells for \$18.99 per yard.

Q: What would be the total price of each style of carpet BEFORE the discount?

Q. What would be the total price of each style of carpet AFTER the discount?

Q. Which carpet do you think Ms. Sweet should buy? Write an explanation of your thinking in the persuasive style.

- **Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required**)

Set up groups of 4 people, each having a required job as well as observing and discussing the accuracy of their task

55 minutes

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

Turn in the work

Evaluate on rough sketch, labeling dimensions, showing calculations converting square feet to square yards and show both English and metric system of measurements

- **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

- **Optional activities**

- **Career Applications**

Own a home and you want new carpeting or you purchased an office building or apartment complex and you need new carpeting. Could get a summer job that would be installing or helping with laying carpeting.

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LAB TITLE: _____

STUDENT INSTRUCTIONS:

- Statement of problem addressed by lab

- Grouping instructions and roles

- Procedures – steps to follow/instructions

- Outcome instructions

- Assessment instructions (peer-teacher)

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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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