

Lab Framework

Text: Cord applied math

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

Short Description: Students will find the dimensions of the classroom as well as different objects. To measure objects with a yard stick that has been cut in half lengthwise (with the help of woodshop) students will be assigned stations to rotate through. At the stations with the inches/feet the students will convert their measurements to meters/millimeters, and vice versa. Students will find the dimensions of the classroom and calculate out the area. Then for summary students will be finding the area of the principal's office.

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Date: 1/18/07

Lab Title

Measurements/areas in Classroom

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**
 - Convert meters to feet
 - Convert feet to meters
 - Convert millimeters to inches
 - Convert inches to millimeters
 - Find the area of the classroom
 - Leadership problem: Find the area of their bedroom
- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)

Basic math and measuring skills, ability to use the calculator
- **Vocabulary**

Milli-, meter, unit conversion ratio
- **Materials List**

Student Activity Sheet
Ruler and a yard stick-cut in half length wise (woodshop can do this)
Charts
Tape measure
Common objects in a classroom
Pre-measured dimensions of the principal's office
- **GLEs (State Standards) addressed**
 - Math: (Math 9-10) **1.2.3 Apply unit conversions within measurement systems, U.S. or metric, to maintain an appropriate level of precision**
 - Math: (Math 9-10) **1.2.1 Understand the relationship between change in one or two linear dimension(s) and corresponding change in perimeter, area, surface area, and volume.**
 - Reading: (Reading)
 - Writing: (Writing)
- **Leadership Skills**
- **SCAN Skills/Workplace Skills**

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

Lab organization- 5 groups with students evenly split between them.
Timeline-Lab may be used to introduce Unit 3 as long as conversions are provided or as a review, just do not provide as many conversion tables.
- **Teacher Assessment of student learning** (scoring guide, rubric)

Students will be given a rubric to represent the expectations of the teacher.
The rubric will include, but is not limited to, cooperation with others, information collected, accuracy of correct conversions, conclusion, and their participation in class discussion at the end of the project.
- **Summary of learning** (to be finished after student completes lab)
 - Student groups will make a chart of occupations that might use these applications in real life.
 - Students will share their findings-data, conversion, and conclusion and then help the teacher figure out the area of the principal's office to check for understanding.
- **Optional activities**

Students can measure the area of their bedroom for leadership points/recognition.
- **Career Applications**

Construction workers, mechanics, chefs, nutritionists, and fashion designer need to be able to use/understand the English and metric system of measurement.
Architects, surveyors, nurses, fashion producers, and mechanics need to be able to read measurements taken with common tools.
Mechanics, chefs, nurses, doctors, scientists, farmers, manufacturers, computer technicians, fashion designers/producers, nutritionists, vets, and architects

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LAB TITLE: Measurements/areas in Classroom

STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**
Find measurements and dimensions of areas/objects around you
- **Grouping instructions and roles**
There are five stations, so you need to spread yourselves out evenly into five groups. The roles you will be doing include one measurer and four data collectors.
- **Procedures** – steps to follow/instructions
 1. Spread yourselves out evenly into five groups.
 2. Choose a person to do the measuring (everyone else will be data collectors)
 3. Each group needs to choose a station (table); this is where you will be doing your first data collection.
 4. Record the measurements on your student activity sheet. After all groups have finished their measurements, rotate clockwise to the new table.
 5. Record the data from all the stations and then make sure that the person who was the measurer has their student activity sheet filled out.
 6. After you have finished all five stations, you are to convert your measurements and areas as directed on your student activity sheet.
 7. When your conversions are complete fill out your group's chart on what occupations/jobs use these skills in real life.
 8. As a class we are going to figure out the area of the principal's office.
- **Outcome instructions**
 - Successfully convert meters to feet
 - Successfully convert feet to meters
 - Successfully convert millimeters to inches
 - Successfully convert inches to millimeters
 - Successfully find the area of the classroom by the dimensional measurements of the walls and floor.
- **Assessment instructions** (peer-teacher)

Make sure you have the student activity worksheet complete, showing all your work, and when figuring out the area of the classroom make sure you included four walls (minus any windows), the floor, and the ceiling. Make sure your student activity sheet and any extra work is attached to the grading rubric provided.

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Lab Data Collection

Student: _____ Date: _____

Unit: Unit 3-Measuring in English and Metric Units

Lab Title: What are measurements and dimensions of areas/objects around you?

Criteria: Write the problem/objective in statement form

Data Collection: Record the collected/given data

Station 1: _____

Station 2: _____

Station 3: _____

Station 4: _____

Station 5: _____

Calculations: Convert the measurements/areas from your data collection to solve.

- Convert meters to feet
- Convert feet to meters
- Convert millimeters to inches
- Convert inches to millimeters

Station 1: _____

Station 2: _____

Station 3: _____

Station 4: _____

Station 5: _____

Summary Statement:

Other Assessment(s)

Can you convert the area of the classroom into variable measurements of volume.

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