

Lab Framework

Text: CORD – Applied Math

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

Short Description: This lab is designed to get the students outside and measuring the various parts around the baseball field. This lab will allow students to practice reading a tape measure and then converting English measures into metric and metric to English.

Developed by: Stacy Tronsdal

Contact Information: stronsda@meridian.wednet.edu

Date: January 17, 2008

Lab Title

Measuring the Baseball Field

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

The students will be able to:

- Calculate the area of components of the baseball diamond.
- Convert English measurement into Metric and vice versa while using unit conversion ratios.
- Take accurate measurements and successfully read a ruler

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

Basic Math Facts, ability to use calculator, ability to use and read a measurement tool, understand measurements units and conversions ratios in both Metric and English.

- **Vocabulary**

Area

- **Materials List**

Blank Paper, Tape Measures, Track rulers or string, Calculators, Clipboards, Worksheet – Student Activity

- **GLEs (State Standards) addressed**

Math: 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.

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

Reading: 2.1.4 Apply comprehension monitoring strategies for informational and technical materials, complex narratives, and expositions: use prior knowledge.

Writing: 2.4.1 Produces documents used in a career setting.

Communication: 2.2.1 Uses communication skills that demonstrate respect.

- **Leadership Skills**
Critical thinking
Problem solving
Leadership
Self Motivation

- **SCAN Skills/Workplace Skills**
Arithmetic
Mathematics
Listening
Speaking – Communication
Problem Solving

- **Set-up information**
Have copies of worksheets, access to the baseball field, materials needed and have completed the sketch, measurements and problems of the lab.

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

Grouping/Roles

Tape measure reader
Tape measure holder
Recorder

Timeline (85 minute class):

5 minutes to introduce lab
10 minutes to sketch out the baseball field
35 minutes to take measurements
35 minutes to calculate areas and complete worksheet

- **Teacher Assessment of student learning** (scoring guide, rubric)
Solutions to lab attached

- **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**

Other measurement labs could include indoor areas, pieces of lumber or metal from the scrap bin. You can use it with Unit 7 and focus on 2D measurements and unit ratios. Calculate areas of various spaces at school, at home, within a business, create layout sketches, or floor plans.

- **Career Applications**

Landscapers, Construction, Carpentry, Engineers, Architectures, Farmers, Party Planners, Interior Designers, Food Prep, Bakers, Agricultural Salesperson, Vets, and Pharmacy Techs.

LAB TITLE: Measuring a Baseball Field.

STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**
Discovering measurements of the baseball field and convert measurements from English to Metric.
- **Grouping instructions and roles**
Grouping/Roles
Tape measure reader: Reads measurements
Tape measure holder: Holds tape in right place
Recorder: Keeps track off all measurements
- **Procedures** – steps to follow/instructions
Step 1: Sketch out the layout
Step 2: Take the appropriate measurements of the baseball diamond
Step 3: Work through the worksheet. Show all work
Step 4: Turn in both your sketch with measurements and your worksheet.
- **Outcome instructions**
Complete the sketch of the baseball field and the worksheet
- **Assessment instructions** (peer-teacher)
Teacher observations – ongoing during lab
 - Did students work cooperatively
 - Were instructions followedDid students complete the problems
Were calculations/conversions within normal range

<https://wa-appliedmath.org/>

Text: CORD – Applied Math

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

Lab Title: Measuring a baseball field

Name: _____

Date: _____

1. Drawing of fields with measurements, attach your drawings.
2. Area of both measurements of ball fields in meters.
3. Divide your length measurement in feet by your length measurement in meters. This is a conversion factor from meters to feet. Divide your width measurement in feet by your width measurement in meters. This is also a conversion factor from meters to feet. Compare these two conversion factors. Are they the same? Write the conversion factors on your paper. Compare these conversion factors to the conversion factor from meters to feet given in Figure 3-7 of your text.
4. Divide your length measurement in meters by your length measurement in feet. This is a conversion factor from feet to meters. Divide your width measurement in meters by your width measurement in feet. This is also a conversion factor from feet to meters. Compare these two conversion factors. Are they the same? Write these conversion factors on your paper. Compare these conversion factors to the conversion factor from meters to feet given in Figure 3-7 of your text.
5. Divide your area measurement in square meters by your area measurement in square feet. This is a conversion factor from square feet. This is a conversion factor from square feet to square meters. Divide your area measurement in square feet by your area measurement in square meters. This is a conversion factor from square meters to square feet. Write these conversion factors on your paper.
6. Compare your conversion factor from *square feet to square meters* with your conversion factor from *feet to meters*. Are they the same? If they are not the same, why do you think they are different? Compare the conversion factor from *square meters to square feet* with the conversion factor from *meters to feet*. Are they the same? Why?

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)

<https://wa-appliedmath.org/>