Lab Framework

Text: Cord

Unit number and title: Unit 2 – Estimating Answers

   Short Description: This lab will allow students to use estimating for distance and square footage of a room.

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  Contact Information: Republic High School

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Lab Title
Estimating Distance and Square Footage

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**
Students will demonstrate the ability to estimate distance and use that information to estimate the square footage of a meeting room.

- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)
The students must be familiar with estimating terminology, use of a tape measure, and basic calculator skills.

- **Vocabulary**
Estimate, round, and average.

- **Materials List**
Measuring tape, calculator, and writing utensil.

- **GLEs (State Standards) addressed**
   1.1.7 - Understand and apply concepts and procedures from number sense.
   5.3.1 - The student understands how mathematical ideas connect within mathematics, to other subject areas, and to real-world situations. Understand that mathematics is used extensively in daily life outside the classroom.

   Reading: 3.2 Reading to perform a task.
   Writing: 2.4 Writes for Career Applications

- **Leadership Skills**
Group Skills: 2.8 The student will demonstrate the ability to incorporate and utilize the principles of group dynamics in a variety of settings.

- **SCAN Skills/Workplace Skills**
Writing: Records information completely and accurately
Arithmetic: Performs basic computations

- **Set-up information**

Students will be given a set of general instructions explaining what information is needed and how to use the step procedure as a measurement.

- **Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required)**
  Each table will be grouped together with 3 to 4 members per team. The lab should take about 20 to 25 minutes depending on available floor space.

- **Teacher Assessment of student learning** (scoring guide, rubric)
  Students will be assessed on participation in the lab and leadership displayed. All information will be reviewed and discussed in class.

- **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**
  Students with learning disabilities may be grouped with a team of two to three students.

- **Career Applications**
  In construction this can be used to help make a rough estimate of the cost of flooring or area available in an empty building for storage.

LAB TITLE: Estimating Distance and Square Footage
STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**

    You need to estimate the square footage of the meeting room we are in at this time. You will need to determine the length of a normal step of one of your group members using a 10-foot section of floor.

- **Grouping instructions and roles**

    Groups will consist of at least three, but not more than four people. One person will be responsible for stepping off the measurements, the second will be responsible for measuring the length of each step, and the third will be the recorder. If there is a fourth group member, they will be responsible for overseeing the group to assure all steps are followed.

- **Procedures** – steps to follow/instructions
    1. Measure a 10-foot long section of floor with the tape measure. Have one group member, using normal steps, walk from the beginning to the end. Everybody in the group can help count the steps per 10 feet. Record the steps taken in 10 feet. If the last step is over the ten-foot mark, estimate what fraction of a step was taken. Convert the measurement to a decimal (i.e. 4 & ½ steps becomes 4.5) Take three step measurements.
    2. Add the three measurements together and divide by three to get an average (i.e. 4.5+4.75+4 = 13.25, 13.25/3 = 4.416, round to 4.5)
    3. Divide ten by the step measurement (i.e. 10/4.5 = 2.2 foot per step.
    4. Step off the length and wide of the room and record.
    5. Using the measurement per step, estimate the length and width of the room.
    6. Compute the square footage of the room by multiplying the length time the width.
    7. Record your answer.

- **Outcome instructions**

    Compare results with other groups to see how close you came. Check to see if your numbers seem reasonable.

- **Assessment instructions** (peer-teacher)

Student: _____ **Date:** _____

Unit: _____

Lab Title: <u>Estimating Distance and Square Footage</u>

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)