

Lab Framework

Text: Bridges to Algebra and Geometry

Unit number and title: 1.5 Estimating Sums and Differences

Short Description: Estimating distances

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Lab Title How Much Lab

LAB PLAN

TEACHER: Mr. Nichols, Technical Math I

- **Lab Objective**
To have students estimate distances between classroom walls and buildings with reasonable accuracy.
- **Statement of pre-requisite skills needed**
Counting to large numbers without losing track.
- **Vocabulary**
Distance Pace Estimate Dementions
- **Materials List**
None required
- **State Standards addressed**
Math: Math
- **Leadership Skills**
Students collaborate in two person teams while communicating to help increase the accuracy of the data.
- **SCAN Skills/Workplace Skills**
Estimating materials, products or distances
- **Set-up information**
Teacher has previously measured distances prior to lab
- **Lab organization**
Students are grouped in two person teams, one third of the class starts outside with estimating distances between buildings. Another third starts in the shop area and the last third in the classroom.

- **Teacher Assessment of student learning**
Inside classroom estimations have to be with-in 4” of actual measurements. Shop area estimations have to be with-in 12” of actual measurements. And the outside estimations have to be within 2’ of actual measurements. Points are awarded in three parts (1 collection of data) (2 data calculations) (3 data summary).
- **Summary of learning**
Students learn to be resourceful problem solvers that can adapt to different situations
- **Optional activities**
Add greater distances between structures
- **Career Applications**
Estimating materials, products or distances

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LAB TITLE: How Much

STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**

You have been sent to a job sight to gather information for bid to have some work done at a school. Your boss told you only after you got to the job site that you must estimate the classroom, shop area and the distance between the OC building and the LS building. With short notice you did not have time to grab any tools or measuring devices. So you must estimate as accurately as possible with what resources you can muster from the job site. This is a competitive bid process you must not share your information with others; you have 15 minutes at each area to gather your data. The most accurate data wins the bid and the bigger paycheck.

- **Grouping instructions and roles**

Students choose their lab partners and each team member is responsible for collecting data. At the conclusion of the data collection process, each team will use what they feel is the most accurate data between the two team members for their submission to the boss all while remembering to not share their methods or information.

- **Procedures**

Step #1 Understand the problem (know what is being asked of you)

Step #2 Develop a plan (figure out how your going to solve the problem)

Step #3 Carry out the plan (put your plan into action)

Step #4 Check the results (do your results look reasonable)

- **Outcome instructions**

At the conclusion of this lab you will have approximated the distances between wall and buildings of you school.

- **Assessment instructions**

All students need to be actively participating while being careful to not share information with other groups. Students will be evaluated on actively participating while using the 4 steps of problem solving strategies.

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Lab Data Collection

Student: _____ **Date:** _____

Unit: Estimating Sums and Differences

Lab Title: How Much

Criteria:

Student will estimate measurements of three different sections of their school without measuring devices in one class period.

Data Collection:

Distance between the OC building and the LS building _____

Classroom wall width _____

Classroom wall length _____

Shop area wall width _____

Shop area wall length _____

Calculations:

Show how you came up with your building-to-building distance.

Show how you came up with your classroom width and length.

Show how you came up with your shop area width and length.

Summary Statement:

How can you prove your method of estimating between buildings is accurate?

How can you prove your method of estimating in the shop area is accurate?

How can you prove your method of estimating in the classroom accurate?