

Lab Framework

Text:CORD Applied Math

Unit number and title: Unit 2 The Bus Garage

Short Description: A lab showing students how using an estimate can solve real life problems

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Lab Title The Bus Garage

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

To be able to use rounding of numbers
To be able to collect data by measurement
To be able to come up with a rough estimate

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

Knowledge of rounding decimal numbers
Measurement using a tape measure

- **Vocabulary**

Rounding, overestimate, underestimate

- **Materials List**

Assuming a class size of 25:
6 – tape measures 6 - clipboards

- **State Standards addressed**

Math: 4.1.H Estimate products to approximate solutions to problems and determine reasonableness of answers.

- **Leadership Skills**

Class will divide into groups of 4 with assigned jobs:
Spokesperson, Recorder, and 2 measurers

- **SCAN Skills/Workplace Skills**

Paving workers
Construction workers

- **Set-up information**

Projection system ready
Calculators
Tape measures
Data collection sheets ready to hand out

- **Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required**)
 1. Divide class into groups of 4 – 5min
 2. Have each group assign their own spokes person, stat person and measurers
 3. While they do that pass out equipment(Tape measure and clipboard w/data collection sheet attached)- 5 min
 4. Give instruction for movement to Bus area, data collection and explain position assignments. – 5 min
 5. Move to bus area, collect data and then return to classroom- 15 min
 6. Do calculations in class and present – 10 min

- **Teacher Assessment of student learning** (scoring guide, rubric)
 - Visual observation of group activities
 - Collection of the data collection sheets

- **Summary of learning** (to be finished after student completes lab)
 - discuss real world application , where students could use this
 - give opportunity for students to share/present learning

- **Career Applications**
 1. To work in a team
 2. Gather data and process it for a conclusion

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LAB TITLE: The Bus Garage

STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**

How do we fit vehicles into parking areas?

How much room is needed?

Is there enough room for the # of Buses we have?

- **Grouping instructions and roles**

Groups of 4 with assigned positions:

Spokesperson – Speak for group

Stat person – Keeper of the clipboard

Measurers – Measure with the tape measure

- **Procedures** – steps to follow/instructions

Choose who will fill each position

Move to Bus area in an orderly fashion

Take measurements , move back to class

Process data upon your return

- **Outcome instructions**

You should complete the handout on the clipboard

You should determine if the new parking lot will hold our buses.

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

Teacher will be watching your interactions as a group in the Bus area as well as in the classroom.

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Lab Data Collection

Student: _____ Date: _____

Unit: 2 Estimating Answers

Lab Title: The Bus garage

Criteria: Write the problem/objective in statement form

To assess whether the Buses the school currently has will fit into the new Parking Lot

Data Collection: Record the collected/given data

Length of Bus: _____ Rounded _____

Width of Bus: _____ Rounded _____

Distance between buses: _____ GAP Rounded _____

The new Parking area is 100 ft. by 200 ft. We have 22 buses
Return to classroom to calculate

Calculations: Complete the given calculations to solve for an answer(Use diagram as necessary)

How many square ft. does each bus take up(Estimate) _____ Length X (Width + GAP)

Area of parking space _____

How many Buses can fit inside the 100 ft. X 200 ft. space _____

Now allow for a 10 ft. wide driveway down the middle.....does that change your estimate?

Parking Area

With the driveway, how many buses will fit? _____

Is there extra space? _____

Summary Statement: With this estimate we can now paint lines and begin using this parking area

Other Assessment

1. Did the use of rounding help or hurt your calculations? _____ Why? _____
2. How can this same procedure be applied to other situations in everyday life, name one _____