Lab Framework

Text: Cord Applied math

Unit number and title: Unit 2 Estimating

Short Description: In this lab the students will measure the height of a penny and then estimate the height of a stack of pennies when given the number of pennies.

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Lab Title
Penny Stack Estimating

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

    To give students real life experience in estimating

- <u>Statement of pre-requisite skills needed</u>

- Students will need basic math skills.

    Students will need to be able to use a metric ruler

- **Vocabulary**

Approximate Value	A value that is nearly correct or true. For example, a person who gives the temperature as 90^0 F, when it is actually 92.7^0 F, is giving an approximate value for the temperature.
Approximation	The process of approaching, or coming near to, a true or exact value, answer quantity, etc.
Estimate	When used as a verb, "estimate: means assign or calculate an approximate value for the cost, size, weight etc. of something. When used as a noun, an "estimate" is the approximate value given in place of the true or exact answer.
Exact value (true value)	That one value that the approximations answer approaches, as the approximation or measurement technique gets better and better.
Reasonable Answer	An answer, obtained as a result of a calculation that makes sense in the context of the problem.

- **Materials List**
    1. Approximately 500 pennies
    2. 25 metric rulers
- **State Standards addressed**

    Math: 4.5.E Select and use one or more appropriate strategies to solve a problem and explain why that strategy was chosen.

    A1.1.A Select and justify functions and equations to model and solve problems.

    Reading: TBD
    Writing: TBD
- **Leadership Skills**
- **Lab assistant**

- **SCAN Skills/Workplace Skills**
  TBD
- **Set-up information**
1. **Students will work in pairs.**
2. **Each pair will be given approximately 50 pennies.**

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

- **Teacher Assessment of student learning** (scoring guide, rubric)
    1. Visual observation
    2. Collection of worksheets
- **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**
    1. Determine the percent of error.
    2. Work with a partner
- **Career Applications**
 Estimating base on information gathered

LAB TITLE: Penny Stack Height Estimating
STUDENT INSTRUCTIONS:

1. Measure the height or thickness of one penny.
2. Given the number of pennies in a stack estimate the height of the stack.
3. Then make a stack containing the defined number of pennies and measure the height.
4. Compare the estimated height to the measured height.

Statement of problem addressed by lab
    Given data can accurate estimates be made?

- **Grouping instructions and roles**
    Groups of two students

- **Procedures** – steps to follow/instructions
    1. Obtain ruler and pennies
    2. Measure the height or thickness of one penny.
    3. Given the number of pennies in a stack estimate the height of the stack.
    4. Record the estimate on the data sheet.
    5. Then make a stack containing the defined number of pennies and measure the height.
    6. Record the measured height on the data sheet.
    7. Compare the estimated height to the measured height.

- **Outcome instructions**

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

Lab Data Collection

Student: _____ **Date:** _____

Unit: 2
Lab Title: <u>Penny Stack Height Estimating</u>

Criteria: Write the problem/objective in statement form

Data Collection: Record the collected/given data

# OF PENNIES	ESTIMATED HEIGHT	MEASURED HEIGHT	DIFFERENCE

Calculations: Complete the given calculations to solve for an answer(s)

Summary Statement:

Other Assessment(s)