

## Lab Framework

**Text: CORD Applied Mathematics: A Contextual Approach to Integrated Mathematics**

**Unit number and title: 2 – Estimating Answers**

**Short Description:** Estimating

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### Lab Title

***Hallway Rush!!!***

### LAB PLAN

**TEACHER:** Teacher Prep/ Lesson Plan

- **Lab Objective**

Students will estimate how many students walk through the 500 wing hallway (between rooms 502A and 503A and the Staff Room) going to their classes between 1<sup>st</sup> and 2<sup>nd</sup> periods by using estimation and rounding of numbers. Students will then check if answer is reasonable.

- **Statement of pre-requisite skills needed**

Computer skills  
Basic math skills  
Estimating steps and skills  
Knowledge number rounding and truncate  
Knowledge of calculating percentages  
Knowledge of estimating

- **Vocabulary**

Approximate value  
Approximation  
Digit  
Estimate  
Reasonable Answer  
Rounding  
Unit place  
Whole numbers

- **Materials List**

Computer  
Calculator  
Pencil and Paper  
Map of school building showing classrooms

Teachers schedule showing room usage

- **GLEs (State Standards) addressed**

**Math:**

- 1.1.1 Understand and use scientific notation. W
- 1.1.5 Compute using scientific notation. W
- 1.1.6 Complete multi-step computations with combinations of rational numbers using order of operations and addition, subtraction, multiplication, division, powers, and square roots. W
- 1.2.1 dimension(s) and corresponding change in perimeter, area, surface area, and volume. W
- 1.3.2 2-dimensional, and 3-dimensional shapes and figures including prisms, cylinders, cones, and pyramids. W

**Reading:**

- 3.3.1 Apply appropriate reading strategies for interpreting technical and non-technical documents used in job-related settings.

**Writing:**

- 2.2.1 Demonstrates understanding of different purposes for writing.

- **Leadership Skills**

- Organization
- Responsibility and reliability
- Work well with others
- Acquire, evaluate, and interpret information

- **SCAN Skills/Workplace Skills**

- Communications
- Organization
- Listen skills
- Writing skills

- **Set-up information**

- How many students pass through the 500-wing hallway between 2 periods?
- Consider adjustments for absent students and visiting students.

- **Lab organization**

1. Students will divide into groups of five (5).
2. Count how many classrooms.
3. Estimate how many students in each classroom.
4. Calculate average number of students in each classroom.
5. Round the number to the nearest TEN.
6. Adjust for 10% absences.
7. Adjust for 5% of students who come visit in the hallway but do not have classes in that wing.
8. Estimate how many students pass through the hallway between the 2 periods.

9. Check for reasonable answer.

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- **Timeline**
  1. Students will have 5 minutes to organize into groups
  2. Groups will have 5 minutes to discuss and plan how to execute tasks
  3. Groups will have 5 minutes to collect and exchange data
  4. Students will have 20 minutes to individually calculate and estimate, recording their conclusions in MS Word showing math work in hand writing
  5. Students will have 15 minutes to debrief, evaluate task and group effectiveness, and discuss other real-world applications of estimation.
- **Teacher Assessment of student learning** (scoring guide, rubric)  
Table rubric will be built with scoring and students will complete check off list.
- **Summary of learning** (to be finished after student completes lab)  
Students will debrief and compare conclusions  
Students will discuss other real-world applications of estimation
- **Optional activities**
  - a. Measure hallway
  - b. Calculate the number of students per square foot if all in the hallway at one time
  - c. Calculate the how long (time) each student needs to pass through hallway
  - d. Calculate number of students in hallway at one time (1 minute to pass through)
- **Career Applications**  
Almost all jobs use estimation to order product, project, and analyze needs.  
Architecture  
Design  
Constructions  
Fashion  
Advertising  
Manufacturing  
Transportation

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**LAB TITLE:** Hallway Rush  
**STUDENT INSTRUCTIONS:**

- **Statement of problem addressed by lab**  
Determine an estimated amount of how many students walk through the 500 wing common hallway on their way to classes.
- **Grouping instructions and roles**  
Divide into groups of five (5)  
Determine how to collect information  
Decide and determine how many classrooms in wing and how many students in each classroom.  
Determine how to collect and share data
- **Procedures** – steps to follow/instructions  
Class will organize themselves into groups of five (5)  
Groups will discuss and plan what data is needed and how to collect it  
Group will collect and exchange data  
Each student will calculate and estimate, recording their conclusions in MS Word showing math work  
Students will share results  
Students will discuss how they could use estimation in other real-world applications  
Students will debrief, evaluate task and group effectiveness
- **Outcome instructions**
  1. The student will have a total number of students that pass through the 500-wing hallway between two (2) periods using estimation.
  2. The student will create a document in MS Word showing collected data and in hand writing show calculations of estimation and rounding numbers.
  3. Students will turn in completed document.
- **Assessment instructions** (peer-teacher)  
Table rubric will be built with scoring and students will complete check off list

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## 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)

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