Lab Framework

Text: CORD Unit 9

Unit number and title:

Short Description: Unit 9 Distance traveled in school lab

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Lab Title

How long does it really take to get to class?

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

  To figure out how long it takes to get to various locations around the school during class time and during passing time.

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

  You will need to know the formula for finding direct and inverse proportions. You will need to know the vocabulary for unit 9.

- **Vocabulary**

  Ratios, proportion, comparison, direct proportion, inverse proportion

- **Materials List**

  A stopwatch, a wheel that counts feet (not sure of exact name), yourself, and the school building

- **State Standards addressed**

Math:

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

A1.1.B Solve problems that can be represented by linear functions, equations, and inequalities.

A1.2.B Recognize the multiple uses of variables, determine all possible values of variables that satisfy prescribed conditions, and evaluate algebraic expressions that involve variables.

- **Leadership Skills**

  The students will exhibit leadership by showing the ability to work in small groups to collect data. You will need to assign jobs and work cooperatively in groups to effectively complete the lab.

- **SCAN Skills/Workplace Skills**

Writing

- B. Records information completely and accurately
- C. Composes and creates documents such as letters, directions, manuals, reports,
- proposals, graphs, and flow charts

Arithmetic

A. Performs basic computations

B. Uses basic numerical concepts such as whole numbers and percentages in practical situations

C. Makes reasonable estimates of arithmetic results without a calculator

Mathematics

B. Uses quantitative data to construct logical explanations for real world situations

Communication

B. Participates in conversation, discussion, and group presentations

- **Set-up information**

  The list of destinations that will be traveled to by the students. The check out of stopwatches and distance wheels.

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

  The students will be split into groups of four. There will be four jobs. One is the person to gather and return the materials, one to record the data, one to work the stopwatch and one to use the wheel to record the distance traveled.

  -First the students will split into groups of four and select job duties.

  -They will then gather the materials required.

  -The list of classrooms the students will be going to will be listed in the classroom.

  -The teacher will tell each group what order they are going to each location (so not everyone is going to the same place at once).

  -The students will disperse through the school to get their initial data of distance to each location, and how long it takes to get there.

  -The students will come back to the class and calculate their initial data.

  -During passing time they will be required to time themselves on how long it takes to get to each destination. (list variables that slow them down).

  -Next day in class calculate data from passing time, then create the ratios and come up with the conclusion to the data.

- **Teacher Assessment of student learning** (scoring guide, rubric)

  I will assess the student learning through the members participation in the lab. They will be assessed on the completeness of the data recorded. They will also be assessed on how they calculate their information and the conclusion they formulate based off of the data recorded and calculated.

  Summary of learning (to be finished after student completes lab)

  The summary of learning will be completed after the lab is completed and the students have formulated their conclusions about the lab.

- **Optional activities**

  They can pick more locations in the school to go to.
  They can pick how long it takes to get to get to places outside of school and choose two different time periods to figure out time, distance traveled, and rate.

- **Career Applications**

  This is a direct application to someone that may plan on being an EMT, a firefighter, a postal service worker, a truck driver, or any other sort of driver related career.

LAB TITLE: Ratio of Travel in School
STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**
  What is the rate of travel for going from class to class during class time and during passing time?
  How much longer does it take to go through the school during passing time?

- **Grouping instructions and roles**
  The students will be split into groups of four.
  1) Recorder- the student that records the data
  2) Timer- Student that times the subject
  3) Measurer- Student that measures the distance traveled
  4) Subject- The person being timed.

- **Procedures** – steps to follow/instructions
  Pass out Lab Sheet
  Go through Pre-Lab Expectations
  Group students
  Get the materials (stopwatch, odometer, paper, and pencil)
  The locations will be given (there will be four)
  The students will go to all four locations and record their data
  They will come back to class.
  The students will need to record their times during passing time.
  Each student from a group will go to one location (not everyone will go to each spot during the passing time)

- **Outcome instructions**
- The next day the students will be calculate the ratio for each room.
- Then they will calculate the ratio average for during class time and during passing time.
- Then they will compare their averages and come to a conclusion and explain what might be some variables that cause the times to be different.

- **Assessment instructions** (peer-teacher)
  Each student is to turn in their completed lab sheet with all elements completed.

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)