Lab Framework

Text: CORD
Unit number and title: Unit 9 Using Ratios and Proportions
Short Description: Ratios compare two numbers. They can also be used to compare the measurements of two quantities. Find the relationship to proportions.
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Lab Title
Jolly Green Giant

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**
  To find the heights of objects in proportion to the height of an individual
- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)
  Measurement techniques
  Vocabulary
  Record keeping
  Formulas
- **Vocabulary**
  - Direct proportional relationship
  - Equal ratios
  - Inverse proportional relationship
  - Proportion
  - Rate
  - Ratio
- **Materials List**
  1. Measuring tape
  2. Paper
  3. 4 objects to measure (counters, bookshelves, bathroom sinks, etc)
- **State Standards**

  A1.1.A Select and justify functions and equations to model and solve problems
  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.
  A1.8.A Analyze a problem situation and represent it mathematically.
  A1.8.B Select and apply strategies to solve problems.
  A1.8.C Evaluate a solution for reasonableness, verify its accuracy, and interpret the solution in the context of the original problem.

Reading:

1.2.2 Apply strategies to comprehend words and ideas.

1.3.2 Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities

Writing:

2.3.1 Uses a variety of forms/genres**.**

3.2.2 Analyzes and selects language appropriate for specific audiences and purposes.

3.3.1 Uses legible handwriting.

- **Leadership Skills**
  The student will analyze the complex responsibilities of the leader and follower and demonstrate the ability to both lead and follow.

- **SCAN Skills/Workplace Skills**
  Writing
  - Communicates thoughts, ideas, information and messages in writing.
  - Records information completely and accurately.

  Math
  - Performs basic computations.
  - Uses basic numerical concepts such as whole numbers and percentages in practical situations
- **Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required)**
  1 55 minute period
- **Teacher Assessment of student learning** (scoring guide, rubric)
  Students will be assessed, on a percentage basis, on the accuracy of their calculations and their persuasive conclusion that must include a minimum of two statements of supporting data.

- **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

STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**
  Do you remember what it's like to be a toddler?

  The world appears larger to those that are smaller. To gain a perspective of how the world is viewed when you were 3 feet tall!

- **Grouping instructions and roles**

Students may work in teams of two. One person will be the measurer and the other will be the scribe.

- **Procedures** – steps to follow/instructions
    1. Students will be split into groups of 2
    2. Once they are separated, they will give one another a role (either scribe or measurer)
    3. They will then brainstorm as to what objects they would like to measure
        - Examples may be the restroom sink, a chair, a counter
    4. They will then measure both of their heights
    5. They will then venture around the building and gather at least 5 measurements
    6. Student then must calculate the proportion of their height to the object and a toddlers height and figure out the proportion.
- **Outcome instructions**

- **Assessment instructions** (peer-teacher)
  Students will turn in a lab write up to receive credit