Lab Framework

Text: CORD

Unit number and title: Unit 9: Using Ratios and Proportions

Short Description: Use candy types to teach ratios and proportions

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Lab Title

What's your candy ratio?

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

  Students will be able to accurately define the term *ratio*.

  Students will be able to express comparisons in multiple ways including fractions, part to whole ratios, part to part ratios
- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)

  Counting

  Recording in a table
- **Vocabulary**

  Ratio

  Proportion

  Variability

  Part to part

  Part to whole
- **Materials List**

  Document Camera and Projector for explanation

  Small zip lock bags

  Large bag of skittles

  Large bag of M&M's (not peanut-allegies)

  Small plate or towel for cleanliness

  For diabetic students you can substitute other suitable items
- **State Standards addressed**

  Math:

  6.3.B Write ratios to represent a variety of rates.

  6.3.D Solve single- and multi-step word problems involving ratios, rates, and percents, and verify the solutions.

  Reading:

  3.1.1 Follow multi-step written directions (e.g., read a manual, complete a project or assignment).
- **Leadership Skills**

  1 member from each table group will be the materials gatherer for the group, one member will be the clean up person and 1 person the coordinator
- **SCAN Skills/Workplace Skills**

  Mathematics

B. Uses quantitative data to construct logical explanations for real world situations
C. Expresses mathematical ideas and concepts orally and in writing
D. And understands the role of occurrence and prediction of events.

- **Set-up information**
  Teacher or an assistant will put approximately (randomization required) 50 each of Skittles and M&Ms in a zip lock bag (or other at teacher choice)
  Each student will need a towel or other thing to do their sorting on
  The term ratio will be defined on the board.
  Be sure to include the difference between *part to part* and *part to whole* ratios.
- **Lab organization**
  Each table group will have a materials, cleanup and table speaker

- **Teacher Assessment of student learning** (scoring guide, rubric)
  Rubric 0-4 scale (create your own)
  Were students able to work in a cooperative group?
  Was the work done in a neat and presentable fashion?
  Was the data gathered at an acceptable level of accuracy?
  Summary of learning
  Students will have measured a variety of ratios, and then the different ratios will be combined into larger and larger groupings.

- **Optional activities**
  Ask each student to produce a graph in the correct format and did it accurately represent the data?

- **Career Applications**
  Sorting
  Recording data
  Cooperation in groups
  Looking for data trending

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STUDENT INSTRUCTIONS:

- **Grouping instructions and roles**
  You will be working at your tables individually. However, for organizational sake, appoint a materials person, a clean up person and a speaker.

- **Procedures** – steps to follow/instructions
  Have your materials person get a bag from the materials spot
  You will also need a towel or plate to do your work on
  You will also need a pencil and data collection sheet

  When instructed, you will pour out 10 candies from your mixture of M&Ms and Skittles. You will record the number of each type of candy on your worksheet. You are done with those candies so you might as well eat them. Repeat this for each batch of candy until you run out.

  Once you are sufficiently sugared up you will start to determine the ratios of your candies. You will need to complete the columns of your work sheet.
  Each column will have an example.

- **Outcome instructions**
  Now that you have completed the lab and worksheet, can you think of a good way to represent this data? How would you accomplish this?

- **Assessment instructions** (peer-teacher)
  Rubric 0-4 scale (create your own)
  Were students able to work in a cooperative group?
  Was the work done in a neat and presentable fashion?
  Was the data gathered at an acceptable level of accuracy?

Lab Data Collection

Student: _____ **Date:** _____

Unit: _____

Lab Title: **What's your candy ratio?**

Data Collection:

Skittles	M&Ms	Part Skittles to whole	Part M&Ms to whole	Part Skittles to M&Ms	Combine last 3 data to whole	Combine last 5 to whole
					XXXXX	XXXXX
					XXXXX	XXXXX
						XXXXX
						XXXXX