Lab Framework

Text: CORD

Unit number and title: Unit 2 – Estimate answers

Short Description: Estimate the number of candies in the "average" package of M&Ms.

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Lab Title
Chocolate, chocolate, chocolate!!!

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

    To be able to accurately guess how many candies are in a bag of M&Ms. Determine how many per ounce and then predict how many would be in the larger bags based on the snack size estimates.

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

    Students will demonstrate listening skills and follow written and verbal directions. Be able to use a calculator to find an average, use basic addition and division skills and be able to convert decimals to percents.

- **Vocabulary**

    Average, estimate, rounding, ounces

- **Materials List**

    1 snack size M&M for each student
    1 napkin for each student
    1 lab datasheet and instructions per student
    Calculator

- **GLEs (State Standards) addressed**

    Math:

    1.1.8 Apply estimation strategies in situations involving multi-step computations of rational numbers using addition, subtraction, multiplication, division, powers, and square roots to predict or determine reasonableness of answers.

    2.1.2 Determine what information is missing or extraneous.

    3.3.2 Evaluate reasonableness of results.

    4.1: Gather information.

    Reading:

    3.2 Read to perform a task.

- **Leadership Skills**

    Individual:

    1.4 Be involved in activities that require applying theory, problem-solving and using critical thinking skills while understanding the outcomes of related decisions.

    Group:

        2.1 Communicate, participate and advocate effectively in pairs, small groups teams, and large groups in order to reach common goals.

- **SCAN Skills/Workplace Skills**

  Resources – A) Time

  Interpersonal – A) Participates as a member of a team

  Information – A) Acquires and evaluates information

- **Set-up information**

  Students will be given a data recording sheet. Teacher will provide initial scenario and provide instructions. Reminder for students to count their candies prior to eating them.

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

  Students evaluate and record their own product first, then gather information from four other students and then return to their seat to continue with project individually. After filling out datasheet, students will do calculations and turn in datasheet prior to end of class. Discussion on findings and suggestions will conclude the class period.

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

  sets of data = 10

  find totals, averages, percents = 10

  find total per ounce, per color and total = 10

  estimate how many of each color and total for different package sizes = 10

- **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

  -discuss why everyone had different data for the same product served in the same ounces

- **Optional activities**

  Can use different candies – peanut M&Ms, Skittles, Reeces Pieces, etc.

  Can be used for different products that are filled by weight and not volume (like cereal)

- **Career Applications**

  Quality control

  Culinary Arts

  Farming

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LAB TITLE: Chocolate, chocolate, chocolate!!!
STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**

  Can we accurately predict how many M&Ms will be in any given size package? What about the percent of color per bag?

- **Grouping instructions and roles**

  Do not eat M&Ms until the project is completed.
  Open your package of M&Ms and count how many you have.
   Be sure to note total by color and total of all candies.
  Record your total on the datasheet.
  Find data from four other students – you do not have to be in a "group".
  Complete the datasheet.

- **Procedures** – steps to follow/instructions
  1. Open your M&Ms
  2. Count the candies by color and record a total.
  3. Record the information onto your datasheet.
  4. Communicate with four other students and gather information from them – the four people you choose do not have to have your information, they can use four other people's information.
  5. Record the information from the four other students.
  6. Complete the datasheet.

- **Outcome instructions**

  You should be able to estimate how many of each color will be in a package no matter how many what size the package.

- **Outcome instructions**

  Complete the bottom portion of the datasheet to determine how many candies per ounce and then transfer that to different sized packages.

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

  Complete datasheet accurately and participate in class discussion at end of lesson.

Lab Data Collection

Student: _____ **Date:** _____

Unit: 2 – Estimating Answers

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Criteria: Write the problem/objective in statement form

How many M&Ms are in a snack pack? How many of each color is in the package? What estimates can we make based on that information? What if we had more data to make estimates from?

Data Collection: Record the collected/given data

Fill in the following chart – Your information should be in the first box, and then gather information from four other students.

Name	Red	Orange	Yellow	Green	Blue	Brown	Total
1							
2							
3							
4							
5							
Totals							
Average							
Percent							

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

Using the information you have gathered, determine how many of each color would be in 1.69 ounce bag of M&Ms? A 3.14 ounce bag? A 14 ounce bag?

Size	Red	Orange	Yellow	Green	Blue	Brown	Total
1.69 ounces							
3.14 ounces							
14 ounces							

Would this formula work for a bag of Peanut M&Ms? Why or why not?

Would this formula work for a bag of Crispy M&Ms? Why or why not?

Would this formula work for a bag of Skittles? Why or why not?

Summary Statement:

In the world of Culinary Arts, you have to estimate how many of a particular product is in a container when it is sold by weight and not volume. What other products could this apply to?

Other Assessment(s)

Share you findings with the class.