

Lab Unit 2 estimating answers

Objective:

ROUNDING VERSES NOT ROUNDING

Prerequisite skills

Basic math
Use of calculator
Completion of Unit 1: learning problem solving techniques

Vocabulary

Rounding

Materials list

Recipe for beef stroganof
Invoice from the purveyors
Calculator

GLEs

Round and truncate whole numbers to a given number of digits: 1.1.7, 1.1.8, 5.3.1, 5.3.2

Round and truncate decimal numbers to a given number of digits: 1.1.7, 1.1.8, 5.3.1, 5.3.2

EALRs or GLEs (Taught & Assessed in Standards)

MATH

- 1.1.7 Apply strategies and uses tools appropriate to tasks involving addition and subtraction of non negative decimals or like denominator fractions.
EXAMPLE: Select and use appropriate tools from among mental computation, estimation, calculators, manipulative, and paper and pencil to compute in a given situation.
- 1.1.8 Apply estimation strategies involving addition and subtraction of non negative decimals and like denominator fractions to predict results or determine reasonableness of answers
EXAMPLE:: Explain when an estimation or exact answer is or is not appropriate
- 1.1.8 Apply estimation strategies involving addition and subtraction of integers and the four basic operations on non negative decimals and fractions to predict results or determine reasonableness of answers. W
EXAMPLE: Determine and explain when an approximation, estimation, or exact computation is appropriate and selects or illustrates a real life situation where estimation is sufficient.
- 1.1.8 Apply estimation strategies involving computation of rational numbers using addition, subtraction, multiplication, division, powers, and square roots to predict results or determine reasonableness of answers. W
EXAMPLE: Select, explain, and justify situations Involving rational numbers where estimates are sufficient and others for which an exact value is required. 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. W
EXAMPLE: Use a variety of estimation strategies to predict results prior to computation.
- EXAMPLE: Generate examples and explain how mathematics is used in everyday life.
- 5.3.1 Understand that mathematics is used extensively in daily life outside the classroom.
EXAMPLE: Describe situations in which mathematics can be used to solve problems with implications in a classroom or school.
- 5.3.1 Understand that mathematics is used extensively in daily life outside the classroom.
EXAMPLE: Describe situations in which mathematics can be used to solve problems with local implications in a school or town.
- 5.3.2 Understand that mathematics is used in many occupations or careers.
EXAMPLE: Describe specific examples of mathematics associated with a given career.
EXAMPLE: Describe the mathematics used by workers in a specific job.

Determine cost of product

Information supplied by your purveyor or where you purchase your food from.

Determining per ounce cost

Rule of Thumb #2

WHEN DEALING WITH MONEY, MONEY COMES FIRST!

\$

Step #3

The Formula

$$\frac{\text{Cost}}{\# \text{ of ounces in unit of measure}} = \text{Equals PER OUNCE COST}$$

Step #3

Example

Chicken stock \$4.98 gal.
 1 gal. equals 128 ounces

$$\frac{4.98}{128} = \text{equals } .0389062!$$

Step #4

Determine the cost of each ingredient

To do so we simply multiply.....

Per ounce cost
 x
 # of ounces in the recipe

Step #4

Determine the cost of ingredients

per ounce		ounces	cost
<u>.0389062</u>	x	192	= \$7.47

but the question is.....

To round or not to round?

Step #4

Determine the cost of ingredients

Not rounding: .0389062 x 192 = \$7.47

Rounding: .04 x 192 = \$7.68

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Name 1: _____ (Leader)

Name 2: _____ (Measurer)

Name 3: _____ (Constructor)

Name 4: _____ (Recorder)

Lab Document –Lemon Power

Using a multimeter, measure the voltage of the following

	Voltage	Rounded to the nearest hundredth	
1 Lemon			
2 Lemons			
3 Lemons			
4 Lemons			
Estimate a 5 th lemon			

Estimate how many lemons it would take to create a 12 volt system.

- Estimate what the voltage output would be of four lemons that were $\frac{3}{4}$ the size in volume.
- Estimate what the voltage output would be of four lemons that were 1.5 times the size in volume.

If oranges are 2 thirds as powerful as lemons, estimate how many oranges would it take to make a 12 volt system.

What is your conclusion as to why there is a flow of electricity out of a lemon.

For early finishers: experiment with trying varying depths for your nails. Experiment with heavier and lighter wires. Try a penny instead of a copper nail.
(record data below)

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