Lab Framework

Text: Cord Mathematics

Unit number and title: USING SIGNED NUMBERS AND VECTORS

Short Description: Develop meaning for integers and represent and compare quantities with them. Represent, analyze, and generalize a variety of patterns with tables, graphs, words, and when possible, symbolic rules.

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Lab Title

Absolute Value

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**
  Write the absolute value of a number.

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

- **Vocabulary**
  absolute value
  additive inverse
  opposites

- **Materials List**
  Worksheet/Handout
- **State Standards addressed**
  Math: (Math)
  Reading: (Reading)
  Writing: (Writing)
- **Leadership Skills**
  Utilize norms of proper behavior, collaboration, being a good listener
- **SCAN Skills/Workplace Skills**
  Cooperative learning
  Team building
- **Set-up information**
  1. Calculators and pencils ready to handout
  2. Worksheet ready for students to work on

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

  1. Students will demonstrate the ability to work with partner to calculate problems.
  2.

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

1. Teacher will observe students as they task through items relating to lab.
2. Students will submit a worksheet of their calculations.

- **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

Students use a table based on data comparing the weights of pennies to learn about absolute value. They then transfer their knowledge to abstract representations of absolute value.

- **Career Applications**

  Studying and Examining Data and interpret representations

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LAB TITLE:_____
STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**
  1. How do I write the absolute value of a number?
  2. How do I find the additive inverse of a number?

- **Grouping instructions and roles**
  1. Have a balanced approached towards working together to identify the parts of the lab that are needed for proper calculating.
  2. Give answers to your findings for each of the separate problems.

- **Procedures** – steps to follow/instructions
  1. Use a number line and absolute values to determine distance from a specific value.
  2. Use both real-life and abstract representations to solve problems.
  3. Write examples of opposites and additive inverses.

- **Outcome instructions**
  You should have a completed table of items relating to this activity.

- **Assessment instructions** (peer-teacher)
  Your teacher will be watching and assisting if need to provided students with the reinforcement of the lesson objectives.

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Lab Data Collection

Student: _____ **Date:** _____

Unit: _____

Lab Title:

Criteria: Write the problem/objective in statement form

Which pennies are heavier than specification? Which are lighter?

How can you tell? How much does each penny weigh?

How did you find its weight?

Is the coin that is furthest from specification the heaviest coin?

Is the coin closest to specification the lightest? How can you tell?

What does each mark on the number line represent?

In what way can the 0 on the number line be said to represent a specific number of milligrams?

What happens to the absolute value of a number as that number's distance from 0 on the number line

Data Collection: Record the collected/given data

The average life span of a U.S. coin is 30 years. In science class, you are weighing pennies from different years to determine whether the mass of a penny changes because of wear and tear. According to the U.S. Mint coin specifications, the mass of a penny should be 2.5 grams, which is 2500 milligrams. Your table shows the differences in the masses of 9 pennies from the specification of 2500 milligrams.

Decade	Mass #1	Mass #2	Mass#3
1970s	-13 milligrams	-14 milligrams	-10 milligrams
1980s	-9 milligrams	-6 milligrams	5 milligrams
1990s	9 milligrams	7 milligrams	-2 milligrams

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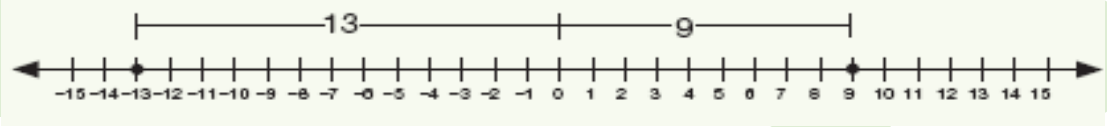
A. In order to determine which pennies are the furthest from the specification, you can write the *absolute value* of each number in the table. The **absolute value** of a number is the distance between the number and 0 on a number line.



Decade	Absolute Value of Mass #1	Absolute Value of Mass #2	Absolute Value of Mass #3
1970s	|-13| = 13	|-14| =	|-10| =
1980s	|-9| =	|-6| =	|5| =
1990s	|9| =	|7| =	|-2| =

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

Summary Statement:

Other Assessment(s)

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