

Lab Template

Text: **CORD Mathematics**

Volume: 3 _____ **Chapter:** 1 _____

Unit number: _____ **Title of unit:** Working with Statistics

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Attach the Following Documents:

- 1. Lab Instructions**
- 2. Student Handout(s)**
- 3. Rubric and/or Assessment Tool**

Short Description (Be sure to include where in your unit this lab takes place):

Student uses a meter stick to measure the height of other students. Student Will find the median, mode, and mean of the data collected. The data will then be used to create a frequency chart, a histogram, and a box and whiskers chart.

What's Your Standing?

LAB PLAN

TEACHER: (*Teacher Prep/Lab Plan*)

- ⤴ **Lab Objective** Students will work collaboratively, but report individually, to create a histogram and box and whisker chart to find where they stand among their peers.
 - ⤴ **Statement of prerequisite skills needed** (*Vocabulary, Measurement Techniques, Formulas, etc.*)
Students must be familiar with measuring in Metric units, graphing skills, creating a frequency chart, histogram, and box and whisker chart.
 - ⤴ **Vocabulary**
 - ⤴ **Statistics**
 - ⤴ **Measures of Central Tendency**
 - ⤴ **Median**
 - Mode**
 - Mean**
 - Range**
- | |
|-------------------------------|
| Graph |
| Frequency Distribution |
| Histogram |
| Box and Whisker |
| Quartile |

- ^ **State Standards addressed:** (*Highlight "Green" Standards, you may use your District's Power Standards if applicable*)
 - ^ **Math:**
 - ^ A1.6.A Use and evaluate the accuracy of summary statistics to describe and compare data sets
 - ^ **Reading:**
 - ^ **Writing:**
 - ^ **Leadership**
 - ^ **SCAN Skills/Workplace Skills:**

- ^ **Teacher Preparation:** (*What materials and set-up are required for this lesson?*)
 - ^ Materials:
 - ^ Meter stick, Ruler, Calculator, Graph paper, Data collecting sheets
 - ^ Set-Up Required:
 - ^ Students will need a walled area where they can measure their heights.

- ^ **Lab Organizational Strategies:**
 - ^ Grouping/Leadership/Presentation Opportunities:
 - ^ Students work in groups of 3. A Team Leader, Recorder/Reporter, and Materials Manager are specified each day and responsibilities are rotated within the group each day so each student has an opportunity to hold each of these positions.
 - ^ Cooperative Learning:
 - ^ Teams will work collectively, but report individually.
 - ^ Expectations:
 - ^ Time-line:
 - ^ Day 1 – Introduce the Lab and demonstrate how to read a meter stick. Students will measure 3-5 items in the classroom using the meter stick. The teacher will model how to measure a student's height. Students will measure the height of their team members in centimeters and share their information with all other teams. Students will then list their data from least value to greatest value. Student work is checked off by the teacher.

 - Day 2 – Teacher will introduce and model Measures of Central Tendency: median, mode, and mean. Students will identify the median and mode of their data. Then students will compute the mean of that data. Student work is checked off by the teacher.

 - Day 3 – Teacher will introduce and model Frequency distribution and how to create a Histogram. Students will create a frequency chart and histogram for their height data. Student work is checked off by the teacher.
 - Teacher will introduce Measures of Variability, range, and model constructing a Box and Whisker plots. Students will find the range of their height data and create a Box and Whisker plot from their data. Student work is checked off by the teacher.

- ^ **Post Lab Follow-Up/Conclusions** (*to be covered after student completes lab*)
 - ^ Discuss real world application of learning from lab:

- ⤴ Day 4 – Teams will discuss what information that the box and whisker plot reveals. Teams will share their information with the class and discuss the relevancy of this type of data. Class discussion about where else, in real life situations, would frequency charts, histogram, or box and whisker chart be useful.
- ⤴ Career Applications:
- ⤴ The skills learned in this lab apply to sports statistics, business investments and returns, meteorology, analyzing mercury concentration in fish, poll conducting surveys, and even test scores.
- ⤴ Optional or Extension Activities:

SCORING RUBRIC

Activity	Points	Teacher Initials
Measure heights in centimeters	10	_____
Chart of organized data listed from least to greatest	10	_____
Median and Mode identified; mean calculated	15	_____
Frequency Chart and Histogram	10	_____
Constructed Box and Whisker with Quartiles labeled	10	_____
Participation in class activities Days 1-3	15	_____
Participation in class discussion Day 4	15	_____
Vocabulary Study sheet	15	_____
Total Points Possible	100	

