***(Input Lesson Title Here)***

**ESSENTIAL IDEA:***Students should be able to calculate the measures of dispersion and be able to apply it to their datasets. They should be able to know when and how to use the different measures, and what the measures represent about our data set.*

**TIME:** *Two hours*

**OUTCOMES:** *As a result of instructions, students will be able to:*

1. Calculate the Standard Deviation of a Population and a Sample
2. Calculate the IQR and generate a box and whiskers plot
3. Calculate the Range and midrange
4. Write programs that incorporate and use these measures.

**ASSESSMENTS:**  *Lab, Homework, Post class quiz*

**MATERIALS:** *Nothing special*

**SET UP:** *Nothing special*

**PROCEDURE:** *Provide step by step lesson instructions. This area describes what the instructor will do.*

Introduction: *(Time spent introducing concepts.)*

1. Quick overview of our measures of central tendency. Review what they are and what they represent.
2. Have a discussion with students talking about what other relevant information we can pull from our data sets.
3. Explain why Dispersion is important

Lesson/Direct Instruction:

1. Go over the difference between a population and a sample
2. Introduce the formula to get the variance of both in Sigma notation.
3. Go over the standard deviation and explain to students the difference between it and the variance
4. Go over the IQR of a dataset, and explain how to calculate the 4 quartile ranges.
5. Go over outliers, strong and weak and how to calculate them.
6. Explain how to create a box and whiskers plot.
7. Explain how to calculate the range and midrange.

Tasks: *(Hyperlink algo challenges/ lab assignments etc.)*

1.

2.

3.

Closing:

1.

2.

3.

**REFERENCES:** *Identify necessary reference texts/ materials for the lesson*