

Topic: Temperature

Teacher: Witte

Genre: Math

Grade Level: 6,7

Unit: Measurement

Duration: 2-3 pds

Essential Question

(Domain 1: Planning and Preparation-Component 1c: Designing Coherent Instruction)

- What is temperature scale and how are Fahrenheit and Celsius related?

Background Knowledge

Background Summary:

- Scale, Celsius, Fahrenheit, <https://vimeo.com/161909704>

Lesson Objective:

- Students will develop a formula for conversion between the two scales

Standards

(Domain 1: Planning and Preparation- Component 1a:Demonstrating Knowledge of Content and Pedagogy)

- 6.NS.5 ordering rational numbers
- 6.EE.B.6 Using variables to represent real world concepts
- 6.EE.C.9 Using Variables to represent two quantities in a real world situation
- MP.6 Attend to Precision
- MP.7 Look for and Make use of Structure
- 6.SP.A.3 Measures of Central Tendency.
- 6.SP.B.4 Display Numerical Data
- 6.SP.D.5 Summarize numerical data

Background information: Students will understand the difference between quantitative and Qualitative Data.

Students will have some knowledge of scale. Students will be asked to create their own scale based on qualitative statements. Students will know how to upload data for experiments.

Scenario: You are an industrial engineer for a business dealing with temperature sensitive pharmaceuticals which is vital for product life. You have designed a robot to take temperature readings in a variety of locations in the warehouse so that you can ensure your product will have the proper shelf life.

Temperature Mapping: The process of mapping the differences and changes in temperature that occur in a given area. Meteorologists and/or weatherman also use weather maps to predict coming conditions..

Vocabulary (Domain I: Planning and Preparation - Component 1e: Demonstrating Knowledge of Students.)	Prep Work/Materials (Domain 1 Planning and Instruction- Component 1e: Designing Coherent Instruction, Domain 3 Instruction-Component 3c: Instruction Engaging Students in Learning)	Cross Curricular Connection (Domain I: Planning and Preparation - Component 1a: Demonstrating Knowledge of Content and Pedagogy, Component 1b: Demonstrating Knowledge of Students.)
Equation, Linear Expression, Variable, Line Plot, Box and Whisker Graph, Mean, Median, Mode, Range, Maximum, Minimum	EV3 robot, Temperature sensor, Chrome Books, Graph paper, pencil, colored pencils, rulers, Loose Leaf	Science- Temperature Measurement
Differentiation (Domain I Planning and Preparation-Component 1e: Designing Coherent Instruction, Domain 3: Instruction - Component 3b: Using Question and Discussion techniques Domain 3: Instruction - Component 3c: Engaging Students in Learning)		
Have different groups responsible for different quantities of data, allow some groups to round to the nearest whole, help set number lines for some group, some groups will be provided with definitions form mean median and mode.		
Procedure (Domain I Planning and Preparation-Component 1e: Designing Coherent Instruction, Domain 3: Instruction - Component 3b: Using Question and Discussion techniques Domain 3: Instruction - Component 3c: Engaging Students in Learning)		Student Engagement (Teacher Assessment)
<ul style="list-style-type: none"> Students will complete Do Now: <p>Make 7 quantitative statements about temperature</p> <ul style="list-style-type: none"> Students will rank qualitative statements from high temp to low temp Students will pair up and generate a list in order of Qualitative statements to display on a pseudo number line: Worksheet 1 Students will assign values to the the qualitative statements in Fahrenheit. EV3 robot will take temperature readings from the group table. Students will take data and make a line plot. Students will take data and make a box and whisker graph. Students will load data as an experiment and have the robot graph the data linearly. Students will then study the data in the table to see what patterns they notice. (data should be put in numerical order) <p>Stations: (Floor Level)</p> <p>A- Front of Room</p> <p>B: By Side Door</p> <p>C: By Heater</p> <p>D:By Window Away From Heater</p> <p>E: By Bookcase</p> <p>F: Hallway (Provided there is a para)</p> <p>Repeat: (Table Level)</p>	Are students working in groups? Are the Graphs/Plots Accurate? Are the function rules close?	

Assessment (Formative or Summative) (Domain 1 Planning and Instruction- Component 1e: Designing Coherent Instruction, Domain 3 Instruction- Component 3c: Engaging Students in Learning, Domain 3 Instruction- Component 3d: Using Assessment in Instruction)	Student Engagement (Teacher Assessment)
Graphs, plots, data table will be graded according to a rubric.	Is the work neat and presentable?
Additional Resources	
Data Table, Number lines 2, Sharpener, Additional Video ideas,	