Unit 4b- Display, Describe and Summarize Data

Content Area: **Math**
Course(s): **Math 6**
Time Period: **Marking Period 4**
Length: **WK 3-6 Envision Mathematics Topic 8**
Status: **Published**

Essential Questions

- How can data be described by a single number?
- How can tables and graphs be used to represent data and answer questions?

Big Ideas

- Recognize statistical questions.
- Describe a data set by finding its mean, median, and mode.
- Use box plots to show distributions of data along a number line.
- Display data using frequency tables and histograms.
- Calculate measures of variability including the mean absolute deviation.
- Choose appropriate statistical measures to summarize data distributions.

CRLLKS- 21st Century

9.1.8.CR.1: Compare and contrast the role of philanthropy, volunteer service, and charities in community development and the quality of life in a variety of cultures.

9.1.8.CR.3: Relate the importance of consumer, business, and government responsibility to the economy and personal finance.

9.1.8.CR.4: Examine the implications of legal and ethical behaviors when making financial decisions.

Connection:

An end-of-the-year culminating benchmark assessment is assigned. A compilation of the NJSLS are used throughout the project and are based on the career the student chooses. Students are required to choose a career and they utilize their research skills to investigate how the career uses mathematics on a daily basis. Two full essays are required which pertain to how their chosen career uses math as well as how their career benefits society as a whole.

Cross-Curricular Integration

Integration Area: Language Arts

Activity:

The students will use online and print resources to research a career that uses math on a daily basis. They will use the writing process to write two informative/explanatory essays that discuss how the career integrates mathematics and how the career benefits society. The students will represent their career in three forms: Presentation, poster display, and Google Slides. They will upload their Slides onto their Google Classroom site. The students will be given an opportunity to dress up as their profession during their presentation.

LA.6.W.IW.6.2 Write informative/explanatory texts to (including the narration of historical events, scientific procedures/experiments, or technical processes)examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

LA.6.W.IW.6.2.A Introduce a topic and organize ideas, concepts, and information, using text structures (e.g., definition, classification, comparison/contrast, cause/effect, etc.) and text features (e.g., headings, graphics, and multimedia) when useful to aid in comprehension.

LA.6.W.IW.6.2.B Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples

LA.6.W.IW.6.2.C Use appropriate transitions to clarify the relationships among ideas and concepts.

LA.6.W.IW.6.2.D Use precise language and domain-specific vocabulary to inform about or explain the topic.

LA.6.W.IW.6.2.E Acknowledge and attempt a formal/academic style, approach, and form.

LA.6.W.6.2.F Provide a concluding statement or section that follows from the information or explanation presented.

LA.W.WP.6.4 With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, flexibly making revising, editing, rewriting, or trying a new approach and revision choices; sustaining effort to fit composition needs and purposes; and attempting to address purpose and audience.

LA.W.WR.6.5 Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

LA.6.W.SE.6.6 Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.

Students may assess the credibility of evidence and sources while constructing an argument related to how changes to physical or biological components of an ecosystem affect populations.

LA.6.W.6.7 Write routinely over extended time frames (time for research, reflection, metacognition/self-correction, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

M.P: Attend to precision

M.P: Modeling

Diversity Intergation

Objective: Students will show statistical data about their heritage on a number line, dot plot, histogram and box plot.

Activity:

- Teacher will review all the different types of displays and when to use each.

- Students will complete a survey about their heritage in Math class to compare their heritage with their classmates.

- Students will then compare the class answers to the whole 6th grade class.

CSDT Technology Integration

Activity:

1) Teacher sets up a flipped classroom model. Students watch and work through the video lesson while taking notes. They then practice with the online manipulative by creating box-and-whisker plots and manipulating them to see how the box-and-whisker plot is affected. Students will then move on to the questions part. Here students will test their own understanding of box-and-whisker plots and their characteristics. After they feel comfortable, they move on to the problem set where they actually calculate and create the box-and-whisker plots. This score can be used for the exit ticket or a check for understanding.

2) Google forms for data collection. Students in the grade level will answer a survey question and the math students will find the central measures of tendency and measures of variation. They will also create histograms, frequency tables, line plots, and a box-and-whisker plot. This would serve as a project for the chapter.

Resource: Brainingcamp.com for box-and-whisker plots.

8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.

8.1.8.NI.3: Explain how network security depends on a combination of hardware, software, and practices that control access to data and systems.

8.1.8.AP.2: Create clearly named variables that represent different data types and perform operations on their values.

Enduring Understandings

Statistics and Probability

6.SP.1 Understand statistical questions.1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.

6.SP.2.Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

6.SP.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

6.SP.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots. Students may develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates, students may display numerical data in plots on a number line, including dot plots, histograms, and box plots.

6.SP.5a Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations.

6.SP.5b Summarize numerical data sets in relation to their context, such as by: Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.

6.SP.5c Summarize numerical data sets in relation to their context, such as by: Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data was collected.

6.SP.5d Summarize numerical data sets in relation to their contest, such as by: Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

Mathematical Practices Focus

1. Make sense of problems and persevere in solving them. Lessons 1,3,6, and page 515

2. Reason abstractly and quantitatively. Lessons 1,2,3,4,5,6, and page 515

3. Construct viable arguments and critique the reasoning of others.Lessons 2,3,5, and page 515

4. Model with mathematics. Lessons 1,3,4,5,7, and page 515

5. Use appropriate tools strategically.and page 515

6. Attend to precision. Lessons 4,5,7, and page 515

7. Look for and make use of structure. Lessons 2,4,6, and page 515

8. Look for and express regularity in repeated reasoning. Lessons 1,2,4,7, and page 515