

MP4b- 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.

Technology Integration

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.

Activity:

1) Brainiaccamp.com for box-and-whisker plots. 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.

Career Education Integration

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

LA.6.W.6.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

LA.6.W.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 aiding comprehension.

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

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

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

LA.6.W.6.2.E Establish and maintain 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.6.W.6.4 Produce clear and coherent writing in which the development, organization, voice and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

LA.6.W.6.5 With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

LA.6.W.6.6 Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of three and pages in a single sitting.

LA.6.W.6.7C Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

LA.6.W.6.8 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.

LA.6.W.6.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

LA.6.W.6.10 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

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.

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.

Enduring Understandings

Expressions and Equations

6.EE.2c Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

Statistics and Probability

7.SP.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

7.SP.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

7.SP.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.

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