| Trimester: | Unit Title: | Recommended Instructional Days: |
|---|---|---|
| **3** | **Statistical Measures** | **10 - 14** |

**Domain: Statistics and Probability**

***Strand:***

**6.SP.A.1** Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answer. *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.A.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.A.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.B.4** Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

**6.SP.B.5** Summarize numerical data sets in relation to their context, such as by:
a. Reporting the number of observations.
b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
c. 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 were gathered.

**Major Cluster** **Supporting Cluster** **Additional Cluster** **Climate Change Opportunity**

***Progress Indicator:*** ◊ Tests ◊ Homework / Classwork ◊ Projects ◊ Formative assessments ◊ Summative assessments

**Mathematical Practices:**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reason of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit**

**Essential Questions:**
**Lesson 9.1:** How can you use data to answer a statistical question.?
**Lesson 9.2:** What is a mean?
**Lesson 9.3:** How can you use the median and mode to summarize a data set with a single number?
**Lesson 9.4:** How can you explain how the range and interquartile range describe the variability of a data set with a single number?
**Lesson 9.5:** How does the mean absolute deviation describe the variability of a data set with a single number?

**Essential Understandings:**
**Lesson 9.1:** Identify statistical questions and use data to answer statistical questions.
**Lesson 9.2:** Find and interpret the mean of a data set.
**Lesson 9.3:** Find and interpret the median and mode of a data set.
**Lesson 9.4:** Find and interpret the range and interquartile range of a data set.
**Lesson 9.5:** Find and interpret the mean absolute deviation of a data set.

**Vocabulary:**
- statistics
- statistical question
- mean
- outlier
- measure of center
- median
- mode
- measure of variation
- range

- quartiles
- first quartile
- third quartile
- interquartile range
- mean absolute deviation

**Encourage students to practice using the unit vocabulary as they talk and write about mathematics. Understanding vocabulary will aid their understanding of the concepts. When students encounter a new definition, encourage them to write in their Big Ideas Student Journals. They will revisit these definitions during the Chapter Review.*

**Suggested Activity Descriptions**:

- Performance Task TB pg. 411, Which Measure of Center is Best: Mean, Median, or Mode?
- Exploration Activities at the beginning of each section.
- Students analyze sample student answers to compare strategies and approaches for problem solving.
- Students engage in fluency practice resources.
- Students use linking cubes to represent data and explore the concepts of mode and median. After the basic concepts are introduced, students investigate how changing a data value in a set of data affects the median. See differentiated resources, Lesson 9.3 for more details.
- ***Climate Change:*** (6.SP.B.4) Students may display numerical data related to deforestation and increasing livestock farming as contributors to climate change 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 numberline, including dot plots, histograms, and box plots.

**Interdisciplinary Connections:**

**Science:**

1. Big Ideas STEAM Video and corresponding questions on TB page 411.
2. Rich Math Tasks: Science Notes, pgs. 9 - 14, digital Big Ideas resource.
3. Self Assessment for Problem Solving TB pg. 416, problem #8.

**Social Studies:**

1. Rich Math Tasks: History Notes, pgs. 3 - 8, digital Big Ideas resource.

**Language Arts:**

1. Closure Activity TE pg. T-416.
2. Closure Activity TE pg. T-429.

**Art:**

1. Rich Math Tasks: Art Notes, pgs. 15 - 20, digital Big Ideas resource.

<table>
<tr><td colspan="4">Spot Light On: Rachel Carson</td></tr>
<tr><td colspan="2">Social and Emotional Learning:<br>Competencies</td><td colspan="2">Social and Emotional Learning:<br>Sub-Competencies</td></tr>
<tr><td colspan="2">SEL Competencies:<br>• Self-Awareness<br>• Social Awareness<br>• Self-Management<br>• Relationship Skills<br>• Responsible Decision-Making</td><td colspan="2">• Recognizing the importance of self-confidence in handling daily tasks and challenges.<br>• Demonstrate an awareness of the expectations for social interactions in a variety of ways.<br>• Demonstrate an understanding of the need for mutual respect when viewpoints differ.<br>• Identify and apply ways to persevere through alternative methods to achieve goals.<br>• Utilize positive communication and social skills to interact effectively with others.<br>•Develop, implement, and model effective problem solving and critical thinking skills.</td></tr>
<tr><td colspan="2">Assessments (Formative)<br>To show evidence of meeting the standard/s, students will successfully engage within:</td><td colspan="2">Assessments (Summative)<br>To show evidence of meeting the standard/s, students will successfully complete:</td></tr>
<tr><td colspan="2"><u>Formative Assessments:</u><br>• Teacher Observations • Exit Tickets • Quizzes • Self Assessments • Big Ideas Student Journals • Homework/Classwork • Teacher Created Assessments • Progress Monitoring Items • Formative Assessment Tips in Big Ideas Teacher Edition</td><td colspan="2"><u>Benchmarks & Summative Assessments:</u><br>• Chapter/Unit Assessments • Standardized Tests • Project-based Assessments</td></tr>
<tr><td colspan="4">Differentiated Student Access to Content:<br>Teaching and Learning <u>Resources/Materials</u></td></tr>
<tr><td>Core<br>Resources</td><td>Alternate<br>Core Resources<br>IEP/504/At-Risk/ESL</td><td>ELL<br>Core Resources</td><td>Gifted & Talented<br>Core Resources</td></tr>
<tr><td>Big Ideas Student Journal, Dynamic Assessment System, iReady, Khan Academy, Illustrative Mathematics, Learn360, TeacherTube, BrainPOP, Freckle, LearnZillion, MobyMax,</td><td>Reteach worksheets, Extra Practice worksheets, Math manipulatives, Scaffolding Instructions in each section of textbook, Tutorial Videos, Skills Review Handbook, Skills</td><td>Dictionary for native language, Video tutorial in native language, ELL Support in each section of Big Ideas Teacher’s Edition</td><td>ST Math Challenge Objectives, G&T tasks, Enrichment and Extension worksheets, Art of Problem Solving, Leveled assessments</td></tr>
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| 60 minutes of weekly ST Math, Edulastic, Achieve the Core, Desmos | Trainer | | |

**Supplemental Resources**

**Technology:**
• Chromebooks • Scientific/Graphing Calculators (upper grades only) • Online math manipulatives
**Other:**
• Google Classroom, Google Meets, Schoology, Interactive Workbooks • Illustrative Mathematics • insidemathematics.org • National Library of Virtual Manipulatives

**Differentiated Student Access to Content:**
**Recommended *Strategies & Techniques***

| **Core Resources** | **Alternate Core Resources** ***IEP/504/At-Risk/ESL*** | **ELL Core Resources** | **Gifted & Talented Core** |
|---|---|---|---|
| Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics. | Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks. | Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of an online bilingual dictionary, and modified assessment and/or rubric. | Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect student to related content. |

| | | |
|---|---|---|
| **NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS** | **Disciplinary Concept(s):** Critical Thinking and Problem Solving | |
| | ***Core Ideas:*** | An essential aspect of problem solving is being able to self reflect on why possible solutions for solving problems were or were not successful. |
| | ***Performance Expectation/s:*** | 9.4.8.CT.2: Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option. |
| | **Career Readiness, Life Literacies, & Key Skills Practices** | |
| | **Act as a responsible and contributing community member and employee.**<br>**Attend to financial well-being.**<br>**Consider the environmental, social and economic impacts of decisions.**<br>**Demonstrate creativity and innovation.**<br>**Utilize critical thinking to make sense of problems and persevere in solving them.**<br>**Model integrity, ethical leadership and effective management.**<br>**Plan education and career paths aligned to personal goals.**<br>**Use technology to enhance productivity, increase collaboration and communicate effectively.**<br>**Work productively in teams while using cultural/global competence.** | |

| New Jersey Legislative Statutes and Administrative Code<br>(place an "X" before each law/statute if/when present within the curriculum map) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Amistad Law:<br>*N.J.S.A. 18A 52:16A-88* | | Holocaust Law:<br>*N.J.S.A. 18A:35-28* | **X** | LGBT and Disabilities Law:<br>*N.J.S.A. 18A:35-4.35* | **X** | Diversity & Inclusion:<br>*N.J.S.A. 18A:35-4.36a* | **X** | Standards in Action:<br>*Climate Change* |