South Park School District	Lesson Plan	2017-2018
Dates	This unit consists of approximately 12 days of instruction, review, and assessment.	**Course/Grade** 7th Grade Math
Unit	Statistics & Probability Unit 5 Part 1	**Teacher** **Mrs. Radomski**

Essential Questions (Maximum 2):

How can we use statistics in real-world situations?

Pennsylvania State Standards: (Mathematics)

M07.B-E.2.3.1 Determine the reasonableness of an answer(s), or interpret the solution(s) in the context of the problem.

M07.D-S.1.1.1 Determine whether a sample is a random sample given a real-world situation.

M07.D-S.1.1.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest.

M07.D-S.2.1.1 Compare two numerical data distributions using measures of center and variability.

Pennsylvania State Common Core Standards: (Mathematics)

2.2 Algebraic Concepts

CC.2.2.7.B.3 Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

2.4 Measurement, Data, and Probability

CC.2.4.7.B.1 Draw inferences about populations based on random sampling concepts.

CC.2.4.7.B.2 Draw informal comparative inferences about two populations.

Pennsylvania State Common Core Standards: (English Language Arts)

1.2 Reading Informational Text
Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

CC.1.2.7.A
Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.

CC.1.2.7.B
Cite several pieces of textual evidence to support analysis of what the text says explicitly, as well as inferences, conclusions, and/or generalizations drawn from the text.

CC.1.2.7.F
Determine the meaning of words and phrases as they are used in grade-level reading and content, including interpretation of figurative, connotative, and technical meanings.

CC.1.2.7.J
Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

CC.1.2.7.K
Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.

CC.1.2.7.L
Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.

1.3 Reading Literature
Students read and respond to works of literature—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.

CC.1.3.7.B
Cite several pieces of textual evidence to support analysis of what the text says explicitly, as well as inferences, conclusions, and/or generalizations drawn from the text.

CC.1.3.7.F
Determine the meaning of words and phrases as they are used in grade-level reading and content, including interpretation of figurative, connotative meanings.

CC.1.3.7.I
Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.

1.4 Writing
Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

CC.1.4.7.A
Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information clearly.

CC.1.4.7.C
Develop and analyze the topic with relevant facts, definitions, concrete details, quotations, or other information and examples; include graphics and multimedia when useful to aiding comprehension.

CC.1.4.7.D
Organize ideas, concepts, and information using strategies such as definition, classification, comparison/contrast, and cause/effect; use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts; provide a concluding statement or section; include formatting when useful to aiding comprehension.

CC.1.4.7.F
Demonstrate a grade appropriate command of the conventions of Standard English grammar, usage, capitalization, punctuation, and spelling.

CC.1.4.7G
Write arguments to support claims.

CC.1.4.7.I
Acknowledge alternate or opposing claims and support claim with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic.

CC.1.4.7.J
Organize the claim(s) with clear reasons and evidence clearly; clarify relationships among claim(s) and reasons by using words, phrases, and clauses to create cohesion; provide a concluding statement or section that follows from and supports the argument presented.

CC.1.4.7.L
Demonstrate a grade appropriate command of the conventions of Standard English grammar, usage, capitalization, punctuation, and spelling.

1.5 Speaking and Listening
Students present appropriately in formal speaking situations, listen critically, and respond intelligently as individuals or in group discussions.

CC.1.5.7.A
Engage effectively in a range of collaborative discussions, on grade-level topics, texts, and issues, building on others' ideas and expressing their own clearly.

CC.1.5.7.D
Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

CC.1.5.7.G
Demonstrate command of the conventions of Standard English when speaking based on Grade 7 level and content.

Skills

- Determine Populations and Samples
- Draw Inferences from Populations
- Compare & Analyze Sampling Methods
- Find the Mean, Median, Mode, and Range of a Set of Data
- Gather, Display, and Find the Measures of Central Tendency for the Data Collected
- Display & Analyze Data in Dot and Box Plots
- Select and Use Appropriate Representations for Displaying Data
- Identify & Analyze Misleading Graphs

Assessments

☒ Tests   ☐ Peer Evaluation
☒ Quizzes   ☒ Rubric Scoring
☒ Worksheets   ☒ Group Grade
☒ Homework   ☐ Other
☒ Teacher Observation
☒ Student Writing
☒ Student Presentations
☒ Student Projects
Student Survey and Graphing Project
☐ Student Written
    Response (reflection)

Resources

☒ Textbook
Go Math Accelerated Grade 7 Workbook
Scholastic Math Magazine

☒ Supplementary Materials
Materials listed on Unit Lesson Plans

☒ Workbook/Worksheets

☒ Teacher-prepared materials

☒ Individual Title

☒ Technology
Go Math Online Textbook
Chromebooks
Google Classroom
Khan Academy

☒ Other
Modified homework and assessments
Intervention and Enrichment worksheets to help reinforce difficult concepts presented or to engage in higher-level applications of concepts.

Special Education Adaptations/Modifications:
• Adapted/modified assignments and/or assessments for gifted / enriched students
• Follow IEP / 504 / GIEP / SDI accommodations as documented

Differentiated Instruction / SGI Activities:
• Critical Thinking – Open-ended class discussion
• Cooperative learning
• Peer lead grouping
• Problem-solving activities

Reading & Writing:
• Non-fiction reading excerpts that include writing prompts and multiple choice questions – monthly Scholastic Math Magazines and unit related articles

Math 7
Mrs. Radomski
Unit 5 Part 1– Statistics and Probability (12 days)

Unit Order Date	Lessons and *Objectives* Bell Ringer	Activities / Materials / Assessments / Homework
1 of 12 2/26/18	Populations, Samples, and Surveys *Students will be able to determine populations and samples. They will also be able to recognize biased samples and identify sampling methods.* **Warm-up Question:** Why do companies take surveys and ask for opinions? {Answers will vary}	▪ Go over the How Are Populations and Samples Related? Notes ▪ Have the students work on the How Are Populations and Samples Related? WS and go over it when the students finish ▪ Go over the Samples and Surveys Notes ▪ Have the students work on the Samples and Surveys Practice A and B WS and go over it when they are finished ▪ Have the students work on the Biased and Non Biased Samples WS and go over it when they are finished **HW: None**
2 of 12 2/27/18	Populations, Samples, and Surveys *Students will be able to determine populations and samples. They will also be able to recognize biased samples and identify sampling methods.* **Warm-up Question:** What can cause a survey result to be unreliable? {Answers will vary}	▪ Go over the What Is Random Sampling? Notes ▪ Have the students work on the SGI activities ○ SGI Group 1: Drawing Inferences From Samples Solve and Color Activity (Student Led) ○ SGI Group 2: Populations and Samples Card Sort Activity (Student Led) ▪ Have the students work on the What Is Random Sampling? WS **HW: Finish the What Is Random Sampling? WS**
3 of 12 2/28/18	Measures of Central Tendency *Students will be able to find and analyze appropriate measures of central tendency.* **Warm-up Question:** What are some situations in which averages might be used? {grades, batting averages, etc…}	▪ Check and go over the homework (What Is Random Sampling? WS) ▪ Go over the What is a Measures of Center? Notes ▪ Have the students work on the Mean, Median, Mode and Range Practice A and B WS and go over it when the students finish ▪ Have the students work on the Measures of Central Tendency Practice A and B WS and go over it when the students finish **HW: Complete What is a Measures of Center? WS**

4 of 12 *3/1/18*	Measures of Variability *Students will be able to find and analyze appropriate measures of variability.* **Warm-up Question:** How can an outlier affect the mean? {it can make the mean larger or smaller}	▪ Check and go over the homework (What is a Measures of Center? WS) ▪ During the first period, have the students work on the Finding a Job Open Ended Activity with their groups. They will share out their answers with the class. ▪ During the second period, go over the What is a Measure of Variability? Notes ▪ Have the students work on the What is a Measure of Variability? WS and go over it when everyone is finished **HW: Study for the quiz tomorrow**
5 of 12 *3/2/18*	Statistics Quiz *Students will be able to discuss and demonstrate an understanding of previous lessons by working on a graded assessment.* **Warm-up Question:** Are there any questions before the quiz? {Answers will vary}	▪ Go over the group project from yesterday ▪ Have the students take the Statistics Quiz ▪ <mark>When they are finished, the students will complete their monthly Reading/Writing Assignment using the Scholastic Math Magazine</mark> ▪ When the students finish the assignment, they should work on Khan Academy on their Chrome Books **HW: None**
6 of 12 *3/5/18*	Comparing Two Data Sets-Dot Plots *Students will be able to compare two sets of data using dot plots.* **Warm-up Question:** What is a dot plot? {a graphical display of data using dots.}	▪ Pass back and go over the Statistics Quiz ▪ Go over the How Can Data Be Compared? Notes ▪ <mark>SGI: Have the students work in groups on the Interpreting Data From Dot Plots Cut and Paste Activity</mark> ▪ When the students finish the activity, they should work on the How Can Data Be Compared? WS **HW: Complete the How Can Data Be Compared? WS**
7 of 12 *3/6/18*	Comparing Two Data Sets-Box Plots *Students will be able to compare two sets of data using box plots.* **Warm-up Question:** What is a box plot? {a graphical display of statistical measures like median, upper and lower quartiles, minimum and maximum data values}	▪ Check and go over the homework (How Can Data Be Compared? WS) ▪ Go over the How Can Data Be Compared? Part 2 Notes ▪ <mark>SGI: Have the students work in groups on the Interpreting Data From Box Plots Find It, Fix It Activity</mark> ▪ When the students finish the activity, they should work on the How Can Data Be Compared? Part 2 WS **HW: Complete the How Can Data Be Compared? Part 2 WS**
8 of 12 *3/7/18*	Cumulative review of Unit 5 Part 1 Objectives. *Students will be able to review the material covered in Unit 5 Part 1.* **Warm-up Question:** In what ways could a sample be biased? {who is asked or how the question is asked could be biased}	▪ Check and go over the homework (How Can Data Be Compared? Part 2 WS) ▪ The students should work on the Statistics Study Guide ▪ When the students finish, we will go over it. **HW: Study for the test tomorrow**

9 of 12 *3/8/18*	Unit 5 Part 1 Test *Students will be individually evaluated on their understanding of the objectives in Unit 5 Part 1.* **Warm-up Question:** Are there any questions before the test? {Answers will vary}	▪ Give the students a final chance to ask any questions they have about the material that will be covered on the test ▪ Have the students complete the Unit 5 Part 1 Test ▪ When the students finish the assignment, they should work on Khan Academy on their Chrome Books ▪ When everyone is done, we will go over the Unit 5 Project ▪ Have the students work on the Unit 5 Project until the end of class **HW: None**
10 of 12 *3/9/18*	Unit 5 Project *Students will work with a partner to complete their Unit 5 Project.* **Warm-up Question:** Check your question and your sampling method for bias. If there is any bias, fix your project. {answers will vary}	▪ Pass back and go over the Unit 5 Part 1 Test ▪ Have the students work on the Unit 5 Project **HW: None**
11 of 12 *3/12/18*	Unit 5 Project *Students will work with a partner to complete their Unit 5 Project.* **Warm-up Question:** Did you get the results you expected to? {Answers will vary}	▪ Have the students work on the Unit 5 Project **HW: Be ready to present your finding tomorrow**
12 of 12 *3/13/18*	Unit 5 Project Presentation *Students will present their survey findings to the class.* **Warm-up Question:** What did you find most difficult about this project? {Answers will vary}	▪ The students will present their findings on the Unit 5 Project to the class **HW: None**
EXTRA *3/14/18*	Project Preparation *Students will be able to use their knowledge of statistics and probability to fill out a March Madness Bracket.* **Warm-up Question:** What is March Madness? {NCCA Basketball Tournament}	▪ Introduce the March Madness Activity that the students will complete in April after the tournament concludes. ▪ Have the students watch segments of the March Madness Selection Sunday Show and have them use their knowledge of statistics to fill out a March Madness Bracket. They are able to use the men's or women's brackets for this activity. ▪ Collect their brackets and save them for a later date. **HW: None**