Title: Data Analysis

Subject Matter Emphasis and Level: Math, 5th grade

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Brief Description of the Lesson/Unit:

We will explore mean, median, mode, and range within this unit. Students will complete various activities to demonstrate their understanding of these mathematical topics. With the students’ background knowledge and the leveled activities planned, they will have an increased knowledge regarding mean, median, mode, and range.

SD Content Standards:

South Dakota Content Standards being addressed by this lesson/unit.

5.S.1.2 Students are able to calculate and explain mean for a whole number data set.

5.S.1.1 Students are able to gather, graph, and interpret data.

5.L.1.1 Students are able to apply and evaluate appropriate listening behaviors in individual and group settings.

5.L.2.1 Students are able to determine the importance of information that is seen and heard.

5.L.2.2 Students are able to independently select and use technological, artistic, and graphic organization strategies to organize and retain information according to a topic or subject.
5.R.4.2 Students are able to use information from a variety of formats to make inferences and report conclusions.

Stage 1: Identify Desired Results

1. What enduring understandings are desired?

   Students will be able to identify, understand, and compute mean, median, mode, and range.

2. What essential questions will guide this unit and focus teaching/learning?

   Why is it important to understand mean?
   Where do we use mean, median, mode, and range in everyday life?

3. What key knowledge and skills will students acquire as a result of this unit?

   Students will be able to identify mean.
   Students will be able to identify median.
   Students will be able to identify mode.
   Students will be able to identify range.
   Students will be able to calculate mean.
   Students will be able to explain in words mean.
   Students will connect what they are learning to everyday life.

4. What prior learning, interests, misconceptions, and conceptual difficulties might be brought to this unit?

   Students may have weaknesses in division.
   Students may know the definitions of mean, median, and mode.
Stage 2: Determine Acceptable Evidence

1. What evidence will show that students understand?

   **Performance Tasks:**
   - Daily work
   - Projects
   - Class participation

   **Other Evidence:**
   *Quizzes, Tests, Prompts, Work Samples (summarized):*
   - Layered level projects

   **Unprompted Evidence: (observations, dialogues, etc.)**
   - Informal observations
   - One-on-one with students during class time
   - Small group work with myself

   **Student Self-Assessment**
   - Completion of checklist of completed activities from layered curriculum.

Stage 3: Plan Learning Experiences and Instruction

1. What sequence of teaching and learning experiences will equip students to develop and demonstrate the desired understandings?

   **Major Learning Activities:**
   - We will discuss mean, median, mode, and range as whole groups, small groups, and partners. Students will have the opportunity to complete activities of their choice to meet the requirements for the layered curriculum for this unit. Multiple intelligences will be incorporated into all daily work.
**Materials & Resources (technology & print):**

Overhead projector  
Wet erase markers  
Dry erase markers  
Pencil  
Paper  
Math book (as a reference)  
Computer  
Worksheet Homework 2-19 (page 81 in Homework & Remembering Masters)  
Accelerated Reader scores  
Calculators  
Math journals  
M&M mini bags  

**Management:**

The layered curriculum and flexible spaces allow the students to feel more comfortable and non-threatened. I also give students the opportunity to highlight important information and/or use swimming noodles as feet rollers for a tactile experience. Colored overlays are available for those students choosing to use them to read and/or complete their activities. During some class periods I will play music for those strong in the musical intelligence according to Howard Gardner. Other class periods will be quiet for those strong in intrapersonal intelligence, while other class periods I will allow group work for those students strong in interpersonal intelligence.

**Support Services and Special Teacher Notes:**

GBR staff members and parents.

**Extensions and Adaptation:**

One particular student has written modifications for an extension to complete assignments.

Extension:  
- Our classroom can teach another class (4\textsuperscript{th} or 5\textsuperscript{th}) the concepts of mean, median, mode, and range.
Stage 4: Plan Differentiation

2. What differentiated instruction strategies are being used in this lesson/unit?

**Differentiated Process:**

The students have an opportunity to choose from a list of activities per layered level. This, therefore, appeals to all multiple intelligences and learning styles.

**Differentiated Content:**

The layered curriculum attracts multiple intelligences.

**Differentiated Product:**

Students have the opportunity to choose activities/projects that appeal to their learning style.
Data Analysis

****ANYTHING LESS THAN 65 POINTS IS UNACCEPTABLE****

“C” Level Activities: Choose activities from each day for a maximum of 55 points.

Day 1:
1. Listen to the lesson on mode and mean. 5 points
2. Using the data provided in the nutritional information section from five similar types of food (ex. Beans, candy bars, etc.) find the mean and the mode of calories for that type of food. Record your answers in your math journal notes section. 5 points
3. In your math journal vocabulary section, explain what mean and mode are. Give at least 3 examples of each and show how to find the mode and median. 5 points

Day 2:
4. Listen to the lesson on median. 5 points
5. Take a bag of M&Ms from the round table. Count the number of M&Ms in your bag. Compare this number with the data from six other students. Find the mean, median, and mode for the data that you collect. 10 points
6. Interview 6 teachers. Collect one form of data (ex. Age, height, weight, years teaching, etc.). Design a graph or chart of the data. Be sure to include a statement that gives the mean, mode, and median for the data you collected. 15 points.

Day 3:
7. Listen to the lesson on range. 5 points
8. Ask the teacher to print a copy of your last 10 Accelerated Reader test scores. Find the mean, median, mode, and range for the scores. Record and defend your answers in your math journal notes section. 10 points
9. Complete worksheet Homework 2-19 on range, median, and mode. 10 points
10. Create at least 3 different word problems involving mean, median, mode, and/or range and then solve. Each problem must include a different topic (mean, median, mode, range). 10 points
"B" Level Activities: Choose only 1.

1. Measure and record the height for the group of students in your pod. Find the median, mode, mean, and range for this data. Compare it with the data from two other groups of students. Create a chart of graph displaying this data on 8 ½ X 11 paper Be sure to label your chart or graph. 15 points

2. Develop a game or song that would help people to remember the way to find median, mode, mean, and range. Game must include detailed directions. Song must be at least 10 lines long. 15 points

3. Teach the teacher. Using some type of data, teach the teacher about the four different terms. 15 points

"A" Level Activities: Choose only 1.

**For these activities, you may work alone, with a partner, or with a group.**

1. Create a visual that represents range, mode, median, and mode. It can be the four topics on one visual or one visual for each topic. You may use any items that you need. Be creative. 20 points.

2. Write a play or a story in which Range, Mean, Mode, and Median are the main characters. The characters must represent their functions. Be willing to share with the class. Use your imagination to design the props or costumes. 20 points

3. On the computer, create a brochure explaining mean, median, mode, and range. Use graphs, charts, or any other means to “teach” someone about these. 20 points

Total Points:

/ 55 ~ C Level

/ 15 ~ B Level

/ 20 ~ A Level

/ 90 TOTAL POINTS