SUPPLEMENTAL LESSONS

Mathematics Grade 7
4th Quarter

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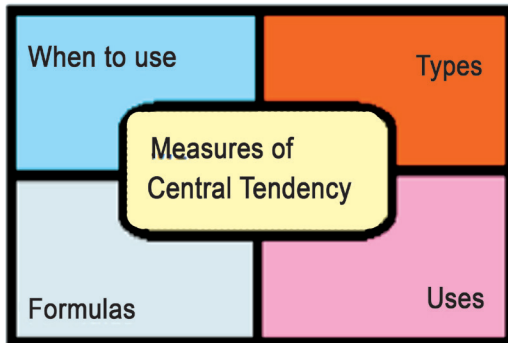
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4th Quarter Grade 7
Supplemental Lesson Plan

Measures of Central Tendency of Grouped Data

Introduction

1. Assess the students' prior knowledge on measures of central tendencies by asking them to fill up the Frayer Model below.

2. Ask them to share their answers with a partner.

Body

1. Review how to get the mean, median, and mode of ungrouped data using the Exploration on page 416 of e-Math 8.

2. Facilitate a discussion on how to find the mean, median, and mode of a grouped data using the examples in Extension on pages 417–422 of e-Math 8.

   Processing Questions:

   - When do we say that a set of data is grouped or ungrouped?
   - What are the formulas for computing the mean, median, and mode?
   - What columns are to be added when computing for the mean? Median? Mode?
   - Is it possible to obtain equal mean, median, and mode for a given set of data?
   - In what instances do we apply the measures of central tendency?

Knowledge

Measures of Central Tendency of Grouped Data

Learning Competencies

M7SP-IVf-1

- Illustrates the measures of central tendency (mean, median, and mode) of a statistical data

M7SP-IVf-g-1

- Calculates the measures of central tendency of ungrouped and grouped data

KU

There are various mathematical means for reaching "fair" decisions and there are many real-world situations which utilize statistical analysis.

KQ

How can mathematics help us with decision making (e.g., grading, voting)?

3. Ask the students to answer the exercises on main points on measures of central tendency individually. Check the students' answers. (Vocabulary and Concepts on page 422 and Practice and Application I on page 422–423 of e-Math 8 may be used as exercises.)

4. Using spin-off *Pairs Check* (Kagan,1998) activity, let the students answer exercises with application of measures of central tendency in real life. (Practice and Application III on page 423 on e-Math 8 may be used.)

   a. Establish pairs of students.

   b. Give each pair a set of problems.

   c. Person one does the first problem, while person two acts as a coach. When they agree on the solution they move to the next problem.

   d. Person two does the second problem, while person one acts as a coach. They agree on the solution.

   e. They then check the first two problems with another pair. All four students work to agree on the solution of the first two problems.

   f. Repeat steps 3–5 until all problems are solved.

5. For reinforcement, let the students choose one task from the following:

   a. Write a letter to a friend about the measures of central tendency and the instances where each of the measures is best to use. Indicate also the advantages and disadvantages of each measure.

   b. Facilitate a group/panel discussion on measures of central tendency and when to use it. Include also in the discussion the pros and cons of each measures.

   c. Make an advertisement promoting or introducing the measures of central tendency, and then make a report to your boss the advantages and disadvantages of each measure.

Conclusion

To facilitate the summary of the lesson, ask the students to go back to their answer in the concept block and fill it again.

Measures of Variability of Grouped and Ungrouped Data

Introduction:

1. Let the students do a challenge opener using the situation below:

> Three students are named finalists in the search for A-1 Student of the Year. The evaluation papers revealed the following scores in five different areas:
>
> Student A: 97, 92, 96, 95, 90
>
> Student B: 94, 94, 92, 94, 96
>
> Student C: 95, 94, 93, 96, 92
>
> The mean scores of the three students are the same (94).
>
> Question: What else can we infer from the set of data? Who performs well?

2. Consolidate the students' responses.

Body

1. Using the preliminary activity as a spring board, introduce to the class measures of spread, dispersion, or variation.

2. Conduct a whole-class discussion on measures of dispersion or variation (Discussion on Extension on page 425 of e-Math 8 may be used as reference.)

    Guide Questions:

    a. Why is measure of spread or variation of the data required aside from getting the measure of central tendency?

    b. What are the reasons for requiring a measure of dispersion of a set of data?

    c. How will you compute for the measures of dispersion for ungrouped data? For grouped data?

Knowledge

Measures of Variability of Grouped and Ungrouped Data

Learning Competencies

M7SP-IVh-1

-   Illustrates the measures of variability (range, average deviation, variance, standard deviation) of a statistical data

M7SP-IVh-i-1

-   Calculates the measures of variability of grouped and ungrouped data

KU

There are various mathematical means for reaching "fair" decisions and there are many real-world situations which utilize statistical analysis.

KQ

How can mathematics help us with decision making (e.g., grading, voting)?

3. Demonstrate to the class how to get range, mean deviation, variance, and standard deviation of a given set of ungrouped and grouped data.

4. Let the students answer exercises on vocabulary and concepts to assess the students' basic knowledge on the different measures of variation.

5. Ask the students to answer the exercises individually, then have them look for a partner and let them compare their answers.

6. For more practice, let the students answer more exercises on finding measures of variability for grouped and ungrouped data using *Think-Pair-Share* (Kagan,1994) activity.

   a. Ask the students to solve the exercises.

   b. Have the students pair with a learning buddy to discuss their answers.

   c. Ask the students to share their responses with the whole group.

7. For reinforcement, ask the students to choose one task from the spin-off *Menu Planner* (Smith, et al., 2011) activity below.

Main Dish (Complete all.)

a. Describe the different measures of variation.

b. Explain how to use the formulas of each measure of variation.

Side Dish (Select one.)

The daily wages of eight workers in Stores X and Y are given in the following table. (Please refer to Practice and Application VI #30 of e-Math 8 for the table.)

a. Calculate the mean wage and the standard deviation of wages for the workers in each store then compare the wages of Store X and Y.

b. Calculate the mean wage and the mean deviation of wages for the workers in each store then compare the wages of Store X and Y.

Dessert (Optional)

Discuss into writing what does it mean when the variance of a set of observed values is zero.

Conclusion

Conduct a spin-off *Ticket to Leave* (Rutherford, 2008) activity. Ask students to write on a piece of paper their thinking on the question below:

When you get home, what will you tell your parents you learned today?

Data Interpretation and Statistics

Introduction:

1. Invite a statistician or a person who specializes in measurement and evaluation to speak in the class about the importance of statistics and data analysis, and how it is used in the real world. If outsource is not available, videos on the importance of statistics today may be used. (Sample site: http://www.youtube.com/watch?v=oGGYlw_pIj8)

2. Let the students share their insights with the class.

Body

1. Present to the class the given problem below:

   Two people work in a factory making parts for motorcycles. The table shows how many complete parts they make in a week.

Worker	Mon	Tue	Wed	Thur	Fri
Lucas	20	21	22	21	20
Matthew	30	15	12	35	29

   a. Find the mean and range for Lucas and Matthew.

   b. Who is most consistent?

   c. Who makes the most parts in a week?

2. Using the problem above, conduct a whole-class discussion on what statistical measures to use in analyzing and interpreting data, and how to draw conclusions based from data from measures of central tendency and variability.

Knowledge

Data Interpretation – Measures of Central Tendency and Variability

Learning Competencies

M7SP-IVj-1

- Uses appropriate statistical measures in analyzing and interpreting statistical data

M7SP-IVj-2

- Draws conclusions from graphic and tabular data and measures of central tendency and variability

KU

There are various mathematical means for reaching "fair" decisions and there are many real-world situations which utilize statistical analysis.

KQ

How can mathematics help us with decision making (e.g., grading, voting)?

Processing Questions:

- What does the mean, median, and mode tell about the data?
- What does the measures of variability tell about the data?
- On what cases do we use the measures of central tendency and variability?

3. Give the students more problems in graphic and tabular form and let the students draw conclusions based from the data computed using the measures of central tendencies and variability. (Exercises from Practice & Application VI numbers 28-30 of e-Math 8 may be used as exercises.)

4. For reinforcement, let the students draw conclusions from their own scores from the previous periodic test.

   a. Form triads.

   b. Let the students get their scores from their previous periodic test in the different subjects.

   c. Let them compute for the measures of central tendency and variability for each student.

   d. Compare the scores and draw conclusions based from the information.

Conclusion

For the summary of the lesson, ask the students to complete the following sentences:

- I learned that...
- I discovered that...
- I rediscovered that...
- I realized that...
- I need help on...