

Data Detectives

Read data for center, spread, and shape.

GRADE 6 • 6.NR.2.3

6.NR.2.3 "Interpret numerical data to answer a statistical investigative question created. Describe the distribution of a quantitative (numerical) variable collected, including its center, variability, and overall shape."

NAME _____

DATE _____

DESCRIBE THE DATA

Order the data before finding the median, the middle value. Find the range by subtracting the smallest value from the greatest value, then look for a shape that is symmetric, skewed left, or skewed right.

WORKED EXAMPLE

Describe the distribution of 41, 44, 46, 48, 51.

1. Order the data: 41, 44, 46, 48, 51.
2. The middle value is 46, so the median is 46.
3. Subtract 41 from 51: $51 - 41 = 10$.
4. The values spread evenly on both sides of 46, so the shape is symmetric.

Answer: Median: 46. Range: 10. Shape: symmetric.

PRACTICE 6 problems

- 1** Describe the distribution of 7, 11, 15, 19, 23. Give the median, range, and shape.

ANSWER _____

- 2** Describe the distribution of 1, 4, 8, 12, 15. Give the median, range, and shape.

ANSWER _____

- 3** Describe the distribution of 2, 3, 3, 4, 4, 5, 13. Give the median, range, and shape.

ANSWER _____

- 4** The data are 15, 16, 16, 17, 18, 18, 37. What measure of center best describes a typical value, mean or median? Give the median, range, and shape.

ANSWER _____

- 5** Set A is 20, 21, 22, 23, 24. Set B is 18, 20, 22, 24, 26. Find each range. Which set has greater variability?

ANSWER _____

- 6** Describe the distribution of 9, 17, 18, 19, 20, 20, 21. Give the median, range, and shape.

ANSWER _____

APPLY IT Show your work

- 1** A library club investigates the question, "How many pages did members read last week?" The numbers of pages read were 9, 12, 14, 16, 18, 20, 22, 24, 27. Describe the distribution. Include the median, range, shape, and what the center means for the club.

WORK SPACE

ANSWER _____

- 2** A music club investigates the question, "How many new songs did students add to a playlist this month?" The results were 4, 5, 6, 7, 7, 8, 19. Which measure of center best describes a typical result? Describe the range and shape.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Team P recorded 25, 27, 29, 31, 33. Team Q recorded 21, 28, 29, 30, 37. Which team was more consistent? Write exactly two sentences that compare the medians, ranges, and shapes.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Describe the distribution of 7, 11, 15, 19, 23. Give the median, range, and shape.	Median: 15. Range: 16. Shape: symmetric.
2	Describe the distribution of 1, 4, 8, 12, 15. Give the median, range, and shape.	Median: 8. Range: 14. Shape: symmetric.
3	Describe the distribution of 2, 3, 3, 4, 4, 5, 13. Give the median, range, and shape.	Median: 4. Range: 11. Shape: skewed right.
4	The data are 15, 16, 16, 17, 18, 18, 37. What measure of center best describes a typical value, mean or median? Give the median, range, and shape.	The median is best. Median: 17. Range: 22. Shape: skewed right.
5	Set A is 20, 21, 22, 23, 24. Set B is 18, 20, 22, 24, 26. Find each range. Which set has greater variability?	Set A range: 4. Set B range: 8. Set B has greater variability.
6	Describe the distribution of 9, 17, 18, 19, 20, 20, 21. Give the median, range, and shape.	Median: 19. Range: 12. Shape: skewed left.

PART 2 • APPLY IT

- Median: 18 pages. Range: 18 pages. Shape: symmetric. A typical club member read 18 pages last week.** The fifth value is 18, so the median is 18. Subtract 9 from 27 for a range of 18, and the values pair evenly around 18.
- The median is best. Median: 7 songs. Range: 15 songs. Shape: skewed right because 19 is much greater than the other values.** The middle value is 7, and $19 - 4 = 15$. The value 19 creates a long right side, so the median better represents a typical result.

CHALLENGE

Team P was more consistent because both teams have a median of 29, but Team P has a range of 8 and Team Q has a range of 16. Both distributions are symmetric, so Team P has less variability.

Accept equivalent wording for symmetric, skewed left, and skewed right. For items asking for the best center with an outlier, accept median only when the student explains that the extreme value pulls the mean.