

Data Showdown

Compare center, spread, and shape.

GRADE 7 • TEKS 7.12.A

7.12.A "compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads;"

NAME _____

DATE _____

COMPARE THE GROUPS

Use the median to compare centers. Use the range or IQR to compare spreads, then notice clusters, gaps, and possible outliers to compare shapes.

WORKED EXAMPLE

Compare Group A: 3, 5, 8, 9, 15 and Group B: 1, 6, 7, 11, 14.

1. Find medians: $A = 8$, $B = 7$.
2. Find ranges: $A = 15 - 3 = 12$, $B = 14 - 1 = 13$.
3. Compare the results.

Answer: Group A has the higher center. Group B has the wider spread.

PRACTICE 5 problems

- 1** Group C has median 24 and range 9. Group D has median 26 and range 5. Which group has the higher center and narrower spread?

ANSWER _____

- 2** Compare E: 31, 33, 34, 36, 38 and F: 29, 30, 35, 37, 39. Give both medians and ranges.

ANSWER _____

- 3** Box plot summaries are G: 42, 45, 48, 52, 54 and H: 41, 44, 50, 51, 55. Compare medians, IQRs, and ranges.

ANSWER _____

- 4** Dot plot J has five dots from 61 to 63 and one dot at 70. Dot plot K has one dot at each whole number from 60 through 70. Compare the shapes.

ANSWER _____

- 5** Group L has median 73 and IQR 6. Group M has median 73 and IQR 11. Compare the groups.

ANSWER _____

APPLY IT Show your work

- 1** Two robotics teams recorded lap times in seconds. Nova: 82, 84, 85, 86, 88. Orbit: 79, 83, 85, 87, 91. Which team has the more consistent lap times?

WORK SPACE

ANSWER _____

- 2** Two e-sports teams recorded practice scores. Pixel: 116, 117, 117, 118, 119, 120, 120. Quest: 112, 114, 116, 118, 120, 122, 124. Compare the centers, spreads, and shapes.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Box plot R has min 121, Q1 125, median 130, Q3 135, max 139. Box plot S has min 121, Q1 128, median 130, Q3 132, max 139. A student says the groups are equally consistent because their ranges match. Is the student correct? Explain.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Group C has median 24 and range 9. Group D has median 26 and range 5. Which group has the higher center and narrower spread?	Group D has the higher center and narrower spread.
2	Compare E: 31, 33, 34, 36, 38 and F: 29, 30, 35, 37, 39. Give both medians and ranges.	E: median 34, range 7. F: median 35, range 10. F has the higher center and wider spread.
3	Box plot summaries are G: 42, 45, 48, 52, 54 and H: 41, 44, 50, 51, 55. Compare medians, IQRs, and ranges.	G has median 48, IQR 7, range 12. H has median 50, IQR 7, range 14. H has a higher center, the same IQR, and a wider range.
4	Dot plot J has five dots from 61 to 63 and one dot at 70. Dot plot K has one dot at each whole number from 60 through 70. Compare the shapes.	J has a cluster near 61 to 63 and a possible high outlier at 70. K is spread evenly from 60 to 70.
5	Group L has median 73 and IQR 6. Group M has median 73 and IQR 11. Compare the groups.	The groups have the same center. M has the wider middle-half spread.

PART 2 • APPLY IT

- Both teams have a median of 85 seconds. Nova is more consistent because its range is 6 seconds, compared with Orbit's range of 12 seconds.** Find each median and range. The medians match, but Nova has the smaller range.
- Both teams have a median of 118. Pixel has a range of 4 and is clustered near 118, while Quest has a range of 12 and is spread evenly. Pixel's scores are less spread out.** The middle score of each ordered list is 118. Subtract the least score from the greatest score, then compare the patterns.

CHALLENGE

No. Both groups have median 130 and range 18, but R has IQR 10 and S has IQR 4. S is more consistent for the middle half of the data.

Accept equivalent comparison language such as less variable for narrower spread. For shape descriptions, accept clustered, evenly spread, or possible outlier when supported by the data.