LESSON MAKER PRO

Spot the Spread

Compare what is typical and how much values vary.

GRADE 7 · 7.DS.B.3.b

7.DS.B.3.b "Use measures of center (e.g., mean or median) and measures of variability (e.g., range or interquartile range) to describe the size and significance of the difference between the distributions."

NAME _____ DATE _____

COMPARE CENTER AND SPREAD

The median shows a typical value. Find the gap between two medians, then compare that gap with each group's range to judge how noticeable the difference is.

WORKED EXAMPLE

Compare the two groups' medians and ranges.

GROUP SCORES

Group	Scores
A	41, 43, 45, 47, 49
B	51, 53, 55, 57, 59

1. Medians: A = 45, B = 55.
2. Ranges: A = 49 - 41 = 8; B = 59 - 51 = 8.
3. Median gap: 55 - 45 = 10, greater than either range.

Answer: B's median is 10 higher. The gap is greater than both ranges.

PRACTICE 4 problems

1 A: 1, 2, 3, 4, 5. B: 7, 8, 9, 10, 11. Find the median gap and both ranges. Is the gap greater than the ranges?

ANSWER _____

2 A: 2, 4, 6, 8, 10. B: 5, 7, 9, 11, 13. Find the median gap and both ranges. Is the gap greater than the ranges?

ANSWER _____

3 A: 1, 3, 5, 7, 9. B: 4, 4, 5, 6, 6. Compare the medians and ranges.

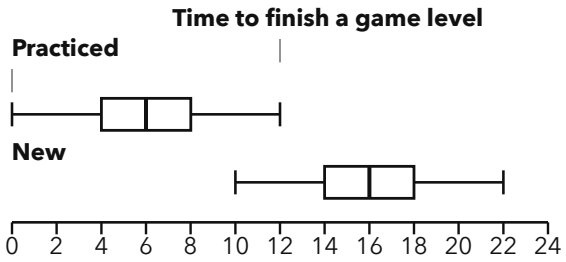
ANSWER _____

4 A: 0, 2, 4, 6, 8. B: 6, 7, 8, 9, 10. Find the median gap and both ranges. Which group varies more?

ANSWER _____

APPLY IT Show your work

1 The box plots show minutes to finish a game level. Find the median gap and each IQR. Is the gap greater than both IQRs?



ANSWER _____

2 Kai and Jo timed five daily puzzles. Kai's times in minutes: 4, 6, 8, 10, 12. Jo's: 7, 8, 9, 10, 11. Compare their medians and ranges. Is their typical time difference large compared with the ranges?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Maya says B is clearly higher because B has a value of 20. A: 1, 3, 5, 7, 9. B: 2, 4, 6, 8, 20. Use medians and ranges to explain why her claim is weak.

WORK SPACE AND ANSWER

ANSWER KEY

Spot the Spread

GRADE 7 · 7.DS.B.3.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A: 1, 2, 3, 4, 5. B: 7, 8, 9, 10, 11. Find the median gap and both ranges. Is the gap greater than the ranges?	**Median gap: 6. Both ranges: 4. Yes.**
2	A: 2, 4, 6, 8, 10. B: 5, 7, 9, 11, 13. Find the median gap and both ranges. Is the gap greater than the ranges?	**Median gap: 3. Both ranges: 8. No.**
3	A: 1, 3, 5, 7, 9. B: 4, 4, 5, 6, 6. Compare the medians and ranges.	**Both medians are 5. A's range is 8; B's range is 2.**
4	A: 0, 2, 4, 6, 8. B: 6, 7, 8, 9, 10. Find the median gap and both ranges. Which group varies more?	**Median gap: 4. A's range is 8; B's range is 4. A varies more.**

PART 2 · APPLY IT

1. **The median gap is 10 minutes. Each IQR is 4 minutes. Yes.** Subtract the medians: 16 - 6 = 10. Each IQR is 4, so the median gap is greater than both.
2. **Kai's median is 8 minutes and range is 8 minutes. Jo's median is 9 minutes and range is 4 minutes. The 1-minute median gap is small compared with both ranges.** The middle times are 8 and 9. Subtract each group's least time from its greatest time to find ranges of 8 and 4.

CHALLENGE

A's median is 5 and range is 8. B's median is 6 and range is 18. The median gap is only 1, much smaller than either range, so 20 alone does not show a clear difference in typical values.

Accept equivalent comparisons that give the correct medians, gaps, and ranges. In the challenge, students should distinguish B's high maximum from its typical value.