LESSON MAKER PRO

Compare the Samples

Use sample statistics to compare two groups.

GRADE 7 · 7.SP.4

7.SP.4 "Given measures of center and variability (mean, median and/or mode; range, interquartile range, and/or standard deviation), for numerical data from random samples, draw appropriate informal comparative inferences about two populations."

NAME _____ DATE _____

THE BIG IDEA

A random sample can help you make an estimate about a whole group. Compare means or medians to estimate which group has a higher typical value. Compare ranges or IQRs to estimate which group varies more.

WORKED EXAMPLE

Random samples show bus ride times for two routes. Which route likely has a longer typical ride, and which varies more?

BUS RIDE TIMES

Route	Median (min)	IQR (min)
A	21	8
B	27	10

1. Compare medians: 27 > 21, so Route B has the longer typical ride.
2. Compare IQRs: 10 > 8, so Route B varies more.

Answer: Route B likely has a longer typical ride by 6 minutes. Its ride times also vary more.

PRACTICE 4 problems

1 Random samples of game times give A: median 13 min, IQR 3 min; B: median 18 min, IQR 5 min. Which group likely plays longer, and which varies more?

ANSWER _____

2 Random samples of lunch waits give A: mean 14 min, range 7 min; B: mean 17 min, range 9 min. Which group likely waits longer, and which varies more?

ANSWER _____

3 Random samples of daily step counts, in thousands, give A: median 15, IQR 2; B: median 15, IQR 11. Compare the typical counts and the variation.

ANSWER _____

_____

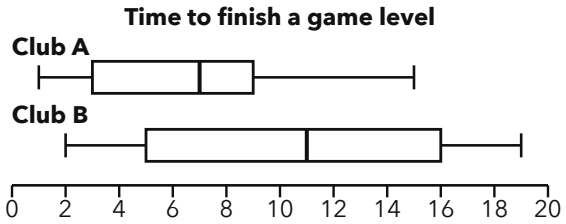
4 Random samples of songs heard each day give A: median 16, IQR 1; B: median 20, IQR 12. Which group likely hears more songs, and which varies more?

ANSWER _____

_____

APPLY IT Show your work

1 Random samples show how long players in two clubs take to finish a game level. Which club likely takes longer? Find the difference in medians and both IQRs.



ANSWER _____

2 You want a shorter, more predictable wait for lunch. Random samples show the wait times at two food trucks. Which truck would you choose based on the samples? Explain.

LUNCH WAIT TIMES

Truck	Mean (min)	Range (min)
A	9	7
B	14	3

ANSWER _____

CHALLENGE One step up

Random samples of quiz scores give A: median 15, IQR 2; B: median 16, IQR 9. Sam says every student in B scored higher than every student in A. Explain why the statistics do not prove this, then give a comparison they do support.

WORK SPACE AND ANSWER

ANSWER KEY

Compare the Samples

GRADE 7 · 7.SP.4

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Random samples of game times give A: median 13 min, IQR 3 min; B: median 18 min, IQR 5 min. Which group likely plays longer, and which varies more?	**Group B likely plays longer and varies more.**
2	Random samples of lunch waits give A: mean 14 min, range 7 min; B: mean 17 min, range 9 min. Which group likely waits longer, and which varies more?	**Group B likely waits longer and varies more.**
3	Random samples of daily step counts, in thousands, give A: median 15, IQR 2; B: median 15, IQR 11. Compare the typical counts and the variation.	**The groups have the same typical count. Group B varies more.**
4	Random samples of songs heard each day give A: median 16, IQR 1; B: median 20, IQR 12. Which group likely hears more songs, and which varies more?	**Group B likely hears more songs and varies more.**

PART 2 · APPLY IT

1. **Club B likely takes longer. Its median is 4 minutes higher. Club A's IQR is 6 minutes, and Club B's IQR is 11 minutes.** Subtract the medians: 11 - 7 = 4. Subtract each lower quartile from its upper quartile: 9 - 3 = 6 and 16 - 5 = 11.
2. **Truck A has the shorter mean wait, but Truck B has the smaller range. Neither truck has both a shorter typical wait and less variation, so the choice depends on which matters more to you.** Compare the means for typical wait time and the ranges for variation. Accept either choice if the student explains the trade-off correctly.

CHALLENGE

The medians and IQRs do not show every score, so the scores could overlap. Group B likely has a slightly higher typical score and more variation.

Accept equivalent wording that treats sample comparisons as estimates, not guarantees about every member of a group.