LESSON MAKER PRO

Spot the Difference

Compare typical values and the spread of two groups.

GRADE 7 · 7.DS.B.3.c

7.DS.B.3.c "Use both visual and numerical comparisons to describe how different the two groups are and whether the difference is meaningful in the context of the data."

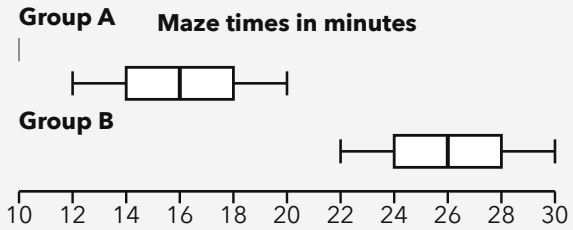
NAME _____ DATE _____

COMPARE BOTH WAYS

On a shared box plot, compare the medians and check whether the boxes overlap. Then decide whether the difference matters in the situation.

WORKED EXAMPLE

Two groups timed how long they took to solve a maze. Compare their times in minutes.



1. The medians are 16 and 26 minutes, a gap of 10 minutes.
2. The boxes do not overlap: one ends at 18 and the other starts at 24.
3. Ten minutes could matter when timing a short maze.

Answer: Group B typically took longer. Its median is 10 minutes higher, and the boxes do not overlap.

PRACTICE 4 problems

1 Quiz scores: A (Q1, median, Q3) = (32, 36, 40); B = (44, 48, 52). Which median is higher, by how much? Do the middle halves overlap?

ANSWER _____

2 Practice shots made: A (Q1, median, Q3) = (40, 46, 52); B = (48, 54, 60). Which median is higher, by how much? Do the middle halves overlap?

ANSWER _____

3 Pages read: A (Q1, median, Q3) = (70, 75, 80); B = (84, 89, 94). Which median is higher, by how much? Do the middle halves overlap?

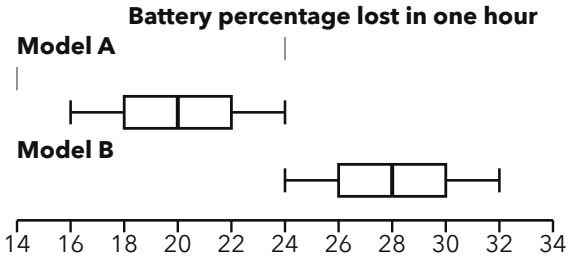
ANSWER _____

4 Game points: A (Q1, median, Q3) = (110, 120, 130); B = (115, 125, 135). Which median is higher, by how much? Do the middle halves overlap?

ANSWER _____

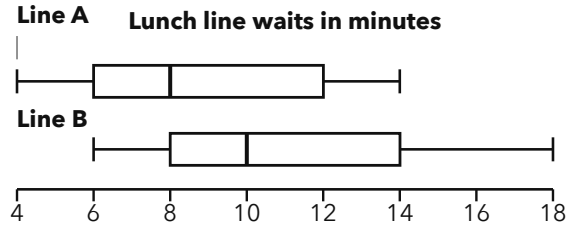
APPLY IT Show your work

1 Two phone models were used for one hour. The plots show battery percentage lost. Compare the medians and boxes. Does the difference seem important for choosing a phone?



ANSWER _____

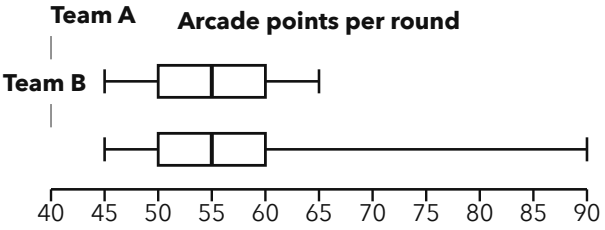
2 Students have 30 minutes for lunch. The plots show waits at two lunch lines. Compare the medians and boxes. Does the difference seem important?



ANSWER _____

CHALLENGE One step up

Two arcade teams recorded points per round. A player says Team B usually scores more because its highest score is greater. Is that claim supported? Use a number and the boxes to explain.



WORK SPACE AND ANSWER

ANSWER KEY

Spot the Difference

GRADE 7 · 7.DS.B.3.c

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Quiz scores: A (Q1, median, Q3) = (32, 36, 40); B = (44, 48, 52). Which median is higher, by how much? Do the middle halves overlap?	**B by 12 points. No, the middle halves do not overlap.**
2	Practice shots made: A (Q1, median, Q3) = (40, 46, 52); B = (48, 54, 60). Which median is higher, by how much? Do the middle halves overlap?	**B by 8 shots. Yes, they overlap from 48 to 52.**
3	Pages read: A (Q1, median, Q3) = (70, 75, 80); B = (84, 89, 94). Which median is higher, by how much? Do the middle halves overlap?	**B by 14 pages. No, the middle halves do not overlap.**
4	Game points: A (Q1, median, Q3) = (110, 120, 130); B = (115, 125, 135). Which median is higher, by how much? Do the middle halves overlap?	**B by 5 points. Yes, they overlap from 115 to 130.**

PART 2 · APPLY IT

1. **Model B lost 8 percentage points more at the median. The boxes do not overlap, so the difference seems important for battery life.** Subtract the medians: 28 - 20 = 8. Model A's box ends at 22, below where Model B's box starts at 26.
2. **Line B's median wait is 2 minutes longer. The boxes overlap, and 2 minutes is a small part of a 30-minute lunch, so the difference may not be important.** Subtract the medians: 10 - 8 = 2 minutes. The boxes overlap from 8 to 12 minutes.

CHALLENGE

No. Both medians are 55 points, and both boxes run from 50 to 60. Team B's higher maximum does not show that it usually scores more.

Accept equivalent statements about overlapping boxes. Context judgments may vary if they use the median difference and box plots accurately.