Statistics and Data Displays

Lesson 11 Comparing Data Sets

Standards 6.SP.A.2, 6.SP.B.5d

Learning target I can compare centers and variability in two data sets.

Materials Grid paper, rulers, colored pencils, data tables.

Lesson Flow 50 Minutes

0–5 Activate prior knowledge. Read the learning target. Ask students what they already know about comparing data sets. Use a quick model or estimate to make their starting ideas visible.

5–17 Teach and model. Compute comparable measures for both groups. Compare typical values and consistency using the same units. State what the data support without claiming that every member of one group exceeds every member of the other. Work through the two examples on the attached instruction page. Have students name the first step before showing it.

17–22 Guided practice. Revisit worked Example 2 with its solution covered. Students propose the next step and explain why it is valid; uncover and compare with the worked solution.

22–45 Independent classwork. Assign the attached 10 questions in order. Check items 1–3 for entry-level understanding, 4–6 for connected procedures, 7–8 for representation and explanation, and 9–10 for application or justification. Ask students to use the instruction-page notes area or extra grids for longer work.

45–50 Check understanding. Use classwork question 10 as an exit discussion: Reading times (min): Group A [3, 4, 4, 5, 6, 15], Group B [5, 6, 6, 7, 8, 17]. Compare median and IQR. Which group reads longer typically? Which is more consistent? Compare the result with the answer key and ask a student to defend the method.

Support and Extension

Support Model item 1 together with the listed tools, then have students attempt item 2 independently. Watch sorting before finding medians, quartile conventions, counting every observation once, and mean versus variability.

Extension Ask students to solve a final item another way, draw a second representation, or create a related problem with a checked answer.

Next step Record which students can explain the target independently. Begin the next teaching session with a brief correction for any recurring error.

Name _____ Date _____

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Learning target I can compare centers and variability in two data sets.

Learn and Discuss

Compute comparable measures for both groups. Compare typical values and consistency using the same units. State what the data support without claiming that every member of one group exceeds every member of the other.

Example 1 Reading times (min): Group A [2, 3, 3, 4, 4, 5], Group B [4, 5, 5, 6, 6, 7]. Compare median and IQR. Which group reads longer typically? Which is more consistent?
Solution A median 7/2, B median 11/2 min; both IQR 1 min. B is typically 2 min higher; equal middle-half variability.. Adding 2 shifts all values and the median by 2, but does not change Q3 - Q1.
Example 2 Reading times (min): Group A [6, 7, 7, 8, 9, 18], Group B [8, 9, 9, 10, 11, 20]. Compare median and IQR. Which group reads longer typically? Which is more consistent?
Solution A median 15/2, B median 19/2 min; both IQR 2 min. B is typically 2 min higher; equal middle-half variability.. Adding 2 shifts all values and the median by 2, but does not change Q3 - Q1.

Classwork Show Your Work

Complete the 10 problems on the following page. Refer to the examples, draw models, and check your results.

My Notes or Second Method

Lesson 11 Comparing Data Sets

Name _____ Show calculations, models, and units.

1. Reading times (min): Group A [2, 3, 3, 4, 4, 5], Group B [4, 5, 5, 6, 6, 7]. Compare median and IQR. Which group reads longer typically? Which is more consistent?

2. Reading times (min): Group A [8, 9, 9, 10, 10, 11], Group B [10, 11, 11, 12, 12, 13]. Compare median and IQR. Which group reads longer typically? Which is more consistent?

3. Reading times (min): Group A [4, 5, 5, 6, 6, 7], Group B [6, 7, 7, 8, 8, 9]. Compare median and IQR. Which group reads longer typically? Which is more consistent?

4. Reading times (min): Group A [6, 8, 8, 10, 10, 12], Group B [8, 10, 10, 12, 12, 14]. Compare median and IQR. Which group reads longer typically? Which is more consistent?

5. Reading times (min): Group A [2, 6, 6, 10, 10, 14], Group B [4, 8, 8, 12, 12, 16]. Compare median and IQR. Which group reads longer typically? Which is more consistent?

6. Reading times (min): Group A [8, 11, 11, 14, 14, 17], Group B [10, 13, 13, 16, 16, 19]. Compare median and IQR. Which group reads longer typically? Which is more consistent?

7. Reading times (min): Group A [7, 8, 8, 9, 10, 19], Group B [9, 10, 10, 11, 12, 21]. Compare median and IQR. Which group reads longer typically? Which is more consistent?

8. Reading times (min): Group A [4, 5, 5, 6, 7, 16], Group B [6, 7, 7, 8, 9, 18]. Compare median and IQR. Which group reads longer typically? Which is more consistent?

9. Reading times (min): Group A [5, 6, 6, 7, 8, 17], Group B [7, 8, 8, 9, 10, 19]. Compare median and IQR. Which group reads longer typically? Which is more consistent?

10. Reading times (min): Group A [3, 4, 4, 5, 6, 15], Group B [5, 6, 6, 7, 8, 17]. Compare median and IQR. Which group reads longer typically? Which is more consistent?

Comparing Data Sets

Statistics and Data Displays

1. A median 7/2, B median 11/2 min; both IQR 1 min. B is typically 2 min higher; equal middle-half variability.
Reasoning Adding 2 shifts all values and the median by 2, but does not change Q3 - Q1.

2. A median 19/2, B median 23/2 min; both IQR 1 min. B is typically 2 min higher; equal middle-half variability.
Reasoning Adding 2 shifts all values and the median by 2, but does not change Q3 - Q1.

3. A median 11/2, B median 15/2 min; both IQR 1 min. B is typically 2 min higher; equal middle-half variability.
Reasoning Adding 2 shifts all values and the median by 2, but does not change Q3 - Q1.

4. A median 9, B median 11 min; both IQR 2 min. B is typically 2 min higher; equal middle-half variability.
Reasoning Adding 2 shifts all values and the median by 2, but does not change Q3 - Q1.

5. A median 8, B median 10 min; both IQR 4 min. B is typically 2 min higher; equal middle-half variability.
Reasoning Adding 2 shifts all values and the median by 2, but does not change Q3 - Q1.

6. A median 25/2, B median 29/2 min; both IQR 3 min. B is typically 2 min higher; equal middle-half variability.
Reasoning Adding 2 shifts all values and the median by 2, but does not change Q3 - Q1.

7. A median 17/2, B median 21/2 min; both IQR 2 min. B is typically 2 min higher; equal middle-half variability.
Reasoning Adding 2 shifts all values and the median by 2, but does not change Q3 - Q1.

8. A median 11/2, B median 15/2 min; both IQR 2 min. B is typically 2 min higher; equal middle-half variability.
Reasoning Adding 2 shifts all values and the median by 2, but does not change Q3 - Q1.

9. A median 13/2, B median 17/2 min; both IQR 2 min. B is typically 2 min higher; equal middle-half variability.
Reasoning Adding 2 shifts all values and the median by 2, but does not change Q3 - Q1.

10. A median 9/2, B median 13/2 min; both IQR 2 min. B is typically 2 min higher; equal middle-half variability.
Reasoning Adding 2 shifts all values and the median by 2, but does not change Q3 - Q1.