Statistics and Data Displays

Lesson 8 Dot Plots on a Number Line

Standards 6.SP.B.4

Learning target I can construct and interpret a dot plot on a number line.

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 dot plots on a number line. Use a quick model or estimate to make their starting ideas visible.

5–17 Teach and model. Draw an equally spaced number line and stack one dot per observation above its value. Repeated values stack vertically. Add an axis label with units and check that the dot count equals the data count. 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 in minutes are 4, 5, 5, 6, 7, 16. Draw a labeled dot plot. Describe a cluster or gap and report the count. 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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Learn and Discuss

Draw an equally spaced number line and stack one dot per observation above its value. Repeated values stack vertically. Add an axis label with units and check that the dot count equals the data count.

Example 1 Reading times in minutes are 5, 6, 6, 7, 7, 8. Draw a labeled dot plot. Check the number of dots.
Solution 5: 1 dot; 6: 2 dots; 7: 2 dots; 8: 1 dot; n = 6. Each observation contributes one dot; stack repeated values at their number-line position.
Example 2 Reading times in minutes are 2, 3, 3, 4, 5, 14. Draw a labeled dot plot. Describe a cluster or gap and report the count.
Solution 2: 1 dot; 3: 2 dots; 4: 1 dot; 5: 1 dot; 14: 1 dot; n = 6; low cluster and high isolated value. Each observation contributes one dot; stack repeated values at their number-line position.

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 8 Dot Plots on a Number Line

Name _____ Show calculations, models, and units.

1. Reading times in minutes are 8, 9, 9, 10, 10, 11. Draw a labeled dot plot. Check the number of dots.

2. Reading times in minutes are 3, 4, 4, 5, 5, 6. Draw a labeled dot plot. Check the number of dots.

3. Reading times in minutes are 6, 7, 7, 8, 8, 9. Draw a labeled dot plot. Check the number of dots.

4. Reading times in minutes are 2, 6, 6, 10, 10, 14. Draw a labeled dot plot. Check the number of dots.

5. Reading times in minutes are 8, 11, 11, 14, 14, 17. Draw a labeled dot plot. Check the number of dots.

6. Reading times in minutes are 3, 6, 6, 9, 9, 12. Draw a labeled dot plot. Check the number of dots.

7. Reading times in minutes are 6, 7, 7, 8, 9, 18. Draw a labeled dot plot. Describe a cluster or gap and report the count.

8. Reading times in minutes are 3, 4, 4, 5, 6, 15. Draw a labeled dot plot. Describe a cluster or gap and report the count.

9. Reading times in minutes are 2, 3, 3, 4, 5, 14. Draw a labeled dot plot. Describe a cluster or gap and report the count.

10. Reading times in minutes are 4, 5, 5, 6, 7, 16. Draw a labeled dot plot. Describe a cluster or gap and report the count.

Dot Plots on a Number Line

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1. 8: 1 dot; 9: 2 dots; 10: 2 dots; 11: 1 dot; n = 6
Reasoning Each observation contributes one dot; stack repeated values at their number-line position.

2. 3: 1 dot; 4: 2 dots; 5: 2 dots; 6: 1 dot; n = 6
Reasoning Each observation contributes one dot; stack repeated values at their number-line position.

3. 6: 1 dot; 7: 2 dots; 8: 2 dots; 9: 1 dot; n = 6
Reasoning Each observation contributes one dot; stack repeated values at their number-line position.

4. 2: 1 dot; 6: 2 dots; 10: 2 dots; 14: 1 dot; n = 6
Reasoning Each observation contributes one dot; stack repeated values at their number-line position.

5. 8: 1 dot; 11: 2 dots; 14: 2 dots; 17: 1 dot; n = 6
Reasoning Each observation contributes one dot; stack repeated values at their number-line position.

6. 3: 1 dot; 6: 2 dots; 9: 2 dots; 12: 1 dot; n = 6
Reasoning Each observation contributes one dot; stack repeated values at their number-line position.

7. 6: 1 dot; 7: 2 dots; 8: 1 dot; 9: 1 dot; 18: 1 dot; n = 6; low cluster and high isolated value
Reasoning Each observation contributes one dot; stack repeated values at their number-line position.

8. 3: 1 dot; 4: 2 dots; 5: 1 dot; 6: 1 dot; 15: 1 dot; n = 6; low cluster and high isolated value
Reasoning Each observation contributes one dot; stack repeated values at their number-line position.

9. 2: 1 dot; 3: 2 dots; 4: 1 dot; 5: 1 dot; 14: 1 dot; n = 6; low cluster and high isolated value
Reasoning Each observation contributes one dot; stack repeated values at their number-line position.

10. 4: 1 dot; 5: 2 dots; 6: 1 dot; 7: 1 dot; 16: 1 dot; n = 6; low cluster and high isolated value
Reasoning Each observation contributes one dot; stack repeated values at their number-line position.