

Data Shape Detectives

Read plots for spread, shape, and unusual values.

GRADE 6 • MA.6.DP.1.4

MA.6.DP.1.4 "Given a histogram or line plot within a real-world context, qualitatively describe and interpret the spread and distribution of the data, including any symmetry, skewness, gaps, clusters, outliers and the range."

NAME _____

DATE _____

READ THE WHOLE PLOT

Find the range by subtracting the smallest value from the largest value. Look for values that bunch together, empty spaces, and values far from the rest. Matching sides suggest symmetry, while a longer tail on one side shows skewness.

WORKED EXAMPLE

Line plot, each X = 1 student: Pages read, 31: X, 32: XX, 33: XXX, 34: XX, 35: X. Describe the distribution and find the range.

1. Smallest = 31; largest = 35.
2. $35 - 31 = 4$.
3. The counts match on both sides of 33.

Answer: Range: 4 pages. The plot is symmetric, clustered around 33, with no gaps or outliers.

PRACTICE 5 problems

- 1** Line plot, each X = 1 game: Goals scored, 4: X, 6: XX, 7: X, 9: X. Find the range.

ANSWER _____

- 2** Line plot, each X = 1 game: Goals scored, 10: X, 11: XX, 12: X, 16: X, 17: XX. Name the gap.

ANSWER _____

- 3** Line plot, each X = 1 round: Points earned, 1: X, 8: XX, 9: XXX, 10: XX, 18: X. Name the cluster and outliers.

ANSWER _____

- 4** Line plot, each X = 1 student: Puzzle minutes, 40: X, 41: XXX, 42: XXXX, 43: XX, 50: X. Describe the skewness.

ANSWER _____

- 5** Line plot, each X = 1 student: Recycling cups, 60: X, 61: XX, 62: XXX, 63: XX, 64: X. Is the plot symmetric? Find the range.

ANSWER _____

APPLY IT Show your work

- 1** A dance team tracks songs practiced on Saturday. Line plot, each X = 1 member: 5: X, 6: XX, 7: XXX, 8: XX, 9: X. Describe the shape, gaps or outliers, and range.

WORK SPACE

ANSWER _____

- 2** A music club makes this histogram of songs added to playlists in one week. The lowest total was 0 and the highest was 14. Histogram, songs: days, 0-2: XXXX; 3-5: XXXXX; 6-8: XX; 9-11: 0; 12-14: X. Describe the cluster, gap, outlier, skewness, and range.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Two students record minutes practicing a dance move. A: 70: X, 71: XX, 72: XXX, 73: XX, 74: X. B: 70: XXXX, 71: XXX, 72: X, 73: 0, 74: X. Both have range 4. Explain why range alone misses an important difference.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Line plot, each X = 1 game: Goals scored, 4: X, 6: XX, 7: X, 9: X. Find the range.	5 goals
2	Line plot, each X = 1 game: Goals scored, 10: X, 11: XX, 12: X, 16: X, 17: XX. Name the gap.	13 to 15 goals
3	Line plot, each X = 1 round: Points earned, 1: X, 8: XX, 9: XXX, 10: XX, 18: X. Name the cluster and outliers.	Cluster: 8 to 10. Outliers: 1 and 18.
4	Line plot, each X = 1 student: Puzzle minutes, 40: X, 41: XXX, 42: XXXX, 43: XX, 50: X. Describe the skewness.	Skewed right because the tail stretches toward 50.
5	Line plot, each X = 1 student: Recycling cups, 60: X, 61: XX, 62: XXX, 63: XX, 64: X. Is the plot symmetric? Find the range.	Yes, it is symmetric. Range: 4 cups.

PART 2 • APPLY IT

- Symmetric, with no gaps or outliers. Range: 4 songs.** The counts match on both sides of 7. The smallest value is 5 and the largest is 9, so $9 - 5 = 4$.
- Cluster: 0-5. Gap: 9-11. High outlier: 12-14. Skewed right. Range: 14 songs.** Most days are in the 0-5 intervals, with an empty 9-11 interval and one high value after it. The range is $14 - 0 = 14$.

CHALLENGE

A is symmetric with no gaps or outliers. B clusters at 70-72, has a gap at 73, and has a high outlier at 74, so the distributions are different.

Accept equivalent wording such as right-skewed or skewed to the right. Accept ranges with or without units.