

Data Display Studio

Turn real data into clear graphs.

GRADE 6 • MA.6.DP.1.5

MA.6.DP.1.5 "Create box plots and histograms to represent sets of numerical data within real-world contexts."

NAME _____

DATE _____

TWO WAYS TO SHOW DATA

A histogram groups data into equal-size intervals and uses bar heights to show frequency. A box plot shows the minimum, Q1, median, Q3, and maximum, so order the data before finding its five-number summary.

WORKED EXAMPLE

Make a box plot for these data: 15, 17, 19, 21, 21, 22, 24.

1. The data are already in order: 15, 17, 19, 21, 21, 22, 24.
2. The middle value is 21, so the median is 21.
3. The lower-half middle is 17, so Q1 is 17.
4. The upper-half middle is 22, so Q3 is 22.

Answer: Five-number summary:
minimum 15, Q1 17, median 21, Q3 22,
maximum 24.

PRACTICE 6 problems

- 1** Make a histogram for 0, 1, 1, 2, 2, 2, 4, 4. Use intervals 0-1, 2-3, and 4-5.

ANSWER _____

- 2** Make a box plot for 1, 2, 4, 4, 7, 9, 10, 12.

ANSWER _____

- 3** Make a histogram for 25, 26, 26, 27, 30, 31, 31, 33. Use intervals 25-27, 28-30, and 31-33.

ANSWER _____

- 4** Make a box plot for 0, 2, 7, 9, 14, 16, 18, 20, 23.

ANSWER _____

- 5** Make a histogram for 40, 41, 43, 43, 44, 46, 47, 47, 49. Use intervals 40-42, 43-45, 46-48, and 49-51.

ANSWER _____

- 6** Make a box plot for 30, 32, 34, 34, 35, 37, 38, 39, 42, 45.

ANSWER _____

APPLY IT Show your work

- 1** A gaming club recorded the points earned by eight players in one round: 50, 51, 53, 54, 54, 57, 58, 60. Make a histogram using intervals 50-52, 53-55, 56-58, and 59-61.

WORK SPACE

ANSWER _____

- 2** A student recorded the number of photos shared by eight friends during a school event: 61, 63, 65, 68, 70, 72, 74, 76. Make a box plot for the data.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A music app recorded the number of minutes spent listening by 10 students: 80, 81, 82, 84, 84, 85, 88, 90, 91, 94. Make a histogram using intervals 80-82, 83-85, 86-88, 89-91, and 92-94. Then make a box plot. Which display more clearly shows the five-number summary? Explain why.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Make a histogram for 0, 1, 1, 2, 2, 2, 4, 4. Use intervals 0-1, 2-3, and 4-5.	Histogram frequencies: 0-1: 3, 2-3: 3, 4-5: 2.
2	Make a box plot for 1, 2, 4, 4, 7, 9, 10, 12.	Five-number summary: minimum 1, Q1 3, median 11/2, Q3 19/2, maximum 12.
3	Make a histogram for 25, 26, 26, 27, 30, 31, 31, 33. Use intervals 25-27, 28-30, and 31-33.	Histogram frequencies: 25-27: 4, 28-30: 1, 31-33: 3.
4	Make a box plot for 0, 2, 7, 9, 14, 16, 18, 20, 23.	Five-number summary: minimum 0, Q1 9/2, median 14, Q3 19, maximum 23.
5	Make a histogram for 40, 41, 43, 43, 44, 46, 47, 47, 49. Use intervals 40-42, 43-45, 46-48, and 49-51.	Histogram frequencies: 40-42: 2, 43-45: 3, 46-48: 3, 49-51: 1.
6	Make a box plot for 30, 32, 34, 34, 35, 37, 38, 39, 42, 45.	Five-number summary: minimum 30, Q1 34, median 36, Q3 39, maximum 45.

PART 2 • APPLY IT

- Histogram frequencies: 50-52: 2, 53-55: 3, 56-58: 2, 59-61: 1.** Sort each score into its interval. Count the scores in each interval to set the bar heights.
- Five-number summary: minimum 61, Q1 64, median 69, Q3 73, maximum 76.** Find the median by averaging 68 and 70. Find Q1 from 61, 63, 65, 68 and Q3 from 70, 72, 74, 76.

CHALLENGE

Histogram frequencies: 80-82: 3, 83-85: 3, 86-88: 1, 89-91: 2, 92-94: 1. Box plot five-number summary: minimum 80, Q1 82, median 169/2, Q3 90, maximum 94. The box plot more clearly shows the five-number summary because its minimum, quartiles, median, and maximum are marked.

Accept correctly drawn histograms with contiguous equal-size intervals and the listed frequencies. For box plots, accept equivalent decimals for fractions and use the convention of excluding the median from each half when there is an odd number of data values.