

Bin It Right

Sort data, read patterns, and choose useful intervals.

GRADE 7 • 7.PS.2

7.PS.2 "The student will apply the data cycle (formulate questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on histograms..."

NAME _____

DATE _____

HISTOGRAM BINS

A histogram groups numerical data into equal-width intervals called bins. Count each value in one bin, then compare the bin heights to find clusters, gaps, and common ranges.

WORKED EXAMPLE

Data: 41, 43, 44, 46, 47, 49. Find the frequency in each interval: 40-44 and 45-49.

1. Put 41, 43, and 44 in 40-44.
2. Put 46, 47, and 49 in 45-49.
3. Count the values in each interval.

Answer: 40-44: 3; 45-49: 3

PRACTICE 5 problems

- 1** Data: 7, 9, 11, 13, 15, 17, 18, 22. Find each frequency: 6-10, 11-15, 16-20, 21-25.

ANSWER _____

- 2** Which interval contains 26? 21-26 or 27-32

ANSWER _____

- 3** A histogram has these frequencies: 0-4: 1, 5-9: 4, 10-14: 6, 15-19: 2. Which interval is most common?

ANSWER _____

- 4** A 0-9 bin has frequency 6. Why could splitting it into 0-4 and 5-9 be useful?

ANSWER _____

- 5** A school wants data for a histogram of homework minutes. Choose the better sample: A, ask the first 24 students at lunch; B, randomly draw 24 names from the seventh-grade roster.

ANSWER _____

APPLY IT Show your work

- 1** The video club records editing minutes for 10 students: 11, 14, 16, 18, 21, 24, 27, 30, 32, 36. Make a histogram frequency table using 10-19, 20-29, and 30-39. Which interval is most common?

WORK SPACE

ANSWER _____

- 2** A media club wants to make a histogram about music listening. Which question works better: A, "Which music app is best?" or B, "How many minutes do seventh graders listen to music on a typical school day?" Describe a representative way to collect the data.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

The data are 1, 2, 3, 12, 13, 14. A histogram with bins 0-4, 5-9, and 10-14 has frequencies 3, 0, and 3. A histogram with bins 0-9 and 10-19 has frequencies 3 and 3. Which histogram makes the gap in the data easier to see? Explain.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Data: 7, 9, 11, 13, 15, 17, 18, 22. Find each frequency: 6-10, 11-15, 16-20, 21-25.	6-10: 2; 11-15: 3; 16-20: 2; 21-25: 1
2	Which interval contains 26? 21-26 or 27-32	21-26
3	A histogram has these frequencies: 0-4: 1, 5-9: 4, 10-14: 6, 15-19: 2. Which interval is most common?	10-14
4	A 0-9 bin has frequency 6. Why could splitting it into 0-4 and 5-9 be useful?	It shows how the 6 values are distributed within 0-9.
5	A school wants data for a histogram of homework minutes. Choose the better sample: A, ask the first 24 students at lunch; B, randomly draw 24 names from the seventh-grade roster.	B. A random sample from the roster is less likely to be biased.

PART 2 • APPLY IT

- 1. 10-19: 4; 20-29: 3; 30-39: 3. The most common interval is 10-19.** Sort each editing time into its interval and count. The first interval has the greatest frequency.
- 2. B. Randomly select 24 seventh graders from the roster and survey their listening minutes.** A histogram needs numerical data, such as minutes. Random selection gives students across the grade a chance to be included.

CHALLENGE

The histogram with 0-4, 5-9, and 10-14 makes the gap easier to see because the 5-9 bin has frequency 0.

Accept equivalent wording for conclusions about distribution and randomness. For frequency tables, require every data value to be counted once in the correct interval.