

Bins Change Views

See how interval size changes a histogram.

GRADE 7 • 7.PS.2.e

7.PS.2.e "Investigate and explain how using different intervals could impact the representation of the data in a histogram."

NAME _____

DATE _____

INTERVAL CHOICES

Histogram intervals are equal-sized ranges. Smaller intervals can show more detail, while larger intervals combine data and can hide gaps or clusters.

WORKED EXAMPLE

Data: 31, 34, 36, 38, 39. Use intervals 30-34 and 35-39.

1. Count 31 and 34 in 30-34.
2. Count 36, 38, and 39 in 35-39.
3. Write each count as a bar frequency.

Answer: 30-34: 2; 35-39: 3

PRACTICE 5 problems

- 1** Data: 11, 12, 16, 18, 18. Use intervals 10-14 and 15-19. Find each frequency.

ANSWER _____

- 2** A histogram uses 6-10, 11-15, and 16-20. Which interval contains 14?

ANSWER _____

- 3** Eight data values are in 20-29. This interval is split into 20-24 and 25-29. Can you find both new frequencies without the data values?

ANSWER _____

- 4** A histogram has 3 values in 40-44 and 5 values in 45-49. What is the frequency for the wider interval 40-49?

ANSWER _____

- 5** Histogram A uses intervals of width 10. Histogram B uses intervals of width 5. Which histogram may show more detail?

ANSWER _____

APPLY IT Show your work

- 1** A student tracks daily minutes spent listening to music: 7, 9, 12, 13, 17, 18. Using 5-9, 10-14, and 15-19, find the frequencies. Then combine them into 0-9 and 10-19.

WORK SPACE

ANSWER _____

- 2** A game club records scores: 41, 42, 43, 51, 52, 53, 54. One histogram uses 40-54. Another uses 40-44, 45-49, and 50-54. Which set of intervals better shows the gap in scores?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Data: 1, 2, 3, 4, 5, 6, 7, 8. Histogram A uses 1-4 and 5-8. Histogram B uses 0-3, 4-7, and 8-11. Find the frequencies and explain how the interval starting point changes the view.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Data: 11, 12, 16, 18, 18. Use intervals 10-14 and 15-19. Find each frequency.	10-14: 2; 15-19: 3
2	A histogram uses 6-10, 11-15, and 16-20. Which interval contains 14?	11-15
3	Eight data values are in 20-29. This interval is split into 20-24 and 25-29. Can you find both new frequencies without the data values?	No. You need to know how the 8 values are split between the two intervals.
4	A histogram has 3 values in 40-44 and 5 values in 45-49. What is the frequency for the wider interval 40-49?	8
5	Histogram A uses intervals of width 10. Histogram B uses intervals of width 5. Which histogram may show more detail?	Histogram B

PART 2 • APPLY IT

- 5-9: 2; 10-14: 2; 15-19: 2. 0-9: 2; 10-19: 4.** Count each value in the 5-minute intervals. The 10-19 interval combines the last two smaller intervals.
- 40-44, 45-49, and 50-54. Their frequencies are 3, 0, and 4, so the gap is visible.** The wide interval has one frequency of 7 and hides the gap. The narrower intervals show no scores from 45-49.

CHALLENGE

A: 1-4: 4; 5-8: 4. B: 0-3: 3; 4-7: 4; 8-11: 1. Histogram A shows two equal groups, while Histogram B shows one highest middle group and a smaller last group.

Accept equivalent wording that states wider intervals combine data and narrower intervals show more detail. Interval endpoints are included in the stated whole-number ranges.