

Data Shape Detectives

Use histogram bars to spot patterns in data.

GRADE 7 • 7.PS.2.g

7.PS.2.g “Analyze data represented in histograms by making observations and drawing conclusions. Determine how histograms reveal patterns in data that cannot be easily seen by looking at the corresponding given data set.”

NAME _____

DATE _____

SEE THE SHAPE

A histogram groups numbers into equal intervals. Compare bar heights to find clusters, gaps, and the interval with the most data. These patterns can be hard to notice in a raw list.

WORKED EXAMPLE

A histogram of pages read has bars 74-76: 6, 77-79: 10, 80-82: 2. Which interval has the most students?

1. Read the bar heights: 6, 10, and 2.
2. The greatest frequency is 10.
3. The bar with 10 is 77-79.

Answer: 77-79 pages, with 10 students

PRACTICE 5 problems

- 1** Histogram bars: 30-34: 5, 35-39: 9, 40-44: 1. Which interval is the cluster?

ANSWER _____

- 2** Histogram bars: 21-23: 7, 24-26: 0, 27-29: 7. What pattern do you see?

ANSWER _____

- 3** Histogram bars: 31-35: 4, 36-40: 4, 41-45: 4. Describe the distribution.

ANSWER _____

- 4** Histogram A: 51-55: 5, 56-60: 1. Histogram B: 51-55: 3, 56-60: 7. Which histogram has more values from 56-60?

ANSWER _____

- 5** Raw data: 41, 46, 47, 48, 51, 52, 53, 54, 55, 56. A matching histogram has bars 41-45: 1, 46-50: 3, 51-55: 5, 56-60: 1. What pattern is easier to see in the histogram?

ANSWER _____

APPLY IT Show your work

- 1** A music app survey shows minutes spent listening after school. Histogram bars are 0-14: 3, 15-29: 9, 30-44: 7, 45-59: 1. What time range was most common? What pattern would be harder to spot in a raw list?

WORK SPACE

ANSWER _____

- 2** Two gaming clubs tracked levels completed in one week. Club A: 30-34: 1, 35-39: 5, 40-44: 9. Club B: 30-34: 5, 35-39: 7, 40-44: 3. Which club generally completed more levels? Use bar evidence.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A raw list is 31, 32, 33, 34, 46, 47, 48, 49. A histogram groups it as 30-34: 4, 35-39: 0, 40-44: 0, 45-49: 4. Explain a conclusion the histogram makes clear.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Histogram bars: 30-34: 5, 35-39: 9, 40-44: 1. Which interval is the cluster?	35-39
2	Histogram bars: 21-23: 7, 24-26: 0, 27-29: 7. What pattern do you see?	There is a gap at 24-26, with equal clusters at 21-23 and 27-29.
3	Histogram bars: 31-35: 4, 36-40: 4, 41-45: 4. Describe the distribution.	The data are evenly spread across the three intervals.
4	Histogram A: 51-55: 5, 56-60: 1. Histogram B: 51-55: 3, 56-60: 7. Which histogram has more values from 56-60?	Histogram B
5	Raw data: 41, 46, 47, 48, 51, 52, 53, 54, 55, 56. A matching histogram has bars 41-45: 1, 46-50: 3, 51-55: 5, 56-60: 1. What pattern is easier to see in the histogram?	Most values cluster from 51-55.

PART 2 • APPLY IT

- 15-29 minutes was most common. The data cluster in the 15-44 minute ranges, especially 15-29.** The tallest bar is 15-29, with 9 students. The adjacent tall bars show that most listening times are in the middle ranges.
- Club A. It has 9 members in 40-44 levels, while Club B has 3 in that highest interval.** Club A has more data in the highest interval and fewer data in the lowest interval. Its distribution is shifted toward higher numbers of levels.

CHALLENGE

The data form two equal clusters, 30-34 and 45-49, with a gap from 35-44. This suggests two separate groups instead of one typical range.

Accept equivalent descriptions of clusters, gaps, and even spread. For comparison items, students should name the correct interval or group and use bar frequencies as evidence.