What Does It Hide?

Compare two displays of the same data.

S.Q.3.2 "Compare and contrast different potential graphical or visual representations given the same data set."

NAME _____ DATE _____

KEEPS THE VALUES

Display B lets you recover how many observations had each original value or category. It may look different from Display A and still keep that detail.

Movie ratings: Display A is a bar graph with a count for each rating. Display B is a circle graph with every rating named and its exact count shown.

GROUPS THE VALUES

Display B combines two or more original values or categories. You cannot recover the count for each one from Display B alone.

Plant heights: Display A is a dot plot at each exact height. Display B is a histogram that counts heights in ranges.

1 SORT

8 items

For each pair, imagine seeing only Display B, then circle KEEPS or GROUPS; for PROVE IT, choose two items and explain what you could or could not recover from Display B.

1.	Lunch choices: salad 10, soup 6, pasta 4. A: bar graph with counts. B: circle graph labeled salad 50%, soup 30%, pasta 20%, with total 20 shown.	KEEPS GROUPS
2.	Daily steps, in thousands: 4, 4, 5, 7. A: dot plot with one dot per day. B: stem-and-leaf plot with one leaf per day.	KEEPS GROUPS
3.	Commutes: walk 5, bus 4, bike 3. A: bar graph with three separate bars. B: bar graph with walk 5 and other 7, where other combines bus and bike.	KEEPS GROUPS
4.	Quiz scores: 71, 74, 82, 86. A: dot plot at each score. B: histogram with 2 scores in 70-79 and 2 scores in 80-89.	KEEPS GROUPS
5.	Club choices: art 8, chess 6, drama 6. A: circle graph with each count shown. B: percent bar graph labeled art 40%, chess 30%, drama 30%, with total 20 shown.	KEEPS GROUPS
6.	Music picks: jazz 3, rock 5, pop 4. A: bar graph by genre. B: circle graph labeled other 8 and pop 4, where other combines jazz and rock.	KEEPS GROUPS
7.	Wait times, in minutes: 2, 3, 4, 5, 6, 7, 8, 9. A: dot plot at each minute. B: box plot showing only the five-number summary.	KEEPS GROUPS
8.	Temperatures, in °C: 12, 12, 15, 18. A: histogram with ranges 10-14 and 15-19. B: dot plot with two dots at 12 and one each at 15 and 18.	KEEPS GROUPS

2 PROVE IT

Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

For MAKE YOUR OWN, write a new data set and two display plans like the pairs above: make one pair where Display B KEEPS the original values and one where it GROUPS them.

KEEPS _____

GROUPS _____

CHALLENGE

Use item 4. Write a different four-score data set that would produce the same Display B, then explain in one sentence why Display A would change.

ANSWER KEY

What Does It Hide?

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Lunch choices: salad 10, soup 6, pasta 4. A: bar graph with counts. B: circle graph labeled salad 50%, soup 30%, pasta 20%, with total 20 shown.	**KEEPS**	The total and percentages give the exact count for each category.
2	Daily steps, in thousands: 4, 4, 5, 7. A: dot plot with one dot per day. B: stem-and-leaf plot with one leaf per day.	**KEEPS**	Each leaf preserves an original value, including the repeated 4.
3	Commutes: walk 5, bus 4, bike 3. A: bar graph with three separate bars. B: bar graph with walk 5 and other 7, where other combines bus and bike.	**GROUPS**	The other bar does not reveal the separate bus and bike counts.
4	Quiz scores: 71, 74, 82, 86. A: dot plot at each score. B: histogram with 2 scores in 70-79 and 2 scores in 80-89.	**GROUPS**	The histogram gives interval counts, not counts at the four exact scores.
5	Club choices: art 8, chess 6, drama 6. A: circle graph with each count shown. B: percent bar graph labeled art 40%, chess 30%, drama 30%, with total 20 shown.	**KEEPS**	Each percentage and the displayed total give an exact category count.
6	Music picks: jazz 3, rock 5, pop 4. A: bar graph by genre. B: circle graph labeled other 8 and pop 4, where other combines jazz and rock.	**GROUPS**	The circle graph does not reveal the separate jazz and rock counts.
7	Wait times, in minutes: 2, 3, 4, 5, 6, 7, 8, 9. A: dot plot at each minute. B: box plot showing only the five-number summary.	**GROUPS**	The five-number summary does not give the count at every original wait time.
8	Temperatures, in °C: 12, 12, 15, 18. A: histogram with ranges 10-14 and 15-19. B: dot plot with two dots at 12 and one each at 15 and 18.	**KEEPS**	Display B shows the count at each exact temperature, even though Display A does not.

PART 2 · PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **KEEPS**: Shoe sizes 7, 7, 8, 9. A: dot plot at each size. B: bar graph with size 7 at 2, size 8 at 1, and size 9 at 1.
- **GROUPS**: Package masses, in grams: 21, 24, 32, 35. A: dot plot at each mass. B: histogram with 2 masses in 20-29 and 2 masses in 30-39.

Challenge: 72, 77, 81, 89. The histogram still has two scores in each range, but the dot plot has dots at different scores.

Items 1, 2, 5, and 8 are KEEPS; items 3, 4, 6, and 7 are GROUPS. For PROVE IT, accept explanations that name a specific value or category whose count Display B does or does not reveal.