Shape Sleuths

Sort distributions by the shape of their values.

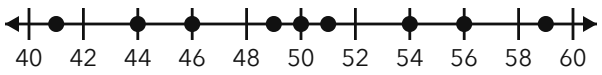
S.DA.1.1 "Summarize and represent the distribution for univariate quantitative data by describing and analyzing the shape of the distribution, the measures of center for the distribution, the patterns in variability for the distribution..."

NAME _____ DATE _____

SYMMETRIC

The values on one side of the center have a matching pattern on the other side. The two sides look like mirror images.

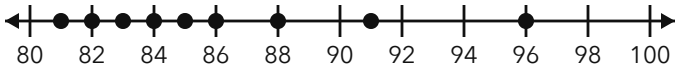
Minutes spent practicing a song



SKEWED

Many values are close together, but a few stretch farther out on one side. That side forms a longer tail.

Minutes spent waiting for a delivery



1 SORT

8 items

For each figure, circle SYMMETRIC or SKEWED based on how the values are spread out.

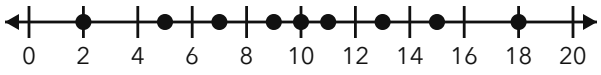
1. 

Figure 1

SYMMETRIC SKEWED

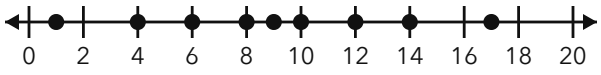
2. 

Figure 2

SYMMETRIC SKEWED

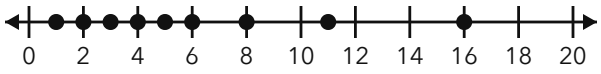
3. 

Figure 3

SYMMETRIC SKEWED

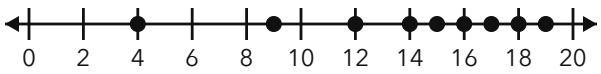
4. 

Figure 4

SYMMETRIC SKEWED

5.

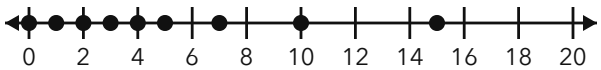


Figure 5

SYMMETRIC **SKEWED**

6.

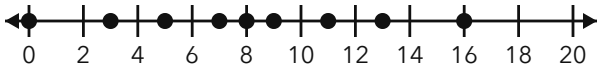


Figure 6

SYMMETRIC **SKEWED**

7.

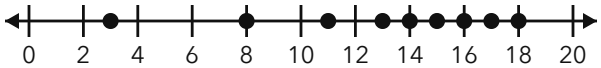


Figure 7

SYMMETRIC **SKEWED**

8.

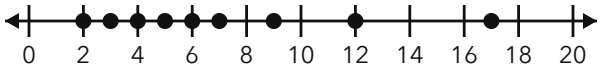


Figure 8

SYMMETRIC **SKEWED**

2 PROVE IT

Explain your thinking

choose one figure from each category and explain how you knew.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

write a new set of nine different values for each category.

SYMMETRIC

SKEWED

CHALLENGE

Write two sets of nine different values with the same median. Make one set symmetric and the other skewed. State the median and explain the difference in shape.

ANSWER KEY **Shape Sleuths** **HIGH SCHOOL · S.DA.1.1**

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (numberline)	**SYMMETRIC**	Values pair at equal distances on either side of 10.
2	Figure 2 (numberline)	**SYMMETRIC**	Values pair at equal distances on either side of 9.
3	Figure 3 (numberline)	**SKEWED**	Values cluster near the low end and stretch into a right tail.
4	Figure 4 (numberline)	**SKEWED**	Values cluster near the high end and stretch into a left tail.
5	Figure 5 (numberline)	**SKEWED**	Values cluster near the low end and stretch into a right tail.
6	Figure 6 (numberline)	**SYMMETRIC**	Values pair at equal distances on either side of 8.
7	Figure 7 (numberline)	**SKEWED**	Values cluster near the high end and stretch into a left tail.
8	Figure 8 (numberline)	**SKEWED**	Values cluster near the low end and stretch into a right tail.

PART 2 · PROVE IT

Task: choose one figure from each category and explain how you knew.
Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **SYMMETRIC**: 21, 24, 26, 29, 30, 31, 34, 36, 39.
- **SKEWED**: 21, 22, 23, 24, 25, 26, 28, 31, 36.

Challenge: Symmetric: 2, 6, 8, 9, 10, 11, 12, 14, 18. Skewed: 0, 4, 7, 9, 10, 11, 12, 13, 14. Both medians are 10. The first set mirrors around 10; the second stretches farther to the left.

Figures 1, 2, and 6 are symmetric. Figures 3, 4, 5, 7, and 8 are skewed. For Part 2, accept explanations that identify matching distances from the center or a longer tail on one side.