Show the Shape

Choose a display that reveals a dataset's key feature.

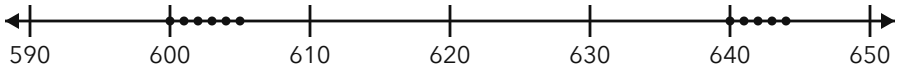
S.DA.1.2 "Select and create an appropriate display (e.g., dot plots, histograms, box plots) for univariate data."

NAME _____ DATE _____

DOT PLOT

Choose a dot plot when the individual values reveal two groups separated by a large gap. A dot plot keeps that gap visible.

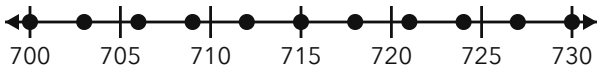
These values form two groups with a wide gap, so a dot plot would show their pattern.



BOX PLOT

Choose a box plot when the values form one fairly even group and you want to summarize its center and spread. A box plot shows the median and quartiles.

These values form one evenly spread group, so a box plot would summarize its center and spread.



1 SORT

8 items

For Part 1, circle DOT or BOX for each dataset; for Part 2, choose one figure from each category and explain how the spacing of its values supports your choice.

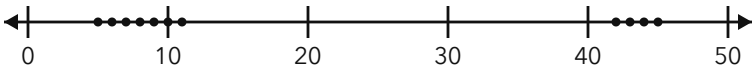
1. 

Figure 1 **DOT** **BOX**

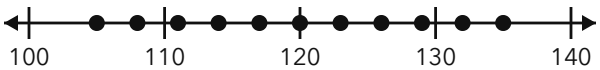
2. 

Figure 2 **DOT** **BOX**

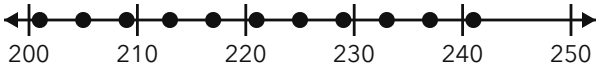
3. 

Figure 3 **DOT** **BOX**

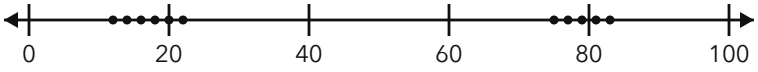
4. 

Figure 4 **DOT** **BOX**

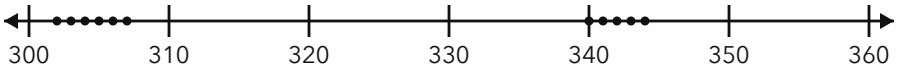
5. 

Figure 5 **DOT** **BOX**

6.

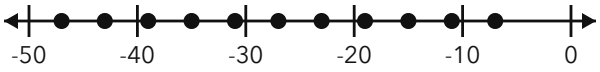


Figure 6

DOT **BOX**

7.

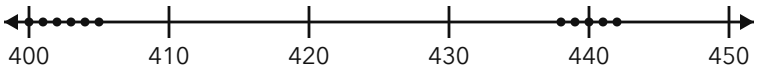


Figure 7

DOT **BOX**

8.

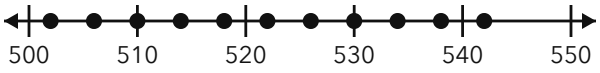


Figure 8

DOT **BOX**

2 PROVE IT

Explain your thinking

Choose one figure from each category and explain how the spacing of its values supports your choice.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

For Part 3, write one new 11-value dataset with two groups separated by a large gap for DOT and one new 11-value dataset with evenly spaced values for BOX.

DOT _____

BOX _____

CHALLENGE

Draw a box plot for Figure 2 on separate paper, label its five-number summary and IQR, and state one detail about the values that the box plot does not show.

ANSWER KEY

Show the Shape

HIGH SCHOOL · S.DA.1.2

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (numberline)	**DOT**	A large gap separates two groups; individual values show that pattern.
2	Figure 2 (numberline)	**BOX**	The evenly spaced values form one group suited to a median-and-quartiles summary.
3	Figure 3 (numberline)	**BOX**	The values form one evenly spaced group with no large internal gap.
4	Figure 4 (numberline)	**DOT**	A wide gap separates the lower six values from the upper five.
5	Figure 5 (numberline)	**DOT**	Two tight groups have a large gap between them.
6	Figure 6 (numberline)	**BOX**	The values are evenly spaced across one group, so quartiles summarize their spread.
7	Figure 7 (numberline)	**DOT**	Showing each value makes the gap between the two groups clear.
8	Figure 8 (numberline)	**BOX**	The values form one evenly spaced group suited to a quartile summary.

PART 2 · PROVE IT

Task: Choose one figure from each category and explain how the spacing of its values supports your choice.
Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **DOT**: 1, 2, 3, 4, 5, 6, 7, 30, 31, 32, 33.
- **BOX**: 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70.

Challenge: Draw the box from 111 to 129 with a median line at 120 and whiskers ending at 105 and 135. The five-number summary is 105, 111, 120, 129, 135, and the IQR is 18. The box plot does not show the exact values between the quartiles.

Part 2 explanations should connect a large gap to DOT or one evenly spread group to BOX. For Figure 2, the quartiles are the medians of the five values below and above 120.