Data Difference Detectives

Sort data sets by whether their values change.

6.13 "Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to solve problems. The student is expected to: interpret numeric data summarized in dot plots, stem-and-leaf plots..."

NAME _____ DATE _____

HAS VARIABILITY	NO VARIABILITY
Data has variability when at least two values are different. The data changes from one value to another.	Data has no variability when every value is the same. The data does not change.
The heights of four kites are 6, 8, 7, and 9 meters.	Each of five trays holds 24 oranges.

1 SORT

8 items

For each item, circle VARIES or SAME, then choose two items and explain how the values helped you decide.

1.	A histogram has bars above 6, 7, and 8.	VARIES SAME
2.	A table lists 14, 15, 14, and 16 minutes.	VARIES SAME
3.	Four recipe cards each use 2 cups of flour.	VARIES SAME
4.	A stem-and-leaf plot shows 41, 43, 44, and 47.	VARIES SAME
5.	Five water bottles each hold 500 milliliters.	VARIES SAME
6.	A box plot has a minimum, first quartile, median, third quartile, and maximum of 10.	VARIES SAME
7.	A dot plot has data values 12, 12, 13, and 15.	VARIES SAME
8.	Three buses carried 36, 36, and 36 riders.	VARIES SAME

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

Write one numerical data set that VARIES and one numerical data set that is the SAME.

VARIES _____

SAME _____

CHALLENGE

Class A recorded 8, 8, 8, and 8. Class B recorded 6, 8, 8, and 10. Which class has variability? Explain why.

ANSWER KEY

Data Difference Detectives

GRADE 6 · TEKS 6.13

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	A histogram has bars above 6, 7, and 8.	**VARIES**	The represented values include 6, 7, and 8, so they are not all the same.
2	A table lists 14, 15, 14, and 16 minutes.	**VARIES**	The times differ.
3	Four recipe cards each use 2 cups of flour.	**SAME**	Every recipe card has the same amount, 2 cups.
4	A stem-and-leaf plot shows 41, 43, 44, and 47.	**VARIES**	The data values are different.
5	Five water bottles each hold 500 milliliters.	**SAME**	Every bottle holds 500 milliliters.
6	A box plot has a minimum, first quartile, median, third quartile, and maximum of 10.	**SAME**	All five summary values are 10, which shows no spread.
7	A dot plot has data values 12, 12, 13, and 15.	**VARIES**	The dot plot includes more than one value.
8	Three buses carried 36, 36, and 36 riders.	**SAME**	Each bus carried 36 riders.

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)

- **VARIES**: 4, 6, 6, 9
- **SAME**: 11, 11, 11, 11

Challenge: Class B has variability because its values are not all equal. Class A has no variability because every value is 8.

Accept any explanation that names the deciding feature from the rule box for the chosen item. For Part 2, accept explanations that correctly state whether all values are equal or identify at least two different values. For Part 3, accept any correctly labeled numerical data sets.