Which Values Count?

Sort what is measured once and what is calculated again and again.

S.Q.2 "Distinguish between the distribution of a population, a distribution of sample data, and a sampling distribution. Distinguish between sample statistics and population parameters..."

NAME _____ DATE _____

SAMPLE DATA DISTRIBUTION

This shows the values measured from individuals in one sample and how often each value occurs.

A gardener measures the stem lengths of 15 tulips selected once and counts how often each length occurs.

SAMPLING DISTRIBUTION

This shows the values of one sample statistic, such as a mean or proportion, calculated from many samples of the same size.

A librarian repeatedly selects groups of 20 novels and records the median page count for each group.

1 SORT

8 items

For each item, circle DATA or REPEATED to show which kind of distribution it describes.

1.	One sample of 30 commuters: count how often each trip time occurs.	DATA	REPEATED
2.	One sample of 40 cartons: count how often each number of broken eggs occurs.	DATA	REPEATED
3.	Take 200 samples of 25 packages. Record the mean mass from each sample.	DATA	REPEATED
4.	One sample of 50 students: count how often each number of weekly exercise hours occurs.	DATA	REPEATED
5.	Take 100 samples of 60 voters. Record the percent supporting a measure in each sample.	DATA	REPEATED
6.	Take 300 samples of 10 batteries. Record the median battery life from each sample.	DATA	REPEATED
7.	One sample of 20 trees: count how often each number of growth rings occurs.	DATA	REPEATED
8.	One sample of 15 houses: count how often each number of bedrooms occurs.	DATA	REPEATED

2 PROVE IT

Explain your thinking

Choose two sort items and explain how you knew where each belongs.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

Write one new example of each category.

DATA _____

REPEATED _____

CHALLENGE

A school records the average screen time of one sample of 25 students. What must the school do to create a sampling distribution of the average? Explain in one sentence.

Which Values Count?

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	One sample of 30 commuters: count how often each trip time occurs.	**DATA**	Trip times are values from individuals in one sample.
2	One sample of 40 cartons: count how often each number of broken eggs occurs.	**DATA**	The counts describe individual cartons in one sample.
3	Take 200 samples of 25 packages. Record the mean mass from each sample.	**REPEATED**	Each value is a sample mean from one of many same-size samples.
4	One sample of 50 students: count how often each number of weekly exercise hours occurs.	**DATA**	Exercise hours are values from individuals in one sample.
5	Take 100 samples of 60 voters. Record the percent supporting a measure in each sample.	**REPEATED**	Each percent is a sample statistic from one of many same-size samples.
6	Take 300 samples of 10 batteries. Record the median battery life from each sample.	**REPEATED**	Each median is a sample statistic from one of many same-size samples.
7	One sample of 20 trees: count how often each number of growth rings occurs.	**DATA**	Growth-ring counts are values from individual trees in one sample.
8	One sample of 15 houses: count how often each number of bedrooms occurs.	**DATA**	Bedroom counts are values from individual houses in one sample.

PART 2 · PROVE IT

Task: Choose two sort items and explain how you knew where each belongs.
Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **DATA**: One sample of 18 dogs gives the weight of each dog and how often each weight occurs.
- **REPEATED**: Across 150 samples of 18 dogs each, record the mean weight from each sample.

Challenge: The school must repeatedly select samples of 25 students and record the average screen time from each sample.

For Part 2, accept explanations that identify individual values from one sample for DATA or statistics calculated from repeated same-size samples for REPEATED. A single sample mean is a statistic, but it does not by itself form a sampling distribution.