Data Type Detectives

Sort data by what each value tells you.

MA.912.DP.1.2 "Interpret data distributions represented in various ways. State whether the data is numerical or categorical, whether it is univariate or bivariate and interpret the different components and quantities in the display."

NAME _____ DATE _____

NUMERICAL DATA

Numerical data are counts or measurements. You can put the values in order and use arithmetic to compare them.

The number of pages read by each member of a book club.

CATEGORICAL DATA

Categorical data place each case into a group or name. A number used only as a label is still categorical.

Each visitor's favorite museum exhibit.

1 SORT

8 items

For each item, circle the tag that fits it, then in Part 2, pick two numbered items and explain what makes each type of data numerical or categorical.

1.	A dot plot shows the time, in seconds, each swimmer took to finish 50 meters.	NUMERICAL	CATEGORY
2.	A table lists each driver's parking permit type: student, staff, or visitor.	NUMERICAL	CATEGORY
3.	A bar graph shows how many customers chose each payment method.	NUMERICAL	CATEGORY
4.	A scatter plot compares a car's mileage with its sale price.	NUMERICAL	CATEGORY
5.	A two-way table records whether voters said yes or no, grouped by political party.	NUMERICAL	CATEGORY
6.	A circle graph shows the kinds of pets owned by students in a class.	NUMERICAL	CATEGORY
7.	A histogram displays the masses, in grams, of apples in a shipment.	NUMERICAL	CATEGORY
8.	A list gives each athlete's jersey color for the season.	NUMERICAL	CATEGORY

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 new example of numerical data and one new example of categorical data.

NUMERICAL _____

CATEGORY _____

CHALLENGE

Create a data situation with two variables. State whether each variable is numerical or categorical, then name one display that could show the data.

ANSWER KEY

Data Type Detectives

HIGH SCHOOL · MA.912.DP.1.2

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	A dot plot shows the time, in seconds, each swimmer took to finish 50 meters.	**NUMERICAL**	Time in seconds is a measurement.
2	A table lists each driver's parking permit type: student, staff, or visitor.	**CATEGORY**	Permit type places drivers into named groups.
3	A bar graph shows how many customers chose each payment method.	**CATEGORY**	Payment method is a named group, even though the graph shows numerical counts.
4	A scatter plot compares a car's mileage with its sale price.	**NUMERICAL**	Mileage and sale price are numerical variables.
5	A two-way table records whether voters said yes or no, grouped by political party.	**CATEGORY**	Both response and party are categories.
6	A circle graph shows the kinds of pets owned by students in a class.	**CATEGORY**	Kind of pet is a named group.
7	A histogram displays the masses, in grams, of apples in a shipment.	**NUMERICAL**	Mass in grams is a measurement.
8	A list gives each athlete's jersey color for the season.	**CATEGORY**	Jersey color is a category.

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)

- **NUMERICAL**: Numerical Data: The distance, in kilometers, that each hiker traveled on Saturday.
- **CATEGORY**: Categorical Data: The brand of instrument played by each band member.

Challenge: A researcher records each tree's trunk diameter in centimeters and height in meters. Both variables are numerical, so a scatter plot could show the data.

Accept equivalent descriptions that correctly identify whether the values are measurements or counts versus named groups. In Part 2, students should refer to the values or variables shown, not only to the graph type.