Spot the Link

Compare survey results to look for an association.

A1P.DSP.B.33 "Design and carry out an investigation to determine whether there appears to be an association between two categorical variables, and write a persuasive argument based on the results of the investigation."

NAME _____ DATE _____

RATES DIFFER

Compare the share of people who answer yes in each group. Clearly different shares suggest an association, but they do not prove that one answer causes the other.

At a café, 18 of 20 customers who order soup choose tea, compared with 2 of 20 customers who do not order soup.

RATES MATCH

When the shares are the same, these results do not show an association. A different sample might give different results.

At a museum, 7 of 20 visitors with a map buy a postcard, and 7 of 20 visitors without a map buy a postcard.

1 SORT

8 items

Circle DIFFER or MATCH for each result; in Part 2, choose one item from each category and explain your choices using the rates.

1.	Of 20 students who walk to school, 16 bring water; of 20 who ride, 4 bring water.	DIFFER MATCH
2.	Of 20 students in band, 15 use a planner; of 20 students not in band, 5 use one.	DIFFER MATCH
3.	Of 20 students who wear glasses, 9 play chess; of 20 who do not, 9 play chess.	DIFFER MATCH
4.	Of 20 students who eat breakfast, 17 feel alert before lunch; of 20 who skip breakfast, 3 do.	DIFFER MATCH
5.	Of 20 students who have a pet, 7 read comics; of 20 with no pet, 7 read comics.	DIFFER MATCH
6.	Of 20 students who play a sport, 12 listen to podcasts; of 20 who do not, 12 listen.	DIFFER MATCH
7.	Of 20 students who bike on weekends, 14 visit the park; of 20 who do not, 6 visit.	DIFFER MATCH
8.	Of 20 students who live near a library, 16 borrow novels; of 20 who do not, 4 borrow novels.	DIFFER MATCH

2 PROVE IT

Explain your thinking

Choose one item from each category and explain your choices using the rates.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

Write two new survey results about yes-or-no questions, one with DIFFER rates and one with MATCH rates; use two groups of 20 people in each result.

DIFFER

MATCH

CHALLENGE

Plan a way to ask at least 10 classmates the same two anonymous yes-or-no questions. Ask them, tally both responses, record each group's size and yes count, and write a two-sentence argument using the rates to say whether an association appears.

ANSWER KEY # Spot the Link

HIGH SCHOOL · A1P.DSP.B.33

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Of 20 students who walk to school, 16 bring water; of 20 who ride, 4 bring water.	**DIFFER**	The shares are 16/20 and 4/20.
2	Of 20 students in band, 15 use a planner; of 20 students not in band, 5 use one.	**DIFFER**	The shares are 15/20 and 5/20.
3	Of 20 students who wear glasses, 9 play chess; of 20 who do not, 9 play chess.	**MATCH**	Both shares are 9/20.
4	Of 20 students who eat breakfast, 17 feel alert before lunch; of 20 who skip breakfast, 3 do.	**DIFFER**	The shares are 17/20 and 3/20.
5	Of 20 students who have a pet, 7 read comics; of 20 with no pet, 7 read comics.	**MATCH**	Both shares are 7/20.
6	Of 20 students who play a sport, 12 listen to podcasts; of 20 who do not, 12 listen.	**MATCH**	Both shares are 12/20.
7	Of 20 students who bike on weekends, 14 visit the park; of 20 who do not, 6 visit.	**DIFFER**	The shares are 14/20 and 6/20.
8	Of 20 students who live near a library, 16 borrow novels; of 20 who do not, 4 borrow novels.	**DIFFER**	The shares are 16/20 and 4/20.

PART 2 · PROVE IT

Task: Choose one item from each category and explain your choices using the rates.
Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **DIFFER**: Of 20 students who use a study timer, 16 finish homework early; of 20 who do not, 4 finish early.
- **MATCH**: Of 20 students who grow herbs, 6 enjoy puzzles; of 20 who do not, 6 enjoy puzzles.

Challenge: I asked the first 12 classmates entering homeroom whether they packed lunch and carried a reusable bottle: 5 of 6 lunch-packers carried one, compared with 2 of 6 others. These results suggest an association because the bottle rates, 5/6 and 2/6, differ. The gap supports my claim for this group, though a larger survey could give a different result.

For Part 2, accept explanations that compare the yes counts out of 20 for one DIFFER item and one MATCH item. For the challenge, students must report data they actually collected, compare rates for both groups, and avoid claiming that an association proves cause and effect.