LESSON MAKER PRO

Patterns Beyond Samples

Compare rates, then check who was surveyed.

GRADE 8 · 8.DS.A.1.a

8.DS.A.1.a "Determine whether observed associations in sample data justify generalizations about a broader population."

NAME _____ DATE _____

FROM SAMPLE TO POPULATION

To look for an association, compare the percent in each group, not just the counts. A random sample from the population you want to describe can support a cautious claim about that population. A sample from only one part of the population cannot.

WORKED EXAMPLE

A random sample of district students gave these results. Is travel method associated with being late among district students?

DISTRICT STUDENT SAMPLE

Travel method	Late	Not late
Bus	12	4
Walk	4	12

1. Bus riders: 12/(12 + 4) = 75% were late.
2. Walkers: 4/(4 + 12) = 25% were late.
3. The rates differ, and the students were randomly sampled from the district.

Answer: The sample supports a cautious claim that bus riders in the district are more likely to be late than walkers.

PRACTICE 4 problems

1 A random sample of library members finds that 6 of 10 comic readers and 2 of 10 other readers visit weekly. Give both rates. Does the sample support an association among library members?

ANSWER _____

2 At a skate park, 8 of 10 helmet users and 3 of 10 nonusers say they feel safe. Give both rates. Can you generalize the pattern to all city teens?

ANSWER _____

3 A random sample of district students finds that 14 of 20 team players and 9 of 30 nonplayers bring lunch. Give both rates. Does the sample support a district-wide association?

ANSWER _____

4 A game channel polls its followers. Of those polled, 21 of 30 headset users and 7 of 10 nonusers play daily. Give both rates. Does the sample show an association?

ANSWER _____

APPLY IT Show your work

1 Student council randomly selects students from the whole school. Use the table to compare support for a later start among students who play a school sport and those who do not. Does the sample support a school-wide association?

SUPPORT FOR A LATER START

Plays a school sport	Yes	No
Yes	18	2
No	9	11

ANSWER _____

2 A video club polls only students at its meeting. Use the table to compare interest in a video-editing class. Is there an association in the sample? Can you generalize it to all eighth graders?

INTEREST IN A VIDEO-EDITING CLASS

Watches clips often	Interested	Not interested
Yes	21	9
No	6	24

ANSWER _____

CHALLENGE One step up

Two surveys study music during homework and passing a quiz. Survey A randomly samples students across the district. Survey B polls only music fan club members. Which survey supports a district-wide claim? Compare its pass rates, and explain whether it shows that music causes quiz success.

HOMEWORK MUSIC AND QUIZ RESULTS

Survey	Homework	Passed	Did not pass
A	With music	26	14
A	Without music	18	22
B	With music	27	3
B	Without music	7	3

WORK SPACE AND ANSWER

ANSWER KEY

Patterns Beyond Samples

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A random sample of library members finds that 6 of 10 comic readers and 2 of 10 other readers visit weekly. Give both rates. Does the sample support an association among library members?	**60% and 20%. Yes, comic readers may be more likely to visit weekly.**
2	At a skate park, 8 of 10 helmet users and 3 of 10 nonusers say they feel safe. Give both rates. Can you generalize the pattern to all city teens?	**80% and 30%. No, teens at the skate park may not represent all city teens.**
3	A random sample of district students finds that 14 of 20 team players and 9 of 30 nonplayers bring lunch. Give both rates. Does the sample support a district-wide association?	**70% and 30%. Yes, team players in the district may be more likely to bring lunch.**
4	A game channel polls its followers. Of those polled, 21 of 30 headset users and 7 of 10 nonusers play daily. Give both rates. Does the sample show an association?	**70% and 70%. No, the sample shows no difference in daily play rates.**

PART 2 · APPLY IT

1. **90% of students who play a school sport support a later start, compared with 45% of those who do not. The random sample supports a cautious school-wide association.** Compute 18/20 = 90% and 9/20 = 45%. The rates differ, and the sample was randomly selected from the whole school.
2. **Yes, the sample shows an association: 70% of frequent clip viewers are interested, compared with 20% of other students. No, video club members may not represent all eighth graders.** Compute 21/30 = 70% and 6/30 = 20%. The rates differ, but the club-only sample does not support a claim about all eighth graders.

CHALLENGE

Survey A supports a cautious district-wide claim. Its pass rates are 26/40 = 65% with music and 18/40 = 45% without music. That is an association, but it does not show that music causes quiz success.

Accept equivalent cautious wording about an association. Do not accept claims that an association proves cause and effect.