LESSON MAKER PRO

Whose Voices Count?

Check whether a survey reflects the whole group.

GRADE 7 · 7.DS.A.1.a

7.DS.A.1.a "Decide whether a sample is representative of a population by explaining how it was selected and how that selection affects the accuracy of conclusions."

NAME _____ DATE _____

COMPARE THE GROUPS

A sample is more useful when it reflects the population it came from. Compare each group's share of the population with its share of the sample, then ask how the students were chosen. A sample with matching shares can still miss important views if students in a group were not chosen fairly.

WORKED EXAMPLE

A school surveys the first 24 students to arrive about travel to school. Is the sample representative by travel type?

TRAVEL TO SCHOOL

Travel	School	Sample
Walk	80	8
Bus	40	16

1. In the school, 40/120 = 1/3 ride the bus.
2. In the sample, 16/24 = 2/3 ride the bus.
3. Bus riders make up a larger share of the sample.

Answer: No. The first arrivals included too many bus riders compared with the school as a whole.

PRACTICE 4 problems

1 A school has 60 athletes among 100 students. A random sample has 6 athletes among 10 students. Does the sample reflect the school by athlete status? Explain.

ANSWER _____

2 A school has 30 library-card holders among 50 students. A survey at the library finds 9 card holders among 10 students. Does the sample reflect the school by card status? Explain.

ANSWER _____

3 Of 100 students, 25 bike to school. A survey of 10 students near the bike racks finds 5 bikers. Does the sample reflect the school by travel type? Explain.

ANSWER _____

4 Of 30 students, 18 take art. A survey of 10 students at a sports event finds 3 art students. Does the sample reflect the group by art enrollment? Explain.

ANSWER _____

APPLY IT Show your work

1 A school surveys esports-club members about adding an esports tournament. Of the 25 surveyed, 20 say yes. Can 20/25 reliably predict support across the school? Use the table to explain.

CLUB MEMBERSHIP

Group	School	Surveyed
Club members	50	25
Nonmembers	150	0

ANSWER _____

2 A school has 90 bus riders and 90 nonriders. A random sample takes 9 from each group. Of the 18 surveyed, 12 prefer a later start. Is 12/18 a reasonable estimate of school support? Explain.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A school has 100 gaming-club members and 300 nonmembers. A survey randomly selects 10 from each group. Nine members and 3 nonmembers want a new game room. Find the sample's yes rate and a schoolwide estimate using each group's rate. Explain why they differ.

WORK SPACE AND ANSWER

ANSWER KEY

Whose Voices Count?

GRADE 7 · 7.DS.A.1.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A school has 60 athletes among 100 students. A random sample has 6 athletes among 10 students. Does the sample reflect the school by athlete status? Explain.	**Yes. Athletes are 60/100 = 60% of the school and 6/10 = 60% of the random sample.**
2	A school has 30 library-card holders among 50 students. A survey at the library finds 9 card holders among 10 students. Does the sample reflect the school by card status? Explain.	**No. Card holders are 30/50 = 60% of the school but 9/10 = 90% of the sample. Surveying at the library overrepresents them.**
3	Of 100 students, 25 bike to school. A survey of 10 students near the bike racks finds 5 bikers. Does the sample reflect the school by travel type? Explain.	**No. Bikers are 25/100 = 25% of the school but 5/10 = 50% of the sample. Surveying near the bike racks overrepresents them.**
4	Of 30 students, 18 take art. A survey of 10 students at a sports event finds 3 art students. Does the sample reflect the group by art enrollment? Explain.	**No. Art students are 18/30 = 60% of the group but 3/10 = 30% of the sample. This selection underrepresents art students.**

PART 2 · APPLY IT

1. **No. Club members are 50/200 = 1/4 of the school but all of the sample. The 20/25 yes rate leaves out nonmembers' views.** Compare the club's share of the school with its share of the sample. Because only club members were surveyed, their support cannot reliably predict schoolwide support.
2. **Yes. Each group makes up half the school and half the random sample, so 12/18 = 2/3 is a reasonable estimate, not an exact count of school support.** The sample matches the school by bus-rider status, and students in each group were chosen at random. Simplify 12/18 to 2/3.

CHALLENGE

The sample's yes rate is 12/20 = 60%. The group rates suggest 90 of 100 members and 90 of 300 nonmembers would say yes, or 180/400 = 45% schoolwide. The sample gives club members half the votes, though they are only one-fourth of the school.

Accept equivalent fractions or percentages. Matching group shares supports representativeness by that trait, but does not prove the sample reflects the population in every way.