LESSON MAKER PRO

Sample to School

Use random samples to predict what a larger group might think.

GRADE 7 · 7.DS.A.2

7.DS.A.2 "Use data from random samples to make and evaluate estimates or predictions about a population. Use data from a single random sample to estimate an unknown characteristic of a population..."

NAME _____ DATE _____

FROM SAMPLE TO ESTIMATE

To estimate a population count, divide the number with a trait by the sample size. Then multiply by the population size. When same-size random samples give close estimates, you can be more confident in the prediction.

WORKED EXAMPLE

A library has 240 members. Use the random sample to estimate how many prefer graphic novels.

RANDOM SAMPLE

Members sampled	Prefer graphic novels
16	4

1. Find the sample fraction: 4/16 = 1/4.
2. Estimate the total: 1/4 × 240 = 60.

Answer: About 60 members.

PRACTICE 4 problems

1 At a school of 180 students, 12 of 30 randomly sampled students ride bikes to school. Estimate how many students ride bikes.

ANSWER _____

2 A club has 210 members. In a random sample of 35, 14 prefer outdoor events. Estimate how many members prefer outdoor events.

ANSWER _____

3 A school has 270 students. In a random sample of 45, 9 bring lunch from home. Estimate how many students bring lunch.

ANSWER _____

4 A school has 300 students. Two random samples of 25 students find that 10 and 15 students want a dance. What total does each sample predict?

ANSWER _____

APPLY IT Show your work

1 A gaming club has 140 members. The dot plot shows weekly game hours for a random sample. Estimate how many members play at least 3 hours a week.



ANSWER _____

2 A town has 192 teens. In two random samples of 24 teens, 6 and 9 teens want more skate ramps. Find both estimates and how far apart they are.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A town has 400 teens. Each row shows a different random sample of 40 teens. Which idea has the more consistent prediction? Compare the ranges of the predicted totals.

TEENS WHO FAVOR EACH IDEA

Sample	Bike trail	Music stage
A	18	10
B	19	19
C	20	28

WORK SPACE AND ANSWER

ANSWER KEY

Sample to School

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	At a school of 180 students, 12 of 30 randomly sampled students ride bikes to school. Estimate how many students ride bikes.	**About 72 students.**
2	A club has 210 members. In a random sample of 35, 14 prefer outdoor events. Estimate how many members prefer outdoor events.	**About 84 members.**
3	A school has 270 students. In a random sample of 45, 9 bring lunch from home. Estimate how many students bring lunch.	**About 54 students.**
4	A school has 300 students. Two random samples of 25 students find that 10 and 15 students want a dance. What total does each sample predict?	**The samples predict 120 students and 180 students.**

PART 2 · APPLY IT

1. **About 42 members.** Three of the 10 sampled members play at least 3 hours. Multiply 3/10 by 140 to get 42.
2. **48 teens and 72 teens, which are 24 teens apart.** Multiply each sample count by 192/24, or 8. The estimates are 48 and 72, and 72 - 48 = 24.

CHALLENGE

Bike trail. Its predicted totals are 180, 190, and 200, with a range of 20. Music stage predictions are 100, 190, and 280, with a range of 180.

Accept estimates stated without "about." For the challenge, accept a comparison of sample-count ranges instead: bike trail 2, music stage 18.