LESSON MAKER PRO

Sample the School

Use random samples to make estimates.

GRADE 7 · 7.SP.1d

7.SP.1d "Solve real-world and mathematical problems involving: Understand that random sampling is used to gather a representative sample and tends to support valid inferences about the population."

NAME _____ DATE _____

FROM SAMPLE TO SCHOOL

A random sample gives students a chance to be chosen from the whole group. To estimate a total, find the fraction of the sample with a certain answer, then multiply that fraction by the size of the whole group. The result is an estimate, not an exact count.

WORKED EXAMPLE

A school has 125 students. Use the random sample to estimate how many want a skate park.

SKATE PARK SURVEY

Students sampled	Want a skate park
25	10

1. Find the sample fraction: 10/25 = 2/5.
2. Multiply: 125 × 2/5 = 50.

Answer: About 50 students.

PRACTICE 4 problems

1 In a random sample of 16 students, 4 want outdoor lunch. About how many of the school's 240 students want it?

ANSWER _____

2 In a random sample of 18 students, 6 prefer art club. About how many of the school's 270 students prefer it?

ANSWER _____

3 In a random sample of 28 students, 14 want a sports day. About how many of the school's 280 students want one?

ANSWER _____

4 A club asks only its members whether the school should add more clubs. Can their answers represent the whole school? Explain.

ANSWER _____

APPLY IT Show your work

1 A school has 432 students. Use the random sample to estimate how many prefer a longer lunch.

LUNCH SURVEY

Students sampled	Prefer longer lunch
36	9

ANSWER _____

2 A random sample of 24 students finds that 15 want a board game club. About how many of the school's 320 students want one?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A random sample of 40 students finds that 14 want a movie night. A poll of 12 friends finds that 9 want one. Which poll should you use to estimate support among the school's 360 students? Give the estimate and explain.

WORK SPACE AND ANSWER

ANSWER KEY

Sample the School

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	In a random sample of 16 students, 4 want outdoor lunch. About how many of the school's 240 students want it?	**About 60 students.**
2	In a random sample of 18 students, 6 prefer art club. About how many of the school's 270 students prefer it?	**About 90 students.**
3	In a random sample of 28 students, 14 want a sports day. About how many of the school's 280 students want one?	**About 140 students.**
4	A club asks only its members whether the school should add more clubs. Can their answers represent the whole school? Explain.	**No. Club members may feel differently about clubs than other students.**

PART 2 · APPLY IT

1. **About 108 students.** The sample fraction is 9/36 = 1/4. Multiply 432 × 1/4 = 108.
2. **About 200 students.** The sample fraction is 15/24 = 5/8. Multiply 320 × 5/8 = 200.

CHALLENGE

Use the random sample. It gives students across the school a chance to be chosen, while the friends may not represent everyone. The estimate is 360 × 14/40 = 126 students.

Accept equivalent fraction calculations. Estimates should be labeled as approximate, even when the calculation gives a whole number.