LESSON MAKER PRO

From Sample to School

Use survey results to make and check estimates.

HIGH SCHOOL · MM.D3D.C.17

MM.D3D.C.17 "Use the Statistical Problem Solving Cycle to answer real-world questions."

NAME _____ DATE _____

THE SURVEY CYCLE

Ask a question about a group, then collect a random sample. Use the sample's share to estimate a count for the whole group, and check whether the sample represents that group.

WORKED EXAMPLE

A random sample of students answered a lunch survey. Estimate how many of 60 students bring lunch.

LUNCH SURVEY

Response	Students
Bring lunch	9
Other	6

1. Sample size: 9 + 6 = 15.
2. Share bringing lunch: 9/15 = 3/5.
3. Estimate: 60 × 3/5 = 36.

Answer: About 36 students bring lunch.

PRACTICE 4 problems

1 In a random sample, 8 of 20 students bike to school. Estimate how many of 100 students bike to school.

ANSWER _____

2 In a random sample, 12 of 25 students want a later lunch. Estimate how many of 200 students want one.

ANSWER _____

3 In a random sample, 18 of 30 students prefer digital tickets. Estimate how many of 80 students prefer them.

ANSWER _____

4 In a random sample, 21 of 28 students attend school games. Estimate how many of 120 students attend.

ANSWER _____

APPLY IT Show your work

1 A school has 150 students. A random sample answered a survey about using the library after school. Use the table to estimate how many students would use it.

USE THE LIBRARY AFTER SCHOOL?

Response	Students
Yes	14
No	11

ANSWER _____

2 A student council asked a random sample whether the school should add a charging station. Use the graph to estimate how many of 240 students want one.

ADD A CHARGING STATION?



students

ANSWER _____

CHALLENGE One step up

A school has 500 students. In a random schoolwide sample, 24 of 40 want a later start. In an opt-in poll of athletes, 18 of 20 want it. Find both schoolwide estimates. Which would you trust more, and why?

WORK SPACE AND ANSWER

ANSWER KEY

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	In a random sample, 8 of 20 students bike to school. Estimate how many of 100 students bike to school.	**About 40 students.**
2	In a random sample, 12 of 25 students want a later lunch. Estimate how many of 200 students want one.	**About 96 students.**
3	In a random sample, 18 of 30 students prefer digital tickets. Estimate how many of 80 students prefer them.	**About 48 students.**
4	In a random sample, 21 of 28 students attend school games. Estimate how many of 120 students attend.	**About 90 students.**

PART 2 · APPLY IT

1. **About 84 students.** The sample has 25 students, and 14/25 said yes. Estimate 150 × 14/25 = 84.
2. **About 156 students.** The sample has 20 students, and 13/20 said yes. Estimate 240 × 13/20 = 156.

CHALLENGE

The random sample estimates 300 students, and the opt-in poll estimates 450 students. Trust the random schoolwide sample more because the opt-in poll of athletes may not represent the whole school.

Accept estimates stated without “about” if the calculations are correct. For the challenge, accept an explanation that the opt-in poll, the athlete-only group, or both make the second estimate less trustworthy.