LESSON MAKER PRO

Survey to School

Use a sample to estimate what a whole school thinks.

HIGH SCHOOL · MT.PLUS.DATA.INF.2.a

MT.PLUS.DATA.INF.2.a "Estimate a population parameter from a representative sample by: Understanding why the sample statistic is the best estimate for the associated population parameter,"

NAME _____ DATE _____

THE SAMPLE IS YOUR CLUE

In a representative sample, the people surveyed reflect the larger group. The sample percent is the best estimate of the population percent, though the true percent may differ.

WORKED EXAMPLE

A random sample at a school gave these results. Estimate the percent of all students who favor a later start.

STUDENT SURVEY

Response	Students
Favor later start	12
Other	18

1. Total sampled: 12 + 18 = 30.
2. Sample percent: 12/30 = 40%.
3. Use the sample percent as the schoolwide estimate.

Answer: 40% of all students

PRACTICE 4 problems

1 Of 50 randomly sampled students, 10 walk to school. Estimate the percent of all students who walk to school.

ANSWER _____

2 Of 80 randomly sampled students, 60 bring a reusable water bottle. Estimate the schoolwide percent.

ANSWER _____

3 Of 20 randomly sampled students, 5 attend a school club. Estimate the schoolwide percent.

ANSWER _____

4 Of 100 randomly sampled students, 35 use the school library. Another student guesses 50% schoolwide. Give a better estimate and explain why.

ANSWER _____

APPLY IT Show your work

1 A random sample at a school gave these results. Estimate the percent of all students who want phone chargers. If the school has 900 students, about how many is that?

STUDENT SURVEY

Response	Students
Want chargers	45
Other	15

ANSWER _____

2 In a random sample, 16 of 64 students want more vegetarian lunch choices. Estimate the schoolwide percent. Why use this sample instead of surveying only the vegetarian club?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Two independent random samples from one school found that 7 of 20 students and 16 of 80 students want a longer lunch. Pool the samples to estimate the schoolwide percent. Why not just average the two sample percents?

WORK SPACE AND ANSWER

ANSWER KEY

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Of 50 randomly sampled students, 10 walk to school. Estimate the percent of all students who walk to school.	**20%**
2	Of 80 randomly sampled students, 60 bring a reusable water bottle. Estimate the schoolwide percent.	**75%**
3	Of 20 randomly sampled students, 5 attend a school club. Estimate the schoolwide percent.	**25%**
4	Of 100 randomly sampled students, 35 use the school library. Another student guesses 50% schoolwide. Give a better estimate and explain why.	**35%, because 35% of the random sample use the library.**

PART 2 · APPLY IT

1. **75%; about 675 students** The sample percent is 45/60 = 75%. Then 75% of 900 is 675.
2. **25%. A random sample is more likely to represent the whole school than the vegetarian club.** Compute 16/64 = 25%. Club members may be more likely than other students to want these choices.

CHALLENGE

23%. Together, 23 of 100 students want a longer lunch. The samples have different sizes, so averaging their percents would give each sample equal weight instead of each student equal weight.

Accept equivalent wording that identifies the sample percent as an estimate, not the exact population percent.