LESSON MAKER PRO

Polls and Predictions

Use samples to estimate, then check how they were chosen.

GRADE 7 · 7.DS.A.1

7.DS.A.1 "Determine when generalizations about a population are appropriate based on how the sample was selected. Decide whether a sample is representative of a population by explaining how it was selected and how that selection affects the accuracy..."

NAME _____ DATE _____

CHECK THE SAMPLE

To estimate a population total, multiply the fraction found in a sample by the population size. A random sample chosen from the whole population is more likely to represent it than a group of volunteers, but it is not guaranteed to.

WORKED EXAMPLE

A school randomly selects 30 of its 240 students. Use the table to estimate how many students prefer a mural. Is this a reasonable estimate?

STUDENT RESPONSES

Response	Students
Prefer a mural	18
Other	12

1. Find the sample fraction: 18/30 = 3/5.
2. Estimate the total: 3/5 × 240 = 144.
3. The students were randomly selected from the whole school.

Answer: About 144 students. Yes, the random sample makes this a reasonable estimate.

PRACTICE 4 problems

1 A store randomly selects 20 of its 100 customers. Eight bought comics. Estimate how many customers bought comics. Is the estimate reasonable?

ANSWER _____

2 On a basketball team, 16 of 20 students want more court time. Can this result estimate what all 200 students want? Give the sample fraction and explain.

ANSWER _____

3 A librarian randomly selects 25 of 150 students from the school roster. Ten choose graphic novels. Estimate how many students would choose them. Is the estimate reasonable?

ANSWER _____

4 An online poll lets anyone reply. Of 70 replies, 28 favor earlier buses. Should 28/70 be used to estimate what all 350 students want? Give the fraction and explain.

ANSWER _____

APPLY IT Show your work

1 The student council randomly selects 40 of the school's 320 students. Use the table to estimate how many want a school game night. Is the estimate reasonable?

SCHOOL GAME NIGHT POLL

Response	Students
Yes	15
No	25

ANSWER _____

2 A streaming club asks 50 members about allowing video apps on school Wi-Fi. The school has 500 students. Use the table to calculate a projection, then explain why it may be inaccurate.

STREAMING CLUB POLL

Response	Members
Allow apps	35
Do not allow apps	15

ANSWER _____

CHALLENGE One step up

A school has 600 students. Two polls ask about adding a music room. Use the table to calculate each projection for the school. Which is more trustworthy, and why?

MUSIC ROOM POLLS

How students were chosen	Asked	Want a music room
Randomly from all students	45	27
Music class volunteers	50	40

WORK SPACE AND ANSWER

ANSWER KEY

Polls and Predictions

GRADE 7 · 7.DS.A.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A store randomly selects 20 of its 100 customers. Eight bought comics. Estimate how many customers bought comics. Is the estimate reasonable?	**About 40 customers. Yes, the sample was randomly selected from all customers.**
2	On a basketball team, 16 of 20 students want more court time. Can this result estimate what all 200 students want? Give the sample fraction and explain.	**16/20 = 4/5. No, basketball players may want court time more than other students do.**
3	A librarian randomly selects 25 of 150 students from the school roster. Ten choose graphic novels. Estimate how many students would choose them. Is the estimate reasonable?	**About 60 students. Yes, the sample was randomly selected from all students.**
4	An online poll lets anyone reply. Of 70 replies, 28 favor earlier buses. Should 28/70 be used to estimate what all 350 students want? Give the fraction and explain.	**28/70 = 2/5. No, students chose whether to reply, so the sample may not represent all students.**

PART 2 · APPLY IT

1. **About 120 students. Yes, the sample was randomly selected from the whole school.** 15/40 × 320 = 120. Random selection makes the sample more likely to represent all students.
2. **The projection is 350 students. It may be inaccurate because streaming club members may favor video apps more than other students do.** 35/50 × 500 = 350. The sample comes only from the streaming club, not from the whole school.

CHALLENGE

The random poll projects 27/45 × 600 = 360 students. The volunteer poll projects 40/50 × 600 = 480 students. The random poll is more trustworthy because it sampled from all students, while music class volunteers may be especially interested in a music room.

Accept equivalent fractions and estimates stated without the word about. Explanations should connect how the sample was chosen to whether it may represent the whole population.