LESSON MAKER PRO

Sampling Snapshots

Use random samples to make and compare predictions.

GRADE 7 · MT.7.SP.2

MT.7.SP.2 "Use data from a random sample to draw inferences about a population with an unknown characteristic of interest and generate or simulate multiple samples of the same size to gauge the variation in estimates or predictions..."

NAME _____ DATE _____

ESTIMATE, THEN COMPARE

For each random sample, multiply the fraction who say yes by the population size. Same-size random samples can give different estimates, so compare several to see how much predictions vary.

WORKED EXAMPLE

Two random samples asked students if they want a quiet study room. Estimate how many of the school's 60 students would say yes using each sample. Find the gap.

QUIET STUDY ROOM SURVEY

Sample	Yes	Asked
A	3	6
B	4	6

1. Sample A: 3/6 × 60 = 30.
2. Sample B: 4/6 × 60 = 40.
3. Gap: 40 − 30 = 10.

Answer: The estimates are 30 and 40 students, with a gap of 10.

PRACTICE 4 problems

1 Of 12 randomly sampled students, 9 prefer a later lunch. Estimate how many of 120 students prefer it.

ANSWER _____

2 Two random samples of 15 students find that 11 and 13 want a movie night. Estimate the number out of 150 students from each sample.

ANSWER _____

3 Of 21 randomly sampled students, 14 use the bike rack. Estimate how many of 210 students use it.

ANSWER _____

4 Two random samples of 25 students find that 17 and 19 want a school garden. For 250 students, how far apart are the estimates?

ANSWER _____

APPLY IT Show your work

1 At a Missoula library, teens plan a display of books by Montana Indigenous authors. In two random samples of 18 teen visitors, 12 and 15 say they would visit the display. Estimate interested teens among 180 teen visitors using each sample.

WORK SPACE

ANSWER _____

2 At a Browning community center, teens plan an art night featuring local Blackfeet artists. In two random samples of 28 teen visitors, 14 and 21 say they would attend. Estimate interested teens among 280 teen visitors using each sample.

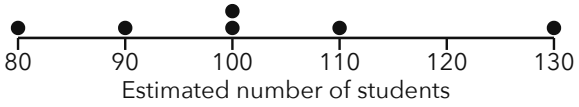
WORK SPACE

ANSWER _____

CHALLENGE One step up

Each dot is an estimate from a different random sample of 20 students at a school of 200. Find the median estimate and the range. Why could using just one estimate mislead you?

Estimates from six random samples



WORK SPACE AND ANSWER

ANSWER KEY

Sampling Snapshots

GRADE 7 · MT.7.SP.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Of 12 randomly sampled students, 9 prefer a later lunch. Estimate how many of 120 students prefer it.	**90 students**
2	Two random samples of 15 students find that 11 and 13 want a movie night. Estimate the number out of 150 students from each sample.	**110 students and 130 students**
3	Of 21 randomly sampled students, 14 use the bike rack. Estimate how many of 210 students use it.	**140 students**
4	Two random samples of 25 students find that 17 and 19 want a school garden. For 250 students, how far apart are the estimates?	**20 students**

PART 2 · APPLY IT

1. **120 teens and 150 teens** Multiply each sample fraction by 180: 12/18 × 180 = 120 and 15/18 × 180 = 150.
2. **140 teens and 210 teens** Multiply each sample fraction by 280: 14/28 × 280 = 140 and 21/28 × 280 = 210.

CHALLENGE

Median: 100 students. Range: 50 students. One sample could mislead because estimates from the same-size random samples vary from 80 to 130.

Accept answers with or without the word "students" or "teens." For the challenge, accept any explanation that connects uncertainty to variation between random samples.