LESSON MAKER PRO

From Sample to Decision

Use survey results to make predictions and recommendations.

HIGH SCHOOL · S.IR.1.3

S.IR.1.3 "Develop inferences or predictions to construct resulting decisions or recommendations."

NAME _____ DATE _____

PREDICT, THEN DECIDE

To predict how many people in a larger group will choose something, multiply the sample fraction by the size of the larger group. Compare your prediction with the goal before making a recommendation. A prediction is more useful when the sample represents the larger group.

WORKED EXAMPLE

In a random sample, 18 of 30 students want a weekend study space. The school has 250 students and will open the space if at least 140 students are likely to use it. What do you recommend?

1. Find the sample fraction: 18/30 = 3/5.
2. Predict the number of students: 3/5 × 250 = 150.
3. Compare the prediction with the goal: 150 is greater than 140.

Answer: Recommend opening the study space. The prediction is 150 students.

PRACTICE 6 problems

1 In a random sample, 9 of 12 students want a school movie night. If the school has 160 students, how many would you predict want a movie night?

ANSWER _____

2 A random sample of students answered a survey about a school podcast. The school has 180 students. Use the table to predict how many students want the podcast.

SCHOOL PODCAST SURVEY

Response	Students
Want it	7
Do not want it	7

ANSWER _____

3 In a random sample, 24 of 32 students want longer library hours. If the school has 400 students, how many would you predict want longer hours?

ANSWER _____

4 In a random sample, 11 of 22 students say they would join a photography club. The school has 360 students and needs at least 175 interested students to start the club. How many would you predict are interested, and should the school start the club?

ANSWER _____

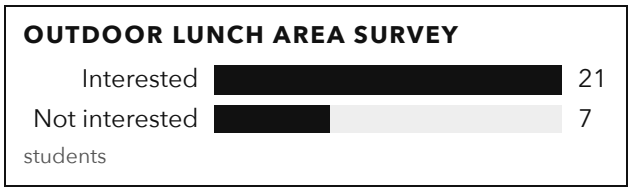
5 A random sample answered a survey about a school game tournament. The school has 320 students and needs at least 95 interested students to hold it. Use the table to predict how many are interested, then recommend whether to hold the tournament.

GAME TOURNAMENT SURVEY

Response	Students
Interested	8
Not interested	24

ANSWER _____

6 The bars show responses from a random sample about an outdoor lunch area. The school has 240 students and needs at least 190 interested students to build it. How many would you predict are interested, and should the school build it?



ANSWER _____

APPLY IT Show your work

1 The student council is considering a snack stand at school events. In a random sample, 26 of 52 students say they would buy a snack. The school has 520 students. The council needs to predict at least 230 buyers before ordering supplies. How many buyers should it predict, and should it order supplies?

WORK SPACE

ANSWER _____

2 A district will consider a late bus if a school predicts at least 420 students would ride it. In a random sample, 36 of 48 students say they would ride. The school has 600 students. How many riders should the school predict, and should it ask the district to consider the bus?

WORK SPACE

ANSWER _____

CHALLENGE One step up

At a lunchtime club fair, 32 of 40 students surveyed say they would attend an after-school festival. The school has 800 students, and the student council wants at least 500 interested students before funding it. Calculate the prediction. Should the council rely on this survey to make its funding decision? Explain in two sentences.

WORK SPACE AND ANSWER

From Sample to Decision

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	In a random sample, 9 of 12 students want a school movie night. If the school has 160 students, how many would you predict want a movie night?	**120 students**
2	A random sample of students answered a survey about a school podcast. The school has 180 students. Use the table to predict how many students want the podcast.	**90 students**
3	In a random sample, 24 of 32 students want longer library hours. If the school has 400 students, how many would you predict want longer hours?	**300 students**
4	In a random sample, 11 of 22 students say they would join a photography club. The school has 360 students and needs at least 175 interested students to start the club. How many would you predict are interested, and should the school start the club?	**180 students; yes, because 180 is at least 175.**
5	A random sample answered a survey about a school game tournament. The school has 320 students and needs at least 95 interested students to hold it. Use the table to predict how many are interested, then recommend whether to hold the tournament.	**80 students; do not hold it, because 80 is less than 95.**
6	The bars show responses from a random sample about an outdoor lunch area. The school has 240 students and needs at least 190 interested students to build it. How many would you predict are interested, and should the school build it?	**180 students; no, because 180 is less than 190.**

PART 2 · APPLY IT

1. **260 buyers; yes, the council should order supplies.** The sample fraction is 26/52 = 1/2, so the prediction is 1/2 × 520 = 260 buyers. Since 260 is at least 230, the prediction meets the council's goal.
2. **450 riders; yes, the school should ask the district to consider the bus.** The sample fraction is 36/48 = 3/4, so the prediction is 3/4 × 600 = 450 riders. Since 450 is at least 420, the prediction meets the district's goal.

CHALLENGE

The prediction is (32/40) × 800 = 640 students, which exceeds the 500-student goal. The council should not rely on it yet because students at a club fair may be more interested than the whole school, so it should survey a random schoolwide sample.

Accept equivalent calculations and recommendations that correctly compare each prediction with its goal. For the challenge, the response must identify the club fair sample as potentially unrepresentative, even though its numerical prediction exceeds the goal.