LESSON MAKER PRO

Survey the Evidence

Use survey results to make a claim you can support.

HIGH SCHOOL · A2S.DSP.B.24

A2S.DSP.B.24 "Design and carry out an experiment or survey to answer a question of interest, and write an informal persuasive argument based on the results."

NAME _____ DATE _____

COMPARE THE RATES

To compare survey groups, divide the number who chose an option by the number surveyed in each group. Compare percentages instead of counts when group sizes differ. Support a claim with the results, and say what the survey cannot tell you.

WORKED EXAMPLE

Two libraries asked teens whether they would use weekend study hours. Which library had the higher support rate, and by how many percentage points?

WEEKEND STUDY HOURS SURVEY

Library	Would use them	Teens surveyed
A	7	20
B	9	30

1. Library A: 7/20 = 35%.
2. Library B: 9/30 = 30%.
3. Compare the rates: 35% - 30% = 5 percentage points.

Answer: Library A had the higher support rate by 5 percentage points.

PRACTICE 6 problems

1 In a survey, 16 of 40 students said they would use a school bike rack. What percent said yes?

ANSWER _____

2 Of 60 students surveyed, 36 want a school podcast. What percent want it?

ANSWER _____

3 Students in two groups were asked if they want more art supplies. Which group had the higher support rate, and by how many percentage points?

ART SUPPLIES SURVEY

Group	Yes	Surveyed
A	24	60
B	45	90

ANSWER _____

4 A student says Group B showed more support for a game club because more students in that group said yes. Check the rates. Which group had the higher support rate, and by how many percentage points?

GAME CLUB SURVEY

Group	Yes	Surveyed
A	36	60
B	48	100

ANSWER _____

5 A random sample of 60 students includes 42 who want a longer lunch period. Estimate how many of the school's 400 students want one. Why is this an estimate?

ANSWER _____

6 Two surveys about a music room got different results. Which survey gives a less biased estimate of support? State its support rate and explain your choice.

MUSIC ROOM SURVEYS

Question	Yes	Surveyed
Should our school offer a music room?	36	60
Don't you agree our amazing school needs a music room?	48	60

ANSWER _____

APPLY IT Show your work

1 Student council wants to know whether to add charging stations. Its pilot survey asked students on two bus routes. Give a fair plan for a follow-up survey of the whole school. Then find the pilot's combined support rate and write a two-sentence claim that includes the rate and one limitation.

CHARGING STATION PILOT SURVEY

Bus route	Support	Surveyed
A	28	40
B	36	60

ANSWER _____

2 A student group tests whether a short flashcard review helps students pass a vocabulary quiz. Students were randomly assigned to either review flashcards or spend the same time on another activity before taking the same quiz. Find each group's pass rate. Then write a brief claim about the review that uses the difference in rates and names one reason for caution.

VOCABULARY QUIZ EXPERIMENT

Activity	Passed	Students
Flashcard review	56	80
Other activity	40	80

ANSWER _____

CHALLENGE One step up

A survey asked students in two different-sized groups whether they want an outdoor lunch area. What percent of all students surveyed said yes? A student averaged the two groups' support rates to get 55%. Explain why that method gives the wrong overall rate.

OUTDOOR LUNCH AREA SURVEY

Group	Yes	Surveyed
A	28	40
B	32	80

WORK SPACE AND ANSWER

ANSWER KEY

Survey the Evidence

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	In a survey, 16 of 40 students said they would use a school bike rack. What percent said yes?	**40%**
2	Of 60 students surveyed, 36 want a school podcast. What percent want it?	**60%**
3	Students in two groups were asked if they want more art supplies. Which group had the higher support rate, and by how many percentage points?	**Group B, by 10 percentage points (50% versus 40%).**
4	A student says Group B showed more support for a game club because more students in that group said yes. Check the rates. Which group had the higher support rate, and by how many percentage points?	**Group A, by 12 percentage points (60% versus 48%).**
5	A random sample of 60 students includes 42 who want a longer lunch period. Estimate how many of the school's 400 students want one. Why is this an estimate?	**About 280 students. The sample rate is 42/60 = 70%, and 70% of 400 is 280; the survey did not ask every student.**
6	Two surveys about a music room got different results. Which survey gives a less biased estimate of support? State its support rate and explain your choice.	**The first survey gives a less biased estimate: 36/60 = 60%. Its question does not push students toward yes.**

PART 2 · APPLY IT

1. **Plan: Randomly select students from every grade, including students who do not ride these buses. Combined pilot support rate: 64%. Claim: The pilot suggests charging stations would be popular because 64% of surveyed students support them. Student council should survey more students before deciding, since the pilot included only riders on two bus routes.** Add the support counts and survey totals: (28 + 36)/(40 + 60) = 64/100 = 64%. A fair follow-up must include students beyond the two bus routes.
2. **Flashcard review: 70%; other activity: 50%. In this experiment, the flashcard group had a pass rate 20 percentage points higher, so the review may help students pass. The result is from one quiz, so it may not hold for every quiz.** Calculate 56/80 = 70% and 40/80 = 50%, then subtract to get a 20-percentage-point difference. Random assignment supports a comparison, but the result is limited to this experiment.

CHALLENGE

The overall rate is (28 + 32)/(40 + 80) = 60/120 = 50%. Averaging the group rates, 70% and 40%, gives each group equal weight even though Group B has twice as many surveyed students.

Accept other fair follow-up plans that include students beyond the bus routes. Persuasive claims should use the calculated rate or rate difference without treating a sample result as certain for everyone.