LESSON MAKER PRO

Who Got Asked?

Identify a study design and compare its results.

HIGH SCHOOL · A2S.DSP.D

A2S.DSP.D "Study designs are of three main types: sample survey, experiment, and observational study."

NAME _____ DATE _____

THREE STUDY DESIGNS

A sample survey asks selected people questions. An observational study records what happens without assigning conditions. In an experiment, researchers assign conditions and compare outcomes.

WORKED EXAMPLE

Students were assigned to study with music or in silence. How many more students recalled a word in the music group?

WORD RECALL

Assigned condition	Students who recalled a word
Music	27
Silence	19

1. The assigned conditions make this an experiment.
2. Subtract the two counts: 27 - 19 = 8.

Answer: 8 more students in the music group

PRACTICE 4 problems

1 A school asks 25 of its 100 students how they travel to school. Of those asked, 15 bike. Name the design and find the percent of respondents who bike.

ANSWER _____

2 A coach assigns players to two warm-ups. In group A, 16 of 20 improve; in group B, 11 of 20 improve. Name the design and find the difference in improvement rates.

ANSWER _____

3 A researcher records 14 teens' sleep hours and test scores without changing their habits. Name the design.

ANSWER _____

4 A school emails 50 students a lunch question. Thirty-five reply. Name the design and find the response rate.

ANSWER _____

_____

APPLY IT Show your work

1 A student records gaming time and sleep without changing anyone's routine. Find the difference in the rates of sleeping under 7 hours. Can the data show that gaming caused less sleep?

GAMING AND SLEEP

Daily gaming	Slept under 7 hours
2 hours or more	10 of 20
Under 2 hours	6 of 20

ANSWER _____

2 A school surveys 60 selected students about a later start time. Of the 45 who reply, 36 favor it. What percent of respondents favor it? Why not divide by 60?

WORK SPACE

ANSWER _____

CHALLENGE One step up

An app randomly assigns users to two alert styles. Identify the design, find the difference in open rates, and explain whether the design supports a causal claim.

ALERT TEST

Assigned style	Users who opened the alert
A	18 of 24
B	16 of 32

WORK SPACE AND ANSWER

Who Got Asked?

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A school asks 25 of its 100 students how they travel to school. Of those asked, 15 bike. Name the design and find the percent of respondents who bike.	**Sample survey; 60%**
2	A coach assigns players to two warm-ups. In group A, 16 of 20 improve; in group B, 11 of 20 improve. Name the design and find the difference in improvement rates.	**Experiment; 25 percentage points**
3	A researcher records 14 teens' sleep hours and test scores without changing their habits. Name the design.	**Observational study**
4	A school emails 50 students a lunch question. Thirty-five reply. Name the design and find the response rate.	**Sample survey; 70%**

PART 2 · APPLY IT

1. **20 percentage points; no** The rates are 10/20 = 50% and 6/20 = 30%. This observational study does not establish that gaming caused the difference.
2. **80%; 60 includes students who did not respond.** Divide 36 by 45, the number of respondents, to get 80%. The other 15 selected students gave no answer.

CHALLENGE

Experiment; style A's open rate is 25 percentage points higher (75% versus 50%). Random assignment supports a causal claim about the effect of alert style.

For rate differences, accept subtraction of equivalent fractions or percentages. Distinguish a percentage-point difference from a percent increase.