LESSON MAKER PRO

Choose With Data

Compare rates, then defend your decision.

HIGH SCHOOL · A1P.DSP.B

A1P.DSP.B "Making and defending informed, data-based decisions is a characteristic of a quantitatively literate person."

NAME _____ DATE _____

COMPARE FAIRLY

When options have different totals, compare rates with the same units. Divide each result by its total, then use the rates as evidence for your decision. A higher rate shows what happened in the data, but it does not prove what caused it.

WORKED EXAMPLE

Two typing drills record correct words. Which drill has more correct words per minute?

TYPING DRILLS

Drill	Correct words	Minutes
A	33	11
B	52	13

1. Drill A: 33/11 = 3 correct words per minute.
2. Drill B: 52/13 = 4 correct words per minute.
3. Compare 4 and 3 using the same unit.

Answer: Drill B has the higher rate, 4 correct words per minute.

PRACTICE 6 problems

1 Which pack costs less per snack? Show both unit prices.

SNACK PACKS

Pack	Snacks	Price
A	10	$20
B	12	$18

ANSWER _____

2 Which playlist lets you hear more song clips per minute? Show both rates.

PLAYLIST PREVIEWS

Playlist	Clips	Minutes
A	15	30
B	20	60

ANSWER _____

3 Which event had the higher signup rate? Show both rates as percentages.

EVENT SIGNUPS

Event	Students who signed up	Students asked
A	18	24
B	20	40

ANSWER _____

4 A student says Post B performed better because it got more clicks. Use click rates to support or reject the claim.

CLUB POSTS

Post	Clicks	Views
A	16	20
B	21	28

ANSWER _____

5 Which connection downloaded data faster? Show both rates in MB per second.

DOWNLOAD TESTS

Connection	Data downloaded (MB)	Time (seconds)
A	24	40
B	30	60

ANSWER _____

6 Find the combined positive-rating rate. Is averaging the two weekly percentages a correct way to find it? Support your answer with numbers.

APP RATINGS

Week	Positive ratings	Total ratings
1	6	10
2	36	40

ANSWER _____

APPLY IT Show your work

1 Your club needs blank shirts for an event. Shop A sells 14 shirts for $98. Shop B sells 18 shirts for $108. Which shop has the lower price per shirt, and how much less is it per shirt?

WORK SPACE

ANSWER _____

2 You are choosing a practice quiz for a driving test. After using Quiz A, 18 of 24 students passed. After using Quiz B, 32 of 40 students passed. Which quiz has the higher observed pass rate, and by how many percentage points? Does this data prove the quiz caused the difference?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A school tests two messages for a student event. Each student sees one message once. Which message has the higher overall response rate across both weeks? Show both combined rates and explain why comparing only the weekly rates could mislead.

EVENT MESSAGE TEST

Week	Message	Students who responded	Students who saw it
1	A	9	10
1	B	72	90
2	A	27	90
2	B	2	10

WORK SPACE AND ANSWER

ANSWER KEY # Choose With Data

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Which pack costs less per snack? Show both unit prices.	**Pack B. Pack A costs $2 per snack, and Pack B costs $1.50 per snack.**
2	Which playlist lets you hear more song clips per minute? Show both rates.	**Playlist A. Its rate is 1/2 clip per minute, compared with 1/3 clip per minute for Playlist B.**
3	Which event had the higher signup rate? Show both rates as percentages.	**Event A. Its signup rate is 75%, compared with 50% for Event B.**
4	A student says Post B performed better because it got more clicks. Use click rates to support or reject the claim.	**Reject the claim. Post A had an 80% click rate, while Post B had a 75% click rate.**
5	Which connection downloaded data faster? Show both rates in MB per second.	**Connection A. It downloaded 3/5 MB per second, compared with 1/2 MB per second for Connection B.**
6	Find the combined positive-rating rate. Is averaging the two weekly percentages a correct way to find it? Support your answer with numbers.	**The combined rate is (6 + 36)/(10 + 40) = 42/50 = 84%. No. The average of 60% and 90% is 75%, not 84%.**

PART 2 · APPLY IT

1. **Shop B has the lower price, by $1 per shirt.** Shop A charges $98/14 = $7 per shirt. Shop B charges $108/18 = $6 per shirt.
2. **Quiz B has the higher observed pass rate by 5 percentage points. No, the data does not prove the quiz caused the difference.** Quiz A's pass rate is 18/24 = 75%, and Quiz B's is 32/40 = 80%. Other differences between the groups could affect their results.

CHALLENGE

Message B has the higher overall rate: (72 + 2)/(90 + 10) = 74%. Message A's overall rate is (9 + 27)/(10 + 90) = 36%. A had a higher rate within each week, but the messages were shown to different numbers of students each week, so the weekly rates alone are misleading.

Accept equivalent fractions, decimals, or percentages when they support the same comparison. For the challenge, students should combine counts before calculating each overall rate.