Mixing It Up

Use recipe data to compare drink concentrations.

P.5.5B.2 "Analyze and interpret data to communicate that the concentration of a solution is determined by the relative amount of solute versus solvent in various mixtures."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each powder amount, circle each water amount, and number the recipes from least to most concentrated. Give recipes with the same concentration the same number.

The School Fair Drink Test

1. A solution forms when a solute spreads evenly through a solvent. For example, salt is a solute that can dissolve in water, the solvent. A spoonful of salt in a full pitcher of water has a different concentration from a spoonful in a small cup. The amount of salt matters, but so does the amount of water.

2. At a school fair, four teams make cups of fruit drink using colored drink powder and water. Each team stirs until the powder dissolves. They measure powder with the same scoop and water in milliliters (mL). Their recipes are shown in the table. Imagine pouring each finished drink into a clear cup to compare its color.

FRUIT DRINK RECIPES

Recipe	Drink powder (scoops)	Water (mL)
A	1	100
B	2	100
C	2	200
D	3	100

3. A darker color can be a clue, but the measurements give better evidence. To compare recipes fairly, think about how much solute there is for the same amount of solvent. Adding water without adding powder spreads the powder through more liquid. Adding powder without adding water puts more solute into the same amount of solvent.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which recipe is more concentrated, A or B? Use the measurements to explain.

2. Which recipe is more concentrated, B or C? Use the measurements to explain.

3. Do A and C have the same concentration? Show how the amounts support your answer.

4. Which recipe is the most concentrated? Compare it with B using the measurements.

3 YOUR TURN

Your own words

Create two new fruit drink recipes with different amounts of powder and different amounts of water. Write each recipe's scoops per 100 mL of water, then explain which drink is more concentrated. Do not use a recipe from the table.

ANSWER KEY

Mixing It Up

PART 1 · READ AND MARK

Underline each powder amount, circle each water amount, and number the recipes from least to most concentrated. Give recipes with the same concentration the same number. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which recipe is more concentrated, A or B? Use the measurements to explain.	**B is more concentrated. Both use 100 mL of water, but B has 2 scoops of powder and A has 1.**
2	Which recipe is more concentrated, B or C? Use the measurements to explain.	**B is more concentrated. Both use 2 scoops of powder, but B has only 100 mL of water while C has 200 mL.**
3	Do A and C have the same concentration? Show how the amounts support your answer.	**Yes. C has twice as much powder and twice as much water as A, so both have 1 scoop per 100 mL of water.**
4	Which recipe is the most concentrated? Compare it with B using the measurements.	**D is the most concentrated. D and B each use 100 mL of water, but D has 3 scoops of powder and B has 2.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

My first recipe has 4 scoops of powder in 200 mL of water. That is 2 scoops per 100 mL. My second recipe has 3 scoops in 300 mL of water. That is 1 scoop per 100 mL. The first drink is more concentrated because it has more powder for the same amount of water.

For the marking job, A and C share the lowest rank, B comes next, and D is highest. For Your Turn, accept any two new recipes with different powder and water amounts if the rates and comparison are correct.