



Smoothie Mixer

Mission: The smoothie bar's famous Berry Blast uses 2 cups of strawberries for every 3 cups of yogurt. Customers order different sizes, and every size must taste exactly the same. Mix, taste-test, and build a ratio table.

Big question: How do equivalent ratios keep a recipe the same at any size?

★ Warm-up: Would you rather?

Choose and explain.

A drink with 1 scoop of powder in 2 cups of water, or 3 scoops in 5 cups? Which is stronger? ✓ **3:5 (0.6 scoop per cup) is stronger than 1:2 (0.5).**

Is 2:3 the same as 3:2? ✓ **No: order matters.**

Key vocabulary

Ratio	A comparison of two quantities, like 2:3.
Equivalent ratios	Ratios that show the same relationship.
Ratio table	A table of equivalent ratios.
Double number line	Two number lines lined up to show equivalent ratios.
Scale	Multiply both quantities by the same number.

1 Box 1

A mistake

In the simulator: Try 3 strawberry : 4 yogurt and taste it (one more of each).

Why does 3:4 NOT taste the same as 2:3, even though you added 1 to each?

☐ Adding the same amount changes the relationship; you must MULTIPLY both ☐ 3:4 is exactly the same

☐ It has too much yogurt

✓ **Adding the same amount changes the relationship; you must MULTIPLY both**

2 Box 2

Build a ratio table

In the simulator: Save at least 4 different batch sizes that pass the taste test.

Complete the ratio table.

Size	Strawberry (cups)	Yogurt (cups)
Small	2	3
Medium	4	6
Party	10	15

3 Box 3

Double number line

In the simulator: Turn on the double number line.

The party blender uses 18 cups of yogurt. How many cups of strawberries?

Answer: _____ cups ✓ **12**

Show your thinking:

4 Box 4

Equivalent or not?

Which will taste like Berry Blast (2:3)?

Sort: 6 : 9 · 8 : 12 · 5 : 6 · 14 : 21 · 3 : 2 · 7 : 10

Tastes the same	Tastes different
6 : 9 8 : 12 14 : 21	5 : 6 3 : 2 7 : 10

5 Box 5

Scale down

A kid-size smoothie uses 1 cup of strawberries. How much yogurt?

Answer: _____ cups ✓ **1.5**

Show your thinking:

6 Box 6

Legend: part to whole 🏆 Legend only

What FRACTION of any Berry Blast is strawberry? (Hint: part to whole.)

Answer: _____ ✓ **0.4**

7 Box 7

Train a new employee

Explain how to make a Berry Blast of ANY size so it tastes the same.

Look for: Multiply both by the same number; Uses the 2:3 ratio



Exit ticket: answer the big question in your own words

How do equivalent ratios keep a recipe the same at any size?

Look for: Equivalent ratios describe the same relationship: 2:3, 4:6, 6:9, and 10:15 all taste the same because both quantities are multiplied by the same number. Ratio tables and double number lines show equivalent ratios and help scale recipes up or down.

Completion codes

Students see a code like **ABC-I3** when they finish. The first part must match below. The letter is the level (E = Explorer, I = Investigator, L = Legend), and the number at the end is how many stars they earned.

Level	Code starts with
 Explorer	V50-E
 Investigator	1PO-I
 Legend	1H7-L

Watch for these misconceptions

- "Ratio order doesn't matter." 3:2 and 2:3 are different comparisons.
- "Add the same number to both parts to make equivalent ratios." You must multiply or divide.
- "Percents can never be more than 100." 150% of something is more than the whole.