

Paint Mixer

Mission: The school is painting a mural. The paint counter mixes custom colors by ratio. Match each color exactly in bigger batches, then find what part and what percent of each can is blue.

Big question: How are part-to-part ratios, part-to-whole ratios, and percents related?

★ Warm-up: Which one doesn't belong?

Which does NOT name the same relationship?

1:3 • 2:6 • 3:9 • 3:1 ✓ **3:1: the order is flipped.**

1/4 • 25% • 0.25 • 1/3 ✓ **1/3.**

Key vocabulary

Part-to-part	Compares one part to another part (1:3).
Part-to-whole	Compares one part to the total (1 out of 4).
Percent	A part-to-whole ratio out of 100.
Equivalent	Same value, different numbers.

1 Box 1

Bigger batch

In the simulator: Make a batch of Sunnyside Green with **12 total** cans.

Record the batch.

Batch	Blue	Yellow	Total
Recipe	1	3	4
Big batch	3	9	12

2 Box 2

Part to whole

What percent of Sunnyside Green is blue?

Answer: _____ % ✓ **25**

3 Box 3

Ocean Teal

In the simulator: Match Ocean Teal (3 blue : 2 yellow) with 15 total cans.

What percent of Ocean Teal is blue?

Answer: _____ % ✓ **60**

Show your thinking:

4 Box 4

Spring Lime

In the simulator: Match Spring Lime (1 blue : 4 yellow) with 10 total cans.

How many cans of yellow did you use?

Answer: _____ cans ✓ 8

5 Box 5

Error detective

What is Riya mixing up?

☐ Part-to-part (3:2) with part-to-whole (3 out of 5 = 3/5) ☐ Nothing ☐ Blue and yellow

✓ Part-to-part (3:2) with part-to-whole (3 out of 5 = 3/5)

6 Box 6

Legend: mural order Legend only

The mural needs 40 cans of Spring Lime. How many cans of blue are needed?

Answer: _____ cans ✓ 8

Show your thinking:

7 Box 7

Paint counter guide

Explain the difference between "1 blue : 3 yellow" and "blue is 1/4 of the paint."

Look for: Talks about parts; Talks about the whole



Exit ticket: answer the big question in your own words

How are part-to-part ratios, part-to-whole ratios, and percents related?

Look for: A part-to-part ratio compares two parts (1 blue : 3 yellow). A part-to-whole ratio compares a part to the total (1 blue out of 4 parts = 1/4 = 25%). Scaling both parts by the same number keeps the color the same.

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	1UA-E
 Investigator	1HS-I
 Legend	IT1-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.