Ratios and Measurement

Lesson 7 Comparing Mixtures

Standards 6.RP.A.3a

Learning target I can compare ratios using a common quantity.

Materials Counters, tape-diagram space, rulers, measurement conversion chart, graph paper.

Lesson Flow 50 Minutes

0–5 Activate prior knowledge. Read the learning target. Ask students what they already know about comparing mixtures. Use a quick model or estimate to make their starting ideas visible.

5–17 Teach and model. Scale two ratios until one quantity matches, then compare the other quantity. The larger count alone is not enough: compare the amount per equal-sized batch or per one item. Work through the two examples on the attached instruction page. Have students name the first step before showing it.

17–22 Guided practice. Revisit worked Example 2 with its solution covered. Students propose the next step and explain why it is valid; uncover and compare with the worked solution.

22–45 Independent classwork. Assign the attached 10 questions in order. Check items 1–3 for entry-level understanding, 4–6 for connected procedures, 7–8 for representation and explanation, and 9–10 for application or justification. Ask students to use the instruction-page notes area or extra grids for longer work.

45–50 Check understanding. Use classwork question 10 as an exit discussion: Mix A has 4 cups juice for 4 cups water. Mix B has 19 cups juice for 16 cups water. Which is stronger in juice? Show equivalent ratios. Compare the result with the answer key and ask a student to defend the method.

Support and Extension

Support Model item 1 together with the listed tools, then have students attempt item 2 independently. Watch the order of ratio labels, part-to-whole denominators, and scaling only one quantity.

Extension Ask students to solve a final item another way, draw a second representation, or create a related problem with a checked answer.

Next step Record which students can explain the target independently. Begin the next teaching session with a brief correction for any recurring error.

Name _____ Date _____

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Learning target I can compare ratios using a common quantity.

Learn and Discuss

Scale two ratios until one quantity matches, then compare the other quantity. The larger count alone is not enough: compare the amount per equal-sized batch or per one item.

Example 1 Mix A has 7 cups juice for 5 cups water. Mix B has 39 cups juice for 25 cups water. Which is stronger in juice? Show equivalent ratios.
Solution Mix B. For 25 cups water, A uses 35 cups juice; B uses 39. B has more juice per equal water amount.
Example 2 Mix A has 2 cups juice for 4 cups water. Mix B has 13 cups juice for 20 cups water. Which is stronger in juice? Show equivalent ratios.
Solution Mix B. For 20 cups water, A uses 10 cups juice; B uses 13. B has more juice per equal water amount.

Classwork Show Your Work

Complete the 10 problems on the following page. Refer to the examples, draw models, and check your results.

My Notes or Second Method

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Name _____ Show calculations, models, and units.

1. Mix A has 6 cups juice for 3 cups water. Mix B has 37 cups juice for 18 cups water. Which is stronger in juice? Show equivalent ratios.

2. Mix A has 8 cups juice for 7 cups water. Mix B has 50 cups juice for 42 cups water. Which is stronger in juice? Show equivalent ratios.

3. Mix A has 6 cups juice for 6 cups water. Mix B has 16 cups juice for 12 cups water. Which is stronger in juice? Show equivalent ratios.

4. Mix A has 7 cups juice for 2 cups water. Mix B has 22 cups juice for 6 cups water. Which is stronger in juice? Show equivalent ratios.

5. Mix A has 4 cups juice for 2 cups water. Mix B has 23 cups juice for 10 cups water. Which is stronger in juice? Show equivalent ratios.

6. Mix A has 8 cups juice for 5 cups water. Mix B has 25 cups juice for 15 cups water. Which is stronger in juice? Show equivalent ratios.

7. Mix A has 6 cups juice for 4 cups water. Mix B has 32 cups juice for 20 cups water. Which is stronger in juice? Show equivalent ratios.

8. Mix A has 8 cups juice for 5 cups water. Mix B has 42 cups juice for 25 cups water. Which is stronger in juice? Show equivalent ratios.

9. Mix A has 5 cups juice for 5 cups water. Mix B has 28 cups juice for 25 cups water. Which is stronger in juice? Show equivalent ratios.

10. Mix A has 4 cups juice for 4 cups water. Mix B has 19 cups juice for 16 cups water. Which is stronger in juice? Show equivalent ratios.

Comparing Mixtures

Ratios and Measurement

1. Mix B
Reasoning For 18 cups water, A uses 36 cups juice; B uses 37. B has more juice per equal water amount.

2. Mix B
Reasoning For 42 cups water, A uses 48 cups juice; B uses 50. B has more juice per equal water amount.

3. Mix B
Reasoning For 12 cups water, A uses 12 cups juice; B uses 16. B has more juice per equal water amount.

4. Mix B
Reasoning For 6 cups water, A uses 21 cups juice; B uses 22. B has more juice per equal water amount.

5. Mix B
Reasoning For 10 cups water, A uses 20 cups juice; B uses 23. B has more juice per equal water amount.

6. Mix B
Reasoning For 15 cups water, A uses 24 cups juice; B uses 25. B has more juice per equal water amount.

7. Mix B
Reasoning For 20 cups water, A uses 30 cups juice; B uses 32. B has more juice per equal water amount.

8. Mix B
Reasoning For 25 cups water, A uses 40 cups juice; B uses 42. B has more juice per equal water amount.

9. Mix B
Reasoning For 25 cups water, A uses 25 cups juice; B uses 28. B has more juice per equal water amount.

10. Mix B
Reasoning For 16 cups water, A uses 16 cups juice; B uses 19. B has more juice per equal water amount.