Ratios and Measurement

Lesson 2 Parts and the Whole

Standards 6.RP.A.1

Learning target I can distinguish part-to-part and part-to-whole comparisons.

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 parts and the whole. Use a quick model or estimate to make their starting ideas visible.

5–17 Teach and model. For a:b, the total is a+b equal parts. The first part is a/(a+b) of the total; a/b compares it to the second part. Write labels before choosing the denominator. 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: A collection has 18 green and 9 yellow counters. Write the fraction that is green and the green-to-yellow ratio in simplest form. Explain the different denominators. 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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Learn and Discuss

For a:b, the total is a+b equal parts. The first part is a/(a+b) of the total; a/b compares it to the second part. Write labels before choosing the denominator.

Example 1 A collection has 25 green and 10 yellow counters. Write the fraction that is green.
Solution 5/7. Total = 35; green fraction = 25/35 = 5/7.
Example 2 A collection has 12 green and 6 yellow counters. Write the fraction that is green and the green-to-yellow ratio in simplest form. Explain the different denominators.
Solution 2/3; 2 or 2:1; the whole includes both colors. Total = 18; green fraction = 12/18 = 2/3.

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

Lesson 2 Parts and the Whole

Name _____ Show calculations, models, and units.

1. A collection has 25 green and 15 yellow counters. Write the fraction that is green.

2. A collection has 8 green and 10 yellow counters. Write the fraction that is green.

3. A collection has 12 green and 18 yellow counters. Write the fraction that is green.

4. A collection has 10 green and 14 yellow counters. Write the fraction that is green.

5. A collection has 12 green and 20 yellow counters. Write the fraction that is green.

6. A collection has 35 green and 30 yellow counters. Write the fraction that is green.

7. A collection has 15 green and 20 yellow counters. Write the fraction that is green and the green-to-yellow ratio in simplest form. Explain the different denominators.

8. A collection has 15 green and 21 yellow counters. Write the fraction that is green and the green-to-yellow ratio in simplest form. Explain the different denominators.

9. A collection has 20 green and 35 yellow counters. Write the fraction that is green and the green-to-yellow ratio in simplest form. Explain the different denominators.

10. A collection has 18 green and 9 yellow counters. Write the fraction that is green and the green-to-yellow ratio in simplest form. Explain the different denominators.

Parts and the Whole

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1. 5/8
Reasoning Total = 40; green fraction = 25/40 = 5/8.

2. 4/9
Reasoning Total = 18; green fraction = 8/18 = 4/9.

3. 2/5
Reasoning Total = 30; green fraction = 12/30 = 2/5.

4. 5/12
Reasoning Total = 24; green fraction = 10/24 = 5/12.

5. 3/8
Reasoning Total = 32; green fraction = 12/32 = 3/8.

6. 7/13
Reasoning Total = 65; green fraction = 35/65 = 7/13.

7. 3/7; 3/4 or 3:4; the whole includes both colors
Reasoning Total = 35; green fraction = 15/35 = 3/7.

8. 5/12; 5/7 or 5:7; the whole includes both colors
Reasoning Total = 36; green fraction = 15/36 = 5/12.

9. 4/11; 4/7 or 4:7; the whole includes both colors
Reasoning Total = 55; green fraction = 20/55 = 4/11.

10. 2/3; 2 or 2:1; the whole includes both colors
Reasoning Total = 27; green fraction = 18/27 = 2/3.