Fraction Operations and Models

Lesson 4 Partial Groups in Fraction Bars

Standards 6.NS.A.1

Learning target I can model fraction division as equal-sized groups.

Materials Fraction strips, blank fraction bars, pencils.

Lesson Flow 50 Minutes

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

5–17 Teach and model. A quotient asks how many groups of the divisor fit in the dividend. Rename both fractions with a common denominator, draw equal parts, and count groups. A partial group is a fraction of the divisor, not of the original whole. 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: Draw a bar partitioned into 8 equal parts. Shade 8 parts. Circle groups of 8 parts. Use the model to find 1 ÷ 1. Explain the partial group. 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 for taking the reciprocal of the dividend, confusing a partial group with a fraction of the whole, and rounding full-container counts upward.

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

A quotient asks how many groups of the divisor fit in the dividend. Rename both fractions with a common denominator, draw equal parts, and count groups. A partial group is a fraction of the divisor, not of the original whole.

Example 1 Draw a bar partitioned into 4 equal parts. Shade 2 parts. Circle groups of 1 parts. Use the model to find 1/2 ÷ 1/4.
Solution 2. Each small part is 1/4; 2 shaded parts divided into groups of 1 gives 2/1 = 2 groups.
Example 2 Draw a bar partitioned into 8 equal parts. Shade 7 parts. Circle groups of 7 parts. Use the model to find 7/8 ÷ 7/8. Explain the partial group.
Solution 1. Each small part is 1/8; 7 shaded parts divided into groups of 7 gives 7/7 = 1 groups.

Classwork Show Your Work

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

Fraction Model 3/4 ÷ 1/4 = 3 groups



Eight equal pieces show eighths. Every two pieces make 1/4; the shaded 3/4 contains three groups.

Lesson 4 Partial Groups in Fraction Bars

Name _____ Show calculations, models, and units.

1. Draw a bar partitioned into 6 equal parts. Shade 6 parts. Circle groups of 3 parts. Use the model to find 1 ÷ 1/2.

2. Draw a bar partitioned into 10 equal parts. Shade 8 parts. Circle groups of 3 parts. Use the model to find 4/5 ÷ 3/10.

3. Draw a bar partitioned into 10 equal parts. Shade 7 parts. Circle groups of 3 parts. Use the model to find 7/10 ÷ 3/10.

4. Draw a bar partitioned into 8 equal parts. Shade 8 parts. Circle groups of 4 parts. Use the model to find 1 ÷ 1/2.

5. Draw a bar partitioned into 8 equal parts. Shade 2 parts. Circle groups of 1 parts. Use the model to find 1/4 ÷ 1/8.

6. Draw a bar partitioned into 6 equal parts. Shade 3 parts. Circle groups of 2 parts. Use the model to find 1/2 ÷ 1/3.

7. Draw a bar partitioned into 6 equal parts. Shade 3 parts. Circle groups of 3 parts. Use the model to find 1/2 ÷ 1/2. Explain the partial group.

8. Draw a bar partitioned into 8 equal parts. Shade 2 parts. Circle groups of 2 parts. Use the model to find 1/4 ÷ 1/4. Explain the partial group.

9. Draw a bar partitioned into 10 equal parts. Shade 4 parts. Circle groups of 2 parts. Use the model to find 2/5 ÷ 1/5. Explain the partial group.

10. Draw a bar partitioned into 8 equal parts. Shade 8 parts. Circle groups of 8 parts. Use the model to find 1 ÷ 1. Explain the partial group.

Partial Groups in Fraction Bars

Fraction Operations and Models

1. 2
Reasoning Each small part is 1/6; 6 shaded parts divided into groups of 3 gives 6/3 = 2 groups.

2. 8/3
Reasoning Each small part is 1/10; 8 shaded parts divided into groups of 3 gives 8/3 = 8/3 groups.

3. 7/3
Reasoning Each small part is 1/10; 7 shaded parts divided into groups of 3 gives 7/3 = 7/3 groups.

4. 2
Reasoning Each small part is 1/8; 8 shaded parts divided into groups of 4 gives 8/4 = 2 groups.

5. 2
Reasoning Each small part is 1/8; 2 shaded parts divided into groups of 1 gives 2/1 = 2 groups.

6. 3/2
Reasoning Each small part is 1/6; 3 shaded parts divided into groups of 2 gives 3/2 = 3/2 groups.

7. 1
Reasoning Each small part is 1/6; 3 shaded parts divided into groups of 3 gives 3/3 = 1 groups.

8. 1
Reasoning Each small part is 1/8; 2 shaded parts divided into groups of 2 gives 2/2 = 1 groups.

9. 2
Reasoning Each small part is 1/10; 4 shaded parts divided into groups of 2 gives 4/2 = 2 groups.

10. 1
Reasoning Each small part is 1/8; 8 shaded parts divided into groups of 8 gives 8/8 = 1 groups.