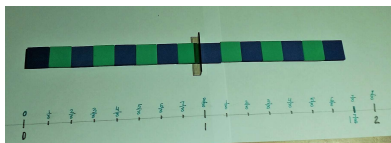


Composing and Decomposing $1\frac{7}{8}$

Description



In this hands-on task, each student independently represents $1\frac{7}{8}$ by creating either a physical model (e.g., using tiles, folded paper, relational rods, or other items with which students are comfortable working) or a two-dimensional model (e.g., a drawing or a number line) of their choice.

Students are then challenged to create as many addition and subtraction number sentences as possible to represent $1\frac{7}{8}$.

Mathematics

This task encourages students to compose and decompose physical, as well as symbolic, representations of fractions (through addition and subtraction number sentences). The task highlights how representation activities requiring composition and decomposition support number sense while serving to introduce and reinforce the foundations of operations (adding and subtracting fractions). The use of concrete models and/or pictures helps students visualize and reason about fraction operations and to develop flexibility in iterating or repeating unit fractions. These processes form a solid basis on which algorithms can be developed and learned.

Curriculum Connections.

Students will:

- count forward by halves, fourths and eighths to beyond one whole;
- use a variety of mental strategies to solve problems involving the addition and subtraction of fractions;
- regroup fractional parts into wholes, using concrete materials.

Instructional Sequence

1. Have students work independently at first; each student creates a model of their choice to represent $1\frac{7}{8}$.
2. Partner students and distribute BLM 1. Have students work through the prompts together using both student models.
3. Consolidate using the key questions.

Highlights of Student Thinking

Students may:

- demonstrate fluency with equivalent fractions by considering addition of fractions with unlike denominators;
- attend to the denominator as a separate number as opposed to seeing the fraction as a quantity represented by the notation. This may cause students to mistakenly add denominators, e.g., reasoning that $\frac{1}{4}$ and $\frac{1}{4}$ would equal $\frac{2}{8}$;
- need support in relating each quantity to a common unit (common denominator); and
- be more comfortable working with proper fractions.

Key Questions

1. How did you determine the fractional amount of each piece?
2. What strategies did you use to visualize equivalent fractions?
3. How did your knowledge of benchmark fractions help in completing this task?
4. What strategies did you use to help you decompose (or compose) $1\frac{7}{8}$?

Materials

- BLM 1 (one copy per student)
- Various manipulatives (such as relational rods, cubes, colour tiles) and everyday items (such as paper clips, construction or graph paper, rulers, markers)