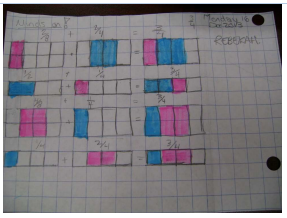
OP E

Add and subtract fractions with unlike denominators (e.g., 2 and 7) using models and symbols

Creating Sums Close to One



Description

Students will explore sums of fractions to determine two fractions with unlike denominators that, when added, will be close to but not equal to one. This task encourages the student to develop the sense of fractions as quantities (fundamental to fractions understanding) and also to justify their thinking by representing their mathematics in a variety of ways.

Mathematics

This task will allow students to self-select fractions with unlike denominators to add together and demonstrate their understanding of fractional quantities through representation. In order for students to conceptually understand operations with fractions, they need frequent and varied opportunities to represent, compare and order fractions, and to explore equivalencies.

Curriculum Connections

Students will:

- use reasoning to choose appropriate fractions to add together;
- represent fractions using a model and fractional notation;
- add fractions with like and/or unlike denominators;
- consider the whole when adding fractions by determining common units;
- use estimation when solving problems involving addition of fractions.

Instructional Sequence

1. As a warm-up to the task, instruct students to turn to an elbow partner. Prompt students to estimate two fractions that, when added together, equal one. Students should be prepared to share and justify their choices.
2. As a whole class, invite select pairs to share and justify their estimates.
3. Partner students and distribute BLM1.
4. Allow students time to explore and represent at least two solutions. Make available manipulatives that students are used to working with to represent fractions (e.g., relational rods).
5. Teacher may choose to distribute BLM 2 (either to extend or differentiate the task depending on student need, both versions are available) as students work to complete the task.
6. Consolidate this activity by selecting student responses that highlight fractional number sense.
7. Check student understanding with BLM 3.

Highlights of Student Thinking

Students may:

- choose to add like denominators as a starting point;
- convert fractions to decimals or percent;
- use a number line, area model, or concrete model to represent their thinking and/or justify their reasoning;
- demonstrate misconceptions when representing and/or adding fractions with unlike denominators.

Key Questions

1. How did estimation help you determine your fractions?
2. How did you visualize the fractions?
3. How did your representation help you determine and/or show your solution?
4. Can you get closer to 1 by replacing one of your fractions? Explain your thinking.
5. How does knowing about equivalent fractions help you with this task?

Materials

- BLM 1 (one per student/pair)
- BLM 2 Hint Cards (available as needed for scaffolding or extending the task)
- BLM 3 Exit Ticket (one per student)
- Assorted manipulatives (e.g., relational rods, colour tiles, pattern blocks, fraction strips)