Facilitator Guide: Naming Fractions Numerically

Lesson Overview:

Big Idea: Fraction notation can be interpreted as describing part-whole relationships. Any fraction, *a/b*, can be represented using a bar model by dividing it into *b* equal parts and selecting *a* parts. Student conceptual development can be demonstrated by building fractions with bar models and explaining the role numerator and denominator play creating the visual model.

Lesson Flow: Launch an ST Math Chat and have students play a set of puzzles, then discuss two of the puzzles as a class (skip the conclusion). After the Math Chat, open the interactive Fraction-Builder-Tool from the lesson's Agenda and facilitate a discussion about how the tool models fractions. Hand out a problem sheet for students to work on in pairs while they use the interactive tool. Monitor students as they solve the problems. Give students the second problem sheet and have them work in pairs to complete a table of fraction representations before facilitating a whole group discussion to check and support their answers.

Warm Up: Match Fraction Math Chat

Play **Build Unit Fractions Math Chat** as a class, skip conclusion question (20 min)

- Launch Build Unit Fractions Math Chat and have students log in.
    - Use the Play and Discuss sections only
- *Big Idea:* Denominators divide the whole into unit fractions, numerators count the parts out of the whole specified in the fraction.
    - Writing a fraction like 3/4 as 3 fourths reinforces the idea that the numerator counts the parts and the denominator names the unit

Activity One: Fraction Builder Tool

Part 1: Click the *Fraction-Builder-Tool* link to explore how the tool works (3 min)

- Use the + – buttons to adjust the size of the fraction and touch the bar to fill in the parts.
- *Discussion Prompts:*
    - Ask a student to come up to represent 3/4
    - "What are two ways to make the fraction smaller?"
        - Decrease numerator, increase denominator
    - "What are two ways to make the fraction larger?"
        - Increase the numerator, decrease the denominator
    - "What do you notice happening between the fraction and the bar model?"
        - Larger pieces=smaller denominator, smaller pieces=larger denominator

Part 2: Students solve **Build Fractions Problem Sheet** using the *Fraction-Builder-Tool* (5 min)

- Students practice modeling fractions and representing them with bar model drawings
- *Note:* Encourage students to use vocabulary that's intuitive to them even if it's not formal math language.

Activity Two: Fraction Board

Part 1: Students solve **Fraction Board Problem Sheet** in pairs (7 min)

- Use fractions to represent area shaded in visual models.
- Students solve problems with a variety of area models partitioned in many ways to avoid thinking that fractions represent specific visual models.

Part 2: Discuss and solve Fraction Board as a class and draw on a projector or board (7 min)

- Create a poster for the Fraction Board, complete the equal parts, name and fraction sections of the table
    - Reinforce naming unit fraction represented in area models and represent area shaded using fraction notation