# Facilitation Guide: Tiling and Naming Fractions

## Lesson Overview:

*Big Idea: Unit* fractions, written as 1/n, describe a part-whole relationship. They name how many parts of this unit make a whole. Unit fraction names follow a predictable pattern: thirds take 3 to make a whole, fourths-4, fifths-5, etc…. With the exception of halves, this pattern helps students generalize beyond the set of fractions called out in the grade-level standards. This lesson helps students develop the part-whole meaning of unit fractions by playing an interactive game that uses geometric shapes to fill a 'whole' square. These puzzles build part-whole reasoning in a problem solving context before moving into explicitly naming fractions.

*Lesson Flow:* Students begin with an experiential interactive game. Then, you will work through a few sequences of students solving problems on a problem sheet and discussing key problems as a class. In addition, you will experience a story which will be in the format of a series of slides and introduce students to the concept of a unit name.

### **Warm Up:** Tiling Game

Part 1: Students play Tiling Game on their own (5 min)

- This game serves as an experiential intro to building with unit fractions
- Students select from a variety of shapes (tiles) to cover a whole square

Part 2: Solve one Tiling Game puzzle as a class (5 min)

- Consolidate knowledge in order to ensure learning as a class
    - "Which shape do you think can be used to fill the whole square?"
    - "How did you figure out how many of this shape will fill the whole square?"
    - "What do you notice about all the ways we filled the squares?"
- *Big Idea:* Shapes that look very different can cover the same area. Example is that 4 small squares can cover the whole square, but so can 4 small triangles.

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## **Activity One:** Naming Fractions

Part 1: Students solve **Naming Unit Fractions Problem Sheet** individually (5 min)

- Students will match unit fraction names to visual model
- *Big Idea:* Recognize the pattern that unit fractions name the number of pieces that fill the whole: 4 are fourths, 3 are thirds, etc…

Part 2: Discuss Tiling question as a class (5 min)

- Discuss reasons why all the squares show fourths by connection the visuals on the slide to the Tiling Game students played for the warm up
    - “How much of the whole square does each do these shapes represent?”
    - “How can we describe the type of unit fraction this square is cut into? Or filled by?”
- *Big Idea:* Fourths describe a relationship, they are not a specific shape in the whole

## **Activity Two:** JiJi’s Block Story

Walk through Jiji’s block story and answer questions with the class (10 min)

- A series of slides ask students to identify unit fractions and name parts of a whole (Click through slides until activity 3)
- *Big Idea:* Unit fractions can be counted like whole numbers, but we name the unit each count: 1-eighth, 2-eighths, 3-eighths…

## **Activity Three:** Pie Monster Problems

Part 1: Students solve **Pie Monster Fractions Problem Sheet** in pairs (10 min)

- Practice naming fractions in visual model

Part 2: Discuss Pie Monster Problem as a class (5 min)

- Name the unit fraction and count number of missing pieces