

Puzzle Talk - Grade 4

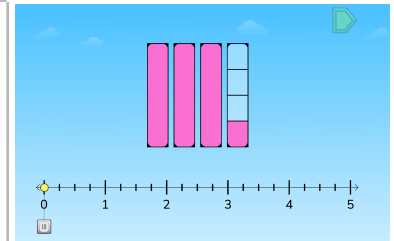
Scale Fraction (Level 2)



These facilitation suggestions are what a student-led discussion might look like when looking at puzzles in Level 2. Depending on how students respond, it likely would take one session for Level 2.

Description

- **Puzzle Location:** Grade 4 > Mixed Numbers > Scale Fraction > Level 2
- **Topic:** Plot fractions on a number line
- **Purpose of the Puzzle Talk:** Focus on student thinking and developing problem solving skills using guiding questions for each step in the Problem Solving Process
- **Preparation:** View the [Game in a Minute](#) video
- **Gather Materials:** Provide students with fraction manipulatives, whiteboards, and dry-erase markers



[click here for puzzle](#)

Notice and Wonder

- Display the first puzzle from Level 2.
- Ask students: "What do you notice about this puzzle?" What do you wonder about this puzzle?"
- Allow a few students to share their thinking with the whole class.

Predict and Justify

- Ask students to think individually about how they could solve the puzzle, then turn and share with a partner before sharing as a class.
- Students should provide mathematical reasoning for the idea they want to try. They can use their fraction manipulatives and whiteboard to represent the puzzle. For example, they might represent $3\frac{1}{4}$ using fraction manipulatives and then line them up along a number line they draw on their whiteboard.
- List these ideas for the class to consider.

Test and Observe

- Select one of the students' strategies.
- Solve the puzzle and have students describe what happened.

Analyze and Learn

- Ask students to think about how what they saw happen compares to their prediction.
- Use the animation controls to replay and examine what happens in the puzzle.
 - If the answer was incorrect, discuss what was learned and what they think is best to try next. Have students share why that is the best way to solve the puzzle. Try another solution to solve the puzzle.
 - If the answer was correct, ask how they can take what they've learned and apply it to the next puzzle.
- Show the next puzzle. With a partner, have students discuss their strategies for solving the puzzle and why they chose those strategies.
- Have students share their ideas and ask questions such as:
 - "How is the visual model with the bars related to the number line?"
 - "How do we know the denominator for the unit fraction?"
 - "How could we represent this model as a fraction? A mixed number?"
- Have students write their answers on their whiteboards. Then, have students turn and talk to a neighbor and share their ideas and then discuss as a class.
- Select a student's strategy to try, and observe the feedback. Have students check to see if the answer they put on their whiteboards is correct. Discuss how this might provide evidence for why the solution will work or not work.
- Repeat with additional puzzles in Level 2.