PUZZLE TALK

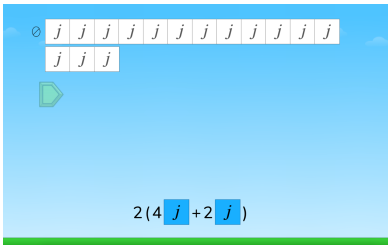
Fifth Grade	Using Parentheses	Multiplying with Parentheses

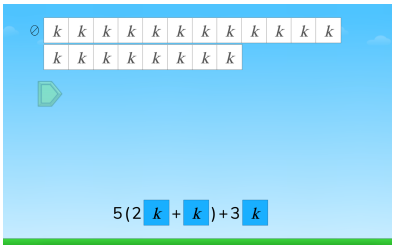
Materials

centimeter cubes or grid paper

Directions

- Give out cubes and/or grid paper. Project a puzzle from Level 3. Ask students, "What do you notice? How do you think we solve this puzzle?" Have students turn and talk to a neighbor and share their thinking.
- Have the students work to model the expression represented in the puzzle with their cubes or grid paper.
- Have students work in groups to discuss their models and how they represent the expression in the puzzle.





- Select some students to share their models and how their models represent the expression. Discuss how changing the parentheses or the coefficient would change the visual model.
- Repeat this process with the remaining puzzles in Level 3 and a few puzzles from Level 4.

Sample Questions

- What is this expression describing?
- How do you express this relationship visually?
- How did you solve this puzzle?
- How does moving the parentheses affect the solution?

What to look for

How does the student:

- represent the problem visually? (Do they simplify within the parentheses first? Can they explain why they simplified it first?)
- view the role of the parentheses? (Can they explain how removing the parentheses would affect the problem?)
- see multiplication in the expression? (Do they know why 4b is 4 x b? Can they identify the groups within the expression? Ex. 2 (y + y) = 2 groups of y + y)