

Fourth Grade

Materials

Patterns in Number and Shape

Helicopter Table

White board and markers

Centimeter cubes (optional)

	 Give students whiteboards and dry erase markers. Display the first puzzle in Level 1. Ask students, "What do you see? How do you think we solve this puzzle?" Have students Think, Pair, Share how they might solve the puzzle. Share students' answers and thinking. Focus the discussion on the pattern students see in the table. Ask students, "How did you determine which number comes next in the table?" Solve the puzzle and discuss what is happening with the helicopter and the blocks as Ji-Ji shows the solution (e.g., Each belicopter brings)
Directions	 2 blocks, so 1 helicopter brings 2 blocks, 2 helicopters bring 4 blocks because 2 + 2 = 4, and so on). Display the next puzzle. Say to students, "Draw the table from the puzzle on your whiteboard. Work with a partner to complete the table." Share students' answers. Say to students, "How could we say the rule for the table? What happens each time?" Share students' ideas and discuss the rule (e.g., "the number of helicopters x 2 equals the number of blocks, or h x 2 = b; our rule is x 2"). Ask students, "What if there were 10 helicopters? How many blocks would there be then?" Write for students: h x 2 = b, h = 10, 10 x 2 = b, b = 20. Repeat with puzzles in Level 2. Help students to see the pattern and use the rule to solve the puzzles.
Sample Questions	 How did you determine the number to put in the table? What would be in the column with the helicopters if 24 was in the column with the blocks? What would be in the column with the blocks if 12 was in the column with the helicopters? What is the relationship of the number of cubes to the number of helicopters? How can we write this relationship as a rule? How does the pattern in the table help us determine the rule?
What to look for	 How does the student: understand the relationship of the number of total cubes and the number of helicopters needed? determine the numbers to place in the missing cells on the table? use the rule to determine scenarios not show in the table?