

 Activity 8.2 FACTOR PATTERNS

Tell students that they are going to look for multiplication expressions and the corresponding rectangular array for several numbers (e.g., 1 through 16 or 10 through 25). Their task includes finding all the multiplication expressions and rectangular arrays for each number. Have enough square tiles available that students can use to explore possible arrays. They are to record their rectangles on grid paper (see Blackline Masters 10 and 11) and label each rectangle with the number of squares and a multiplication equation. Students should group together all arrays with the same number of squares. This organization helps when students are comparing arrays across different numbers. After identifying the multiplication expressions and the rectangular arrays, students are to look for patterns in the factors and rectangular arrays. For example, which numbers have the least number of arrays and, therefore, the least number of factors? Which numbers have only a factor of 1 and itself? Which numbers have arrays that form a square? What can you say about the factors for even numbers? Do even numbers always have 2 even factors? What about odd numbers? Encourage students to think about why different patterns occur.

From Van de Walle et. al. (2014). *Teaching Student-Centered Mathematics Grades: Developmentally Appropriate Instruction for Grades 3 – 5* (2nd Ed.). Toronto: Pearson Education, Inc. (p. 115).