# Math 4 - Act. 02: Square Numbers

# Summary

Students will use square tiles to help them understand the concept of square numbers.

## Materials

square tiles Square Facts Worksheet crayons Sea Squares, by Joy N. Hulme. 2001 (Buena Vista Books, Inc.)

### **Background for Teachers**

A squared number is a number that is a result of multiplying an integer by itself. Any squared number of counters can be arranged in a square array. You can write each squared number as a product using an exponent.

4 2 = 16

"Four squared equals sixteen, or four to the second power equals sixteen."

### Intended Learning Outcomes

- 1. Demonstrate a positive learning attitude toward mathematics.
- 2. Become mathematical problem solvers.
- 3. Reason mathematically.
- 4. Communicate mathematically.
- 5. Make mathematical connections.
- 6. Represent mathematical situations.

#### Instructional Procedures

### Invitation to Learn

Read the book Sea Squares. Ask: "What are squared numbers?"

Instructional Procedures

Have students use square tiles to build a 1 x 1 square, 2 x 2 square, 3 x 3 square, etc. Record the total number of cubes added to make each new square, perimeter, and total squares.

Have students look for patterns and record them on a chart. (For example, students may describe patterns they see in the "growing squares," such as the fact that new squares add change in a predictable way–it increases by the next odd number with each new square.)

### Extensions

Possible Extensions/Adaptations/Integration

Color in the square numbers on a multiplication chart. Look for patterns (e.g., the square numbers are on a diagonal, the square numbers increase by 2 each time, etc.) Use the calculator to further explore square numbers.

Homework & Family Connections

Ask students to look for arrays at home and record them. Which arrays form a perfect square? Some students may want to bring in arrays to show the class.

### Assessment Plan

Journal:

Have students explain what square numbers are. Use pictures, words and numbers to explain what 5 2 is.

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