

# LESSON 3



## CA Standards

**KEY NS2.2** Memorize to automaticity the multiplication table for numbers between 1 and 10.

**MR 2.3** Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain reasoning.

**Also NS 2.0, KEY AF2.1, MR 1.0**

## Vocabulary

The product of a whole number multiplied by itself is a **square number**.

$$3 \times 3 = 9$$

## Materials

Learning Tool 11  
(Centimeter Grid Paper)

# Square Arrays

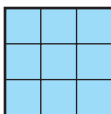
**Objective** Use square arrays to multiply 2 factors that are the same. Identify square numbers.

## Learn by Example

In this lesson, we will look at multiplication facts that have special arrays. The arrays are squares.

### Model It

**1**  $3 \times 3 = \bigcirc$

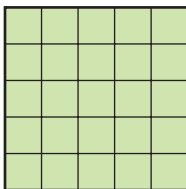


### Write It

$$3 \times 3 = 9$$

9 is a **square number**.

**2**  $5 \times 5 = \bigcirc$



$$5 \times 5 = 25$$

25 is a square number.

## Ask Yourself

Does my array have the same number of rows and columns?

## Guided Practice

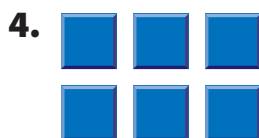
**Draw an array to find the product. Use grid paper.**

**1.**  $9 \times 9$

**2.**  $8 \times 8$

**3.**  $1 \times 1$

**Does the array show a square number? If not, how many squares could be added to make it a square number?**



## Guided Problem Solving

Use the questions to solve the problem.

7. Chris is hanging pictures in a gallery, in a square array. There are 4 rows of 4 pictures. How many pictures are there in all?

a. **Understand** What do you know?  
What do you want to find out?

b. **Plan** You can draw an array.  
Will the array be a square?

c. **Solve** Draw the array. Use the array  
to solve the problem.

There are  pictures in all.

d. **Look Back** Use another multiplication  
strategy to solve the problem. Did you  
get the same answer?



**Math Talk** How can knowing  $4 \times 2 = 8$  help  
you to find  $4 \times 4$ ?