▶ **ACTIVITY 2.6**

Developing Concepts

GROUP ACTIVITY
Work with a partner.

MATERIALS
algebra tiles

Modeling the Distributive Property

▶ **QUESTION** **How can you model equivalent expressions using algebra tiles?**

▶ **EXPLORING THE CONCEPT**

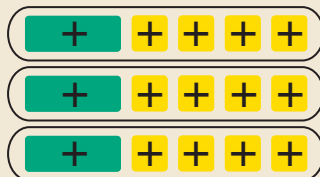You can use algebra tiles to model algebraic expressions.

☐ 1 **1-tile**

This 1-by-1 square tile has an area of 1 square unit.
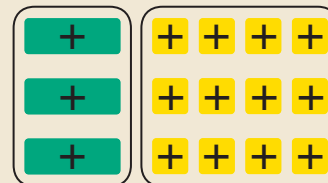
▭ 1 **x-tile**

This 1-by-x rectangular tile has an area of x square units.
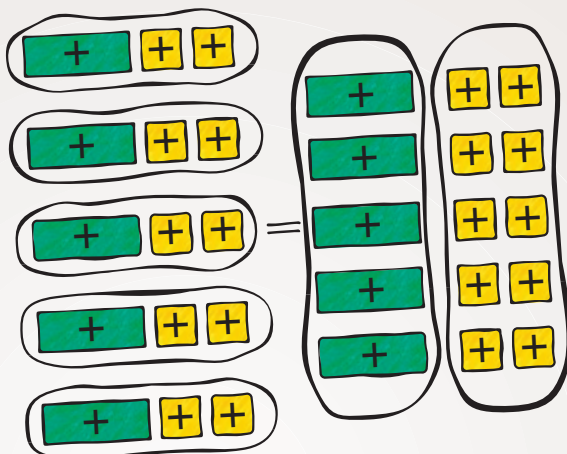
1 Model $3(x + 4)$.

2 Model $3x + 12$.

The models show that $3(x + 4) = 3(x) + 3(4) = 3x + 12$. So $3(x + 4)$ and $3x + 12$ are equivalent. This is an example of the distributive property.

▶ **DRAWING CONCLUSIONS**

1. Use the algebra tiles shown below. Write the expression shown by the tiles in two ways.

Each equation illustrates the distributive property. Use algebra tiles to model the equation. Draw a sketch of your models.

2. $2(x + 6) = 2x + 12$ **3.** $4(x + 2) = 4x + 8$

4. $4(x + 4) = 4x + 16$ **5.** $3(x + 5) = 3x + 15$

ERROR ANALYSIS In Exercises 6 and 7, tell whether the equation is *true* or *false*. If false, explain the error and correct the right-hand side of the equation.

6. $4(x + 6) \overset{?}{=} 4x + 6$ **7.** $3(x + 5) \overset{?}{=} 3x + 15$

8. *Writing* Use your own words to explain the distributive property. Then use a, b, and c to represent the distributive property algebraically.