ACTIVITY 10.6

Developing Concepts

Group Activity for use with Lesson 10.6

Modeling the Factorization of $ax^2 + bx + c$

SET UP
Work in a small group.

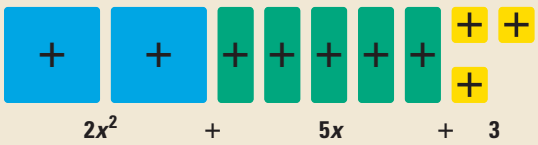
MATERIALS
algebra tiles

QUESTION **How can you model the factorization of a trinomial of the form $ax^2 + bx + c$ using algebra tiles?**

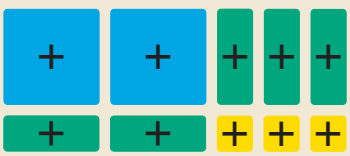
EXPLORING THE CONCEPT

You can use algebra tiles to create a model that can be used to factor a trinomial that has a leading coefficient other than 1. Factor the trinomial $2x^2 + 5x + 3$ as follows.

1 Use algebra tiles to model $2x^2 + 5x + 3$.



2 With the x^2-tiles at the upper left, arrange the x-tiles and the 1-tiles around the x^2-tiles to form a rectangle.



3 The width of the rectangle is ? , and the length of the rectangle is ? .

Complete the statement: $2x^2 + 5x + 3 =$? $\cdot$?

EXERCISES

Use algebra tiles to factor the trinomial. Sketch your model.

1. $2x^2 + 9x + 9$ **2.** $2x^2 + 7x + 3$ **3.** $3x^2 + 4x + 1$

4. $3x^2 + 10x + 3$ **5.** $3x^2 + 10x + 8$ **6.** $4x^2 + 5x + 1$

ERROR ANALYSIS **The algebra tile model is incorrect. Sketch the correct model, and use the model to factor the trinomial.**

7. $2x^2 + 3x + 1$ **8.** $2x^2 + 4x + 2$ **9.** $4x^2 + 4x + 1$