

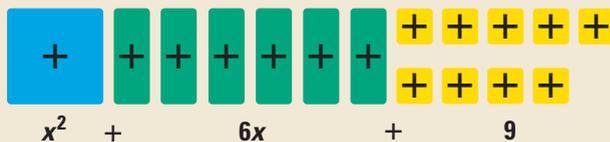
ACTIVITY 10.7**Developing Concepts***Group Activity for Use with Lesson 10.7***Modeling the Factorization of $(ax)^2 + 2abx + b^2$** **QUESTION**

How can you model the factorization of a trinomial of the form $(ax)^2 + 2abx + b^2$ using algebra tiles?

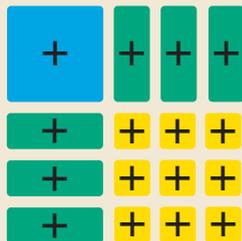
EXPLORING THE CONCEPT

You can use algebra tiles to create a model that can be used to factor a trinomial in which the first and last terms are perfect squares and the middle term is twice the product of the square roots of the first and last terms. Factor the trinomial $x^2 + 6x + 9$ as follows.

- 1 Use algebra tiles to model $x^2 + 6x + 9$.



- 2 Arrange the tiles to form a square.



- 3 The length of each side of the square is $\underline{\quad}$. Complete this statement:
 $x^2 + 6x + 9 = (\underline{\quad})(\underline{\quad}) = (\underline{\quad})^2$

DRAWING CONCLUSIONS

Use algebra tiles to factor the trinomial.

1. $x^2 + 4x + 4$
2. $x^2 + 8x + 16$
3. $4x^2 + 4x + 1$
4. $4x^2 + 12x + 9$

5. Look for a pattern in the factorizations in Exercises 1–4. Complete this statement: $a^2 + 2ab + b^2 = (\underline{\quad})(\underline{\quad}) = \underline{\quad}$

Use the pattern from Exercise 5 to factor the trinomial.

6. $9x^2 + 6x + 1$
7. $16x^2 + 56x + 49$
8. $49x^2 + 28x + 4$
9. Make a conjecture about how to complete this statement:
 $a^2 - 2ab + b^2 = (\underline{\quad})(\underline{\quad}) = \underline{\quad}$