▶ **ACTIVITY 12.4**

Developing Concepts

Modeling Completing the Square
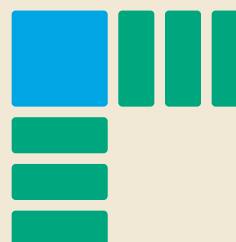
▶ **QUESTION** How can you use algebra tiles to represent perfect square trinomials?
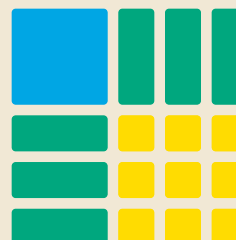
▶ **EXPLORING THE CONCEPT**

1 Use algebra tiles to model the expression $x^2 + 6x$.

2 Arrange the x^2-tile and the x-tiles to form part of a square.

3 To complete the square, you need to add nine 1-tiles.

You have completed the square: $x^2 + 6x + 9 = (x + 3)^2$.

▶ **DRAWING CONCLUSIONS**

1. Use algebra tiles to complete the square for each expression in the table. Then copy and complete the table to show your results.

Expression	Number of tiles to complete the square	Number of tiles as a perfect square
$x^2 + 6x$	9	3^2
$x^2 + 8x$	?	?
$x^2 + 4x$	?	?
$x^2 + 2x$	?	?

2. How is the number in the third column related to the coefficient of x in the first column?

3. Use the pattern you found in Exercise 2 to predict how many tiles you would need to add to complete the square for the expression $x^2 + 14x$.