GOAL

LEARN HOW TO...
- find a rule to extend a pattern
- make a table to organize your work

AS YOU...
- explore patterns using pattern blocks

KEY TERMS
- rule
- term
- term number

Exploration 1

Extending PATTERNS

SET UP *Work with a partner. You will need pattern blocks.*

▶ **Pythagoras had a *rule* for finding triangular numbers. He noticed that the third triangular number, 6, was equal to 1 + 2 + 3, and that the fourth triangular number, 10, was equal to 1 + 2 + 3 + 4.**

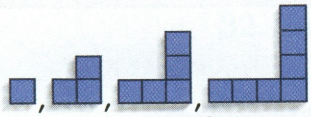
4 **a.** How would Pythagoras have found the fifth triangular number?

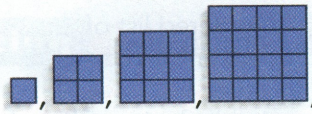
b. What is the fifth triangular number? How does this compare with your answer to Question 3?

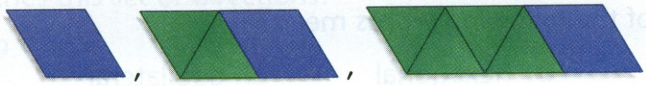
▶ **Finding a Rule** **When you describe how to create or extend a sequence you are giving a rule for the sequence.**

5 For each of the following sequences:
- Look for a pattern.
- Use pattern blocks to build the next two shapes in the sequence.
- Explain the rule you used.

The three dots tell you the pattern continues in the same way.

a.  , ?, ?, ...

b.  , ?, ?, ...

c.  , ?, ?, ...

6 For each of the following sequences:
- Look for a pattern.
- Give the next two entries in the sequence.
- Explain the rule you used.

a. 2, 5, 8, 11, ?, ?, ...

b. 1, 4, 9, 16, ?, ?, ...

c. one, ten, hundred, thousand, ?, ?, ...