

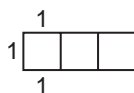
Modeling Activity

(Use with Lesson 5-6)

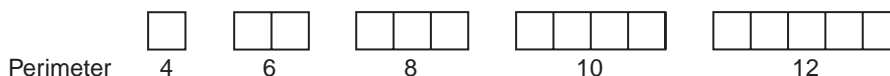
Finding Equations

Materials: pencil 

You can write equations that represent relations.

Activity: Find an equation that relates the perimeter of a figure formed by unit squares placed in a row with the number of unit squares.

- Draw figures with 1 unit square, 2 unit squares, 3 unit squares, 4 unit squares, and 5 unit squares. Find the perimeter of each of the figures.



- Make a chart that relates the number of squares with the perimeter of the figure.

Number of squares	1	2	3	4	5
Perimeter	4	6	8	10	12

+1 +1 +1 +1

 +2 +2 +2 +2

- Study the chart to find a relationship. Notice that each time the number of squares is increased by 1, the perimeter is increased by 2. If you multiply the number of squares by 2, the product is 2 less than the perimeter. Therefore, the perimeter is equal to the number of squares times 2 plus 2. If P equals the perimeter and s equals the number of squares, the equation is $P = 2s + 2$.

- Check the equation with the numbers in the chart.

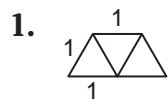
$$P = 2s + 2 \quad 6 = 2(2) + 2 \quad 10 = 2(4) + 2$$

$$4 = 2(1) + 2 \quad 8 = 2(3) + 2 \quad 12 = 2(5) + 2$$

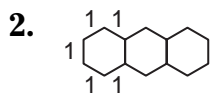
4. Sample answer: Use the equation for the perimeter $P = 2s + 2$. Replace s with 25 and solve for P .

DRAW **5. Sample answer: Study the differences between successive values. Use trial and error.**

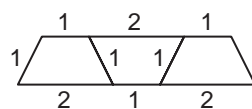
Use drawings to find an equation for the perimeter of each pattern.



$$P = t + 2$$



$$P = 4h + 2$$



$$P = 3t + 2$$

WRITE

4. Explain how to find the perimeter of a figure with 25 unit squares placed in a row.
5. Explain how to write an equation for a pattern.