Use this chart to help you locate activities that relate to a topic you may be covering. Then consult the activity plan itself for more detail about math content.

		Place Value	Addition & Subtraction	Multiplication	Fractions	Measurement*	Geometry	Probability	Patterns & Algebra
1	Place Value and Closed Figures I	X					X		
2	Place Value and Closed Figures II	X					X		
3	Solid Sums Game		X				X		
4	Multiplication Facts for 3, 4, and 5			X			X		
5	Using Multiplication Facts: The Side-Splitting Game					X	X		
6	Multiplication Facts for 6, 7, 8, and 9			X			X		
7	Which Shapes are Rigid?						X		
8	Building Bridges						X		
9	Exploring Perimeter with Triangles					X	X		
10	Exploring Perimeter with Rectangles					X	X		
11	Exploring Area and Perimeter					X	X		
12	Using Fractions — Tossing a Cube				X		X		
13	Using Fractions — Tossing a Prism				X		X		
14	Octa-Roll: A Multiplication Game			X			X		
15	Prisms and Pyramids: A Building Game						X		
16	Faces, Edges, and Corners						X		X
17	Solid Descriptions						X		
18	Patterns with Solids						X		X
19	Nets of Cubes						X		
20	Exploring Tessellation Patterns						X		
21	Top, Front, and Side Views						X		
22	Same or Different?: Turn to Tell						X		
23	Color Combinations — Alike or Different?						X	X	
24	Exploring Patterns in Cubes						X		X

*Measurement includes area and perimeter.

OBJECTIVE

Create rectangles that have the same perimeter but different shapes.

NCTM STANDARDS

- Extend their understanding of the process of measurement.
- Extend their understanding of the concepts of perimeter, . . .
- Develop formulas and procedures for determining measures to solve problems.
- Understand and apply reasoning processes, with special attention to spatial reasoning . . .
- Validate their own thinking.

MATERIALS

- 16 JOVO squares
- Recording Sheet

VOCABULARY

rectangle a 4-sided figure made of two pairs of parallel sides and 4 right angles

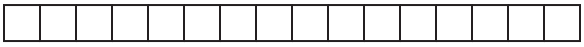
perimeter the total distance around a figure

Note: The 16-square loop that students build in this activity is used again in Activity 11 (Exploring Area and Perimeter).

ACTIVITY

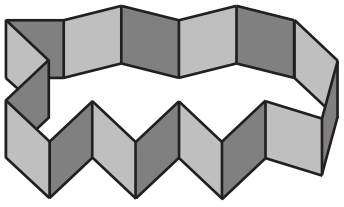
1. **Build a loop for making rectangles.**

Direct students to connect 16 JOVO squares to create one, long row. Establish that the length of one square is 1 unit.



Ask: What is the length of the row of squares? (16 units)

Tell students to connect the two ends of the row to create a loop. Have them place this loop on its edge so that looking down on it they see a closed figure. Discuss its length.



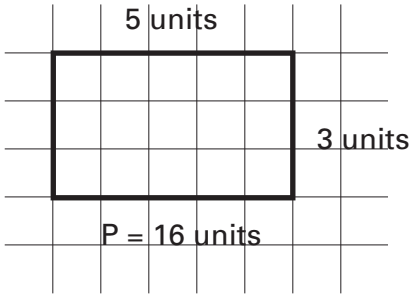
Ask: How does the distance around the loop compare to the length of the row of squares you had? (It is the same, 16 units.)

Establish that the measure of the distance (or length) around a figure is called its **perimeter**.

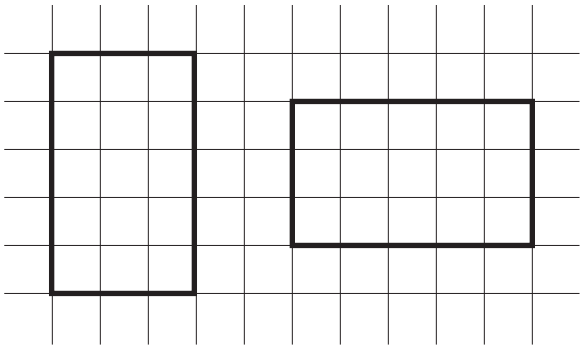
Ask: If you use the loop to form a figure, what will its perimeter be? (16 units)

2. Form a rectangle with a perimeter of 16 units.

Tell students they are going to use their loop to form a rectangle with a perimeter of 16 units. Discuss the properties of a rectangle: 2 pairs of parallel sides and 4 right angles (or square corners). As an example, ask students to use their loop and make one side of a rectangle that is 5 units long. Then let students finish creating this rectangle and measure the length of the other side (3 units).



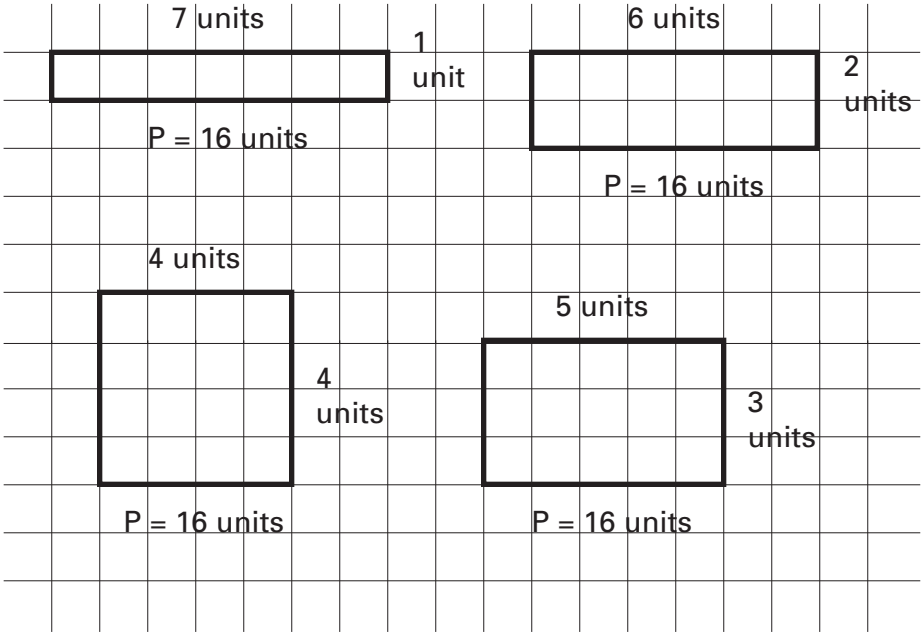
Direct students to (a) sketch this rectangle on their Recording Sheet, (b) label the length of two adjacent sides, and (c) write the perimeter of the rectangle. Demonstrate to students that the rectangle could be turned to form a 5-by-3 rectangle. Establish that this rectangle is the same as the 3-by-5 rectangle, only turned (or rotated).



3. Form as many rectangles as possible with a perimeter of 16 units.

Challenge students to continue using their loop to find other rectangles with a perimeter of 16 units. Each length should be a whole number of units. See examples below.

Remind students that once they have built a rectangle with their loop, they should (a) sketch the rectangle on their Recording Sheet, (b) label the length of two adjacent sides, and (c) write the perimeter of the rectangle.



REFLECTION

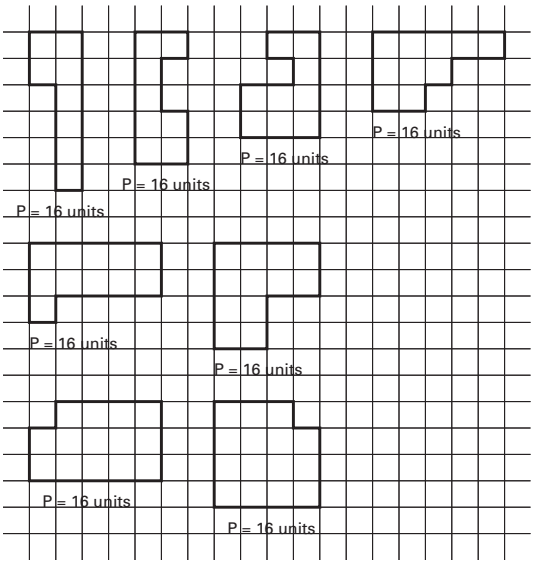
Discuss methods students used to form their rectangles. For example, a student may have removed one JOVO tile (one unit) from one side and added the tile (one unit) to the adjacent side, creating a new rectangle.

Guide students to make the following generalizations:

- Squares are also rectangles.
- For rectangles with a perimeter of 16 units, the sum of the adjacent sides is always 8 units.
- Different shaped rectangles can have the same perimeter.

EXTENSION

Challenge students to use their 16-square loop to form polygons which are not rectangles, but which are still made up of right angles.



Name: _____ Date: _____

Exploring Perimeter with Rectangles

RECORDING SHEET