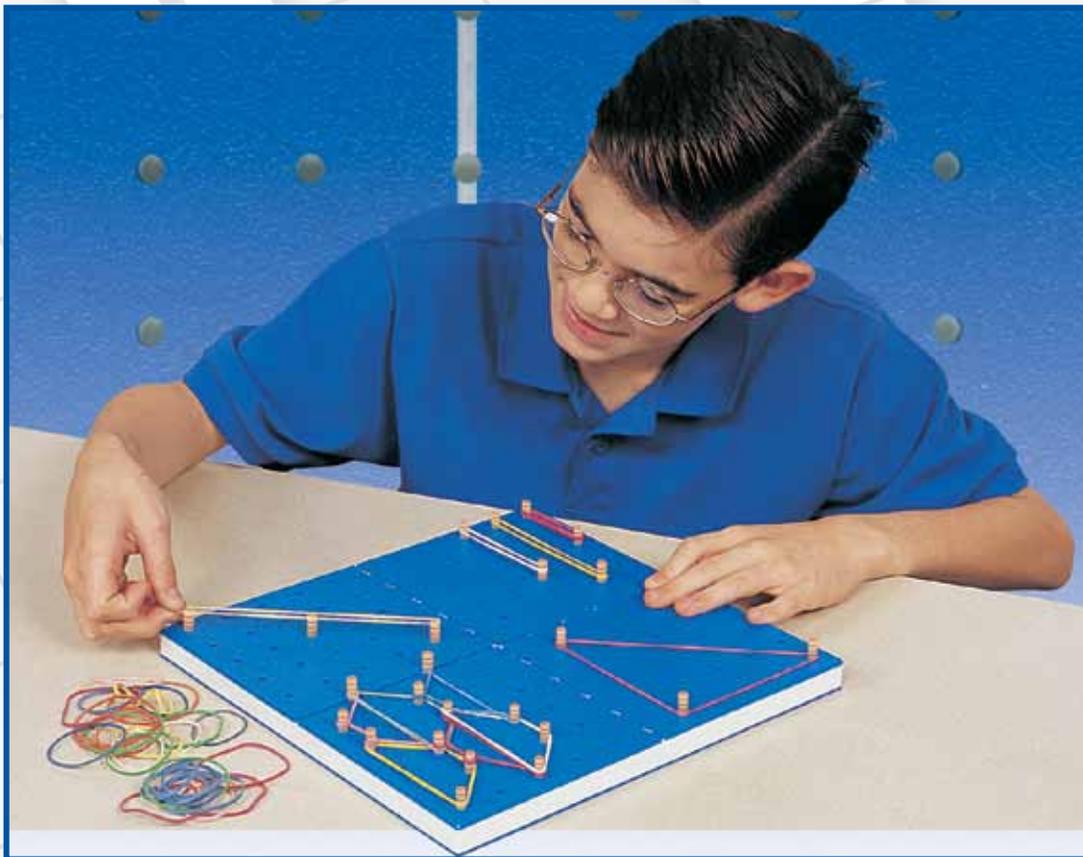


Coordinate Geometry Board

User Guide



About the Coordinate Geometry Board

Put away your pencils and paper! See algebra and geometry in action with the Coordinate Geometry Board. After making sure you have all the included supplies, flip the page to see a few sample activities you can do alone or with your class. Get ready, because you're about to experience a whole new way of learning about mathematics!

The following materials are included. If anything is missing, call 800-358-4983.

- Coordinate Geometry Board
- 25 wooden pegs
- Package assorted rubber bands



To use the Coordinate Geometry Board, simply insert the wooden pegs into the board's precut holes. Wrap rubber bands around the pegs to create geometric shapes, plot coordinates, or create designs.

Note: Be careful when stretching the rubber bands and placing them on the pegs. If placed incorrectly, the rubber bands can pull a peg out of its hole.

See if you can create these shapes with your board:



polygon – a closed plane figure bound by straight lines



quadrilateral – a polygon of four sides



triangle – a polygon having three sides



parallelogram – a quadrilateral with opposite sides parallel and equal



rectangle – a parallelogram, all of whose angles are right angles



rhombus – a parallelogram with four equal sides and sometimes one side with no right angles



square – a rectangle with four equal sides



trapezoid – a quadrilateral having only two sides parallel

Try this!

Below are a few activities to try.

Algebra: Plotting a Line

Because the board is designed with lines that section it off into four squares, you can use these lines as x- and y-axes to plot points and measure the slope of a line. Look at the board in Figure 1 to see which of the four sections are negative and which are positive.

On the board in Figure 2, we have marked the point (1, 0). Using your board, mark that spot with a wooden peg.

After marking the coordinate (1, 0), use a peg to mark the coordinate (0, -2). Using the equation $y = mx + b$ (where m equals the slope and b is the y-intercept), plot the line on the board (Figure 3).

Now plot the coordinates (3, -1) and (-1, 1). Plot the line on your board. At what point do these two lines intersect? Look at Figure 4 to see what the two lines look like when plotted together.

Using a list of your own coordinates, practice plotting lines and finding slopes.

Geometry: Area by Approximation

Here's a great activity for learning geometry: Use the board to estimate the area inside a shape.

Use the image of the octagon in Figure 5 and create an octagon on the board. If each square is one square inch, figure the total area of the space within the shape.

If there are 24 complete squares within the octagon and 8 triangles (half squares), then the total area of the octagon would be 28 square inches.

Try this activity with your own shapes and estimate their total area.

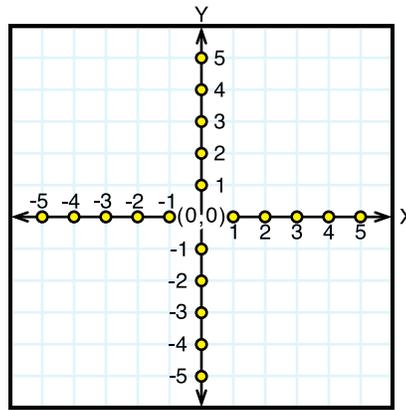


Figure 1

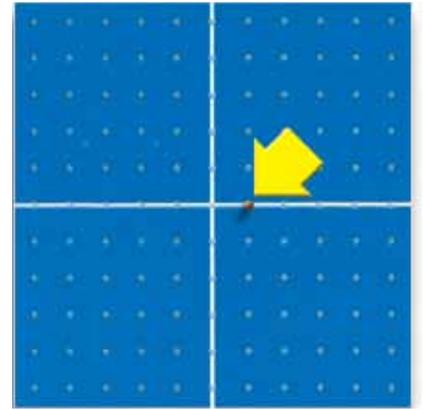


Figure 2

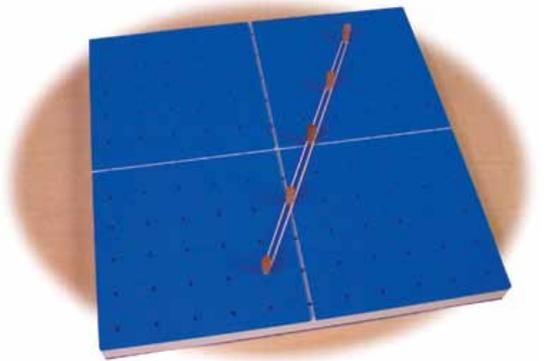


Figure 3

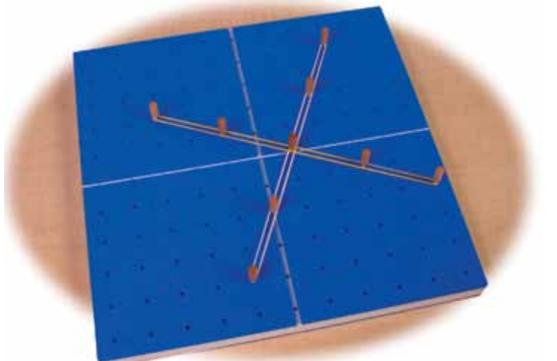


Figure 4

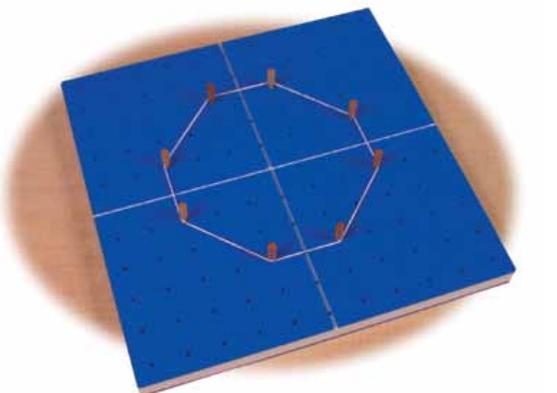


Figure 5

Designing Shapes

If all you have to work with are squares, can you make a circle shape with the Coordinate Geometry Board (Figure 6)? Organize a competition in your classroom to see who can make the most accurate circle in the quickest time.

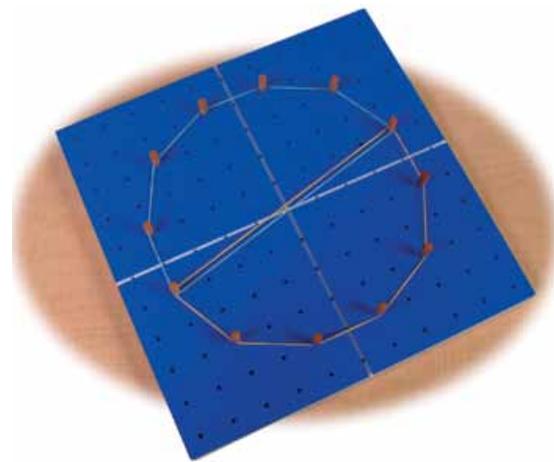
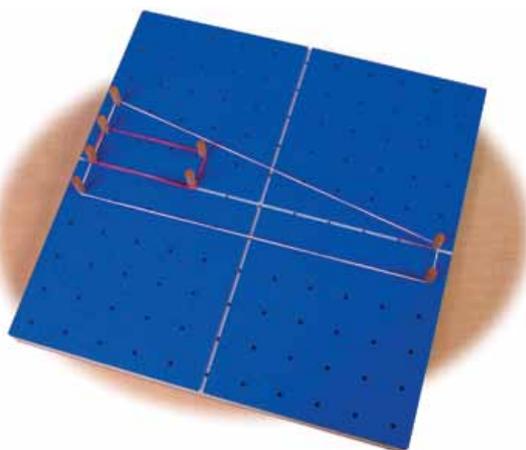
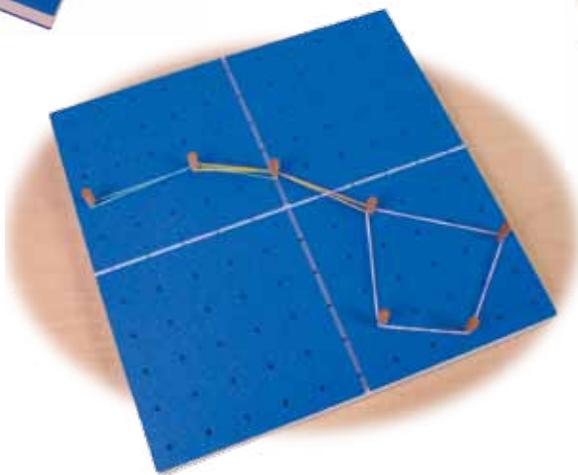
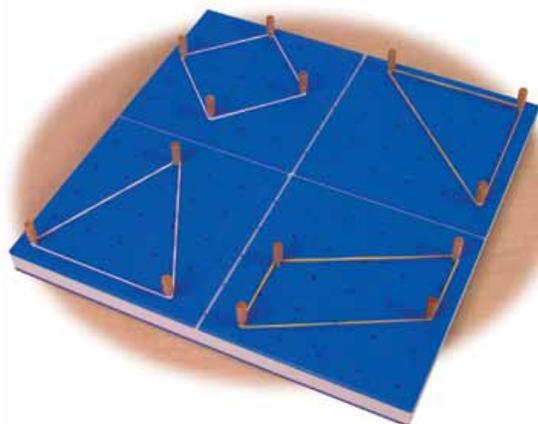


Figure 6

Look below to see a few other shapes to make.



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