



TEACHER PAGE

**Lesson: Coordinate Geometry Teacher-Author: Pam Roeller
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New Arizona Math Strand 4 Geometry and Measurement Grades 4,5,6,7

Articulated 4M43-01 Name the coordinates of a point plotted in the first quadrant, **4M53-01** Graph a polygon in the first quadrant using ordered pairs, **4M63-01** Graph a polygon in the first quadrant using ordered pairs; **4M63-02** State the missing coordinate of a given figure in the first quadrant of a coordinate grid using geometric properties; **4M73-01** Graph data points in (x,y) form in any quadrant of a coordinate grid. Also strongly related to **4M33-01**.

Learning Objectives: the student will be able to:

- identify and explain ordered pairs
- demonstrate horizontal, vertical directions, first and second on a grid correctly
- demonstrate correctly placing and locating ordered pairs on a grid

Overview:

Students will first see the story behind the discovery of coordinate geometry. Following this is information on locating and placing points on a grid. "X" and "y" are identified on a grid called a coordinate plane. They are explained as "ordered pairs." Locating and placing ordered pairs concludes in the making angles and polygons (identifying the shape) by connecting points on a grid.

Engaging Students:

Students or student groups brainstorm methods of locating an object on a plane. Tabulate the results, perhaps in a KWL chart.

Follow-up:

Coordinate Picture Booklets. •Teacher demonstrates making a simple square from four points on the graph. Students experiment with plotting and recording coordinates for other polygons and draw connecting line segments from point to point to complete the shape. Students are to create mystery pictures by 1.plot points on the coordinate grid and 2.record the coordinates, being careful to record them in order. 3.The list of ordered pairs becomes a direction sheet to share with a partner after the students first try to draw their own picture from their own directions. If the picture did not look as they planned, catch the mistakes at this stage. 4.After corrections, or barring no mistakes, the direction sheet will be passed to other students to draw.

•If the partner successfully completed a mystery picture and both students agree there are no mistakes; the picture is given to the teacher. The author is asked for a title, or teacher assigns a number to avoid hints as to the picture. A compilation of mystery picture directions is made into booklets and blank graph paper needs to be available. The booklets and activity are very popular with the author's students as a reward.

•Working in all four quadrants can increase the level of difficulty after negative numbers have been introduced.

Assessment:

Students locate and place ordered pairs correctly and identify shapes.

