

Area/Skill - Mathematics	Cognitive Skill Level - Application	Correlation to Framework - 05.14	Lesson Number - 38
<p><b>Activity Title - Plotting Rectangular Coordinates</b></p> <p><b>Goal/Objective</b></p> <p>To improve a student's skill in plotting coordinates.</p> <p><b>Lesson Outline</b> <b>Introduction</b></p> <p>The rectangular coordinate system is a flat surface or plane. The plane is divided by a horizontal line, the <math>x</math> axis, and a vertical line, the <math>y</math> axis. These are simply two number lines. The place where they intersect is termed the coordinate <math>(0, 0)</math>. A coordinate can be any point on the graph where a number from the <math>x</math> axis and a number from the <math>y</math> axis meet. Provide examples of different coordinates, such as <math>(3, 2)</math>, <math>(-3, -2)</math>, <math>(3, -2)</math>, <math>(-3, 2)</math>.</p> <p><b>Activity</b></p> <p>Set up a large piece of graph paper on a cork board in a safe place for students to throw darts. Allow each student to throw three darts at their own graph paper. Have them then plot the "holes" in the paper. Allow the students to compare their coordinates and see who came closest to the <math>(0, 0)</math> coordinate.</p> <p><b>Debriefing/Evaluation Activity</b></p> <p>Have students identify the different coordinates on their graph paper in the correct form, such as <math>(3, 2)</math>. See if the class can locate the coordinates on their own paper.</p>			<p><b>Materials/Texts/Realia/Handouts</b></p> <ul style="list-style-type: none"> <li>• Graph paper</li> <li>• Paper and pencils</li> <li>• Darts</li> <li>• Cork board</li> <li>• Sample coordinate grids</li> </ul>
<p><b>Real-Life Connection</b></p> <p>Ask students if they have ever attended a large sporting or musical event. How did they find their seats? Did their ticket say something like G15? Discuss how many auditoriums and stadiums use a type of coordinate system for their seating. Locating a seat at one of these events is similar to locating a point on a coordinate plane grid.</p>			<p><b>Extension Activity</b></p> <p>Have students create geometric shapes using coordinates, such as identifying four coordinates that when plotted and connected with lines equal a square or rectangle. See what types of shapes students can create through connecting plotted points with lines.</p> <p><b>ESE/ESOL Accommodations</b></p> <p>Show students how to use a ruler or straight edge to follow coordinates down and across in order to locate a specific point.</p> <p>Define terms such as horizontal and vertical using phrases such as up and down or across.</p> <p>Color code or highlight the different axis on the coordinate plane grid.</p>

## GED 2002 Teachers' Handbook of Lesson Plans

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### Activity Title - Plotting Rectangular Coordinates

#### Introduction

*Ask:* How many of you have ever attended a large sporting event or a concert and had to locate your seat? Did your ticket tell you a row and a seat number? *Say:* Finding a seat at a large event is similar to locating a point on a coordinate plane grid. The rectangular coordinate system is a flat surface or plane. This plane is divided by a horizontal line, the  $x$  axis, and a vertical line, the  $y$  axis. These are simply two number lines. The place where these lines intersect is termed the coordinate  $(0, 0)$ . A coordinate can be any point on the graph where a number from the  $x$  axis and a number from the  $y$  axis meet.

Provide examples of different coordinates, such as  $(3, 2)$ ,  $(-3, -2)$ ,  $(3, -2)$ ,  $(-3, 2)$ .

#### Main Activity

*Say:* Let's see whether we can determine the coordinates of specific points on our grids. I have some large pieces of graph paper on which I have placed  $0$  right in the middle. I am going to put this paper on a cork board. Each of you will take turns throwing darts at the graph paper. Try to make a bulls eye! This would be the coordinate  $(0, 0)$ . When you are done throwing your three darts, take down your paper and chart your coordinates.

Allow each student to throw three darts at their own graph paper. Have them then plot the "holes" in the paper. Allow the students to compare their coordinates and see who came closest to the  $(0, 0)$  coordinate.

#### Debriefing/Evaluation Activity

Take the different coordinates from the students' graphs and list them on the board. Have the class plot all of the different coordinates on their own graph paper.

#### Follow-up Lessons/Activities

Students can use coordinates to create geometric shapes. Four coordinates an equal distance from each other can create a square when connected with lines. Have students create different geometric shapes using coordinates. See if students can identify the shape by plotting the coordinates provided.