Lab Framework

Text: Cord Applied Math

Unit number and title: Unit 17- Graphing Data

Short Description: Students will practice using and finding coordinates of regions, documenting ordered pairs, and graphing the ordered pairs.

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Date: 6/25/08

<u>Lab Title</u> Battleship

LAB PLAN

TEACHER: Teacher Prep/Lesson Plan

- Lab Objective
 - o Recognize coordinates
 - o Transcribe two coordinates into an ordered pair
 - o Plot ordered pairs onto The Cartesian coordinate system
 - Leadership problem: Create a linear equation using two of the ordered pairs
 - This incorporates a skill learned from the last unit
- Statement of pre-requisite skills needed (i.e., vocabulary, measurement techniques, formulas, etc.)

Basic math and measurement skills, ability to use data in different forms

- Vocabulary
 - Ordered Pair
 - o The Cartesian Coordinate System
 - Coordinates
 - o region
- Materials List

Student Activity Sheets

Pencil

Rulers

• GLEs (State Standards) addressed

Math:

- **1.1** Understand and apply concepts and procedures from number sense
- **1.1.6** Complete multi-step computations with combinations of rational numbers using order of operations and addition, subtraction, multiplication, division, powers, and square roots
- **1.3** Understand and apply concepts and procedures from geometric sense
- **1.3.3** Use geometric properties to determine and plot points on a coordinate grid
- **1.5.2** Determine an equation or rule for a linear function represented in a pattern, table, graph, or model

Reading:

- **1.2** Use vocabulary (word meaning) strategies to comprehend text
- Leadership Skills

• SCAN Skills/Workplace Skills

O Uses tables, graphs, diagrams, and charts to obtain or convey quantities information

• Set-up information

- Worksheets with different number being used as coordinate points
- o Students put into partners ahead of time if you wish
- o Use this lab as a follow-up to page TN-5
- **Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; **-Timeline required**)

Partners, Leadership problem available, and one 55 minute class period.

• Teacher Assessment of student learning (scoring guide, rubric)

Follow scoring on rubric. If the students complete both worksheets fully then they have successfully completed the activity.

- Summary of learning (to be finished after student completes lab)
 - -discuss real world application of learning from lab
 - -opportunity for students to share/present learning

Optional activities

If you want to extend the activity or incorporate more work you can also have the students take a poll as to how many coordinates were given before the ship was sunk. With that information the students could create a line, bar, and/or circle graph using this information.

Career Applications

Surveyor, contractor, interior designer, rescuer, and demolition to name a few.

Council

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LAB TITLE: <u>Battleship</u> STUDENT INSTRUCTIONS:

• Statement of problem addressed by lab

Recognizing ordered pairs and the ability to plot the coordinates on a Cartesian Coordinate System.

Grouping instructions and roles

Find a partner and make sure that you both have Battleship Boards with x and y coordinates exactly the same.

- **Procedures** steps to follow/instructions
 - o Follow Directions on Battleship Board worksheet
 - On the back of the Battleship Board is a Battleship Follow-up worksheetfollow the directions and complete both problems
 - Pick up grading rubric-located by the document camera-and fill out student section
 - o You may complete the Leadership problem for Leadership points
 - Create a linear equation using two of the ordered pairs for number one and number two on the Battleship Follow-up worksheet
 - Then find the slope of the two ordered pairs for number one and number two on the Battleship Follow-up worksheet that you used to create the linear equation

• Outcome instructions

- o Successfully recognize coordinates
- Successfully transcribe two coordinates into an ordered pair
- o Successfully plot ordered pairs onto The Cartesian coordinate system

• Assessment instructions (peer-teacher)

Fill out student section of grading rubric and turn in with Battleship Board and Battleship Follow-up worksheet

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Battleship Board

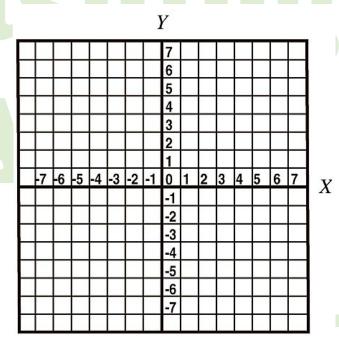
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	Student: _	Date:										
	Unit: 17-	Graphing Data										
Directions: In pen mark one box with an X to represent the region you will be placing your "Battleship" for this activity. You and your partner will take turns naming coordinates you believe the battleship may be located. Make sure to record your coordinates and the coordinates your partner names on the right hand side. When naming and recording a coordinate make sure the x-coordinate is named first and then the y-coordinate. The game is over when the first battleship is sunk.												
	$x \rightarrow \boxed{2}$	4 7 1 3 5	Record Coordinates here. Make sure you record x first and then y. (These are ordered pairs)									
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Battleship Follow-up

Student: ______ Date: _____

Unit: 17- Graphing Data

1 Directions: Draw a Cartesian Coordinate System and plot the coordinate points recorded during the Battleship game.



2. Directions: If you recorded the points with the y-intercept first would this have made the plots different? Show your reasoning on the chart below. (Example: Instead of (-2,5) the coordinate was recorded as (5,-2). Plot out a minimum of 8 points).

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