

**LESSON PLAN** by Abby White  
**Lesson:** Graphing Lesson      **Length:** 25-30 minutes  
**Age or Grade Intended** 5<sup>th</sup> Grade

**Academic Standard(s):**

**Math Standard:** 5.3.4 Identify and graph ordered pairs of positive numbers.

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**Performance Objectives:**

Students will graph coordinates on a paper by themselves after they have been taught ordered pairs.

**Assessment:** Students will complete a coordinate's worksheet.

**Advanced Preparation by Teacher:**

- make copies of worksheet for each student.
- Get chart paper on Smart Board.

**Procedure:**

**Introduction/Motivation:**

Ask students to describe how to give directions for something on the wall. Discuss other ways of locating positions, such as latitude and longitude on maps of the world, letters and numbers on maps of cities, etc.

**Step-by-Step Plan:**

1. Place the transparency of graph paper on the overhead and ask what is missing. [A way of knowing where to start and how to count the way you move.]
2. Draw an  $x$ -axis and  $y$ -axis on the transparency and label them. Since all plots will be in the first quadrant (positive  $x$  and  $y$  values), you may choose to allow more space in that quadrant.
3. Plot the point (3, 2) on the graph and label it. Tell students that the point is named (3, 2) because to locate it, you move over horizontally 3 units and up vertically 2 units. Explain that the line that is horizontal is called the  $x$ -axis and the vertical line is called the  $y$ -axis.
4. Label the origin (0, 0) and explain to students that this point is called the origin and is like the "starting point" for graphing points. Write "( $x$ ,  $y$ )" on the corner of the transparency. Tell the students that this is the correct notation for labeling points on a graph and is called the point's *coordinates*. Explain that the first number represents the distance along the  $x$ -axis the point is away from the origin (how far to move over) and the second number represents the distance along the  $y$ -axis the point is away from the origin (how far to move up).
5. Label each axis with "1," "2," "3," "4," "5," etc., reminding students that this is what they did with number lines to make it easier

to find points on them.

6. Plot another point and demonstrate how to find the correct coordinates for that point.

7. Plot the points  $(3, 6)$ ,  $(1, 4)$ , and  $(4, 4)$ . Have students assist in labeling the points with the correct coordinates.

8. Draw a vertical line between the points  $(3, 2)$  and  $(3, 6)$  and a horizontal line between the points  $(1, 4)$  and  $(4, 4)$ . Tell students to imagine that the distance between two consecutive points is one inch. Ask if they can determine the length of the lines you drew.

9. Write "4 inches" beside the vertical line and "3 inches" above the horizontal line. Ask students if they notice a connection between the lengths of the lines and the coordinates. Show students how to subtract the  $y$ -values to find the length of a vertical line and subtract the  $x$ -values to find the length of a horizontal line.

10. Demonstrate how to draw a horizontal and vertical line of specified lengths by plotting a point and adding the length to the  $x$ -value or the  $y$ -value, respectively.

#### Closure:

Who has any questions? Pass out worksheet.

**Self-Reflection:** After the lesson has been taught, evaluate the effectiveness of your teaching and planning. Was it successful? What would you do differently next time to improve the lesson? Include any comments that you received by an observing adult or the students you taught.

Lesson went very well. Student were all eager to come up and try examples and then played the game well. Those students who did struggle did better because they had different person to work with who might be able to explain it. Get idea w/ battle ship. Kids had fun and still learned.

# MATH ARMADA MAP

## Teacher Directions

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1. Distribute two copies of the BLM *Math Armada Map* to each student.
2. Explain to the students that they will each have four ships to plot on their maps. Tell them that their ships will have the lengths of two, three, four, and five, and should only be plotted vertically or horizontally.
3. Direct the students to label the axes on the maps with the numbers 1-10. Make sure students label the lines and not the spaces.
4. Have students plot their ships by choosing a starting coordinate, deciding whether it will be horizontally or vertically plotted, and finding the ending coordinate by adding the length of the battleship to the  $x$ -coordinate or  $y$ -coordinate as appropriate. Have students draw a line between the starting coordinate and ending coordinate to represent each ship. Explain that all points that lie along the lines they have drawn as well as the starting and ending points should be considered as part of their ships.
5. When students are finished plotting their ships, explain that they will be taking turns trying to find their partners' ships. Explain that they will call out a coordinate and their partners will say "Hit" if the coordinate is part of one of the partners' ships. Instruct partners to say "Miss" if the coordinate is *not* part of one of the partners' ships. Instruct students to mark "Hits" with a circle and "Misses" with an "x" on the graph labeled "My Partner's Math Armada Map."
6. Tell students that the winner of the game is the player who first hits all the points on all the partner's ships.

## Answer Key

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Not applicable.

Name: \_\_\_\_\_

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