

Integers On A Coordinate Plane

Summary

Students will graph rational numbers on a coordinate plane and identify rational coordinates for the graph of a point

Main Core Tie

Mathematics Grade 5

[Strand: GEOMETRY \(5.G\) Standard 5.G.2](#)

Additional Core Ties

Mathematics Grade 5

[Strand: GEOMETRY \(5.G\) Standard 5.G.1](#)

Materials

TI-73 calculators

- [Graphing On A Coordinate Plane Anticipation Guide](#)

, [Battleships overhead](#) transparencies

Worksheets: [Battleships Game Record](#), [Graphing Numbers By Throwing Darts](#)

Journal Page: [Graphing Integers On A Coordinate Plane](#)

CD player and country music CD

Background for Teachers

Enduring Understanding (Big Ideas):

Graphing on a coordinate plane

Essential Questions:

What ordered pair corresponds to a given point on a graph?

How does reversing the order of the numbers affect the location of the point?

Skill Focus:

Graphing and identifying ordered pairs

Vocabulary Focus:

Coordinate plane, ordered pair, x-axis, y-axis, origin

Ways to Gain/Maintain Attention (Primacy):

Technology, movement, writing, cooperative group discussion

Instructional Procedures

Starter:

[Anticipation Guide for Coordinates](#)

Make two columns on your paper. Label one column "Before", and the other column "After" as shown. Read the questions and place true or false in the "Before" column. Don't write anything in your "After" column.

Lesson Segment 1: What ordered pair corresponds to a given point on a graph? How does reversing the order of the numbers affect the location of the point?

Tell students you will be reviewing with them some vocabulary pertaining to a coordinate plane, how to plot a point from an ordered pair, and how to write an ordered pair when given a point on the graph. After you review with them, they will come back to the Anticipation Guide and fill in True or False for the "After" column to see where they were correct and where they were not correct.

Give students the journal page: Graphing Integers On A Coordinate Plane. Review with the students

how to plot a point from an ordered pair, and how to write an ordered pair when given a point on the graph. (This objective has been in the curriculum since 4th Grade, so this will be a review for most.) Use the graphic and the coordinate plane on the journal page to demonstrate and plot points as you work with the class to help them plot the ten points and write the coordinates for them. Emphasize each of the vocabulary words in your explanation. They can complete the writing at the end of this page after you do the activities in this lesson.

Movement: Country Coordinates Line Dance

Tell students they will be performing the Country Line Dance. Have 4 or five students come to the front of the room and form a line. Make sure there is room for them to move each direction. Tell students where they are currently standing is $(0,0)$. You will call out an ordered pair to give them directions for the steps to the dance. After each ordered pair is called out, the dancers return to $(0,0)$. Play some country music and say an ordered pair. The line dancers must move the correct steps. Then say, "Return to the Origin." The dancers return to approximately where they began. After you have called out a couple of ordered pairs, ask a student in the class to call out a reasonable ordered pair. When several ordered pairs have been called out, ask the dancers to return to their seats and select four or five new dancers to come to the front and continue the Country Coordinates Dance.

Lesson Segment 2: Practice

Game: Battleships.

Make an overhead transparency for the "Battleships". Cover the transparency by putting a square of paper over each quadrant. Divide the class into two teams, A and B. Tell students you have plotted a vessel in each quadrant by using three points in a horizontal or vertical line for the location of each ship. They will be asked to make a guess for an ordered pair. You will let them know if they have guessed a "hit" or a "miss". You will take turns calling on one team and then another to guess a point's location. Every time a team hits one of the points on the ship, the team gets another turn to try to guess where the next point might be. The team that hits the last point on a ship has sunk the ship. The team that sinks the most ships by hitting all three points on that ship, wins the game. (You should select student randomly rather than only call on those who raise hands). Blurt-outs mean the team loses a turn. As each ordered pair is guessed, have student plot the ordered pair on their own graph using a small h (if it was a hit) or m (if it was a miss). Students need experiences to help them see decimals on a coordinate plane as well as integers. Work with students to complete the TI-73 activity, Graphing Numbers By Throwing Darts. The points will be plotted in tenths of a unit. You will need to discuss about where points may lie between given grid lines.

Lesson Segment 3: Summary

Discuss and assign students to complete the "After" section of the Anticipation Guide, then have students do Three-Step Interview where partners listen to each other tell a how their thinking about graphing ordered pairs has changed from the "before" and what they have learned that is new to them. After they tell their partner, team members take turns telling their team what their partner said. Discuss the writing item (# 2) on the bottom of the journal page and ask students to do the writing on the back of the paper.

Assessment Plan

Observation, performance tasks

Bibliography

This lesson plan was created by Linda Bolin.

Authors

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