

Math 5 - Act. 16: Match My Masterpiece

Summary

Students will plot out points on grid paper which correspond with the ordered pairs they are given. If done correctly, the points will form a word.

Materials

For each student:

Graph paper sectioned into (3) 6x6 grids (can also use blackline master included with this plan)
Colored pencil or marker

Additional Resources

A Fly on the Wall by Julie Glass

Community resources

Computer graphics programmers, computer graphic artists, lighting engineers, landscape architects.

Background for Teachers

The standard coordinate grid is sectioned into four quadrants. In the elementary math curriculum, the students are introduced to the first quadrant, which is the top, right quadrant and uses only positive numbers for coordinates (also called ordered pairs). The first number given in an ordered pair moves horizontally on the grid along what is called the "X" axis. The second number in the ordered pair moves vertically on the grid along what is called the "Y" axis.

Coordinate geometry is tied closely to algebra and the two are used together to solve many real world problems. Points, lines, line segments, and rays can all be graphed on the coordinate system. It is useful in building design, landscaping, space exploration, and computer animation to name just a few.

Intended Learning Outcomes

4. Communicate mathematically.

6. Represent mathematical situations.

Instructional Procedures

Invitation to Learn

On a large, plain white piece of paper, put a small X. Ask the students to describe to you the precise location of the X. Is it in the exact middle? Towards the top? Closer to the right or left sides? If you gave them each a piece of paper that was exactly the same size, could they put an X on their paper in the exact same spot? After discussing the difficulty of accomplishing that task, put an X on a large piece of graph paper (or use a transparency on overhead projector). Now, could they replicate your X on their own paper. Demonstrate how the axis of a grid make locating a spot much easier.

Demonstrate the plotting points that would create the letter "H" and then how each point has an ordered pair which corresponds to that point. Connect the lines to show the letter. Follow up with the letter "I" and then write out the ordered pairs used to create that letter.

Instructional Procedures

Give each student (3) 6x6 grids and have them use plot points to create a three letter word on their paper.

Once the three letters are plotted, list the ordered pairs table used for each individual letter.

Display the original grids in the classroom. Have students switch their sheets of ordered pairs.

Have students plot out the points which correspond with the ordered pairs they are given and connect them to form words.

Then have students match up their work with the original.
Curriculum Integration
Math/Science—Language: writing, spelling. Art: graphic design.
Social Studies—map skills.

Extensions

Possible Extensions/Adaptation

Instead of creating three-letter words, the students could create simple graphic designs, such as a star, geometric shape, or seasonal design.

Students could plot out a spelling word.

Home & Family Connections

Parents could write code messages using ordered pairs.

Assessment Plan

A teacher-created list of ordered pairs could be given to each student, who would then turn the numbers into point on the grid.

Authors

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