

Solve a Graph Puzzle

Coordinate planes? Four quadrants? Ordered pairs? These are terms that make students in the middle grades uneasy. However, with practice, graphing on the coordinate plane can be an enjoyable activity. By fifth grade, students understand positive and negative numbers so graphing on the four quadrants is a way to apply this knowledge to solve a problem. Using ordered pairs to create geometric figures is like solving a puzzle!

By practicing graphing skills, students are increasing their visual thinking and problem solving skills. Here's a fun, geometric puzzle activity that will capture your child's interest and strengthen his number awareness.



What You Need:

- Graph paper (or printable Coordinate Plane worksheet)
- Pencil
- Ruler

What You Do:

$(2,2), (2,4), (3,5), (4,4), (4,2)$

1. Using graph paper, help your child draw a four quadrant plane. Label the x-axis (the horizontal line) and the y-axis (the vertical line). Label the intersecting of both lines 0. Label each point to the right on the x-axis 1 to 7. Label each point to the left on the x-axis -1 to -7. On the y-axis label the points up with positive numbers, 1-7, and then label the points down with negative numbers, -1 to -7. If using the printable Coordinate Plane worksheet, print out and review the x-axis and y-axis
2. Give your child these ordered pairs and ask him to plot them on the coordinate plane:

$(0, -2), (1,-3), (2,-2), (2,-4), (1,-5), (-1,-5), (-2,-4), (-2,-2), (-1,-3)$

3. Remind your child to plot the first number of the ordered pair on the x-axis and the second number of the ordered pair on the y-axis.
4. Next, have your child take a ruler and connect the 5 points. Ask him what geometric shape he created (a pentagon).
5. Give your child another set of ordered pairs to graph:

$(-2,3), (-3,5), (-4,6), (-5,5), (-6,3), (-4,4), (-2,5), (-6,5)$

6. Have him connect the 9 points and describe the shape he has created (a tulip)
7. Here's a challenging puzzle for your child to solve. Have him plot this set of ordered pairs:

This time it is important to connect the points in the order shown. If each ordered pair is graphed accurately and each point is connected in the given order, he will have created a five-pointed star!