

4th Grade Garden Math Lesson:

Using Coordinate Planes to Plant a Garden

Objective: Students will identify ordered pairs and plot the points of the ordered pairs in the correct quadrants on a coordinate plane. Students will apply this skill to the school garden by creating a garden grid where they will plant specific vegetable seeds in their assigned quadrants.

Materials: Grid

Sheet with ordered pairs for each student to plot on grid

Colored yarn or garden string

Garden stakes

Rulers or yardsticks

Variety of vegetable seed packets

Tongue depressors to mark each kid's vegetable plot

Permanent colored markers

Procedure:

1. Explain to students that the grid represents their garden bed. Assign each student an ordered pair on the *Students' Ordered Pairs* sheet. To find where the students will be planting their seeds, they will look at their ordered pairs and using the numbers on the x and y axis and locate their coordinates and plot them on the blank grid. Remind them that ordered pairs always go over, and then up. For Example: Johnny is over 1 and up 5, so his ordered pair is (1, 5). Once everyone determines the quadrant they will plant in, students go out to the garden.
2. Students go out to the garden with rulers, garden stakes, and colored yarn to plot the grid in their section of the 4th grade bed.
3. After they set up the grid, students plant their seeds in their quadrant and place a tongue depressor decorated with their name and vegetable name on it to mark their quadrant.

Content and Instructional Strategies:

1. Introduce coordinate planes to students by drawing the Cartesian plane on graph paper on the board. Introduce the x and y-axes as two lines that represent the relationship of two variables: x and y. Make the connection to two number lines that intersect at a corner called the origin.
2. Introduce the ordered pair. Explain how to locate a point on the coordinate plane given an ordered pair. For example, with the coordinate pair (3, 4), share that the first number, 3, applies to how far away the point is from the point of origin on the horizontal x-axis. Count three notches to the right on the x-axis to arrive at 3. Do the same for the second number, 4, explaining that the second number applies to how far away the point is from the point of origin on the vertical y-axis. Emphasize that students need to plot the y- coordinate by counting up from the point they have first found on the x-axis. Give a few examples to be sure students have grasped concept.
3. Practice: Using the example coordinate plane on board, hand out an ordered pair to each student and have them take turns marking their point and having the class check their point. Make sure the students write their ordered pair next to the point!
4. Students will complete the worksheet "Our Garden Grid" where they will "plant" seeds in their garden based on given points.
5. Gather students in for a group discussion on if they found the use of a coordinate plane and ordered pairs practical for planting a garden.

Summarize with possible questions:

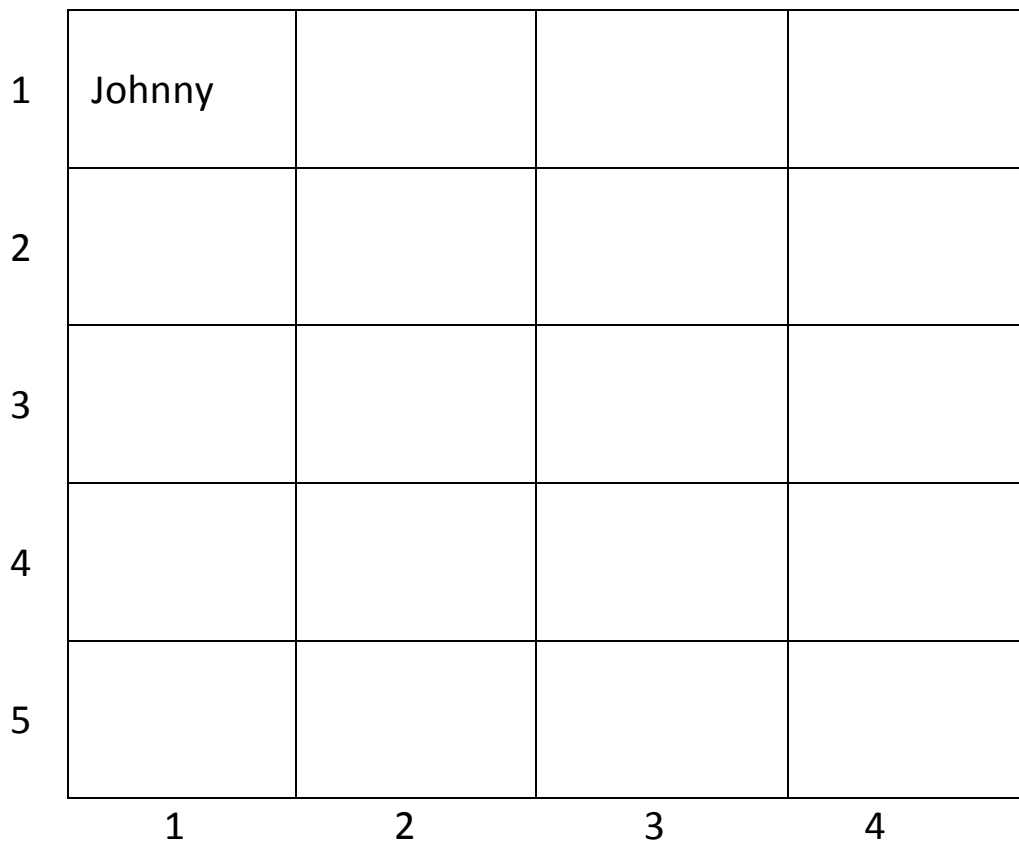
What other uses might coordinate planes have?

Garden Math: Coordinate Planes

Name _____ Date _____

Below is a grid that represents our garden bed. To find where you will be planting your seeds, look at your ordered pair. Using the numbers on the x and y axis, locate your coordinates and plot them on the grid. Remember, ordered pairs always go over, and then up.

For Example: Johnny is over 1 and up 5, so his ordered pair is (1, 5)



Students' Ordered Pairs

Student's Name	Coordinates
	1, 5
	2, 5
	3, 5
	4, 5
	1, 4
	2, 4
	3, 4
	4, 4
	1, 3
	2, 3
	3, 3
	4, 3
	1, 2
	2, 2
	3, 2
	4, 2
	1, 1
	2, 1
	3, 1
	4, 1

Our Garden Grid

1				
2				
3				
4				
5				
	1	2	3	4

What is the area of our garden?

Remember Area = Length times Width, $A = L \times W$

Show your work!

What is the perimeter?

$P = s_1 + s_2 + s_3 + s_4$

Show your work!