Framework for Learning:
Axes, Quadrants, & the Cartesian Plane

Getting Started:
Log into UMATHX
In the Content Menu, follow the path below:
Graphing> Points on a Grid> Ordered Pairs
Select and complete the Lessons: Axis
Quadrants and Cartesian Plane
Finding a Point
Order Is Important

As you work through the lessons, complete the corresponding notes below.

Axis
The vertical axis is called the ____-axis.
The horizontal axis is called the _____-axis.
Label both axes in the Cartesian Plane below.

Quadrants and Cartesian Plane
The intersection of the x-axis and the y-axis is called the ________________.
Label the Quadrants in the Cartesian Plane using the Roman numerals I, II, III, and IV.

Finding a Point
The first coordinate in an ordered pair is called the _____-coordinate.
The second coordinate in an ordered pair is called the _____ – coordinate.

To plot the ordered pair \((3, 5)\) on the Cartesian Plane, begin at the origin and move _____ in the ______________ x direction and _____ in the ______________ y direction.

**Working In It:**

Plot the points \((3, 5)\) and \((5, 3)\) on the Cartesian Plane.

Label each point with its corresponding ordered pair.

Compare and contrast the locations of the points.

Discuss with a partner why the order of the coordinates in an ordered pair is important.

Record a brief summary of your observations below.

_________________________________________________

_________________________________________________

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Reflect & Connect:

Identify the ordered pairs for the following locations using the map.

- Police Station (____, ____)
- School (____, ____)
- Park (____, ____)
- Town Hall (____, ____)
- Fire Station (____, ____)
- Library (____, ____)
- Hospital (____, ____)

Draw the symbols for the following locations on the map using the ordered pairs provided.

- Grocery Store (0, 0)
- Restaurant (1, 5)
- Bank (3, 3)
- Gas Station (5, 2)
 STEM Extension Activities

Our Town

Place a dot representing the location of your school in the first quadrant of a coordinate grid displayed on poster board, a whiteboard, an interactive board, or an overhead. Have students place a dot on the screen representing where they live and identify the ordered pairs associated with each student’s home.

If desired, other public locations such as the police department, public library, movie theater, hospital, parks, etc. may be added to the coordinate plane. Students then may calculate the distances they live from each other, from the school and from other places of interest.

Dot plots and/or line plots of the class data may be created and analyzed. The teacher and/or the students may choose to write questions related to the data for class discussion such as:

What is the average distance students in our class live from the school?
What is the range of the distances your classmates live from our school?

Amusement Park

Have students design an amusement park using Quadrant I of a coordinate plane drawn on oversized grid paper such as that used in presentations. The teacher may want students to complete a rough draft of their designs on smaller grid paper before transferring to the larger paper.

Students must clearly mark the main entrance to the park as well as the entrances to each of the following locations: 6 rides, 4 sets of restrooms, 2 restaurants, 2 gift shops, and 1 ticket booth.

Require students to include a key for the amusement park map with each location clearly marked with symbols or numbers corresponding to the map key.

Students must list the ordered pairs for the location of each entrance described above on a separate sheet of paper. Have students write 5 questions on a separate sheet of paper related to their map for classmates to answer. Questions should be displayed with the maps. In addition, the student should supply the teacher with a copy of the questions and corresponding answers.