For this activity, use only rectangles with sides that are parallel to the axes.

1. On coordinate axes, make 4 rectangles of different sizes and locations. Label the vertices of the rectangles with their coordinate pairs.

2. What patterns do you see among the coordinates of the vertices?

Example patterns:
- Some of the x values are the same in each rectangle.
- Some of the y values are the same in each rectangle.
- In the rectangles that I put on the axes, there’s always a zero coordinate.
3. Make conjectures about the relationships between the coordinates of the vertices of any rectangle whose sides are parallel to the $x$- and $y$-axes.

Example conjectures:
- The $x$-coordinates are always the same on the same vertical side.
- The $y$-coordinates are always the same on the same horizontal side.

4. Justify one conjecture based on what you know about coordinate geometry. Remember, your conjecture may turn out to be true or false.

Example justification:
- If any two points are on the same vertical side, their $x$-coordinates are the same because the side is parallel to the $y$-axis. This means that the points are the same distance from the $y$-axis.

5. Write down your conclusion.

Example conclusion:
- My conjecture is true.