



Bridging for Math Strength Resources

[Standards of Learning Curriculum Framework \(SOL\)](#)

[Bridging Standards of Learning \(SOL\) for Grade 6](#)

Bridging Standard of Learning (SOL) 6.8a Identify the components of the coordinate plane



Student Strengths	Bridging Concepts	Standard of Learning
Students can identify congruent figures and recognize parallel, perpendicular, and intersecting lines.	Students can identify positive and negative numbers on a horizontal and vertical number line.	Students can identify the components of the coordinate plane.

Understanding the Learning Trajectory

Big Ideas:

- As students develop, locating objects move from spatial directions like *under* and *over*, to points on a map and the use of coordinate systems. The first quadrant of the coordinate plane is introduced in grade 5, then in grade 6 all quadrants are included. Later this will build on scale drawing and construction as well as coordinate axis to graph lines, perform transformation and explore distance (Van de Walle et al., 2018).
- The coordinate plane can be used to represent and solve practical problems, and model two-dimensional shapes using the coordinate plane system (Common Core Standards Writing Team, 2019).
- There are some conventions that students will need to develop, such as, the quadrants of a coordinate plane are the four regions created by the two intersecting perpendicular lines (x- and y-axes). Quadrants are named in counterclockwise order. The signs on the ordered pairs for quadrant I are (+,+); for quadrant II, (-,+); for quadrant III, (-, -); and for quadrant IV, (+,-). Apply the concept of parallel and perpendicular lines to number lines (Grade 6 Standard of Learning Curriculum Framework).

Formative Assessment:

- [Just in Time Mathematics Quick Check 6.8a Word](#)
- [Just in Time Mathematics Quick Check 6.8a PDF](#)
- [Just in Time Mathematics Quick Check 6.8a Desmos](#)

Important Assessment Look Fors:

- The student correctly identified the x and y axis.
- The student demonstrates understanding of positive and negative numbers within the coordinate plane.
- The student is familiar with and correctly uses coordinate plane vocabulary including: horizontal, vertical, quadrant, and origin.
- The student correctly identifies the x and y coordinate of an ordered pair.

Purposeful Questions:

- How can you determine the quadrant where an ordered pair should be placed?
- What is some information you can include on your coordinate plane to help you locate the correct quadrants?
- What is one way you can help yourself remember the order of the quadrants in the coordinate plane?
- Where would “3” go on the x-axis? Where would “3” go on the y-axis? Where would -4 go on the y axis? Where would -4 go on the x axis?
- Why is (0,4) not in a quadrant? What about (4,0)? Where would you describe their location?

Bridging Activity to Support Standard	Instructional Tips
Routine Graphing Points in the Coordinate Plane-Open Middle	Make four points using the integers -4 to 4 at most one time each so that each point is in a different quadrant.
Rich Tasks Location in the Coordinate Plane , Illustrative Mathematics	This task allows students to practice their vocabulary for the coordinate plane
Games DESMOS-Polygraph Points	This game is played like “Guess who” The students work in pairs and practice their coordinate plane vocabulary to identify the partner's card. "This Custom Polygraph is designed to spark vocabulary-rich conversations about points in the coordinate plane. Key vocabulary that may appear in student questions includes: right, left, above, below, quadrant, axis, positive, negative, coordinate, x-value (or abscissa), and y-value (or ordinate)."
Other Resources: • DESMOS: The (Awesome) Coordinate plane Activity. In this activity, students will encounter a series of challenges, each asking them to graph a point on the bullseye of a target. They will plot points in all four quadrants, first by plotting points using a table and then by using ordered pairs. • thatquiz.com/Quadrants Game. Set the components to this game by choosing Cartesian-Identify, Quadrants. Students will practice identifying where a point would be located based on positive and negative signs. • VDOE Mathematics Instructional Plans (MIPS) ◦ 6.8ab - What's the Point? (Word) / PDF Version • VDOE Co-Teaching Mathematics Instruction Plans (MIPS) ◦ 6.8 - Coordinate Plane (Word) / PDF Version • VDOE Algebra Readiness Remediation Plans ◦ Coordinate Plane (Word) / PDF • VDOE Word Wall Cards: Grade 6 (Word) (PDF) ◦ Coordinate plane • Desmos Activity ◦ Polygraph: Points	

Learning Trajectory Resources

Charles, R., (2005). Big Ideas and Understandings as the Foundation for Elementary and Middle School Mathematics. *Journal of Mathematics Education Leadership*, 7,(3), NCSM.

Common Core Standards Writing Team. (2019). [Progressions for the Common Core State Standards for Mathematics](#). Tucson, AZ: Institute for Mathematics and Education, University of Arizona.

Curriculum Framework for All Grades -[Standard of Learning Curriculum Framework \(SOL\)](#)

Van De Walle, J., Karp, K. S., & Bay-Williams, J. M. (2018). *Elementary and Middle School Mathematics: Teaching Developmentally*. (10th edition) New York: Pearson(2019:9780134802084)