



Bridging for Math Strength Resources

Standards of Learning Curriculum Framework (SOL)

Bridging Standards of Learning (SOL) for Grade 6

Bridging Standard of Learning (SOL) 6.8b Identify the coordinates of a point and graph ordered pairs in a coordinate plane



Student Strengths	Bridging Concepts	Standard of Learning
Students can identify components of the coordinate plane, find the area and perimeter of a rectangle or triangle, and identify congruent figures.	Students can identify integers on a horizontal and vertical number line.	Students can identify points in the coordinate plane and graph ordered pairs in 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).
- The concept of absolute value can be used to find the distance between two points on the same horizontal or vertical line.

Formative Assessment:

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

Important Assessment Look Fors:

- The student has graphed points that fall on the x or y-axis correctly.
- The student has identified points accurately on the coordinate plane.
- The student can distinguish between the x and y-axis.
- The student can differentiate points that fall on an axis or in a quadrant.
- The student has correctly identified the distance between two points by using a number sentence and absolute values or by modeling the distance on the coordinate plane.

Purposeful Questions:

- What technique did you use to help you plot your coordinates correctly?
- What does it mean when one of your coordinates is a 0?
- What method did you use to find the distance between the two points?
- What would happen to the point location if you switched the x and y value?

Bridging Activity to Support Standard	Instructional Tips
Routine WODB Graph 18	This graph can develop into a variety of conversations involving parts of the coordinate plane as well as the points themselves. Ideas for discussion about the graphs: Top Left: only graph with a bend, only graph going up and down Bottom Left: only graph in more than one quadrant Bottom Right: Only graph that includes the origin, only graph that does not touch the y-axis
Rich Tasks VDOE 6.8ab Pizza Delivery Template and Task	Be sure the students understand the robot can only follow on the grid lines and cannot travel diagonally.
Games/Tech Treasure Hunt , NRich Desmos 6.8b Battle Boats Desmos 6.8b The (Awesome) Coordinate Plane Activity	This game is a strategy game. There are four different levels. This game can be differentiated for students as they are learning to read and identify points in the coordinate plane. Levels 1-3 increase the number of quadrants. Level 4 puts the game into a xyz coordinate plane, therefore it is not applicable for this age group. Additionally the students are practicing finding the distance between points. Note: the hints can be telling the students to move up and to the right, or down and to the right, etc. The distances are not necessarily in one direction. In this activity, students build coordinate plane proficiency through a guess-the-location-style game. 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.

Other Resources:

- Illustrative Math: [Walking the Block](#). Uses real world context for coordinates. Task makes connections between coordinate planes and reading a map. Be sure to print the map for the students to write on.
- [Open Middle](#) slides 20 & 22
- [DESMOS: Collect the Coconuts](#). This activity provides an increased challenge level for students in finding the distance between two “islands” on a coordinate plane.
- 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
 - [The \(Awesome\) Coordinate Plane Activity](#)
 - [Battle Boats](#)

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.

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)

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