Topic C

Rational Numbers and the Coordinate Plane

6.NS.C.6b, 6.NS.C.6c, 6.NS.C.8

Focus Standards:	6.NS.C.6b 6.NS.C.6c	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
		b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
		c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
	6.NS.C.8	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
Instructional Days:	6	
Lesson 14:	Ordered Pairs (P)[1]	
Lesson 15:	Locating Ordered Pairs on the Coordinate Plane (P)	
Lesson 16:	Symmetry in the Coordinate Plane (P)	
Lesson 17:	Drawing the Coordinate Plane and Points on the Plane (P)	
Lesson 18:	Distance on the Coordinate Plane (P)	
Lesson 19:	Problem Solving and the Coordinate Plane (E)	

In Topic C, students transition from the number line model to represent points in the coordinate plane (**6.NS.C.6c**). Their conceptual understanding of symmetry from Grade 4 and their experience with the first quadrant of the coordinate plane in Grade 5 (**4.G.A.3**, **5.G.A.1**, **5.G.A.2**) serve as a significant foundation as they extend the plane to all four quadrants. In Lesson 14, students use ordered pairs of rational numbers to

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[1]Lesson Structure Key: **P**-Problem Set Lesson, **M**-Modeling Cycle Lesson, **E**-Exploration Lesson, **S**-Socratic Lesson

name points on a grid, and given a point's location, they identify the first number in the ordered pair as the first coordinate and the second number as the second coordinate. In Lessons 15–17, students construct the plane; identify the axes, quadrants, and origin; and graph points in the plane, using an appropriate scale on the axes. Students recognize the relationship that exists between points whose coordinates differ only by signs (as reflections across one or both axes) and locate such points using the symmetry in the plane (**6.NS.C.6b**). For instance, they recognize that the points $(3, 4)$ and $(3, -4)$ are both equal distance from the x-axis on the same vertical line, and so the points are reflections in the x-axis. In Lessons 18 and 19, students graph points in the coordinate plane and use absolute value to find the lengths of vertical and horizontal segments to solve real-world problems (**6.NS.C.8**).