



Topic A

Coordinate Systems

5.G.1

Focus Standard:	5.G.1	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plan located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x -axis and x -coordinate, y -axis and y -coordinate).
Instructional Days:	6	
Coherence -Links from:	G3–M5	Fractions as Numbers on the Number Line
-Links to:	G6–M1	Ratios and Unit Rates
	G6–M3	Rational Numbers

In Topic A, students revisit a Grade 3 activity in which lined paper is used to subdivide a length into n equal parts. In Grade 5, this activity is extended as students explore that *any* line, regardless of orientation, can be made into a number line by first locating zero, choosing a unit length, and partitioning the length-unit into fractional lengths. Students are introduced to the concept of a coordinate as describing the distance of a point on the line from zero.

As they construct these number lines in various orientations on a plane, students explore ways to describe the position of points *not* located on the lines. This discussion leads to the discovery that a second number line, perpendicular to the first, creates an efficient, precise way to describe the location of these points. Thus, points can be located using coordinate pairs, (a, b) , by travelling a distance of a units from the origin along the x -axis, and b units along a line parallel to the y -axis.

Students describe given points using coordinate pairs, and then use given coordinate pairs to plot points (5.G.1). The topic concludes with an investigation of the patterns in coordinate pairs along vertical or horizontal lines, which leads to the discovery that these lines consist of the set of points whose distance from the x - or y -axis is constant.

A Teaching Sequence Towards Mastery of Coordinate Systems

Objective 1: Construct a coordinate system on a line.
(Lesson 1)

Objective 2: Construct a coordinate system on a plane.
(Lesson 2)

Objective 3: Name points using coordinate pairs, and use the coordinate pairs to plot points.
(Lessons 3–4)

Objective 4: Investigate patterns in vertical and horizontal lines, and interpret points on the plane as distances from the axes.
(Lessons 5–6)