

Name:

Date:

Class:

Exploration Activity Worksheet **Answer Key**

Exploration Activity

Coordinate Plane Exploration with mBot2

Part 1: Vocabulary & Labeling

Term	Definition	Labeled (✓)
X-axis	The horizontal number line that goes left and right.	
Y-axis	The vertical number line that goes up and down.	
Origin	The point where the x-axis and y-axis meet (0, 0).	
Quadrant I	The top-right section of the coordinate plane (+,+).	
Quadrant II	The top-left section of the coordinate plane (-,+).	
Quadrant III	The bottom-left section of the coordinate plane (-,-).	
Quadrant IV	The bottom-right section of the coordinate plane (+,-).	
Ordered pair	Two numbers that tell the location of a point, written as (x, y).	

What is the origin? The point in the middle where the x and y axis meet (0,0).

How do you write an ordered pair? (x,y)

Part 2: Exploring Movement

Move along x-axis: What changes? The x coordinate changes.

What stays the same? The y coordinate stays the same.

Move along y-axis: What changes? The y coordinate changes.

What stays the same? The x coordinate stays the same.

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Part 3: Navigate to Coordinates

Coordinate	Quadrant	Reached (✓/X)
(3,2)	I	
(-4,1)	II	
(-2,-3)	III	
(5,-2)	IV	

Explain how you reached one point:

Students have to say they used the controller to navigate around the coordinate plane.

Part 4: Reflections

Original	X-Axis Reflection	Y-Axis Reflection
(3,2)	(-3,2)	(-3,2)
(-4,1)	(-4,-1)	(4,1)
(2,-5)	(2,5)	(-2,-5)

Patterns noticed:

Reflect across the x-axis: The y-coordinate changes sign, but the x-coordinate stays the same.

Reflect across the y-axis: The x-coordinate changes sign, but the y-coordinate stays the same.

Part 5: Challenge

Your coordinate: ex: (5,4)

x-axis reflection: (-5,4)

y-axis reflection: (5,-4)

Reflection: What did you learn?

Answers will vary.