

GRADE 5 UNIT 5 – SHAPE AND COORDINATE GEOMETRY

<p>Established Goals: Standards</p> <p>5.NBT.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used .</p> <p>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 plane 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).</p> <p>5.G.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.</p> <p>5.OA.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.</p>	Transfer	
	<i>Students will be able to:</i>	
	<ul style="list-style-type: none"> • Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition, subtraction, multiplication, and division. • 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 plane located by using an ordered pair of numbers, called its coordinates. • Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. • Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. • Identify attributes of a two-dimensional shape based on attributes of the groups and categories in which the shape belongs. • Classify two- dimensional figures in a hierarchy based on properties. • Make a line plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$). Use operations on fractions for this grade to solve problems involving information presented in line plots. • Fluently multiply multi-digit whole numbers using the standard algorithm. 	
	Meaning	
	ENDURING UNDERSTANDING	ESSENTIAL QUESTIONS
	<ul style="list-style-type: none"> • Adding or subtracting multi-digit decimals is similar to adding or subtracting multi-digit whole numbers. • The steps for multiplying whole numbers by decimals are similar to the steps for multiplying two whole numbers. • Place value determines the placement of the decimal point in a product. • Patterns can sometimes be used to identify relationships between two quantities. • The coordinate system is a scheme that uses two perpendicular lines intersecting at 0. • Plane shapes have many properties that make them differ from one another. • A line plot organizes data on a number line and is useful for showing visually how a set of data is distributed. 	<ul style="list-style-type: none"> • How can you add and subtract decimals? • How do you multiply a decimal by a whole number? • How do you name and graph points on a coordinate grid? • How can you find a pattern rule? • How do you classify polygons? • How are quadrilaterals related to each other? • How can you organize data in a line plot?
	Acquisition	
	KNOWLEDGE	SKILLS
<i>Students will know how to...</i>	<i>Students will be skilled at...</i>	

<p>5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.</p> <p>5.G.4 Classify two-dimensional figures in a hierarchy based on properties.</p> <p>5.MD.2 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots.</p> <p>5.NBT.5 Fluently multiply multi-digit whole numbers using the standard algorithm.</p>	<ul style="list-style-type: none"> • Add decimal numbers with hundredths • Subtract decimal numbers with hundredths • Find points on a coordinate grid • Determine rules and write expressions • Identify and classify polygons • Classify two-dimensional shapes based on their properties. • Sort quadrilaterals to develop the hierarchy of quadrilaterals. • Draw line plots, interpret points, identify outliers. 	<ul style="list-style-type: none"> • Computing sums and differences of decimals involving tenths and hundredths. • Multiply a whole number by a decimal • Locating points on a coordinate grid • Modeling adding and subtraction patterns. • Sorting quadrilaterals based on hierarchy. • Drawing a line plot.
--	--	--

Vocabulary		Instruction and Pacing	
coordinate grid ordered pairs plane figure x-axis y-axis origin polygon	quadrilateral line plot outlier	Decimal Operations	1 week
		Line plots	2 week
		Coordinate grids	2 week
		Plane shapes	2 weeks
Resources			
Common Core Standards, New Jersey Model Curriculum Envisions Math Program Suggested Topics <ul style="list-style-type: none"> • Topic 8- Numerical Expressions, Patterns, and Relationships • Topic 16- Coordinate Geometry • Topic 15- Classifying Plane Figures 			
Differentiation and Accommodations			

Provide graphic organizers
 Provide manipulatives
 Provide additional examples and opportunities for additional problems for repetition
 Provide tutoring opportunities
 Provide retesting opportunities after remediation (up to teacher and district discretion)
 Teach for mastery not test
 Teaching concepts in different modalities
 Adjust pace and homework assignments

ELL Modifications

-

21st Century Skills Critical Thinking, Creative Thinking, Collaborating, Communicating, and Technology Literacy

Instructional Strategies

Fairfield Township School recognizes the importance of the varying methodologies that may be successfully employed by teachers within the classroom and, as a result, identifies a wide variety of possible instructional strategies that may be used effectively to support student achievement. These may include, but not be limited to, strategies that fall into categories identified by the Framework for Teaching by Charlotte Danielson:

- Communicating with students
- Using questioning and discussion techniques
- Engaging students in learning
- Using assessment in instruction
- Demonstrating Flexibility and Responsiveness

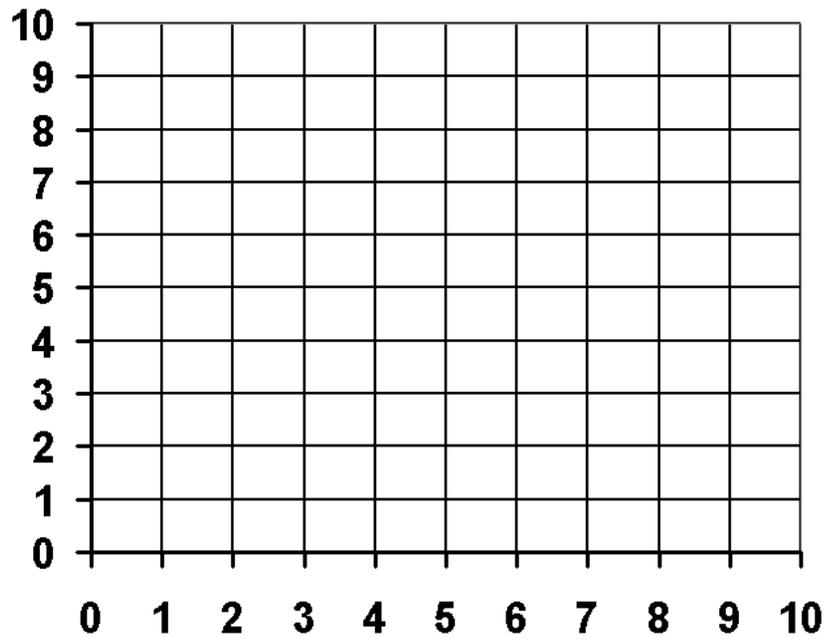
Interdisciplinary Connections Science, Technology, ELA

Common Misconceptions	Proper Conceptions
Students reverse the points when plotting them on a coordinate plane. They count up first on the y-axis and then count over on the x-axis.	The location of every point in the plane has a specific place.
Students might compute the sum or difference of decimals by lining up the right-hand digits as they would whole number.	Decimals must be lined up to line up the place values when computing the sum or difference of decimals.
Students think that when describing geometric shapes and placing them in subcategories, the last category is the only classification that can be used.	Geometric shapes can sometimes be placed in more than one category.

Performance Task

Jimmy is making a sign for the family farm. He reproduces the pine tree symbol by graphing ordered pairs onto a larger grid. He locates this set of points on a coordinate grid and connects them.

(1, 2), (4, 2), (4, 1), (6, 1), (6, 2), (9, 2), (5, 10)



- Graph the given points on the coordinate grid.
- Which ordered pairs mark the spot where the tree would touch the ground?
- Which ordered pair marks the top of the tree?

Rubric

1 point for each correct bullet

Suggested Formative Assessment

Problem of the Day

Lesson Quizzes

Exit Ticket

Anecdotal Records (Topic Observation Checklist)

Suggested Summative Assessment

Grade level developed Unit/Envisions Topic Tests

Ed-Connect Express Tests /State Unit Benchmark Assessment/Performance Task