

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



Stage 1: Identify Desired Results

Essential Question:

What thought-provoking questions will foster inquiry, meaning making and transfer?

- *An essential question is open ended; has no simple "right answer."*
- *Is meant to be investigated, argued, looked at from different points of view*
- *Encourages active "meaning making" by the learner about important ideas.*
- *Raises other important questions.*
- *Naturally arises*

- How can you use the coordinate grid to display data in a real world situation?

Scaffold Questions:

What questions can we ask students that break the essential question into smaller pieces of content?

- What is an ordered pair?
- In an ordered pair which comes first the X coordinate or the Y coordinate?
- Name the lines on the coordinate grid.
- What are some types of data you could display on the coordinate grid?
- Where have you seen this before? (In school, out of school etc.)
- How can you identify a relationship within the numerical patterns they generate?
- How can you identify and plot points on a coordinate grid?

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



Brief Summary of Unit:

In this 40-day module, students develop a coordinate system for the first quadrant of the coordinate plane and use it to solve problems. Students use the familiar number line as an introduction to the idea of a coordinate and construct two perpendicular number lines to create a coordinate system on the plane. They see that just as points on the line can be located by their distance from 0, the plane's coordinate system can be used to locate and plot points using two coordinates. They then use the coordinate system to explore relationships between points, ordered pairs, patterns, lines and, more abstractly, the rules that generate them. This study culminates in an exploration of the coordinate plane in real-world applications.

In Topic A, students come to realize 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 as desired. They are introduced to the concept of a coordinate as describing the distance of a point on the line from zero. As students construct these number lines in various orientations on a plane, they 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, (aa, bb) , by starting at the origin, traveling a distance of aa units along the xx -axis, and traveling a distance of bb units along a line parallel to the yy -axis. Students describe given points using coordinate pairs and, conversely, use given coordinate pairs to plot points (5.G.1). The topic concludes with an investigation of patterns in coordinate pairs along lines parallel to the axes, which leads to the discovery that these lines consist of the set of points whose distance from the xx - or yy -axis is constant. Students move into plotting points and using them to draw lines in the plane in Topic B (5.G.1). They investigate patterns relating the xx - and yy -coordinates of the points on the line and reason about the patterns in the ordered pairs, laying important groundwork for Grade 6 proportional reasoning.

Topic B continues as students use given rules (e.g., multiply by 2 and then add 3) to generate coordinate pairs, plot points, and investigate relationships. Patterns in the resultant coordinate pairs are analyzed,

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



leading students to discover that such rules produce collinear sets of points. Students next generate two number patterns from two given rules, plot the points, and analyze the relationships within the sequences of the ordered pairs (5.OA.3). Patterns continue to be the focus as students analyze the effect on the steepness of the line when the second coordinate is produced through an addition rule as opposed to a multiplication rule (5.OA.2, 5.OA.3). Students also create rules to generate number patterns, plot the points, connect those points with lines, and look for intersections.

Topic C finds students drawing figures in the coordinate plane by plotting points to create parallel, perpendicular, and intersecting lines. They reason about what points are needed to produce such lines and angles and then investigate the resultant points and their relationships. Students also reason about the relationships among coordinate pairs that are symmetric about a line (5.G.1).

Problem solving in the coordinate plane is the focus of Topic D. Students draw symmetric figures using both angle size and distance from a given line of symmetry (5.G.2). Line graphs are also used to explore patterns and make predictions based on those patterns (5.G.2, 5.OA.3). To round out the topic, students use coordinate planes to solve real-world problems.

Topic E provides an opportunity for students to encounter complex, multi-step problems requiring the application of concepts and skills mastered throughout the Grade 5 curriculum. They use all four operations with both whole numbers and fractions in varied contexts. The problems in Topic E are designed to be nonroutine, requiring students to persevere to solve them. While wrestling with complexity is an important part of Topic E, the true strength of this topic is derived from the time allocated for students to construct arguments and critique the reasoning of their classmates. After students have been given adequate time to ponder and solve the problems, two lessons are devoted to sharing approaches and solutions. Students partner to justify their conclusions, communicate them to others, and respond to the arguments of their peers.

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



	In the final topic of Module 6 and, in fact, A Story of Units, students spend time producing a compendium of their learning. They not only reach back to recall learning from the very beginning of Grade 5, but they also expand their thinking by exploring such concepts as the Fibonacci sequence. Students solidify the year’s learning by creating and playing games, exploring patterns as they reflect on their elementary years. All materials for the games and activities are then housed for summer use in boxes created in the final two lessons of the year.
Desired Understanding: <i>The long-term accomplishments that students should be able to do with knowledge and skill, on their own. Frames Standards as long-term performance accomplishments. Answers the questions Why? And What can you do with this?</i>	• Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane • Use the coordinate system to explore relationships between points, ordered pairs, patterns, lines and, more abstractly, the rules that generate them. • Investigate patterns relating the x and y-coordinates of the points on the line and reason about the patterns in the ordered pairs. • Use the coordinate plane to solve real-world problems.
Common Core State Standards (CCSS) - Mathematics <i>List all of the standards in this unit.</i>	5.OA.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product. 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. For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.

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).

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.

5.NF.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.

5.NF.3 Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



5.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

5.NF.7c Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share $\frac{1}{2}$ lb of chocolate equally? How many $\frac{1}{3}$ -cup servings are in 2 cups of raisins?

5.MD.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

5.MD.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

4.OA.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

4.OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



	4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “onedegree angle,” and can be used to measure angles. b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees. 4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. 4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. 4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
Mathematical Practices <i>Which of the mathematical practices will be focused on during this unit?</i>	MP.1 Make sense of problems and persevere in solving them. Students make sense of problems as they use tape diagrams and other models, persevering to solve complex, multi-step word problems. Students check their work and monitor their own progress, assessing their approaches and their validity within the given context and altering their methods when necessary.

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



MP.2 Reason abstractly and quantitatively.

Students reason abstractly and quantitatively as they interpret the steepness and orientation of a line given by the points of a number pattern. Students attend to the meaning of the values in an ordered pair and reason about how they can be manipulated to create parallel, perpendicular, or intersecting lines.

MP.3 Construct viable arguments and critique the reasoning of others.

As students construct a coordinate system on a plane, they generate explanations about the best place to create a second line of coordinates. They analyze lines and the coordinate pairs that comprise them and then draw conclusions and construct arguments about their positioning on the coordinate plane. Students also critique the reasoning of others and construct viable arguments as they analyze classmates' solutions to lengthy, multi-step word problems.

MP.6 Attend to precision.

Mathematically proficient students try to communicate precisely to others. They endeavor to use clear definitions in discussion with others and in their own reasoning. These students state the meaning of the symbols they choose, including using the equal sign, consistently and appropriately. They are careful about specifying units of measure and labeling axes to clarify the correspondence with quantities in a problem. Students calculate accurately and efficiently, expressing numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school, they have learned to examine claims and make explicit use of definitions.

MP.7 Look for and make use of structure.

Students identify and create patterns in coordinate pairs and make predictions about their effects on the lines that connect them. Students also recognize patterns in sets of coordinate pairs and use those patterns

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



	to explain why a line is parallel or perpendicular to an axis. They use operational rules to generate coordinate pairs and, conversely, generalize observed patterns within coordinate pairs as rules.
Essential Standards* <i>List the Essential Standards that will be taught and assessed in this unit.</i>	5.OA.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product. 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. For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so. 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). 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.

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



Crossover standards*

*Connection to other content areas
(Option)*

5. S.L. 1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly.

5. S.L. 1 B Follow agreed-upon rules for discussions and carry out assigned roles.

5.S.L. 1 C Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others

5. S.L. 1 D Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.

5.W.1.A Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose.

5.W.1B Provide logically ordered reasons that are supported by facts and details.

5.W.1.C Link opinion and reasons using words, phrases, and clauses (e.g., *consequently*, *specifically*).

5.W.1.D Provide a concluding statement or section related to the opinion presented.

5.W.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



Alignment to the Vision of High Quality Instruction in Mathematics

(How do the instructional targets in this unit align to the district's vision of high quality instruction?)

- Teacher establishes clear goals for the mathematics that students are learning, situates targets within learning progressions, and uses the targets to guide instructional decisions.
- Teacher engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allows multiple entry points and varied solution strategies.
- Teacher engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.
- Teacher facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.
- Teacher uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.
- Teacher builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.
- Teacher consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.
- Teacher uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.
- Teacher provides instructional scaffolding with the gradual release model of instruction to ensure students are able to construct meaning of mathematics.
- Students solve problems without giving up.
- Students think about numbers in many different ways.

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



- Students explain and justify their thinking and understand the thinking of others.
- Students show, analyze and revise their work in many different ways.
- Students use math tools and explain why they chose them.
- Students calculate accurately and efficiently, evaluate their work, and clearly communicate their thinking.
- Students use what they know to solve new problems.
- Students solve problems by looking for rules and patterns and evaluate their results

Stage 2: Determine Acceptable Evidence

(With the exception of formative assessments, all assessments listed in this section are required elements of the district's curriculum and the data associated will be collected in the district's performance management driver system.)

Measure of Understanding (Performance Task)

(How will students demonstrate their attainment of the desired understanding?)

End of Module 6 assessment and answer the essential question; How can you use a coordinate grid to display data or plot points?

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



Assessing the Performance Task <i>(How will we evaluate quality student work in the performance task? How will we determine that students can use their learning independently?)</i>	End of Module 6 assessment and answer the essential question; How can you use the coordinate grid to display data in a real world situation? 2-7 RACES Rubric
Summative Assessments <i>(How will we know if students can demonstrate mastery of the unit's content, skills, and common core state standards?) Can overlap the performance-based evidence, thereby increasing the reliability of the overall assessment (especially if the performance task was done by a group)</i>	End of Module 6 assessment with rubric (consider replacing final assessment with topic summative assessments instead) Topic A Topic B Topic C Topic D Topic E
Interim Assessments	Mid Module 6 assessment with rubric

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



Formative Assessments	Module 6 exit tickets, sprints etc. • Sprints • Exit tickets • Problem set • Homework
Student Self-Reflection and Self-Regulation (Student-Centered) <i>(How will we measure students' ability to think meta-cognitively?)</i>	• What are my strengths and weaknesses using the coordinate grid? • What were your misunderstandings? • What do you need to learn more about?
State Assessment Practice <i>(How will we measure students' ability to interact with content and skills in an MSTEP-like or SAT-like format?)</i>	Use Illuminate common assessments as a forum to practice computerized testing.

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



Stage 3: Learning Plan (Summary of Key Learning Events and Instruction)

What activities, experiences and lessons will lead to achievement of the desired results and success at the assessments?

The learning events –

- *should be derived from the goals of Stage 1 and the assessments of Stage 2 to ensure alignment and effectiveness of the activities.*
- *should match the level of rigor within the standard*

Lesson 1: Construct a coordinate system on a line.

Lesson 2: Construct a coordinate system on a plane.

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

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

Lesson 7: Plot points, use them to draw lines in the plane, and describe patterns within the coordinate pairs.

Lesson 8: Generate a number pattern from a given rule, and plot the points.

Lesson 9: Generate two number patterns from given rules, plot the points, and analyze the patterns.

Lesson 10: Compare the lines and patterns generated by addition rules and multiplication rules.

Lesson 11: Analyze number patterns created from mixed operations.

Lesson 12: Create a rule to generate a number pattern, and plot the points.

Lesson 13: Construct parallel line segments on a rectangular grid.

Lesson 14: Construct parallel line segments, and analyze relationships of the coordinate pairs.

Lesson 15: Construct perpendicular line segments on a rectangular grid.

Lesson 16: Construct perpendicular line segments, and analyze relationships of the coordinate pairs.

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



- support student Acquisition, Meaning Making, and Transfer.

Lesson 17: Draw symmetric figures using distance and angle measure from the line of symmetry.
Lesson 18: Draw symmetric figures on the coordinate plane.
Lesson 19: Plot data on line graphs and analyze trends.
Lesson 20: Use coordinate systems to solve real world problems.

Learning Targets

What will students be taught? What should they know? What should they be able to do?

Learning Target	Purpose	Success Criteria
I can represent real world and mathematical problems by graphing points in the first quadrant of a coordinate plane.	So I can understand how the coordinate grid can display data in a real world situation.	I'm successful when I can represent real world and mathematical problems by graphing points in the first quadrant of a coordinate plane on my problem set and homework.
I can explain the meaning of the coordinates in the context of a situation.	So I can understand how the coordinate grid can display data in a real world situation.	I'm successful when I can explain the meaning of the coordinates in the context of a situation.
I can describe and use a coordinate system using correct vocabulary (x-axis, y-axis, origin, points, plane, x-axis	So I can understand how the coordinate grid can display data in a real world situation.	I'm successful when I can describe and use a coordinate system using correct vocabulary (x-axis, y-axis, origin, points,

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



	coordinate, y-axis coordinate, ordered pair.		plane, x-axis coordinate, y-axis coordinate, ordered pair on my problem set and homework.
	I can use numerical rules and patterns to generate ordered pairs. I can Graph the ordered pairs on a coordinate plane.	So I can understand how the coordinate grid can display data in a real world situation.	I'm successful when I can use numerical rules and patterns to generate ordered pairs. I can Graph the ordered pairs on a coordinate plane on my problem set and homework.
How will the unit be sequenced and differentiated to optimize achievement for all learners? <i>Teaching -</i> should reflect the instructional approaches most appropriate to the goals (not what is easiest or most comfortable for the teacher).	If pacing is a challenge, consider the following modifications and omissions. Lessons 5 and 6 share the same objective and can be consolidated. Lessons 11 and 12 are not part of the Grade 5 CCSS and therefore may be omitted. Topics E and F are optional. However, they afford students the opportunity to reflect on all the learning they have experienced in Grade 5 and throughout A Story of Units. These Topics serve as both an excellent culmination to elementary school and a meaningful bridge to middle school.		

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



- *should employ resources most appropriate to the goals (not simply march through a textbook or commercial program).*
- *be responsive to differences in learners' readiness, interests, and preferred ways of learning.*

Key Vocabulary

New or Recently Introduced Terms

- Axis (a fixed reference line for the measurement of coordinates)
- Coordinate (a number that identifies a point on a plane)
- Coordinate pair (two numbers that are used to identify a point on a plane; written (x, y) where x represents a distance from 0 on the x -axis and y represents a distance from 0 on the y -axis)
- Coordinate plane (a plane spanned by the x -axis and y -axis in which the coordinates of a point are distances from the two perpendicular axes)
- Ordered pair (two quantities written in a given fixed order, usually written as (x, y))
- Origin (a fixed point from which coordinates are measured; the point at which the x -axis and y -axis intersect, labeled $(0, 0)$ on the coordinate plane)
- Quadrant (any of the four equal areas created by dividing a plane by an x -axis and a y -axis)

Familiar Terms and Symbols

- Angle (the union of two different rays sharing a common vertex)

Roscommon Area Public Schools – Curriculum Framework

Course: 5th Grade Math

Unit Number: Module 6

Unit Title: Problem Solving With The Coordinate Plane

Timeframe: 40 Days



	• Angle measure (the number of degrees in an angle) • Degree (a unit used to measure angles) • Horizontal (parallel to the x-axis) • Line (a two-dimensional object that has no endpoints and continues on forever in a plane) • Parallel lines (two lines in a plane that do not intersect) • Perpendicular lines (two lines are perpendicular if they intersect and any of the angles formed between the lines are 90-degree angles) • Point (a zero-dimensional figure that satisfies the location of an ordered pair) • Rule (a procedure or operation(s) that affects the value of an ordered pair) • Vertical (parallel to the y-axis)
Resources <i>Description or link to resources</i>	• EMBARC.Online • Welcome to EngageNY EngageNY • Zearn Math: Top-rated K-5 Curriculum and Classroom Model • Khan Academy Free Online Courses, Lessons & Practice • http://greatminds.org