

Grade 4	Unit 1: Number Computation		Suggested Length: Ongoing
Essential Questions	<i>Program of Studies</i> and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
<p>1. What are the different ways to write whole numbers and parts of a whole number?</p> <p>2. How does place value determine the value of a number?</p> <p>3. What are the steps involved when adding, subtracting, multiplying, and dividing whole numbers?</p> <p>4. What are the properties of whole numbers? (prime, composite, even, odd, etc.)</p> <p>5. When is estimation appropriate?</p>	<p><u>Program of Studies</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> NC-1 read, write, and model whole numbers from 0 to 1,000,000, developing place value for hundred thousands and millions. <input type="checkbox"/> NC-2 order and compare numbers to 1,000,000. <input type="checkbox"/> NC-3 understand the relative magnitude of whole numbers to 1,000,000. <input type="checkbox"/> NC-4 determine factors/multiples of a whole number. <input type="checkbox"/> NC-5 compare unit fractions (e.g., numerator of 1) using manipulatives. <input type="checkbox"/> NC-6 investigate multiple representations of equivalent fractions (e.g., $1/2 = 3/6$) with manipulatives. <input type="checkbox"/> NC-7 read, write, and identify decimals through one-thousandths with manipulatives. <input type="checkbox"/> NC-8 develop equivalent relationships between common fractions, decimals, and whole numbers (e.g., $1/2 = 0.5$, $4/2 = 2$, $2 = 2.0$). <input type="checkbox"/> NC-9 explore appropriate estimation procedures <input type="checkbox"/> NC-10 understand and apply computational procedures for adding, subtracting, multiplying, and dividing whole numbers using memorized basic facts. <input type="checkbox"/> NC-11 add and subtract fractions with common denominators using manipulatives and/or diagrams. <input type="checkbox"/> NC-12 add, subtract, multiply, and divide whole numbers. <p><u>Core Content</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> MA-04-1.1.1 Students will: <ul style="list-style-type: none"> <input type="checkbox"/> apply multiple representations (e.g., drawings, manipulatives, base-10 	<ul style="list-style-type: none"> <input type="checkbox"/> Standard form <input type="checkbox"/> Expanded form <input type="checkbox"/> Short word form 	<ul style="list-style-type: none"> <input type="checkbox"/> Compare the “Widget” numeration system to the Base Ten numeration system by completing the “Welcome to the Widget Company” activity.

Grade 4	Unit 1: Number Computation		Suggested Length: Ongoing
Essential Questions	<i>Program of Studies</i> and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
	<p>blocks, number lines, expanded form, symbols) to represent whole numbers (0 to 99,999):</p> <ul style="list-style-type: none"> <input type="checkbox"/> apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, expanded form, symbols) to describe commonly used fractions through tenths and decimals through hundredths; <input type="checkbox"/> apply these numbers to represent real-world problems and <input type="checkbox"/> explain how the base 10 number system relates to place value. DOK 2 <ul style="list-style-type: none"> <input type="checkbox"/> MA-04-1.1.2 Students will read, write, and rename whole numbers, fractions, and decimals and apply to real-world and mathematical problems. <input type="checkbox"/> MA-04-1.1.3 Students will compare (<, >, =) and order whole numbers and compare commonly used fractions and decimals and explain the relationships (equivalence, order) between and among them. DOK 2 <input type="checkbox"/> MA-04-1.2.1 Students will apply and describe appropriate strategies for estimating quantities of objects and computational results. DOK 2 <input type="checkbox"/> MA-04-1.3.1 Students will analyze real-world problems to identify the appropriate representations using mathematical operations, and will apply operations to solve real-world problems with the following constraints: <ul style="list-style-type: none"> <input type="checkbox"/> add and subtract whole numbers with 	<ul style="list-style-type: none"> <input type="checkbox"/> Word form <input type="checkbox"/> Place value <input type="checkbox"/> Whole numbers <ul style="list-style-type: none"> <input type="checkbox"/> Compare <input type="checkbox"/> Least <input type="checkbox"/> Greatest <input type="checkbox"/> Order <ul style="list-style-type: none"> <input type="checkbox"/> Estimate <input type="checkbox"/> Exact amount <ul style="list-style-type: none"> <input type="checkbox"/> Associative property <input type="checkbox"/> Sums <input type="checkbox"/> Differences <input type="checkbox"/> Expression <input type="checkbox"/> Equation <input type="checkbox"/> Inequality <input type="checkbox"/> Product <input type="checkbox"/> Fact family 	<ul style="list-style-type: none"> <input type="checkbox"/> Model the place value up to hundred millions by using themselves as numbers to make the biggest or smallest number possible. <input type="checkbox"/> Design a fraction flag to illustrate a fraction of their choice such as $\frac{1}{4}$. The flag will be divided into fourths and will be given a title (Land of $\frac{1}{4}$). <input type="checkbox"/> Create a paper ice cream sundae. They will use “scoops” of their choice to create a sundae and will identify their “ingredients” by listing them in fractional terms. <ul style="list-style-type: none"> <input type="checkbox"/> Compare fractions of $\frac{1}{3}$ and $\frac{1}{6}$ to determine which would be the better part of a sandwich by completing an Open Response “Submarine Sandwich” (CATS like assessment) <ul style="list-style-type: none"> <input type="checkbox"/> Create three and four digit addition and subtraction problems using dice and will solve those problems. <input type="checkbox"/> Practice addition using mental math by playing game “Four in a Row.” <input type="checkbox"/> Practice addition of money by playing “Dollar Dunk” game. <input type="checkbox"/> Classify numbers to identify prime and composite numbers of 31-40.

Grade 4	Unit 1: Number Computation		Suggested Length: Ongoing
Essential Questions	<i>Program of Studies</i> and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
	<p>four digits or less;</p> <ul style="list-style-type: none"> <input type="checkbox"/> multiply whole numbers of two digits or less; <input type="checkbox"/> divide whole numbers with three digits or less by single-digit divisors (with or without remainders); <input type="checkbox"/> add and subtract fractions with like denominators less than or equal to 10 and <input type="checkbox"/> add and subtract decimals through hundredths. DOK 2 <ul style="list-style-type: none"> <input type="checkbox"/> MA-04-1.3.2 Students will skip-count forward and backward by 2s, 3s, 4s, 5s, 10s, 20s, 25s, 50s, 100s, 1,000s and 10,000s. <input type="checkbox"/> MA-04-1.5.1 Students will identify and determine odd numbers, even numbers, and multiples of a number and factors of a number and will apply these numbers to solve real-world problems. DOK 2 <input type="checkbox"/> MA-04-1.5.2 Students will use the commutative properties of addition and multiplication, the associative properties of addition and multiplication, the identity properties of addition and multiplication and the zero property of multiplication in written and mental computation. 	<ul style="list-style-type: none"> <input type="checkbox"/> Dividend <input type="checkbox"/> Divisor <input type="checkbox"/> Quotient <input type="checkbox"/> Remainder <input type="checkbox"/> Prime number <input type="checkbox"/> Composite number <input type="checkbox"/> Distributive property <input type="checkbox"/> Divisible <input type="checkbox"/> Factor <input type="checkbox"/> Multiples <input type="checkbox"/> Even <input type="checkbox"/> Odd <input type="checkbox"/> Zero property <input type="checkbox"/> Commutative property <input type="checkbox"/> Property of one 	<ul style="list-style-type: none"> <input type="checkbox"/> Prove the correctness of adding even numbers together will make an even sum and adding two odd numbers together will make an odd sum by completing an <u>Open Response</u> “ Even and Odd Computations” (CATS-like assessment) <input type="checkbox"/> Construct a step book to introduce and define the properties of addition and multiplication. <input type="checkbox"/> Develop flap books to practice multiplication facts.

Grade 4	Unit 2: Geometry/Measurement		Suggested Length: Ongoing
Essential Questions	<i>Program of Studies</i> and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
1. What’s the difference	<p><u><i>Program of Studies</i></u></p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>GM-1 analyze structures of geometric figures (e.g., points, rays, lines, segments,</i> 		

Grade 4	Unit 2: Geometry/Measurement		Suggested Length: Ongoing
Essential Questions	<i>Program of Studies</i> and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
<p>between a line and a line segment?</p> <p>2. What are the different types of lines?</p> <p>3. What are the four types of angles?</p> <p>4. What is a polygon? Describe the different types based on the number of sides.</p> <p>5. What are the attributes of two-dimensional and three-dimensional shapes?</p> <p>6. What does symmetrical mean?</p>	<p><i>perpendicular lines, parallel lines, angles).</i></p> <ul style="list-style-type: none"> ❑ <i>GM-2 investigate geometric relationship (e.g., similarity, congruence) through manipulatives and drawings.</i> ❑ <i>GM-3 compare and explore non-standard units for measuring angles.</i> ❑ <i>GM-4 relate time to days, weeks, months, and years.</i> ❑ <i>GM-5 add and subtract time.</i> ❑ <i>GM-6 read and record temperatures to the nearest degree.</i> ❑ <i>GM-7 measure and find area and perimeter of a rectangle.</i> ❑ <i>GM-8 measure and find perimeter of regular/irregular shapes; and measure and find the area of rectangle.</i> ❑ <i>GM-9 exchange units (e.g., linear, volume, mass) within a measurement system (e.g., 2 feet = 24 inches).</i> <p><u>Core Content</u></p> <ul style="list-style-type: none"> ❑ MA-04-3.1.1 Students will describe and provide examples of basic geometric elements and terms [points, segments, lines (perpendicular, parallel, intersecting), rays, angles [acute, right, obtuse], sides, edges, faces, bases, vertices], and will apply these elements to solve real-world and mathematical problems. DOK 2 ❑ MA-04-3.1.2 Students will describe and provide examples of basic two-dimensional 	<ul style="list-style-type: none"> ❑ Point ❑ Ordered pair ❑ Coordinates ❑ Line ❑ Line Segment ❑ Intersecting ❑ Perpendicular ❑ Parallel ❑ Ray ❑ Angle ❑ Right angle ❑ Acute angle ❑ Obtuse angle ❑ Straight angle ❑ Vertex ❑ Polygons ❑ Sides 	<ul style="list-style-type: none"> ❑ Explore the creation of ordered pairs by reading about a math myth in the book <u>The Fly on the Ceiling</u> by Julie Glass. ❑ Create a giant replica of a spider’s web to identify and name different types of lines and line segments and rays. ❑ Identify parallel lines within printed capital letters, shapes and pictures from magazines. ❑ Form line segments, rays, perpendicular lines and parallel lines with their arms. Students will then create a booklet with illustrations and definitions of these terms. ❑ Explore and identify parts of rays by creating rays with yarn and an arrow card. ❑ Create the 4 types of angles with arms (elbow to fingers) and with pipe cleaners after students hear “The Three Angles” story. ❑ Review geometric terms covered thus far with a PowerPoint and Kinesthetically with hand movements.

Grade 4	Unit 2: Geometry/Measurement		Suggested Length: Ongoing
Essential Questions	<i>Program of Studies</i> and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
	<p>shapes [circles, triangles (right, equilateral), squares, rectangles, trapezoids, rhombuses, pentagons, hexagons, octagons], and will apply these shapes to solve real-world and mathematical problems. DOK 2</p> <ul style="list-style-type: none"> ❑ MA-04-3.1.3 Students will describe and provide examples of basic three-dimensional objects (spheres, cones, cylinders, pyramids, cubes, triangular and rectangular prisms), and will apply the attributes to solve real-world and mathematical problems. DOK 2 ❑ MA-04-3.1.4 Students will explore two-dimensional representations of three-dimensional objects (nets). ❑ MA-04-3.1.5 Students will identify and describe congruent and similar figures in real-world and mathematical problems. ❑ MA-04-3.2.1 Students will describe and provide examples of line symmetry in real-world and mathematical problems or will apply one line of symmetry to construct a simple geometric design. DOK 2 ❑ MA-04-3.2.2 Students will identify basic two-dimensional shapes in different orientations using 90° rotations (turns) around a point of rotation, reflections (flips), and translations (slides) within a plane. ❑ MA-04-3.3.1 Students will identify and graph ordered pairs on a positive coordinate system scaled by ones or locate 	<ul style="list-style-type: none"> ❑ Quadrilateral ❑ Parallelogram ❑ Trapezoid ❑ Squares ❑ Rectangles ❑ Circles ❑ Triangles ❑ Rhombus ❑ Pentagon ❑ Hexagon ❑ Octagon ❑ Right triangle ❑ Equilateral triangle ❑ Congruent ❑ Similar ❑ Line symmetry ❑ Line of symmetry ❑ Edges ❑ Faces ❑ Vertices ❑ Nets ❑ Cubes ❑ Cone ❑ Sphere ❑ Cylinder ❑ Square pyramid ❑ Triangular pyramid ❑ Rectangular prism ❑ Triangular prism ❑ Two-dimensional ❑ Three-dimensional ❑ Slides ❑ Flips ❑ Turns 	<ul style="list-style-type: none"> ❑ Create polygons with toothpicks and geoboards. After being introduced by hearing the book, <u>The Greedy Triangle</u>, by Marilyn Burns. ❑ Explore polygons with tangram puzzles after hearing <u>Grandfather Tang’s Story</u> by Ann Tompert. Students will recreate the pictures shown in the story with tangram pieces. ❑ Explore Types of Triangles and concepts of Similarity and Congruency by comparing shapes on the overhead. ❑ Sort and classify shapes as either symmetrical or not symmetrical. ❑ Explore the concept of symmetry by giving each student a capital letter cut by the Ellison machine. Students will classify his/her letter as symmetrical or not symmetrical. Students will then classify the symmetrical letters as vertically or horizontally symmetrical or both. ❑ Explore lines of symmetry with mirrors. ❑ Construct three-dimensional shapes with clay and toothpicks after being introduced to the concept with a PowerPoint presentation. Students will also search for and identify three-dimensional shapes in our classroom and in the real world. Students will hear the story <u>flat Stanley</u>, by Jeff Brown to learn the difference between two- and three- dimensional shapes. ❑ Identify the faces, edges, and vertices of the three-dimensional models students constructed. Faces and edges will be counted and identified by shape or type. ❑ Identify nets for each type of three-dimensional shape (except sphere). Students will then construct shapes from nets. <p style="text-align: center;">Assessment</p> <ul style="list-style-type: none"> ❑ <u>CATS – like multiple – choice test covering concepts:</u> <ul style="list-style-type: none"> ❑ Points ❑ Line segment ❑ Line ❑ Parallel

Grade 4	Unit 2: Geometry/Measurement		Suggested Length: Ongoing
Essential Questions	<i>Program of Studies</i> and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
	<p>points on a grid. DOK 2</p> <ul style="list-style-type: none"> <input type="checkbox"/> MA-04-2.1.1 Students will apply standard units to measure length (to the nearest quarter-inch or the nearest centimeter) and to determine: <ul style="list-style-type: none"> <input type="checkbox"/> weight (ounce, pound; gram, kilogram); <input type="checkbox"/> perimeter; <input type="checkbox"/> area (figures that can be divided into rectangular shapes); <input type="checkbox"/> time (nearest five minutes) and <input type="checkbox"/> temperature (Fahrenheit and Celsius). <input type="checkbox"/> MA-04-2.1.2 Students will choose and use appropriate tools (e.g., thermometer, scales, balances, clock, meter stick, yardstick, ruler) for specific measurement tasks. <input type="checkbox"/> MA-04-2.1.3 Students will use nonstandard and standard units of measurement to identify measurable attributes of an object (length and width) using appropriate units of measurement. <input type="checkbox"/> MA-04-2.1.4 Students will use measurements to describe and compare attributes of objects to include length (in, ft, yd, mile; cm, m, km), width, height, money (cost), temperature and weight (oz, lb, ton; g, kg) and sort objects and compare attributes. <input type="checkbox"/> MA-04-2.1.5 Students will use nonstandard and standard units to measure angles (as compared to 90°). <input type="checkbox"/> MA-04-2.1.6 Students will estimate weight, 	<ul style="list-style-type: none"> <input type="checkbox"/> Inch <input type="checkbox"/> Half inch <input type="checkbox"/> Quarter inch <input type="checkbox"/> Perimeter <input type="checkbox"/> Capacity <input type="checkbox"/> Weight <input type="checkbox"/> Customary units <input type="checkbox"/> Centimeter <input type="checkbox"/> Millimeter <input type="checkbox"/> Metric system <input type="checkbox"/> Decimeter <input type="checkbox"/> Meters <input type="checkbox"/> Kilometers <input type="checkbox"/> Milliliter <input type="checkbox"/> Liter <input type="checkbox"/> Gram <input type="checkbox"/> Kilogram <input type="checkbox"/> Degrees Fahrenheit <input type="checkbox"/> Negative <input type="checkbox"/> Degrees Celsius 	<ul style="list-style-type: none"> <input type="checkbox"/> Intersecting <input type="checkbox"/> Perpendicular <input type="checkbox"/> Ray <input type="checkbox"/> Angle <input type="checkbox"/> Side and vertex <input type="checkbox"/> 4 types of angles <input type="checkbox"/> Types of Polygons <input type="checkbox"/> Classifying triangles <input type="checkbox"/> <u>CATS – like multiple – choice test covering concepts:</u> <ul style="list-style-type: none"> <input type="checkbox"/> Congruency <input type="checkbox"/> Similarity <input type="checkbox"/> Slides, flips and turns <input type="checkbox"/> Lines of symmetry <input type="checkbox"/> 3-dimensional shapes <input type="checkbox"/> Open Response: “The Gold Key Company” <input type="checkbox"/> Open Response: “ The Symmetry Poster”

Grade 4	Unit 2: Geometry/Measurement		Suggested Length: Ongoing
Essential Questions	<i>Program of Studies</i> and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
	<p>length, perimeter, area, angle measures and time using appropriate units of measurement.</p> <ul style="list-style-type: none"> ❑ MA-04-2.2.1 Students will describe, define, give examples of and use to solve real-world and mathematical problems nonstandard and standard (U.S. Customary, metric) units of measurement (e.g., weight - oz., lbs., tons, g, kg; length – in., ft., yd., mile, cm, m, km; area in square units) and money. ❑ MA-04-2.2.2 Students will determine elapsed time to the nearest quarter hours. ❑ MA-04-2.2.3 Students will convert units within the same measurement system, including money, time (seconds, minutes, hours, days, weeks, months, years), weight (ounces, pounds), and length (inches, feet, yards). DOK 1 		<ul style="list-style-type: none"> ❑ Design a snowman using \$25.00 and weight of fifty pounds. The students are given a price list with weight for each snowman item. (e.g. snowballs, carrots, arms, scarf, etc.) ❑ Complete <u>Open-Response Question</u> (CATS like assessment) to determine which jobs would need to be completed to earn money to purchase a basketball. ❑ Estimate different amounts of money to decide which items can be bought with a twenty- dollar bill by completing an <u>Open Response</u>. (CATS like assessment)

Grade 4	Unit 3: Probability/Statistics		Suggested Length: Ongoing
Essential Questions	<i>Program of Studies</i> and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
<p>1. How can I analyze a given set of data to determine the mean, median and mode?</p> <p>2. How can a graph be used to represent and interpret data?</p> <p>3. How can I describe the probability of an event?</p> <p>4. How can I represent the probability outcomes?</p>	<p><u>Program of Studies</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> PS-1 explore circle graphs. <input type="checkbox"/> PS-2 choose appropriate means to collect and represent data. <input type="checkbox"/> PS-3 explore line graphs to show change over time. <input type="checkbox"/> PS-4 pose questions, collect, organize, and display data. <input type="checkbox"/> PS-5 draw conclusions based on data. <input type="checkbox"/> PS-6 make predictions to determine the fairness of possible outcomes of simple probability experiments using a variety of appropriate manipulatives. <input type="checkbox"/> PS-7 use counting techniques and/or tables to explore probability experiments. <p><u>Core Content</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> MA-04-4.1.1 Students will analyze and make inferences from data displays (drawings, tables/charts, tally tables, pictographs, bar graphs, circle graphs, line plots, Venn diagrams). DOK 3 <input type="checkbox"/> MA-04-4.1.2 Students will collect data. <input type="checkbox"/> MA-04-4.1.2 Students will construct data displays (pictographs, bar graphs, line plots, Venn diagrams, tables). DOK 2 <input type="checkbox"/> MA-04-4.2.1 Students will determine the median, mode (for a data set with more than 	<ul style="list-style-type: none"> <input type="checkbox"/> Pictograph <input type="checkbox"/> Bar graph <input type="checkbox"/> Line graph <input type="checkbox"/> Coordinate <input type="checkbox"/> Ordered pair <input type="checkbox"/> Plot <input type="checkbox"/> Coordinate plane <input type="checkbox"/> Y- axis <input type="checkbox"/> X- axis <input type="checkbox"/> Axes <input type="checkbox"/> Origin <input type="checkbox"/> Y-coordinate <input type="checkbox"/> X- coordinate <input type="checkbox"/> Average <input type="checkbox"/> Mean 	<ul style="list-style-type: none"> <input type="checkbox"/> Produce a table, graph, or organized list from given data and interpret the data to predict the probability of what the next bag of candy will be. <u>Bag of Candy- Open Response.</u> (CATS like assessment) <input type="checkbox"/> Determine if the graph correctly displays the data from a chart. <u>Fruit Punch- Open Response.</u> (CATS like assessment) <input type="checkbox"/> Use graphs to compare a given set of data. <input type="checkbox"/> Plot and discover ordered pairs on a grid by playing “Coordinate Hide and Seek” (Battleship) <input type="checkbox"/> Practice plotting points by playing “Graph Tick-Tac-Toe. <input type="checkbox"/> Define the meaning of mean, median, and mode. <input type="checkbox"/> Illustrate the mean of a given set of data by making a

Grade 4	Unit 3: Probability/Statistics		Suggested Length: Ongoing
Essential Questions	<i>Program of Studies</i> and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
	<p>one mode), and range of a set of data.</p> <ul style="list-style-type: none"> <input type="checkbox"/> MA-04-4.3.1 Students will pose questions that can be answered by collecting data. <input type="checkbox"/> MA-04-4.4.1 Students will determine all possible outcomes of an activity/event with up to six possible outcomes. DOK 2 <input type="checkbox"/> MA-04-4.4.2 Students will determine the likelihood of an event and the probability of an event (expressed as a fraction). DOK 1 <input type="checkbox"/> MA-04-4.4.3 Students will describe and give examples of the probability of an unlikely event (near zero) and a likely event (near one). 	<ul style="list-style-type: none"> <input type="checkbox"/> Median <input type="checkbox"/> Mode <input type="checkbox"/> Outcome <input type="checkbox"/> Probability <input type="checkbox"/> Prediction <input type="checkbox"/> Likely <input type="checkbox"/> Certain <input type="checkbox"/> Unlikely <input type="checkbox"/> Impossible 	<p>bar graph.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Conduct a survey and organize their information in graph form. <input type="checkbox"/> Participate in the <u>Game Factory</u> simulation to check the outcomes and fairness of games.

Grade 4	Unit 4: Algebraic Ideas		Suggested Length: Ongoing
Essential Questions	<i>Program of Studies</i> and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
<p>1. How can I determine the rules to extend a pattern?</p> <p>2. How do I use ordered pairs to name points on a coordinate plane?</p> <p>3. How can using</p>	<p><u>Program of Studies</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> A-1 compare and contrast number patterns. <input type="checkbox"/> A-2 explore variables and solve equations using variables <input type="checkbox"/> A-3 formulate rules for number relationships. <input type="checkbox"/> A-4 graph points on a number line. <input type="checkbox"/> A-5 represent and describe relationships through the use of variables, ordered pairs, lists in tables, plots on graphs, and patterns. <p><u>Core Content</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> MA-04-5.1.1 Students will extend patterns 	<ul style="list-style-type: none"> <input type="checkbox"/> Integers 	<ul style="list-style-type: none"> <input type="checkbox"/> Extend and explain the number patterns on the <u>Open</u>

Grade 4	Unit 4: Algebraic Ideas		Suggested Length: Ongoing
Essential Questions	<i>Program of Studies</i> and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
<p>a number line help determine the relative value of whole numbers, fractions and decimals?</p>	<p>(e.g., 108, 208, 308, 408, ...; □OO△□OO△) from real- world and mathematical problems; compare simple patterns (numbers, pictures, words; e.g., △□△□△□; △OO△OO); and describe rules for simple number patterns (e.g., 1, 3, 5, 7, ...; 5, 10, 15, 20, ...; 30, 27, 24, 21, ...). DOK 3</p> <p>□ MA-04-5.1.2 Students will describe functions (input-output) through pictures, tables and words and will analyze functions, from a table, based on real-world and mathematical problems. DOK 2</p> <p>□ MA-04-5.1.3 Students will determine the value of an output given a function rule and an input value. DOK 2</p> <p>□ MA-04-5.3.1 Students will model real-world and mathematical problems with simple number sentences (equations and inequalities) with a variable or a missing value (e.g., $4 = 7 - \underline{\quad}$, $N + 5 > 14$, $\frac{1}{2} + N =$ 1) and apply simple number sentences to solve mathematical and real-world problems. DOK 2</p>	<ul style="list-style-type: none"> □ Coordinate □ Plot □ Ordered pairs □ Opposites □ Coordinate plane □ Y-axis □ X-axis □ Axes □ Origin □ X-coordinate □ Y-coordinate □ Expressions □ Equations □ Inequality □ Variable □ Algebraic expression □ Two-variable equation □ Two-step functions □ Function table 	<p>Response “The Guessing Game.” (CATS like assessment)</p> <ul style="list-style-type: none"> □ Construct a step book to define algebraic terms such as expression, equation, inequality, variable and algebraic expression. □ Solve challenging equations using appropriate problem-solving strategies. www.eduplace.com/kids/mhm □ Determine the rule for the in-put, out-put machine on the Open Response “Number Machine.” (CATS like assessment) □ Evaluate expressions to match them with their values by playing “Expression Match up Game.”