

Mathematics – *PLANNED COURSE OUTLINE*

Avon Grove School District

Grade 1

State Benchmarks (K,3,5,8,11) & Grade Specific Benchmark	Eligible Content	Instructional Strategies and Resources	Assessments
Standard: 2.1. Numbers, Number Systems and Number Relationships			
Enduring Understandings Students will understand that: <ul style="list-style-type: none"> • New understandings evolve from the connection between prior knowledge and new concepts. • Numbers are part of our daily lives. • Numbers can be represented in different ways. • Numbers are related to each other operationally. • Patterns exist in many forms. • Place value of digit helps us count, order and group numbers. 		Essential Questions <ol style="list-style-type: none"> 1. How do we use the connection between prior knowledge and new concepts to form new understandings? 2. How are numbers important in our daily lives? 3. How can numbers be represented? 4. How can parts of a whole and parts of a group be represented? 5. How do facts families help us understand basic operation problems? 6. How do patterns help us solve problems? 7. How are numbers compared and sequenced? 8. How is money counted? 9. How does the place value of digits help us in counting, ordering, grouping numbers? 	
A. Count using whole numbers (to 10,000) and by 2's, 3's, 5's, 10's, 25's and 100's. <u>Early Childhood Learning Continuum Indicators (ECLCI)</u> Counts to 100 by 5's, 2's.		Investigations: <ul style="list-style-type: none"> • Mathematical Thinking • Building Number Sense • Teaching Number Sense • (Scharton) • Scholastic: Exploring the Numbers 1- 100 	Formative: Routines Observation Assessment 5 Summative: Number Sense Assessment
B. Use whole numbers and fractions to represent quantities. <u>ECLCI</u> Uses whole numbers to represent quantities to 100. Divide a set of concrete objects into equal parts using terms whole, half, third, quarter. Use, drawings, diagrams or models to show the concept of one-half, one-third and one-fourth as part of a whole.	Write the fraction that corresponds to a drawing or part of a set (numerators 1-9, denominators 2-10. No equivalent or improper fractions or mixed numbers). M3.A.1.2.1	Investigations: <ul style="list-style-type: none"> • Quilt Squares and Secret Rules • Supplemental Fraction Unit • Creative Publications: • Fraction Circles Plus • Manipulatives 	Formative: Routines Observation Assessment 5 Checklist L Summative: Number Sense Assessment

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<p>C. Represent equivalent forms of the same number through the use of concrete objects, drawings, word names and symbols.</p> <p><u>ECLCI</u> Demonstrates 1 to 1 correspondence to 100.</p> <p>Represent equivalent forms of the same number using concrete objects, drawings, word names and symbols up to and including 100.</p>	<p>Match the word name with the appropriate whole number (up through 9,999). M3.A.1.1.1</p> <p>Match a symbolic representation of numbers to appropriate whole numbers (e.g. base ten blocks, 7 hundreds, 4 tens, 8 ones, etc.). M3.A.1.1.5</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Mathematical Thinking • Building Number Sense • Teaching Number Sense (Scharton) • Manipulatives 	<p>Formative:</p> <p>Routines Observation Assessment 2 Assessment 7 Checklist B</p> <p>Summative:</p> <p>Number Sense Assessment</p>
<p>D. Use drawings diagrams or models to show the concept of fraction as part of a whole.</p> <p><u>ECLCI</u></p> <p>Use drawings, diagrams or models to show one-half, one-third and one-fourth as part of a whole.</p>	<p>Create a drawing or set that represents a given fraction (numerator 1-9, denominator 2-10. No equivalent or improper fractions or mixed numbers). M3.A.1.2.2</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Quilt Squares and Block Towns • Creative Publications: • Fractions Circles Plus • Supplemental Fraction Unit • Manipulatives 	<p>Formative:</p> <p>Routines Observation Assessment 5 Checklist L</p> <p>Summative:</p> <p>Number Sense Assessment</p>
<p>E. Count, compare and make change using a collection of coins and one-dollar bills.</p> <p><u>ECLCI</u></p> <p>Knows value – nickel, quarter.</p> <p>Show different combinations of coins that equal the same value up to 79 cents.</p>	<p>Count a collection of bills and coins less than \$5.00 (penny, nickel, dime, quarter, dollar). Money may be represented as 15 cents, 15c or \$0.15. M3.A.1.3.1</p> <p>Compare total values of combinations of coins less than \$5.00 (penny, nickel, dime, quarter, dollar). M3.A.1.3.2</p> <p>Make change for an amount up to \$5.00 with no more then \$2.00 change given (penny, nickel, dime, quarter, dollar). M3.A.1.3.3</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Mathematical Thinking • Building Number Sense • Number Games and Story • Problems • Supplemental Money Unit • Teaching Number Sense (Scharton) • Manipulatives 	<p>Formative:</p> <p>Routines Observation Assessment 6 Checklist A</p> <p>Summative:</p> <p>Number Sense Assessment</p>

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Standard: 2.1. Numbers, Number Systems and Number Relationships Standard			
<p>F. Apply number patterns (even and odd) and compare values of numbers on the hundred board.</p> <p><u>ECLCI</u></p> <p>Label/describe/extend/create a pattern based on shape, size, symbols, color and/or sound (ex. ABBCD).</p>	<p>Differentiate between and/or give examples of even and odd numbers (limit to 3 digits). M3.A.1.1.2</p> <p>Compare two whole numbers using greater than (>), lesser than (<), or equal to (=), (up through 9,999). M3.A.1.1.3</p>	<p>Ideal:</p> <ul style="list-style-type: none"> • 100 Activities for the • Hundred Number Board <p>Scholastic:</p> <ul style="list-style-type: none"> • Exploring the Numbers 1- 100 • Manipulatives 	<p>Formative:</p> <p>Routines Observation Assessment 4</p> <p>Summative:</p> <p>Number Sense Assessment</p>
<p>G. Use concrete objects to count, order and group.</p> <p><u>ECLCI</u></p> <p>Demonstrate understanding of one-to-one correspondence up to and including 100.</p> <p>Orders whole numbers from least to greatest to 100.</p>	<p>Compare two whole numbers using greater than (>), lesser than (<), or equal to (=), (up through 9,999). M3.A.1.1.3</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Mathematical Thinking • Building Number Sense and Story Problems • Teaching Number Sense (Scharton) • Manipulatives 	<p>Formative:</p> <p>Routines Observation Assessment 3</p> <p>Summative:</p> <p>Number Sense Assessment</p>
<p>H. Demonstrate an understanding of one to one correspondence.</p> <p><u>ECLCI</u></p> <p>Demonstrates 1to1 correspondence to 100.</p> <p>Represent equal forms of same number using objects/pictures/ words/names/symbols to 100.</p>		<p>Investigations:</p> <ul style="list-style-type: none"> • Mathematical Thinking • Building Number Sense • Number Games and Story Problems • Teaching Number Sense (Scharton) • Manipulatives 	<p>Formative:</p> <p>Routines Observation Assessment 2 Assessment 3</p> <p>Summative:</p> <p>Number Sense Assessment</p>

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Standard: 2.1. Numbers, Number Systems and Number Relationships Standard			
<p>I. Apply place-value concepts and numeration to counting, ordering and grouping</p> <p><u>ECLCI</u></p> <p>Writes whole numbers to 100.</p> <p>Reads whole numbers to 100.</p> <p>Identifies place value for each digit.</p> <p>Identifies the word name with the whole number (100).</p> <p>Write numbers to 100 in expanded form.</p> <p>Orders whole numbers from least to greatest from 0 to 100.</p>	<p>Order a set of whole numbers from least to greatest or greatest to least (up through 9,999; limit sets to no more than 4 numbers).M3.A.1.1.4</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Math Discoveries: • Base Ten Blocks • Lessons for Extending Place Value (Wickett/Burns) • Place Value (Burns) • Handwriting Without Tears • Creative Publications: • Understanding Place Value (Addition and Subtraction • Manipulatives 	<p>Formative:</p> <p>Routine Observation Assessment 7 Checklist B</p> <p>Summative:</p> <p>Number Sense Assessment</p>
<p>J. Estimate, approximate, round or use exact numbers as appropriate.</p> <p><u>ECLCI</u></p> <p>Estimate objects to 100.</p> <p>Verify estimate.</p> <p>Explain why an estimate is reasonable or not reasonable</p>	<p>Estimate sums and differences of quantities: round two-digit numbers to the nearest 10, and three-digit numbers to the nearest 100, before computing (limit to 2 numbers). M3.A.3.2.1</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Estimation Station 	<p>Formative:</p> <p>Routines Observation Assessment 13 Checklist E</p> <p>Summative:</p> <p>Number Sense Assessment</p>

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Standard: 2.1. Numbers, Number Systems and Number Relationships Standard			
<p>K. Describe the inverse relationship between addition and subtraction.</p> <p><u>ECLCI</u></p> <p>Use the inverse relationship between addition and subtraction to solve problems with concrete objects.</p> <p>Use concrete objects to determine a missing addend in a number sentence.</p>	<p>Demonstrate the inverse relationship between addition and subtraction using fact families and/or factors.</p> <p>M3.A.2.1.2</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Mathematical Thinking • Building Number Sense • Number Games and Story Problems • Teaching Number Sense (Scharton) • Manipulatives 	<p>Formative:</p> <p>Routines Assessment 8 Checklist M</p> <p>Summative:</p> <p>Number Sense Assessment</p>
<p>L. Demonstrate knowledge of basic facts in four basic operations.</p> <p><u>ECLCI</u></p> <p>Knows +/- facts to Set 24 (Mastering Math Fact Families)</p> <p>Uses strategies: Doubles, doubles +/-1, counting up, counting back, utilizes a number line.</p>	<p>Solve problems involving multiplication through the 9's table through 9x5.</p> <p>M3.A.3.1.2</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Building Number Sense • Number Games and Story Problems • Mastering Math Fact Families • Teaching Number Sense (Scharton) 	<p>Formative:</p> <p>Routines Assessment 1</p> <p>Summative:</p> <p>Number Sense Assessment Computation Test</p>

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Standard: 2.2. Computation and Estimation			
Enduring Understandings: Students will understand that: <ul style="list-style-type: none"> • Computing numbers is based on the use of strategies and tools. • Students demonstrate good number sense when they can explain reasonableness of an answer. • Computing fluently involves knowing basic facts and understanding the number relationships. 		Essential Questions <ol style="list-style-type: none"> 1. What strategies and tools are used to solve computation problems? 2. What strategies are used to identify reasonable estimates? 3. How do fact families help us understand basic operation problems? 	
A. Apply addition and subtraction in everyday situations using concrete objects. <u>ECLCI</u> Select and use an appropriate method, material, and strategy to solve problems.	Demonstrate the inverse relationship between addition and subtraction using fact families and/or factors. M3.A.2.1.2		Formative: Routines Observation
B. Solve single- and double-digit addition and subtraction problems with regrouping in vertical form. <u>ECLCI</u> Solves addition and subtraction problems with one and two digit numbers-without regrouping. Solves addition problems with 3, one-digit numbers (vertical and horizontal).	Solve single and double-digit addition and subtraction problems with and without regrouping in vertical and horizontal form. M3.A.3.1.1 Solve triple digit addition and subtraction problems without regrouping in vertical or horizontal forms. M3.A.3.1.3	Investigations: <ul style="list-style-type: none"> • Number Games and Story Problems • Mastering Math Fact Families 	Formative: Assessment 10 Checklist K Summative: Computation Assessment

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Standard: 2.2. Computation and Estimation			
<p>C. Demonstrate the concept of multiplication as repeated addition and arrays.</p> <p><u>ECLCI</u> Determine the sum of the same three one-digit numbers (e.g.,$3+3=3+9$).</p>	<p>Represent multiplication as repeated addition M3.A.2.1.1</p> <p>Solve problems involving multiplication through the 9's table through 9×5. M3.A.3.1.2</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Building Number Sense • Number Games and Story Problems • Mastering Math Fact Families 	<p>Formative: Routines Number of the Day</p> <p>Summative: Assessment 11 Checklist C</p>
<p>D. Demonstrate the concept of division as repeated subtraction and as sharing.</p> <p><u>ECLCI</u> Determine the difference by forming equal groups.</p>			<p>Formative: Routines Number of the Day</p> <p>Summative: Assessment 11 Checklist C</p>
<p>E. Use estimation skills to arrive at conclusions.</p> <p><u>ECLCI</u> Estimate using concrete objects up to 100. Verify estimate. Explain why an estimate is reasonable or not reasonable</p>	<p>Estimate sums and differences of quantities: round two-digit numbers to the nearest 10, and three-digit numbers to the nearest 100, before computing (limit to 2 numbers.) M3.A.3.2.1</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Bigger, Taller, Heavier Smaller • Estimation Station 	<p>Formative: Routines Estimation Station</p> <p>Summative: Assessment 13 Checklist E</p>

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Standard: 2.2. Computation and Estimation			
F. Determine the reasonableness of calculated answers. <u>ECLCI</u> Explain why an estimate is reasonable or not reasonable		Investigations: <ul style="list-style-type: none"> • Estimation Station 	Formative: Observation Assessment 13 Checklist E
G. Explain addition and subtraction algorithms with regrouping. <u>ECLCI</u> Retell the computation process of adding and subtracting.		Investigations: <ul style="list-style-type: none"> • Number Games and Story Problems • Math Discoveries: Base Ten Blocks • Manipulatives 	Formative: Observation Assessment 10 Checklist K

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Standard: 2.3. Measurement and Estimation			
Enduring Understandings: Students will understand that: <ul style="list-style-type: none"> • Measurement is part of our daily lives. • Reasonable estimations can be made about measurement and estimations can be verified. • Objects can be measured using standard or non-standard measures. • Objects have various attributes that can be measured in different ways. • Different tools and units are used for measuring different attributes. • Appropriate application of tools and unit are needed for measurement. 		Essential Questions: <ol style="list-style-type: none"> 1. How do we use measurement in our daily lives? 2. How can estimation help us when using measurement in our daily lives? 3. What strategies do we use to make reasonable estimations? 4. How do we verify estimations? 5. When and how do we use standard and non-standard measures? 6. How can one object be measured in many ways? 7. How do units of measure differ? 8. Why is using the appropriate tool and measure important? 9. When do we use specific 	
A. Compare measurable characteristics of different objects on the same dimensions (e.g., time, temperature, area, length, weight, capacity, perimeter). <u>ECLCI</u> Compare objects using standard units of measure (time, temperature, length and weight).	Compare and/or order objects according to length, area or weight. M3.B.1.2.2	Investigations: <ul style="list-style-type: none"> • Bigger, Taller, Heavier, Smaller • Supplemental Measurement Unit • Manipulatives 	Formative: Assessment 14 Checklist F Summative: Measurement Assessment
B. Determine the measurement of objects with non-standard and standard units (e.g., US customary and metric). <u>ECLCI</u> Determine length, height, width of an object to the nearest inch.	Use a ruler (provided) to measure to the nearest ½ inch. M3.B.2.1.1	Investigations: <ul style="list-style-type: none"> • Bigger, Taller, Heavier, Smaller • Supplemental Measurement Unit • Manipulatives 	Formative: Assessment 14 Checklist F Summative: Measurement Assessment

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Standard: 2.3. Measurement and Estimation			
<p>C. Determine and compare elapsed times.</p> <p><u>ECLCI</u></p> <p>Demonstrates an understanding of an activity and how it relates to a season. Reads the calendar date for today, tomorrow and yesterday (unguided).</p>	<p>Find elapsed time to increments of 5 minutes (limited to 2 adjacent hours). M3.B.1.1.2</p> <p>Identify times of the day and night as AM and PM. M3.B.1.1.3</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Bigger, Taller, Heavier, Smaller • Supplemental Measurement Unit 	<p>Formative:</p> <ul style="list-style-type: none"> • Routines • Observation • Assessment I • Checklist H <p>Summative:</p> <ul style="list-style-type: none"> • Measurement Assessment
<p>D. Tell time (analog and digital) to the minute.</p> <p><u>ECLCI</u></p> <p>Tell time to the hour and ½ hour: Analog /Digital</p>	<p>Tell/show time (analog) to the minute. M3.B.1.1.1</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Supplemental Time Unit • Manipulatives • Counting by 5's 	<p>Formative:</p> <ul style="list-style-type: none"> • Routines • Observation • Assessment 15 • Checklist G <p>Summative:</p> <ul style="list-style-type: none"> • Measurement Assessment
<p>E. Determine the appropriate unit of measure.</p> <p><u>ECLCI</u></p> <p>Identify units for measuring: time, length, weight, capacity, temp.</p>	<p>Select the appropriate unit for the attribute being measured. M3.B.1.2.1</p> <p>Match the object with its approximate measurement (all measurements given must be of the same system, e.g., about How tall is a soda pop can? 5inches, 5 feet, 5 yards etc.). M3.B.2.2.1</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Bigger, Taller, Heavier, Smaller • Supplemental Measurement Unit 	<p>Formative:</p> <p>Assessment 14 Checklist F</p> <p>Summative:</p> <p>Measurement Assessment</p>
<p>F. Use concrete objects to determine area and perimeter.</p> <p><u>ECLCI</u></p> <p>Explore the concepts of area and perimeter (non-standard).</p>		<p>Investigations:</p> <ul style="list-style-type: none"> • Manipulatives 	<p>Formative:</p> <p>Assessment 14 Checklist F</p> <p>Summative:</p> <p>Measurement Assessment</p>

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Standard: 2.3. Measurement and Estimation			
<p>G. Estimate and verify measurements.</p> <p><u>ECLCI</u></p> <p>Estimate and measure (verify) objects using non-standard and standard units.</p>	<p>Use a ruler (provided) to measure to the nearest ½ inch.</p> <p>M3.B.2.1.1</p> <p>Match the object with its approximate measurement (all measurements given must be of the same system, e.g., about How tall is a soda pop can? 5inches, 5 feet, 5 yards etc.).</p> <p>M3.B.2.2.1</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Bigger, Taller, Heavier, Smaller • Supplemental Measurement Unit • Manipulatives 	<p>Formative:</p> <p>Assessment 14 Checklist F</p> <p>Summative:</p> <p>Measurement Assessment</p>
<p>H. Demonstrate that a single object has different attributes that can be measured in different ways (e.g., length, mass, weight, time, area, temp., capacity, perimeter)</p> <p><u>ECLCI</u></p> <p>Identify how an object can be measured, what measurement tools would be needed, and what unit would be used.</p>		<p>Investigations:</p> <ul style="list-style-type: none"> • Bigger, Taller, Heavier, Smaller • Supplemental Measurement Unit 	<p>Formative:</p> <p>Routines Assessment 14 Checklist F</p> <p>Summative:</p> <p>Measurement Assessment</p>

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Standard: 2.4. Mathematical Reasoning and Connections			
Enduring Understandings: Students will understand that: <ul style="list-style-type: none"> • New mathematical ideas connect and build upon prior knowledge and can be applied to situations in our daily lives. • Measurement is a part of our daily lives. • Reasonable prediction can be made about measurement and predications can be verified. 		Essential Questions: <ol style="list-style-type: none"> 1. How is measurement used in our daily lives? 2. What strategies do we use to make reasonable predictions? 3. How can we verify predictions? 	
A. Make, check and verify predictions about the quantity, size and shape of objects and groups of objects. <u>ECLCI</u> Estimate and measure (verify) objects using non-standard and standard units.		Investigations: <ul style="list-style-type: none"> • Manipulatives 	
B. Use measurements in everyday situations (e.g., determine the geography of the school building). <u>ECLCI</u> Identify how an object can be measured, what measurement tools would be needed, and what unit would be used.		Investigations: <ul style="list-style-type: none"> • Bigger, Taller, Heavier, Smaller • Supplemental Measurement Unit 	Formative: Assessment 14 Checklist F Summative: Measurement Assessment

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Standard: 2.5. Mathematical Problem Solving and Communication			
Enduring Understandings Students will understand that: <ul style="list-style-type: none"> • Appropriate application of number operations is needed to problems. • Solutions to problems can be communicated in a variety of ways. • Not all information in a problem is needed to solve the problem. • Multiple strategies can be used to solve problems. 		Essential Questions: <ol style="list-style-type: none"> 1. How do we use pictures, numbers, and words to communicate the solution to a problem? 2. What information is relevant to solve a problem? 3. How can a problem be solved in a different way? 	
A and check, working backwards). . Use appropriate problem-solving strategies (e.g., guess) <u>ECLCI</u> Describe appropriate problem solving strategies.		Investigations: <ul style="list-style-type: none"> • Strategy List • Problem Solving Notebook • Problem Solving Lessons (Burns) 	<ul style="list-style-type: none"> • Weekly Problem Solving Activities
B. Determine when sufficient information is present to solve a problem and explain how to solve a problem. <u>ECLCI</u> Describe what information is needed to solve a problem			<ul style="list-style-type: none"> • Weekly Problem Solving Activities

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Standard: 2.5. Mathematical Problem Solving and Communication			
<p>C. Select and use an appropriate method, materials and strategy to solve problems, including mental mathematics, paper and pencil and concrete objects.</p> <p><u>ECLCI</u> Select and use an appropriate method, material, and strategy to solve problems.</p> <p>Use appropriate symbols to solve equations.</p> <p>Identify the purpose and explain</p>	<p>M3.D.2.1.2 Choose the number sentence that matches a given story (one operation, + or – only).</p> <p>M3.A.2.1.3</p> <p>Identify the correct operation (s) to solve a word problem (no more than two operations using +, - and/or x).</p> <p>M3.A.2.1.3</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Strategy List • Problem Solving Notebook • Problem Solving Lessons (Burns) 	<ul style="list-style-type: none"> • Weekly Problem Solving Activities

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Standard: 2.6. Statistics and Data Analysis			
Enduring Understandings: Students will understand that: <ul style="list-style-type: none"> • We use data in our daily lives • Data can be collected and represented in a variety of ways. • Data are used to make decisions and form opinions. 		Essential Questions: <ol style="list-style-type: none"> 1. How do we use data in our daily lives? 2. How do we collect data? 3. What are representations? 4. How do we represent data on charts, bar graphs, and pictographs? 5. How can data help us make decisions and form opinions? 	
A. Gather, organize and display data using pictures, tallies, charts, bar graphs and pictographs. <u>ECLCI</u> Gather, organize, and display data on a bar graph, pictograph	Analyze data shown on tables, charts, or bar graphs using the concepts of largest, smallest, most often, least often, middle. M3.E.1.1.1 Graph data or complete a graph given the data (grid is provided). M3.E.1.2.1 Translate information from one type of display to another (e.g., convert tally chart to bar graph). Limit to tally chart, bar graph and table. 3.E M.1.2.2	Investigations: <ul style="list-style-type: none"> • Survey Questions and Secret Rules 	Formative: Routines Assessments 17, 18, 19, 20, 21 Summative: Data Assessment
B. Formulate and answer questions based on data shown on graphs. <u>ECLCI</u> Interpret information displayed on a graph. Collect, display and describe data using concepts of most often, least often, more, fewer, same and fewest on bar graphs	Describe, interpret and/or answer questions based on data shown in table, charts, or bar graphs. M3.E.1.1.2 Translate information from one type of display to another (e.g., convert tally chart to bar graph). Limit to tally chart, bar graph and table. 3.E M.1.2.2	Investigations: <ul style="list-style-type: none"> • Survey Questions and Secret Rules 	Formative: Routines Assessments 17, 18, 19, 20, 21 Summative: Data Assessment

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State Benchmarks (K,3,5,8,11) & Grade Specific Benchmark	Eligible Content	Instructional Strategies and Resources	Assessments
Standard:			
<p>C. Predict the likely number of times a condition will occur based on analyzed data.</p> <p><u>ECLCI</u> Collect and display data over time and discuss observable patterns.</p>		<p>Investigations:</p> <ul style="list-style-type: none"> • Survey Questions and Secret Rules 	<p>Formative:</p> <ul style="list-style-type: none"> • Routines • Assessments 17, 18, 19, 20, 21 <p>Summative:</p> <ul style="list-style-type: none"> • Data Assessment
<p>D. Form and justify an opinion on whether a given statement is reasonable based on a comparison to data.</p> <p><u>ECLCI</u> State and justify an opinion on whether a given statement is reasonable based on a comparison of data.</p>		<p>Investigations:</p> <ul style="list-style-type: none"> • Survey Questions and Secret Rules 	<p>Formative:</p> <ul style="list-style-type: none"> • Routines • Assessments 17, 18, 19, 20, 21 <p>Summative:</p> <ul style="list-style-type: none"> • Data Assessment

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State Benchmarks (K,3,5,8,11) & Grade Specific Benchmark	Eligible Content	Instructional Strategies and Resources	Assessments
Standard: 2.7. Probability and Predictions			
Enduring Understandings: Students will understand that: <ul style="list-style-type: none"> Reasonable predictions can be made based on information given. The probability or likelihood of an event can be predicted. 		Essential Questions: <ul style="list-style-type: none"> How do we make reasonable predictions? 	
A. Predict and measure the likelihood of events and recognize that the results of an experiment may not match predicted outcomes. <u>ECLCI</u> State and explain the likelihood of a chance event using the terms likely, unlikely or certain.		<ul style="list-style-type: none"> Probability (Tank) 	<ul style="list-style-type: none"> Routines (Calendar, Lunch Count, Tooth Graph)
B. Design a fair and an unfair spinner. <u>ECLCI</u> Identify if a spinner is fair or unfair.			

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Standard: 2.7. Probability and Predictions			
<p>C. List or graph the possible results of an experiment.</p> <p><u>ECLCI</u> State and explain the likelihood of a chance event using the terms likely, unlikely or certain.</p>	<p>Translate information from one type of display to another (e.g., convert tally chart to bar graph). Limit to tally chart, bar graph and table. 3.E M.1.2.2</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Survey Questions and Secret Rules • Probability (Tank) 	<ul style="list-style-type: none"> • Routines (Calendar, Lunch Count, Tooth Graph)
<p>D. Analyze data using the concepts of largest, smallest, most often, least often and middle.</p> <p><u>ECLCI</u> Collect, display, and describe data using concept of most often, least often, more, fewer, same and fewest on bar graphs.</p>	<p>Analyze data shown on tables, charts, or bar graphs using the concepts of largest, smallest, most often, least often, middle. M3.E.1.1.1</p>	<p>Investigations :</p> <ul style="list-style-type: none"> • Survey Questions and Secret Rules 	<p>Formative:</p> <ul style="list-style-type: none"> • Routines • Assessments 17, 18, 19 20, 21 <p>Summative:</p> <ul style="list-style-type: none"> • Data Assessment

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State Benchmarks (K,3,5,8,11) & Grade Specific Benchmark	Eligible Content	Instructional Strategies and Resources	Assessments
Standard: 2.8 Algebra and Functions			
Enduring Understandings: Students will understand that: <ul style="list-style-type: none"> • Numbers and operations utilize patterns, symbols, and rules. • Mathematical symbols have different meanings and help us determine how to solve a problem. • Mathematical models can be used to understand and represent quantitative relationships. 		Essential Questions: <ol style="list-style-type: none"> 1. How do patterns help us understand mathematical relationships? 2. What do mathematical symbols ($-$, $+$, $=$, $<$, $>$) mean? 3. How can mathematical symbols change the meaning of a number sentence? 4. How are models used to represent quantitative relationships? 5. How are a number sentence and the mathematical symbol related to a story problem? 	
A. Recognize, describe, extend, create and replicate a variety of patterns including attribute, activity, number and geometric patterns. <u>ECLCI</u> Label/describe/extend/create a pattern based on shape, size, symbols, color and/or sound (ex. ABBCD). Identify the rule to describe the pattern	Extend or find a missing element in a pattern of numbers or shapes (pattern must show three repetitions- if multiples are used, limit to 2, 3, 5). M3.D.1.1.1 Identify/describe the rule for a pattern shown (pattern must show three repetitions- if multiples are used limit to 2, 3 or 5). M3.D.1.1.2	Investigations: <ul style="list-style-type: none"> • Mathematical Thinking • Hundreds Board • Pattern blocks • Problem Solving Activities/Make a Chart/Identify the Pattern 	Formative: Routines Assessment 14 Summative: Number Sense Assessment
B. Use concrete objects and trial and error to solve number sentences and check if solutions are sensible and accurate. <u>ECLCI</u> Use $+$, $-$, $<$, $>$ to solve problems. Use symbols ($+$, $-$, $=$) to complete a number sentence. Match the appropriate number sentence to a story problem.	Identify the missing symbol ($+$, $-$, $=$, $<$, $>$) that makes a number sentence true. M3.D.2.2.2		Formative: Weekly Problem Solving Activities Summative: Number Sense Assessment

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State Benchmarks (K,3,5,8,11) & Grade Specific Benchmark	Eligible Content	Instructional Strategies and Resources	Assessments
Standard: 2.8 Algebra and Functions			
<p>C. Substitute a missing addend in a number sentence.</p> <p><u>ECLCI</u></p> <p>Use concrete objects to show a missing addend in a number sentence in which the sum is 20 or less.</p> <p>Determine the missing addend in a number sentence ($5 + ? = 8$).</p>	<p>Find a missing number that makes the number sentence true (one digit or two digit numbers up to 18 using +, - or x through 9 x 5). M3.D.2.2.1</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Problem Solving Activities/Missing Addend 	<p>Summative:</p> <ul style="list-style-type: none"> • Number Sense Assessment
<p>D. Create a story to match a given combination of symbols and numbers.</p> <p><u>ECLCI</u></p> <p>Use appropriate symbols to solve equations +, -, =.</p>	<p>Create or match a story to a given combinations or symbols (+, -, x, <, >, =) and numbers. M3.D.2.1.1</p> <p>Choose the number sentence that matches a given story (one operation + or - only). M3.D2.1.2</p>		
<p>E. Use concrete objects and symbols to model the concepts of variables, expressions, equations and inequalities.</p> <p><u>ECLCI</u></p> <p>Use concrete objects to show the concepts of variables and inequalities (missing addend).</p>	<p>Find a missing number that makes the number sentence true (one digit or two digit numbers up to 18 using +, - or x through 9 x 5). M3.D.2.2.1</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Problem Solving Activities/Missing Addend 	<p>Formative:</p> <p>Summative:</p> <ul style="list-style-type: none"> • Number Sense Assessment

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Standard: 2.8 Algebra and Functions			
<p>F. Explain the meaning of solutions and symbols.</p> <p><u>ECLCI</u> Use appropriate symbols to solve equations +, -, =.</p>	<p>Identify the missing symbol (+, -, =, <, >) that makes a number sentence true. M3.D.2.2.2</p>		<p>Formative:</p> <p>Summative:</p>
<p>G. Use a table or a chart to display information.</p> <p><u>ECLCI</u> Gather, organize and display data on a bar graph and pictograph, and chart.</p>		<p>Investigations:</p> <ul style="list-style-type: none"> • Survey Questions and Secret Rules 	<p>Formative:</p> <ul style="list-style-type: none"> • Routines • Assessments 17, 18, 19, 20, 21 <p>Summative:</p> <ul style="list-style-type: none"> • Data Assessment
<p>H. Describe and interpret the data shown in tables and charts.</p> <p><u>ECLCI</u> Interpret information displayed on a graph, pictograph, and chart.</p>		<p>Investigations:</p> <ul style="list-style-type: none"> • Survey Questions and Secret Rules 	<p>Formative:</p> <ul style="list-style-type: none"> • Routines • Assessments 17, 18, 19, 20, 21 <p>Summative:</p> <ul style="list-style-type: none"> • Data Assessment

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State Benchmarks (K,3,5,8,11) & Grade Specific Benchmark	Eligible Content	Instructional Strategies and Resources	Assessments
Standard: 2.8 Algebra and Functions			
I. Demonstrate simple function rules. <u>ECLCI</u> Use +, -, <, > signs in problems.		<ul style="list-style-type: none"> • Problem Solving Activities/Make a Chart 	Formative: <ul style="list-style-type: none"> • Weekly Problem Solving Activities
J. Analyze simple functions and relationships and locate points on a simple grid. <u>ECLCI</u> Describe objects in space by position and direction (e.g. up, down, left, right, above, and below).		<ul style="list-style-type: none"> • Computer class 	Formative: Summative:

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State Benchmarks (K,3,5,8,11) & Grade Specific Benchmark	Eligible Content	Instructional Strategies and Resources	Assessments
Standard: 2.9. Geometry			
Enduring Understandings: Students will understand that: <ul style="list-style-type: none"> • Our world is made up of two and three-dimensional shapes. • Two and three-dimensional shapes have attributes. • Spatial reasoning is used to solve problems. 		Essential Questions: <ol style="list-style-type: none"> 1. What two-dimensional shapes are found in our world? 2. What are the attributes of two and three-dimensional shapes? 3. How do shapes relate to each other? 4. What is symmetry? 5. What is a reflection? 	
A. Name and label geometric shapes in two and three dimensions (e.g., circle/sphere, square/cube, triangle/pyramid, rectangle/prism). <u>ECLCI</u> Identify and label two dimensional geometrical shapes: circle square triangle rectangle hexagon trapezoid rhombus	Name/identify/describe geometric shapes in two dimensions (circle, square, rectangle, triangle, pentagon, hexagon, octagon). M3.C.1.1.1 Name/identify geometric shapes in three dimensions (sphere, cube, cylinder, cone, pyramid, rectangular prism). M3.C.1.1.2	Investigations: <ul style="list-style-type: none"> • Mathematical Thinking • Quilt Squares and Block Towns • Creative Publications: • Hands On Geoboards • Geometry (Confer) • Manipulatives 	Formative: Assessment 22 Summative: Geometry Assessment
B Build geometric shapes using concrete objects (e.g., manipulative). <u>ECLCI</u> Create and reproduce geometric designs using concrete objects.		Investigations: <ul style="list-style-type: none"> • Mathematical Thinking • Investigations: • Quilt Squares and Block Towns • Computer Program • Creative Publications: • Hands On Geoboards • Geometry (Confer) • Manipulatives 	Formative: <ul style="list-style-type: none"> • Assessment 22 Summative: <ul style="list-style-type: none"> • Geometry Assessment

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State Benchmarks (K,3,5,8,11) & Grade Specific Benchmark	Eligible Content	Instructional Strategies and Resources	Assessments
Standard: 2.9. Geometry			
<p>C. Draw two- and three-dimensional geometric shapes and construct rectangles, squares and triangles on the geoboard and on graph paper satisfying specific criteria.</p> <p><u>ECLCI</u> Draw two-dimensional geometric shapes: square rhombus trapezoid hexagon</p>	<p>Name/identify/describe geometric shapes in two dimensions (circle, square, rectangle, triangle, pentagon, hexagon, octagon). M3.C.1.1.1</p> <p>Name/identify geometric shapes in three dimensions (sphere, cube, cylinder, cone, pyramid, rectangular prism). M3.C.1.1.2</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Mathematical Thinking • Quilt Squares and Block Towns • Computer Program • Creative Publications: Hands On Geoboards • Geometry (Confer) • Manipulatives 	<p>Formative: Assessment 22</p> <p>Summative: Geometry Assessment</p>
<p>D. Find and describe geometric figures in real life.</p> <p><u>ECLCI</u> Name and describe two-dimensional geometric figures in real life.</p>		<p>Investigations:</p> <ul style="list-style-type: none"> • Mathematical Thinking • Quilt Squares and Block Towns • Creative Publications: Hands On Geoboards • Geometry (Confer) • Manipulatives 	<p>Formative: Assessment 22</p> <p>Summative: Geometry Assessment</p>
<p>E. Identify and draw lines of symmetry in geometric figures.</p> <p><u>ECLCI</u> Identify and create a line of symmetry.</p>	<p>Identify/draw one line of symmetry in a two dimensional figure. M3.C.2.1.1</p> <p>Identify symmetrical two dimensional shapes. M3.C.2.1.2</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Mathematical Thinking • Quilt Squares and Block Towns • Creative Publications: Hands On Geoboards • Geometry (Confer) • Manipulatives • Art Class 	<p>Formative: Observation</p> <p>Summative: Assessment 23 Checklist I</p>

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Standard: 2.9. Geometry			
F. Identify symmetry in nature. <u>ECLCI</u> Explore symmetry in nature.		Investigations: <ul style="list-style-type: none"> • Mathematical Thinking • Quilt Squares and Block Towns • Creative Publications: Hands On Geoboards • Geometry (Confer) • Manipulatives • Art Class 	Formative: Observation Summative: Assessment 23 Checklist I
G. Fold paper to demonstrate the reflections about a line. <u>ECLCI</u> Explore reflections.		Investigations: <ul style="list-style-type: none"> • Mathematical Thinking • Quilt Squares and Block Towns • Creative Publications: Hands On Geoboards • Geometry (Confer) • Manipulatives • Art class 	Formative: Observation Summative: Assessment 23 Checklist I
H. Show relationships between and among figures using reflections. <u>ECLCI</u> Relates reflection to symmetry.		Investigations: <ul style="list-style-type: none"> • Mathematical Thinking • Quilt Squares and Block Towns • Creative Publications: Hands On Geoboards • Geometry (Confer) • Manipulatives • Art class 	Formative: Observation Summative: Assessment 23 Checklist I
I. Predict how shapes can be changed by combining or dividing them. <u>ECLCI</u> Identify smaller shapes within given shapes.		Investigations: <ul style="list-style-type: none"> • Mathematical Thinking • Quilt Squares and Block Towns • Creative Publications: Hands On Geoboards • Geometry (Confer) • Manipulatives 	Formative: Observation

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State Benchmarks (K,3,5,8,11) & Grade Specific Benchmark	Eligible Content	Instructional Strategies and Resources	Assessments
Standard: 2.10. Trigonometry			
Enduring Understandings: Students will understand that: <ul style="list-style-type: none"> • Triangles have characteristics that are both alike and different. • Triangles are made up of lines and angles. 		Essential Questions: <ul style="list-style-type: none"> • How are triangles alike? How are triangles different? • What makes a right triangle right? 	
A. Identify right angles in the environment. <u>ECLCI</u> Identify the number of angles in a square, triangle and rectangle and sort shapes by characteristics.		Investigations: <ul style="list-style-type: none"> • Mathematical Thinking • Quilt Squares and Block Towns • Creative Publications: Hands On Geoboards • Geometry (Confer) • Manipulatives 	Formative: Assessment 24 Summative: Geometry Assessment
B. Model right angles and right triangles using concrete objects. <u>ECLCI</u> Identify the number of angles in a square, triangle and rectangle and sort shapes by characteristics.		Investigations: <ul style="list-style-type: none"> • Mathematical Thinking • Quilt Squares and Block Towns • Creative Publications: Hands On Geoboards • Geometry (Confer) • Manipulatives 	Formative: Assessment 24 Summative: Geometry Assessment

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State Benchmarks (K,3,5,8,11) & Grade Specific Benchmark	Eligible Content	Instructional Strategies and Resources	Assessments
Standard: 2.11. Concepts of Calculus			
Enduring Understandings: Students will understand that: <ul style="list-style-type: none"> • Objects, time, and data can be ordered based on their quantities. • Patterns and rules can help us order quantities. 		Essential Questions: <ul style="list-style-type: none"> • How can we order objects and quantities from least to greatest and greatest to least? • How can we determine missing numbers on a hundreds board? • How can we use a rule to complete a series of numbers? 	
A. Identify whole number quantities and measurements from least to most and greatest value. <u>ECLCI</u> Order whole numbers from least to greatest from 0 to 100.	Order a set of whole numbers from least to greatest or greatest to least (through 9,999; limit sets to no more than 4 numbers) 3.A.1.1.4	Investigation: <ul style="list-style-type: none"> • Mathematical Thinking • Number Games and • Story Problems • Teaching Number Sense • (Scharton) 	Formative: Routines Observation Assessment 3 Summative: Number Sense Assessment
B. Identify least and greatest values represented in bar graphs pictographs, and charts. <u>ECLCI</u> Collect, display and describe data using concepts of most often, least often, more, fewer, same and fewest on bar graphs.	Analyze data shown on tables, charts, or bar graphs, using the concepts of largest, smallest, most often, least often, and middle M.3.E.1.1.1	Investigations: <ul style="list-style-type: none"> • Survey Questions and Secret Rules 	Formative: Routines Assessments 17, 18, 19, 20, 21 Summative: Data Assessment

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Standard: 2.11. Concepts of Calculus			
<p>C. Categorize rates of change as faster and slower. NA</p>			
<p>D. Continue a pattern of numbers or objects that could be extended infinitely.</p> <p><u>ECLCI</u> Identify/describe/extend/create a pattern based on shape, size, symbols, color and/or sound (ex. ABBCD).</p>	<p>Extend or find a missing element in a pattern of numbers or shapes (pattern must show three repetitions- if multiples are used, limit to 2, 3, 5). M3.D.1.1.1</p> <p>Identify/describe the rule for a pattern shown (pattern must show three repetitions- if multiples are used limit to 2, 3 or 5). M3.D.1.1.2</p>	<p>Investigations:</p> <ul style="list-style-type: none"> • Manipulatives • Hundreds Board • 100 Activities for the Hundreds Board 	<p>Formative: Routines Observation Assessment 3</p> <p>Summative: Number Sense Assessment</p>

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