

Mathematics Grade K

Curriculum Writers: Nancy Canestrari, Kerry Livingston, and Phyllis Murphy

STANDARDS GLEs	Applied Learning Stand. SIP	OUTCOMES/BENCHMARKS Barrington Public Schools (NECAP GLE/GLE)	RESEARCH-BASED INSTRUCTIONAL STRATEGIES	RESOURCES	RESEARCH-BASED ASSESSMENT/ EVIDENCE
<p>CONTENT STRANDS</p> <ul style="list-style-type: none"> • Number and Operations • Geometry and Measurement • Functions and Algebra • Data, Statistics, and Probability <p>PROCESS STRANDS</p> <ul style="list-style-type: none"> • Problem-solving, Reasoning, and Proof • Communication, Connections, and 		<p>NECAP GRADE LEVEL EXPECTATIONS</p> <p>All of the concepts and skills identified at a given grade level are "fair game" for large scale assessment purposes if indicated by (state assessment, grade...)</p> <p>Each GLE includes three parts:</p> <ul style="list-style-type: none"> • A statement in bold, called the "stem" is at the beginning of each GLE. Each "stem" is the same or similar across the grades for a given GLE, and is meant to communicate the main curriculum and instructional focus of the GLE across the grades. • The unbolded text within a GLE indicates how the GLE is specified at a given grade level. There are often several indicators for each GLE stem. Each indicator is coded and indicated fair game for "state" or "local" assessment • Differences between adjacent grades are underlined. Sometimes nothing is underlined within a GLE. In these situations, differences in adjacent grades "assumes increasing text complexity" and is noted for those GLEs. • Each GLE is coded for the content area, the grade level, the GLE "stem" number, and specific indicator for that GLE stem, (e.g. N&O - 5-6.2) means N & O (numbers 	<p>DISTRICT INITIATIVES & RESEARCH</p> <p>The teacher Employs strategies of "best practice" (student-centered, experiential, holistic, authentic, expressive, reflective, social, collaborative, democratic, cognitive, developmental, constructivist/heuristic, and challenging)</p> <p>Facilitates the integration of Applied Learning Standards (SCANS)</p> <ul style="list-style-type: none"> • critical thinking • problem solving • research • communication • reflection and evaluation <p>Applies Principles of Learning (POL) ©</p> <ul style="list-style-type: none"> • organizing for effort • clear expectations • fair and credible evaluations • recognition of accomplishment • academic rigor • accountable talk • socializing intelligence • self-management of learning • learning as apprenticeship <p>Applies Principles of Disciplinary Literacy</p> <p>Differentiates instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> ▪ tiered activities ▪ jigsawing ▪ anchoring ▪ think/pair/share ▪ cubing, etc. <p>Analyzes pre-assessment to direct instruction</p> <p>Provides exemplars and rubrics</p> <p>Addresses multiple intelligences and brain dominance</p>	<p>Textbook <i>Everyday Mathematics Grade K</i></p> <p>Supplementary books</p> <ul style="list-style-type: none"> • <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde • <i>Mathematics Books by Marilyn Burns</i> • <i>Exemplars</i> • <i>Box It or Bag It Math</i> • <i>Teaching Children Mathematics</i>, NCTM • <i>Teaching Number Sense for K</i>, Chris Confer <p>Technology</p> <ul style="list-style-type: none"> • <i>Calculators</i> • <i>Computer lab</i> • www.ridoe.net • NECompact.org • <i>SCHOOL Resource Folder</i> <p>Materials</p> <ul style="list-style-type: none"> • <i>Unifix cubes</i> • <i>3D-solids</i> • <i>Rulers</i> • <i>Number lines</i> • <i>Multiplication charts</i> • <i>Fraction bars</i> • <i>EDM games</i> • <i>Graphing paper</i> <p>School library resources</p> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano <p>Community</p>	<p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> • MID-YEAR ASSESSMENT (EDM and Problem Solver) • END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED</p> <p>Anecdotal records</p> <p>Conferencing</p> <p>Exhibits</p> <p>Interviews</p> <p>Journals/notebooks</p> <p>Graphic organizers and/or visual imagery</p> <p>Multiple Intelligences assessments e.g.</p> <ul style="list-style-type: none"> • role playing, short plays (bodily kinesthetic) • graphic organizing, sketch journals/ cartooning (visual) • collaboration/ conferencing interpersonal • songs, lyrics (musical) <p>Portfolio (samples of process and products)</p> <p>Performance/problem-based tasks</p>

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<p>Representations</p>		<p>and operations), 5 (grade 5), 6 (6th GLE stem), 2 (the second specific indicator for the 6th GLE stem).</p> <p>If an outcome does not have a GLE number, it indicates this is an additional expectation for Barrington Public Schools.</p> <p>Outcomes and Benchmarks are indicated for all MATHEMATICS GLEs/standards and are secured for this grade level unless indicated with a B for beginning or a D for developing.</p> <p>The instructional strategies, resources, and assessments to the right are a reference list of possible ways to teach and measure the outcomes/benchmarks. One, some, or all of these may be used for specific outcomes/benchmarks. The lists reflect research-based instructional strategies and assessments, and all of the district initiatives. Required district-wide assessments that includes common local assessments (REQUIRED PROBLEMS, MID-YEAR/final exams, quarterly tests), are indicated and it is the expectation they will be used for all outcomes/benchmarks</p> <p>When an instructional strategy, resource, or assessment is specific to an outcome/benchmark, it may be listed next to the benchmark.</p>	<p>(spatial, bodily kinesthetic, musical, linguistic, intrapersonal, interpersonal, mathematical/logical, and naturalist)</p> <p>Organizes exhibition of student work with rubrics</p> <p>Collaborates with specialist to differentiate instruction for ALL students</p> <p>MATHEMATICS STRATEGIES</p> <p>Employs Mathematics best practice strategies e.g.</p> <ul style="list-style-type: none"> • using manipulatives • facilitating cooperative group work • discussing mathematics • questioning • justifying of thinking • facilitating problem solving approach to instruction • integrating content with other core subjects • using appropriate technology • using frequent assessment to modify instruction • modeling functions of a calculator <p>Adapts reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L • visualizing • asking strategies • inferring • predicting • making connections • determining importance • synthesizing 		

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<p>1. NUMBER and OPERATIONS</p> <p>1.1 Rational numbers</p>		<p>The student</p> <p>1.1.1 Demonstrates conceptual understanding of rational numbers using models, explanations, or other representations with respect to:</p> <ul style="list-style-type: none"> • investigations of whole numbers from 0 to 12 (0-100 D) <ul style="list-style-type: none"> ○ equivalency e.g. $5+5=10$ ○ composition e.g. $2+2=4$ ○ decomposition e.g. $8= 4+4$ ○ place value D e.g. ones and tens ○ expanded notation D e.g. "teen" number as $10 + a$ digit • positive fractional numbers <ul style="list-style-type: none"> ○ halves as "fair share" (e.g. equal sized parts or sets) ○ thirds, fourths D M(N&O)-K-1 <p>1.1.2 Understands, uses, applies appropriate technology to solve problems</p> <p>1.1.3 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> • Cupcakes #1 • Pizza for Two #2 	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> • using manipulatives • facilitating cooperative group work • discussing mathematics • questioning • justifying of thinking • facilitating problem solving approach to instruction • integrating content with other core subjects • using appropriate technology • using frequent assessment to modify instruction • modeling functions of a calculator <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> ▪ tiered activities ▪ jigsawing ▪ anchoring ▪ think/pair/share ▪ cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u> <i>Everyday Mathematics Grade K</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> • <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde • Mathematics Books by Marilyn Burns • <i>Exemplars</i> • Box It or Bag It Math • <i>Teaching Children Mathematics</i>, NCTM • <i>Teaching Number Sense for K</i>, Chris Confer <p><u>Technology</u></p> <ul style="list-style-type: none"> • Calculators • Computer lab • www.ridoe.net • NECompact.org • SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> • Unifix cubes • 3D-solids • Rulers • Number lines • EDM cards • EDM games <p><u>School library resources</u></p> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> • MID-YEAR ASSESSMENT (EDM and Problem Solver) • END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p>

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			<ul style="list-style-type: none"> visualizing asking strategies inferring predicting making connections determining importance synthesizing 	<u>Community</u> <ul style="list-style-type: none"> Parent volunteers 	
1. NUMBER and OPERATIONS 1.2 Relative magnitude of numbers		<p>The student</p> <p>1.2.1 Demonstrates understanding of the relative magnitude of numbers from 0 to 20 (0-100) (D) through investigations that</p> <ul style="list-style-type: none"> demonstrate one-to-one correspondence compare whole numbers to each other or to benchmark whole numbers (5, 10) demonstrate an understanding of the relation of inequality when comparing whole numbers by using <ul style="list-style-type: none"> "1 more" or "1 less" "5 more" or "5 less" (D) "10 more" or "10 less" (D) connect numbers orally and written as numerals to the quantities that they represent using models, representations, or number lines. M(N&O)-K-2 <p>1.2.2 Understands, uses, applies appropriate technology to solve problems</p> <p>1.2.3 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> Right Number of Elephants, <i>Teaching Number Sense For K</i>, Chris Confer, pp 5-10 	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> using manipulatives facilitating cooperative group work discussing mathematics questioning justifying of thinking facilitating problem solving approach to instruction integrating content with other core subjects using appropriate technology using frequent assessment to modify instruction modeling functions of a calculator <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> tiered activities 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u> <i>Everyday Mathematics Grade K</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde Mathematics Books by Marilyn Burns <i>Exemplars</i> Box It or Bag It Math <i>Teaching Children Mathematics</i>, NCTM <i>Teaching Number Sense for K</i>, Chris Confer <p><u>Technology</u></p> <ul style="list-style-type: none"> Calculators Computer lab www.ridoe.net NECompact.org SCHOOL Resource Folder <p><u>Materials</u></p>	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESMENTS</p> <ul style="list-style-type: none"> MID-YEAR ASSESSMENT (EDM and Problem Solver) END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p>

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			<ul style="list-style-type: none"> ▪ jigsawing ▪ anchoring ▪ think/pair/share ▪ cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L • visualizing • asking strategies • inferring • predicting • making connections • determining importance • synthesizing 	<ul style="list-style-type: none"> • Unifix cubes • 3D-solids • Rulers • Number lines • EDM cards • EDM games <p><u>School library resources</u></p> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano <p><u>Community</u></p> <ul style="list-style-type: none"> • Parent volunteers 	
<p>1. NUMBER and OPERATIONS</p> <p>1.3 Operations</p>		<p>The student</p> <p>1.3.1 Demonstrates conceptual understanding of mathematical operations through investigations involving addition and subtraction of whole numbers (from 0 to 10) by solving problems:</p> <ul style="list-style-type: none"> • joining actions (e.g. $2+3=$__) • separating actions (e.g. $5-2=$__) • part-part whole relationships (e.g. $5=3+$__, $3+2=$__, or $5-3=$__) • comparison situations (e.g. 9 is greater than 4) • addition of multiple one-digit whole numbers (e.g. $1+1+1=$__) M(N&O)-K-3 <p>1.3.2 Understands, uses, applies appropriate technology to solve problems.</p>	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> • using manipulatives • facilitating cooperative group work • discussing mathematics • questioning • justifying of thinking • facilitating problem solving approach to instruction • integrating content with other core subjects • using appropriate technology • using frequent assessment 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <p><i>Everyday Mathematics Grade K</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> • <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde • <i>Mathematics Books by Marilyn Burns</i> • <i>Exemplars</i> • <i>Box It or Bag It Math</i> • <i>Teaching Children Mathematics</i>, NCTM • <i>Teaching Number Sense for K</i>, Chris 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> • MID-YEAR ASSESSMENT (EDM and Problem Solver) • END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p>

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		<p>1.3.3 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> • Pumpkins #3 • Turkeys #4 • Boots and Hats (existing mid- year assessment) • Duck Feet (existing end-of-year assessment) 	<p>to modify instruction</p> <ul style="list-style-type: none"> • modeling functions of a calculator <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> ▪ tiered activities ▪ jigsawing ▪ anchoring ▪ think/pair/share ▪ cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L • visualizing • asking strategies • inferring • predicting • making connections • determining importance • synthesizing 	<p style="text-align: center;"><i>Confer</i></p> <p>Technology</p> <ul style="list-style-type: none"> • Calculators • Computer lab • www.ridoe.net • NECompact.org • SCHOOL Resource Folder <p>Materials</p> <ul style="list-style-type: none"> • Unifix cubes • 3D-solids • Rulers • Number lines • EDM cards • EDM games <p>School library resources</p> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano <p>Community</p> <ul style="list-style-type: none"> • Parent volunteers 	<p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p>
<p>1. NUMBER and OPERATIONS</p> <p>1.4 Monetary</p>		<p>The student</p> <p>1.4.1 Demonstrates understanding of monetary value through investigation involving</p> <ul style="list-style-type: none"> • knowing the names and values for coins (penny, nickel and dime) (quarter D) M(N&O)-K-5 • adding collections of like coins together to a sum no greater than \$.50, e.g. counting nickels by 5s. D M(N&O)-1-5 	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> • using manipulatives • facilitating cooperative group work • discussing mathematics 	<p>Resources, also see pages 1-2</p> <p>Textbook <i>Everyday Mathematics Grade K</i></p> <p>Supplementary books</p> <ul style="list-style-type: none"> • <i>Comprehending Math: Adapting Reading Strategies to Teach</i> 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> • MID-YEAR ASSESSMENT (EDM and Problem Solver) • END-OF-YEAR ASSESSMENT (EDM and

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			<ul style="list-style-type: none"> • questioning • justifying of thinking • facilitating problem solving approach to instruction • integrating content with other core subjects • using appropriate technology • using frequent assessment to modify instruction • modeling functions of a calculator <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> ▪ tiered activities ▪ jigsawing ▪ anchoring ▪ think/pair/share ▪ cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L • visualizing • asking strategies • inferring • predicting • making connections • determining importance • synthesizing 	<p><i>Math, K-6</i>, Arthur Hyde</p> <ul style="list-style-type: none"> • <i>Mathematics Books</i> by Marilyn Burns • <i>Exemplars</i> • <i>Box It or Bag It Math</i> • <i>Teaching Children Mathematics</i>, NCTM • <i>Teaching Number Sense for K</i>, Chris Confer <p><u>Technology</u></p> <ul style="list-style-type: none"> • Calculators • Computer lab • www.ridoe.net • NECompact.org • SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> • Unifix cubes • 3D-solids • Rulers • Number lines • EDM cards • EDM games <p><u>School library resources</u></p> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano <p><u>Community</u></p> <ul style="list-style-type: none"> • Parent volunteers 	<p style="text-align: center;">Problem Solver)</p> <p><u>SUGGESTED ASSESSMENTS</u></p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p>

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<p>1. NUMBER and OPERATIONS</p> <p>1.5 Mental calculations</p>		<p>The student</p> <p>1.5.1 Mentally</p> <ul style="list-style-type: none"> adds and subtracts whole numbers by naming the number that is one more or one less than the original number. M(N&O)-K-6 <p>IMPORTANT: <i>The intent of this GLE is to embed mental arithmetic throughout the instructional program, not to teach it as a separate unit.)</i></p> <p>1.5.2 Understands, uses, applies appropriate technology to solve problems</p> <p>1.5.3 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> Calendar Activities Morning Message 	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> using manipulatives facilitating cooperative group work discussing mathematics questioning justifying of thinking facilitating problem solving approach to instruction integrating content with other core subjects using appropriate technology using frequent assessment to modify instruction modeling functions of a calculator <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> tiered activities jigsawing anchoring think/pair/share cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> K-W-L 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u> <i>Everyday Mathematics Grade K</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde Mathematics Books by Marilyn Burns <i>Exemplars</i> Box It or Bag It Math <i>Teaching Children Mathematics</i>, NCTM <i>Teaching Number Sense for K</i>, Chris Confer <p><u>Technology</u></p> <ul style="list-style-type: none"> Calculators Computer lab www.ridoe.net NECompact.org SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> Unifix cubes 3D-solids Rulers Number lines EDM cards EDM games <p><u>School library resources</u></p> <ul style="list-style-type: none"> <i>Classroom Instruction That Works</i>, Marzano 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> MID-YEAR ASSESSMENT (EDM and Problem Solver) END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p>

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<p>1. NUMBER and OPERATIONS</p> <p>1.6 Estimates</p>		<p>The student</p> <p>1.6.1 Makes estimates of the number of objects in a set (up to 30) and revises estimate as objects are counted</p> <ul style="list-style-type: none"> e.g. estimates the number of pennies in a jar as 20, then count the first 10 and make another estimate based on those that have been counted and those that remain in the jar. M(N&O)-K-7 <p>IMPORTANT: <i>Estimation should be embedded instructionally throughout all strands.</i></p> <p>1.6.2 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> M&Ms #5 	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> using manipulatives facilitating cooperative group work discussing mathematics questioning justifying of thinking facilitating problem solving approach to instruction integrating content with other core subjects using appropriate technology using frequent assessment to modify instruction modeling functions of a calculator <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> tiered activities 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u> <i>Everyday Mathematics Grade K</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde Mathematics Books by Marilyn Burns <i>Exemplars</i> Box It or Bag It Math <i>Teaching Children Mathematics</i>, NCTM <i>Teaching Number Sense for K</i>, Chris Confer <p><u>Technology</u></p> <ul style="list-style-type: none"> Computer lab www.ridoe.net NECompact.org SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> Unifix cubes 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESMENTS</p> <ul style="list-style-type: none"> MID-YEAR ASSESSMENT (EDM and Problem Solver) END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p>


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			<ul style="list-style-type: none"> ▪ jigsawing ▪ anchoring ▪ think/pair/share ▪ cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L • visualizing • asking strategies • inferring • predicting • making connections • determining importance • synthesizing 	<ul style="list-style-type: none"> • 3D-solids • Rulers • Number lines • EDM cards • EDM games <p><u>School library resources</u></p> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano <p><u>Community</u></p> <ul style="list-style-type: none"> • Parent volunteers 	
<p>2. GEOMETRY AND MEASUREMENT</p> <p>2.1 Polygons</p>		<p>The student</p> <p>2.1.1 Uses</p> <ul style="list-style-type: none"> • properties - characteristics that are true to a geometric shape • attributes - shape, size, color, and shading <ul style="list-style-type: none"> ○ measurable - attributes that could be described by a measurement (e.g. weight, length, height) ○ non-measurable - attributes that typically not described by a measurement (e.g. the texture of material, a type of material, or the shape of an object) • composition, or decomposition - conceptual understanding of congruency as a result of composing or decomposing shapes to 	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> • using manipulatives • facilitating cooperative group work • discussing mathematics • questioning • justifying of thinking • facilitating problem solving approach to instruction • integrating content with other core subjects • using appropriate technology • using frequent assessment 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <p><i>Everyday Mathematics Grade K</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> • <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde • <i>Mathematics Books</i> by Marilyn Burns • <i>Exemplars</i> • <i>Box It or Bag It Math</i> • <i>Teaching Children Mathematics</i>, NCTM • <i>Teaching Number Sense for K</i>, Chris 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> • MID-YEAR ASSESSMENT (EDM and Problem Solver) • END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p>

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		<p>identify or create congruent figures by putting shapes together with no gaps or overlaps or by taking shapes</p>  <p>to sort or classify polygons (triangles, squares, rectangles, rhombi, trapezoids, or hexagons) objects by using one non-measurable or measurable attributes. M(G&M)-K-1</p> <p>2.1.2 Recognizes, names, and builds polygons and circles in the environment. M(G&M)-K-1</p> <p>2.1.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>2.1.4 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> • Sorting with Blocks # 6 • Triangles and Shapes #7 	<p>to modify instruction</p> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> ▪ tiered activities ▪ jigsawing ▪ anchoring ▪ think/pair/share ▪ cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L • visualizing • asking strategies • inferring • predicting • making connections • determining importance • synthesizing 	<p style="text-align: center;">Confer</p> <p>Technology</p> <ul style="list-style-type: none"> • Computer lab • www.ridoe.net • NECompact.org • SCHOOL Resource Folder <p>Materials</p> <ul style="list-style-type: none"> • Unifix cubes • 3D-solids • Rulers • Number lines • EDM cards • EDM games • Geoboards • Pattern blocks • Graphing paper • Dot paper • Tangrams • Attribute blocks • Environmental collectons <p>School library resources</p> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano <p>Community</p> <ul style="list-style-type: none"> • Parent volunteers 	<p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p>
2 GEOMETRY AND MEASUREMENT		<p>The student</p> <p>2.2.1 Demonstrates conceptual understanding of congruency by</p> <ul style="list-style-type: none"> • making mirror images • creating shapes that have line symmetry. (D) M(G&M)-1-4 <p>2.2.2 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> • Stairs # 8 	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> • using manipulatives • facilitating cooperative group work • discussing mathematics 	<p>Resources, also see pages 1-2</p> <p>Textbook</p> <p><i>Everyday Mathematics Grade K</i></p> <p>Supplementary books</p> <ul style="list-style-type: none"> • <i>Comprehending Math: Adapting Reading Strategies to Teach</i> 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> • MID-YEAR ASSESSMENT (EDM and Problem Solver) • END-OF-YEAR ASSESSMENT (EDM and

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		<ul style="list-style-type: none"> Shapes #9 	<ul style="list-style-type: none"> questioning justifying of thinking facilitating problem solving approach to instruction integrating content with other core subjects using appropriate technology using frequent assessment to modify instruction <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> tiered activities jigsawing anchoring think/pair/share cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> K-W-L visualizing asking strategies inferring predicting making connections determining importance synthesizing 	<p><i>Math, K-6</i>, Arthur Hyde</p> <ul style="list-style-type: none"> Mathematics Books by Marilyn Burns <i>Exemplars</i> Box It or Bag It Math <i>Teaching Children Mathematics</i>, NCTM <i>Teaching Number Sense for K</i>, Chris Confer <p><u>Technology</u></p> <ul style="list-style-type: none"> Computer lab www.ridoe.net NECompact.org SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> Geoboards Pattern blocks template Dot paper mirrors <p><u>School library resources</u></p> <ul style="list-style-type: none"> <i>Classroom Instruction That Works</i>, Marzano <p><u>Community</u></p> <ul style="list-style-type: none"> Parent volunteers 	<p>Problem Solver)</p> <p><u>SUGGESTED ASSESSMENTS</u></p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p>
2. GEOMETRY AND MEASUREMENT		<p>The student</p> <p>2.3.1 Demonstrates conceptual understanding of</p>	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p>	<p>Resources, also see pages 1-2</p>	<p>Assessments/evidence, also see pages 1-2</p>

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2.3 Measurement		<p>measurable attributes using comparative language to describe and compare attributes of objects</p> <ul style="list-style-type: none"> • length [longer, shorter] • height [taller, shorter] • weight [heavier, lighter] • temperature [warmer, cooler] • capacity [more, less] <p>2.3.2 Compares objects visually and with direct comparison. M(G&M)-K-7</p> <p>2.3.3 Determines elapsed and accrued time as it relates to</p> <ul style="list-style-type: none"> • calendar patterns (days of the week, yesterday, today, and tomorrow) • the sequence of events in a day and identifies a clock and calendar as measurement tools (days of week, months of the year) M(G&M)-K-8 <p>2.3.4 Understands, uses, applies appropriate technology to solve problems.</p> <p>2.3.5 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> • Are You a Square? # 10 • Rods to Roads #11 • Calendar Pattern #12 	<p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> • using manipulatives • facilitating cooperative group work • discussing mathematics • questioning • justifying of thinking • facilitating problem solving approach to instruction • integrating content with other core subjects • using appropriate technology • using frequent assessment to modify instruction <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> ▪ tiered activities ▪ jigsawing ▪ anchoring ▪ think/pair/share ▪ cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L • visualizing • asking strategies • inferring • predicting • making connections • determining importance 	<p><u>Textbook</u> <i>Everyday Mathematics Grade K</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> • <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde • <i>Mathematics Books by Marilyn Burns</i> • <i>Exemplars</i> • <i>Box It or Bag It Math</i> • <i>Teaching Children Mathematics</i>, NCTM • <i>Teaching Number Sense for K</i>, Chris Confer <p><u>Technology</u></p> <ul style="list-style-type: none"> • Computer lab • www.ridoe.net • NECompact.org • SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> • Unifix cubes • 3D-solids • rulers • balance scales • clocks • Cuisenaire rods <p><u>School library resources</u></p> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano <p><u>Community</u></p> <ul style="list-style-type: none"> • Parent volunteers 	<p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> • MID-YEAR ASSESSMENT (EDM and Problem Solver) • END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p>

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			<ul style="list-style-type: none"> synthesizing 		
<p>2. GEOMETRY AND MEASUREMENT</p> <p>2.4 Spatial relationships</p>		<p>The student</p> <p>2.4.2 Demonstrates understanding of spatial relationships using location and position by using positional words, e.g.</p> <ul style="list-style-type: none"> next to top/bottom under above below <p>to locate and describe where an object is found in the environment. M(G&M)-K-9</p> <p>2.4.3 REQUIRED PROBLEMS</p>	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> using manipulatives facilitating cooperative group work discussing mathematics questioning justifying of thinking facilitating problem solving approach to instruction integrating content with other core subjects using appropriate technology using frequent assessment to modify instruction <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> tiered activities jigsawing anchoring think/pair/share cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> K-W-L 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u> <i>Everyday Mathematics Grade K</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde Mathematics Books by Marilyn Burns <i>Exemplars</i> Box It or Bag It Math <i>Teaching Children Mathematics</i>, NCTM <i>Teaching Number Sense for K</i>, Chris Confer <p><u>Technology</u></p> <ul style="list-style-type: none"> Computer lab www.ridoe.net NECompact.org SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> manipulatives <p><u>School library resources</u></p> <ul style="list-style-type: none"> <i>Classroom Instruction That Works</i>, Marzano <p><u>Community</u></p> <ul style="list-style-type: none"> Parent volunteers 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> MID-YEAR ASSESSMENT (EDM and Problem Solver) END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p>

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			<ul style="list-style-type: none"> visualizing asking strategies inferring predicting making connections determining importance synthesizing 		
3. FUNCTIONS AND ALGEBRA 3.1 Variety of patterns		<p>The student</p> <p>3.1.1 Identifies and extends to specific cases a variety of patterns (sequences of shapes, sounds, movement, colors, and letters) by</p> <ul style="list-style-type: none"> extending the pattern to the next one, two or three elements translating AB patterns across formats e.g., an "abb" pattern can be represented as snap, clap, clap or red, yellow, yellow) identifying number patterns in the environment. M(F&A)-K-1 <p>3.1.2 Understands, uses, applies appropriate technology to solve problems.</p> <p>3.1.3 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> Mother's Day #14 Flowers #13 Calendar Pattern #12 	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> using manipulatives facilitating cooperative group work discussing mathematics questioning justifying of thinking facilitating problem solving approach to instruction integrating content with other core subjects using appropriate technology using frequent assessment to modify instruction <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> tiered activities jigsawing anchoring 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u> <i>Everyday Mathematics Grade K</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde Mathematics Books by Marilyn Burns <i>Exemplars</i> Box It or Bag It Math <i>Teaching Children Mathematics</i>, NCTM <i>Teaching Number Sense for K</i>, Chris Confer <p><u>Technology</u></p> <ul style="list-style-type: none"> Computer lab www.ridoe.net NECompact.org SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> Pattern tiles 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> MID-YEAR ASSESSMENT (EDM and Problem Solver) END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p>

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			<ul style="list-style-type: none"> ▪ think/pair/share ▪ cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L • visualizing • asking strategies • inferring • predicting • making connections • determining importance • synthesizing 	<ul style="list-style-type: none"> • Unifix cubes • 3D-solids <p><u>School library resources</u></p> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano <p><u>Community</u></p> <ul style="list-style-type: none"> • Parent volunteers 	
<p>4. DATA, STATISTICS, AND PROBABILITY</p> <p>4.1 Given representation</p>		<p>The student</p> <p>4.1.1 Interprets a given representation created by the class (models and tally charts) to</p> <ul style="list-style-type: none"> • answer questions related to the data • analyze the data to formulate conclusions using words, diagrams, or verbal/scribed responses to express answers. M(DSP)-K-1 <p>IMPORTANT: <i>Analyzes data consistent with concepts and skills in M(DSP)-K-2.)</i></p> <p>4.1.2 Understands, uses, applies appropriate technology to solve problems</p> <p>4.1.3 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> • Weather Watchers #15 • M & Ms #5 	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> • using manipulatives • facilitating cooperative group work • discussing mathematics • questioning and making conjectures • justifying of thinking • facilitating problem solving approach to instruction • integrating content with other core subjects • using appropriate technology • using frequent assessment to modify instruction 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u> <i>Everyday Mathematics Grade K</i></p> <p><u>Supplementary books/materials</u></p> <ul style="list-style-type: none"> • <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde • <i>Mathematics Books by Marilyn Burns</i> • <i>Exemplars</i> • <i>Box It or Bag It Math</i> • <i>Teaching Children Mathematics</i>, NCTM • <i>Comprehensive Math Assessment</i>, Options Pub., Inc 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> • MID-YEAR ASSESSMENT (EDM and Problem Solver) • END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p>

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			<ul style="list-style-type: none"> modeling functions of a calculator <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> tiered assignments jigsawing anchoring think/pair/share cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> K-W-L visualizing asking strategies inferring predicting making connections determining importance synthesizing 	<p><u>Technology</u></p> <ul style="list-style-type: none"> Computer lab www.ridoe.net NECompact.org SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> Dice Spinners Two-colored Chips Graphing paper <p><u>School library resources</u></p> <ul style="list-style-type: none"> <i>Classroom Instruction That Works, Marzano</i> <p><u>Community</u></p>	Portfolio (samples of process and products)
<p>4. DATA, STATISTICS, AND PROBABILITY</p> <p>4.2 Patterns, trends, distributions</p>		<p>The student</p> <p>4.2.1 Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using</p> <ul style="list-style-type: none"> more less equal (e.g. Have there been more, less, or the same number of cloudy days compared to sunny days this week?) M(DSP)-K-2 	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> using manipulatives facilitating cooperative group work discussing mathematics questioning and making 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u> <i>Everyday Mathematics Grade K</i></p> <p><u>Supplementary books/materials</u></p> <ul style="list-style-type: none"> <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6, Arthur</i> 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> MID-YEAR ASSESSMENT (EDM and Problem Solver) END-OF-YEAR ASSESSMENT (EDM and Problem Solver)

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		<p>4.2.2 Understands, uses, applies appropriate technology to solve problems.</p> <p>4.2.3 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> • Roosters Off to See the World #16 	<p>conjectures</p> <ul style="list-style-type: none"> • justifying of thinking • facilitating problem solving approach to instruction • integrating content with other core subjects • using appropriate technology • using frequent assessment to modify instruction • modeling functions of a calculator <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> ▪ tiered assignments ▪ jigsawing ▪ anchoring ▪ think/pair/share ▪ cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L • visualizing • asking strategies • inferring • predicting • making connections • determining importance • synthesizing 	<p>Hyde</p> <ul style="list-style-type: none"> • Mathematics Books by Marilyn Burns • <i>Exemplars</i> • Box It or Bag It Math • <i>Teaching Children Mathematics</i>, NCTM • <i>Comprehensive Math Assessment</i>, Options Pub., Inc <p>Technology</p> <ul style="list-style-type: none"> • Computer lab • www.ridoe.net • NECompact.org • SCHOOL Resource Folder <p>Materials</p> <ul style="list-style-type: none"> • Dice • Spinners • Two-colored Chips • Graphing paper <p>School library resources</p> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano <p>Community</p>	<p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p>

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<p>4. DATA, STATISTICS, AND PROBABILITY</p> <p>4.3 Counting techniques</p>		<p>The student</p> <p>4.3.1 Uses counting techniques to solve problems using a variety of strategies e.g.,</p> <ul style="list-style-type: none"> • objects (manipulatives) • act it out • student diagrams (B) M(DSP)-2-4 <p>4.3.2 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> • Bulbs in a Bag #17 • Zoo #18 	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> • using manipulatives • facilitating cooperative group work • discussing mathematics • questioning and making conjectures • facilitating problem solving approach to instruction • integrating content with other core subjects • using appropriate technology • using frequent assessment to modify instruction • modeling functions of a calculator <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> ▪ tiered assignments ▪ jigsawing ▪ anchoring ▪ think/pair/share ▪ cubing, etc. <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u> <i>Everyday Mathematics Grade K</i></p> <p><u>Supplementary books/materials</u></p> <ul style="list-style-type: none"> • <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde • <i>Mathematics Books by Marilyn Burns Exemplars</i> • <i>Box It or Bag It Math</i> • <i>Teaching Children Mathematics</i>, NCTM • <i>Comprehensive Math Assessment</i>, Options Pub., Inc <p><u>Technology</u></p> <ul style="list-style-type: none"> • Computer lab • www.ridoe.net • NECompact.org • SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> • Dice • Spinners • Two-colored Chips • Graphing paper <p><u>School library resources</u></p> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano <p><u>Community</u></p>	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESMENTS</p> <ul style="list-style-type: none"> • MID-YEAR ASSESSMENT (EDM and Problem Solver) • END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESMENTS</p> <p>Anecdotal record</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p>

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			<ul style="list-style-type: none"> visualizing asking strategies inferring predicting making connections determining importance synthesizing 		
<p>5. PROBLEM SOLVING, REASONING, AND PROOF</p> <p>5.1 Problem Solving strategies</p>		<p>Students will begin to use some problem-solving strategies to investigate and understand increasingly complex mathematical content and be able to:</p> <p>5.1.1 Formulate and solve multi-step problems from everyday and mathematical situations.</p> <p>5.1.2 Solve problems using a variety of strategies (e.g. working backwards, looking for patterns and relationships, guess and check, making tables, charts, or organized lists, solving a simpler version of a problem, drawing a diagram or creating a model)</p> <p>5.1.3 Verify and interpret results with respect to the original problem.</p> <p>5.1.4 Determine if the solution of a problem is reasonable.</p> <p>5.1.5 Solve problems using manipulatives, graphs, charts, diagrams, and calculators.</p> <p>5.1.6 Demonstrate that a problem may be solved in more than one way.</p>	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> using manipulatives facilitating cooperative group work discussing mathematics questioning and making conjectures justifying of thinking facilitating problem solving approach to instruction integrating content with other core subjects using appropriate technology using frequent assessment to modify instruction <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> K-W-L visualizing asking strategies 	<p>Resources, also see pages 1-2</p> <p>Textbook</p> <ul style="list-style-type: none"> <i>Everyday Mathematics Grade K</i> <p>Supplementary books</p> <ul style="list-style-type: none"> <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde Mathematics Books by Marilyn Burns <i>Exemplars</i> Box It or Bag It Math <i>Teaching Children Mathematics</i>, NCTM <i>Comprehensive Math Assessment</i>, Options Pub., Inc <p>Technology</p> <ul style="list-style-type: none"> Computer lab www.ridoe.net NECompact.org SCHOOL Resource Folder <p>Materials</p> <ul style="list-style-type: none"> Unifix cubes Manipulatives 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> MID-YEAR ASSESSMENT (EDM and Problem Solver) END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p>

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		5.1.7 Exhibit confidence in their ability to solve problems independently and in groups. 5.1.8 Display increasing perseverance, and persistence in problem solving. M(PRP)-2-1	<ul style="list-style-type: none"> • inferring • predicting • making connections • determining importance • synthesizing 	<u>School library resources</u> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano <u>Community</u>	
5. PROBLEM SOLVING, REASONING, AND PROOF 5.2 Mathematical reasoning and proof		<p>The student will begin to use some mathematical reasoning and proof and be able to:</p> 5.2.1 Use models, known facts, properties, and relationships to explain their thinking. 5.2.2 Justify solution processes and answers (e.g. "I chose this method to solve the problem because...") 5.2.3 Draw conclusions using inductive reasoning. 5.2.4 Identify the missing information needed to find a solution to a given story problem. 5.2.5 Use patterns and relationships to analyze mathematical situations (e.g. count by fives) M(PRP)-2-2	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> • using manipulatives • facilitating cooperative group work • discussing mathematics • questioning and making conjectures • justifying of thinking • facilitating problem solving approach to instruction • integrating content with other core subjects • using appropriate technology • using frequent assessment to modify instruction <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L • visualizing • asking strategies • inferring 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> • <i>Everyday Mathematics Grade K</i> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> • <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde • <i>Mathematics Books by Marilyn Burns</i> • <i>Exemplars</i> • <i>Box It or Bag It Math</i> • <i>Teaching Children Mathematics</i>, NCTM • <i>Comprehensive Math Assessment</i>, Options Pub., Inc <p><u>Technology</u></p> <ul style="list-style-type: none"> • Computer lab • www.ridoe.net • NECompact.org • SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> • Unifix cubes • Manipulatives 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> • MID-YEAR ASSESSMENT (EDM and Problem Solver) • END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p>

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			<ul style="list-style-type: none"> • predicting • making connections • determining importance • synthesizing 	<u>School library resources</u> <ul style="list-style-type: none"> • <i>Classroom Instruction That Works</i>, Marzano <u>Community</u>	
<p>6. COMMUNICATION, CONNECTIONS, AND REPRESENTATION</p> <p>6.1 Communicate understanding</p>		<p>Students will begin to communicate their understanding of mathematics and be able to:</p> <p>6.1.1 Demonstrate mathematical communication through discussion, reading, writing, listening, and responding, individually and in groups.</p> <p>6.1.2 Discuss relationships between everyday language and mathematical language and symbols (e.g. words that mean something different in mathematics and in everyday life)</p> <p>6.1.3 Explain conclusions, thought processes, and strategies in problem-solving situations.</p> <p>6.1.4 Discuss, illustrate, and write about mathematical concepts and relationships.</p> <p>6.1.5 Draw pictures and use objects to illustrate mathematical concepts. M(CCR)-2-1</p>	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> • using manipulatives • facilitating cooperative group work • discussing mathematics • questioning and making conjectures • justifying of thinking • facilitating problem solving approach to instruction • integrating content with other core subjects • using appropriate technology • using frequent assessment to modify instruction <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> • K-W-L • visualizing • asking strategies • inferring • predicting • making connections 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> • <i>Everyday Mathematics Grade K</i> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> • <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde • Mathematics Books by Marilyn Burns • <i>Exemplars</i> • <i>Box It or Bag It Math</i> • <i>Teaching Children Mathematics</i>, NCTM • <i>Comprehensive Math Assessment</i>, Options Pub., Inc <p><u>Technology</u></p> <ul style="list-style-type: none"> • Computer lab • www.ridoe.net • NECompact.org • SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> • Unifix cubes • Manipulatives <p><u>School library resources</u></p> <ul style="list-style-type: none"> • <i>Classroom Instruction</i> 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> • MID-YEAR ASSESSMENT (EDM and Problem Solver) • END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p>

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			<ul style="list-style-type: none"> determining importance synthesizing 	<p><i>That Works</i>, Marzano</p> <p><u>Community</u></p>	
<p>6. COMMUNICATION, CONNECTIONS, AND REPRESENTATION</p> <p>6.2 Representations</p>		<p>Students will begin to create and use representations to communicate mathematical ideas and to solve problems and be able to:</p> <p>6.2.1 Create and use age level appropriate representations to organize, record, and communicate mathematical ideas (e.g. students should recognize the relationship among seven counters, seven tally marks, and the symbol 7)</p> <p>6.2.2 Select, apply, and translate among mathematical representations to solve problems (e.g., representing fractions with circles, with geoboards, and with pattern blocks)</p> <p>6.2.3 Link different representations.</p> <p>6.2.4 Use representations to model and interpret physical, social, and mathematical phenomena.</p> <p>6.2.5 Use conventional and self-generated (invented) representations and connect them.</p> <p>6.2.6 Realize that any representation is subject to multiple interpretations (e.g., drawings and graphs can be read in a different way). M(CCR)-2-2</p>	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> using manipulatives facilitating cooperative group work discussing mathematics questioning and making conjectures justifying of thinking facilitating problem solving approach to instruction integrating content with other core subjects using appropriate technology using frequent assessment to modify instruction <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> K-W-L visualizing asking strategies inferring predicting making connections 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <i>Everyday Mathematics Grade K</i> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde Mathematics Books by Marilyn Burns <i>Exemplars</i> Box It or Bag It Math <i>Teaching Children Mathematics</i>, NCTM <i>Comprehensive Math Assessment</i>, Options Pub., Inc <p><u>Technology</u></p> <ul style="list-style-type: none"> Computer lab www.ridoe.net NECompact.org SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> Unifix cubes Manipulatives <p><u>School library resources</u></p> <ul style="list-style-type: none"> <i>Classroom Instruction</i> 	<p>Assessments/evidence, also see pages 1-2</p> <p><u>REQUIRED LOCAL ASSESSMENTS</u></p> <ul style="list-style-type: none"> MID-YEAR ASSESSMENT (EDM and Problem Solver) END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p><u>SUGGESTED ASSESSMENTS</u></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p>

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			<ul style="list-style-type: none"> determining importance synthesizing 	<p><i>That Works</i>, Marzano</p> <p><u>Community</u></p>	
<p>6. COMMUNICATION, CONNECTIONS, AND REPRESENTATION</p> <p>6.3 Mathematical Connections</p>		<p>Students will begin to recognize, explore, and develop mathematical connections and be able to:</p> <p>6.3.1 Link conceptual and procedural knowledge (e.g., they will know that when they "regroup," they are simply changing the representation of the minuend, but not its value).</p> <p>6.3.2 Recognize and use mathematics in other curriculum areas (e.g. science, social studies).</p> <p>6.3.3 Recognize and use mathematics in their daily lives (e.g. graphs, tables, or maps).</p> <p>6.3.4 Identify mathematical situations occurring in literature for children.</p> <p>6.3.5 Identify examples of geometry in nature, art, and architecture. M(CCR)-2-3</p>	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> using manipulatives facilitating cooperative group work discussing mathematics questioning and making conjectures justifying of thinking facilitating problem solving approach to instruction integrating content with other core subjects using appropriate technology using frequent assessment to modify instruction <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> K-W-L visualizing asking strategies inferring predicting making connections 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <i>Everyday Mathematics Grade K</i> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde Mathematics Books by Marilyn Burns <i>Exemplars</i> Box It or Bag It Math <i>Teaching Children Mathematics</i>, NCTM <i>Comprehensive Math Assessment</i>, Options Pub., Inc <p><u>Technology</u></p> <ul style="list-style-type: none"> Computer lab www.ridoe.net NECompact.org SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> Unifix cubes Manipulatives <p><u>School library resources</u></p> <ul style="list-style-type: none"> <i>Classroom Instruction</i> 	<p>Assessments/evidence, also see pages 1-2</p> <p><u>REQUIRED LOCAL ASSESSMENTS</u></p> <ul style="list-style-type: none"> MID-YEAR ASSESSMENT (EDM and Problem Solver) END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p><u>SUGGESTED ASSESSMENTS</u></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p>

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			<ul style="list-style-type: none"> determining importance synthesizing 	<p><i>That Works</i>, Marzano</p> <p><u>Community</u></p>	
<p>6. COMMUNICATION, CONNECTIONS, AND REPRESENTATION</p> <p>6.4 Mathematical connections</p>		<p>The student will recognize, explore, and develop mathematical connections and be able to:</p> <p>6.4.4 See mathematics as an integrated whole.</p> <p>6.4.5 Recognize relationships among different topics in mathematics.</p> <p>6.4.6 Recognize and use mathematics in other curriculum areas and in their daily lives.</p> <p>6.4.7 Link concepts and procedures.</p> <p>6.4.8 Use mathematical skills, concepts, and applications in other disciplines, e.g.</p> <ul style="list-style-type: none"> graphs in social studies patterns in art music and geometry in technology 	<p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> using manipulatives facilitating cooperative group work discussing mathematics questioning and making conjectures justifying of thinking facilitating problem solving approach to instruction integrating content with other core subjects using appropriate technology using frequent assessment to modify instruction <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> K-W-L visualizing asking strategies inferring predicting making connections 	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <i>Everyday Mathematics Grade K</i> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde Mathematics Books by Marilyn Burns <i>Exemplars</i> Box It or Bag It Math <i>Teaching Children Mathematics</i>, NCTM <i>Comprehensive Math Assessment</i>, Options Pub., Inc <p><u>Technology</u></p> <ul style="list-style-type: none"> Computer lab www.ridoe.net NECompact.org SCHOOL Resource Folder <p><u>Materials</u></p> <ul style="list-style-type: none"> Unifix cubes Manipulatives <p><u>School library resources</u></p> <ul style="list-style-type: none"> <i>Classroom Instruction</i> 	<p>Assessments/evidence, also see pages 1-2</p> <p>REQUIRED LOCAL ASSESSMENTS</p> <ul style="list-style-type: none"> MID-YEAR ASSESSMENT (EDM and Problem Solver) END-OF-YEAR ASSESSMENT (EDM and Problem Solver) <p>SUGGESTED ASSESSMENTS</p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Portfolio (samples of process and products)</p>

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