

# Mathematics Grade 4

Curriculum Writers: Kate Carroll, Judy Hamilton, and Abigail Williams

| STANDARDS<br>GLEs  | Applied Learning Stand. SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)  | RESEARCH-BASED INSTRUCTIONAL STRATEGIES  | RESOURCES  | RESEARCH-BASED ASSESSMENT EVIDENCE  |
|--|-----------------------------|--|--|--|---|
| <p><b>CONTENT STRANDS</b></p> <ul style="list-style-type: none"> <li>Number and Operations</li> <li>Geometry and Measurement</li> <li>Functions and Algebra</li> <li>Data, Statistics, and Probability</li> </ul> <p><b>PROCESS STRANDS</b></p> <ul style="list-style-type: none"> <li>Problem-solving, Reasoning, and Proof</li> <li>Communication, Connections, and</li> </ul> |                             | <p><b>NECAP GRADE LEVEL EXPECTATIONS</b></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 <b>(state assessment, grade...)</b>.</p> <p>Each GLE includes three parts:</p> <ul style="list-style-type: none"> <li>A statement in <b>bold</b>, 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.</li> <li>The <b>unbolded</b> 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</li> <li>Differences between adjacent grades are <u>underlined</u>. Sometimes nothing is underlined within a GLE. In these situations, differences in adjacent grades "assumes increasing text complexity" and is noted for those GLEs.</li> <li>Each GLE is <b>coded</b> for the content area, the grade level, the GLE "stem" number, and specific indicator for that GLE stem, (e.g. N&amp;O - 5-6.2) means N &amp; O (numbers</li> </ul> | <p><b>DISTRICT INITIATIVES &amp; RESEARCH</b></p> <p><b>The teacher</b><br/>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 <b>Applied Learning Standards (SCANS)</b></p> <ul style="list-style-type: none"> <li>critical thinking</li> <li>problem solving</li> <li>research</li> <li>communication</li> <li>reflection and evaluation</li> </ul> <p>Applies <b>Principles of Learning (POL)</b> ©</p> <ul style="list-style-type: none"> <li>organizing for effort</li> <li>clear expectations</li> <li>fair and credible evaluations</li> <li>recognition of accomplishment</li> <li>academic rigor</li> <li>accountable talk</li> <li>socializing intelligence'</li> <li>self-management of learning</li> <li>learning as apprenticeship</li> </ul> <p>Applies <b>Principles of Disciplinary Literacy</b></p> <p><b>Differentiates instruction by varying the content, process, and product</b> and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul> <p>Analyzes <b>pre-assessment</b> to direct instruction</p> <p>Provides <b>exemplars</b> and rubrics</p> <p>Addresses multiple intelligences and brain</p> | <p><b>Textbook</b><br/><i>Everyday Mathematics Grade 4</i></p> <p><b>Supplementary books</b></p> <ul style="list-style-type: none"> <li><i>McGraw-Hill Mathematics</i></li> <li><i>Teacher Created Materials</i></li> <li><i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li><i>Mathematics Books by Marilyn Burns</i></li> <li><i>Exemplars</i></li> <li><i>Problem Solvers</i></li> <li><i>Necap Prep Grade 4</i></li> <li><i>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</i></li> <li><i>Teaching Children Mathematics, NCTM</i></li> <li><i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>Calculators</li> <li>Overhead calculator</li> <li>Computer lab</li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Unifix cubes</li> </ul> | <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED</b></p> <p>Anecdotal records (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Exhibits</p> <p>Interviews</p> <p>Journals/notebooks</p> <p>Graphic organizers and/or visual imagery</p> <p>Journals</p> <p><b>Multiple Intelligences assessments</b> e.g.</p> <ul style="list-style-type: none"> <li>role playing, short plays (bodily kinesthetic)</li> <li>graphic organizing, sketch journals/ cartooning (visual)</li> <li>collaboration/ conferencing interpersonal</li> <li>songs, lyrics (musical)</li> </ul> <p>Oral presentations</p> <p>Portfolio (samples of process and products)</p> <p>Performance/problem-based tasks</p> <p>Rubrics</p> <p>Tests and quizzes</p> |

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|-------------------------------|-----------------------------|---|--|---|------------------------------------|
| <p><b>Representations</b></p> |                             | <p>and operations), 5 (grade 5), 6 (6<sup>th</sup> GLE stem), 2 (the second specific indicator for the 6<sup>th</sup> 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><b>Outcomes and Benchmarks</b> are indicated for all <b>MATHEMATICS GLEs/standards</b> and are secured for this grade level unless indicated with a <b>B</b> for beginning or a <b>D</b> for developing.</p> <p>The <b>instructional strategies, resources, and assessments</b> 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>dominance (spatial, bodily kinesthetic, musical, linguistic, intrapersonal, interpersonal, mathematical/logical, and naturalist)</p> <p>Organizes <b>exhibition of student work</b> with rubrics</p> <p>Collaborates with specialist to differentiate instruction for ALL students</p> <p><b>MATHEMATICS STRATEGIES</b></p> <p>Employs <b>Mathematics best practice strategies</b> e.g.</p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of the calculator</li> </ul> <p>Adapts reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> </ul> | <ul style="list-style-type: none"> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> <li>• Number lines</li> <li>• Multiplication charts</li> <li>• Fraction bars</li> <li>• EDM cards</li> <li>• EDM games</li> <li>• Graphing paper</li> </ul> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction That Works</i>, Marzano</li> </ul> <p><u>Community</u></p> |                                    |

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|---|--------------------------------------|---|--|---|--|
|   |                                      |   | <ul style="list-style-type: none"> <li>determining importance</li> <li>synthesizing</li> </ul>   |   |  |
| <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"> <li>whole numbers from 0 to 999,999 (D) through (0 to 9, 999,999 (D) through               <ul style="list-style-type: none"> <li>equivalency, e.g. 601,458 (&gt;, &lt;, =) 300,297</li> <li>composition, e.g. 40+50+5=95</li> <li>decomposition e.g. 95=5+50+40</li> <li>place value, e.g. seven thousand, nine hundred, thirty-nine and forty-five hundredths</li> </ul> </li> <li>positive fractional numbers or benchmark fractions (halves, thirds, fourths, fifths, sixths, eighths, tenths) twelfths (D)               <ul style="list-style-type: none"> <li>as a part to whole relationship in area, set or linear models e.g. number line, scales (temperature), and linear measurements</li> <li>where the number of parts in the whole are equal to, and a multiple or factor of the denominator (equivalent fractions; simplifying fractions                   <ul style="list-style-type: none"> <li>proper</li> <li>mixed number (D)</li> <li>improper (D)</li> </ul> </li> </ul> </li> <li>powers of 10 (10, 100, 1000) (D)</li> </ul> | <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"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/><i>Everyday Mathematics Grade 4</i></p> <ul style="list-style-type: none"> <li>Units 4,7</li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li><i>McGraw-Hill Mathematics</i></li> <li>Teacher Created Materials</li> <li><i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li><i>Exemplars</i></li> <li><i>Problem Solvers</i></li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li><i>Teaching Children Mathematics</i>, NCTM</li> <li><i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> |

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|----------------|-----------------------------|---|---|--|---|
|                |                             | <ul style="list-style-type: none"> <li>• <b>decimals using models, explanations, or other representations.</b> <ul style="list-style-type: none"> <li>○ <u>as hundredths</u> within the context of money, or</li> <li>○ <u>tenths within the context of metric measurements (e.g., 2.3 cm)</u></li> <li>○ <u>thousandths (D)</u></li> </ul> </li> <li>• <b>benchmark percents (10%, 25%, 50%, 75% or 100%) as a part to whole relationship in area, set, or linear models using models, explanations, or other representations. (D)</b></li> </ul> <p>M(N&amp;O)-4-1 (state assessment)</p> <p>M(N&amp;O)-5-1</p> <p>1.1.2 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</p> <p>1.1.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>1.1.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Partitioning - <i>Teaching Children Mathematics</i> (1)</li> <li>• Rectangle Halves - <i>Comprehensive Math</i> (2)</li> <li>• Marcel's Pets - <i>Comprehensive Math</i> (3)</li> <li>• Jamal's Muffins - <i>Comprehensive Math</i> (4)</li> <li>• Tanya's Tokens - <i>Comprehensive Math</i> (5)</li> <li>• Decimal Number Line - <i>Open-Ended Assessment in Math</i> (6)</li> <li>• Julie's Place Value - <i>Open Ended Assessment in Math</i> (7)</li> </ul> | <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Calculators</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> <li>• NECompact.org</li> <li>• HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> <li>• Number lines</li> <li>• Multiplication charts</li> <li>• Fraction bars</li> <li>• EDM cards</li> <li>• EDM games</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction That Works</i>, Marzano</li> </ul> <p><b>Community</b></p> | <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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|---|--------------------------------------|---|--|--|--|
| <p>1. NUMBER and OPERATIONS</p> <p>1.2 Relative magnitude</p> |                                      | <p>The student</p> <p>1.2.1 Demonstrates understanding of the relative magnitude of numbers from 0 to 999,999 using models, number lines, or explanations by</p> <ul style="list-style-type: none"> <li>• ordering, comparing, or identifying within number formats (fractions to fractions, decimals to decimals, or percents to percents               <ul style="list-style-type: none"> <li>○ whole numbers</li> <li>○ equivalent proper positive fractional numbers (halves, thirds, fourths, fifths, sixths, eighths, (twelfths <b>(b)</b>)</li> <li>○ or <u>decimals to hundredths</u> (thousandths <b>(b)</b>)</li> <li>○ <u>benchmark percents 10%, 25%, 50%, 75% or 100%</u> (D)</li> </ul> </li> </ul> <p>M(N&amp;O)-4-2 (state assessment)</p> <ul style="list-style-type: none"> <li>○ <u>integers</u> in context using models or number lines. <b>(b)</b></li> </ul> <p>M(N&amp;O)-5-2</p> <ul style="list-style-type: none"> <li>○ e.g. number line with negative and positive numbers; -5 (&gt;, &lt;, =) +5</li> </ul> <p>1.2.2 Applies the conventions of order of operations</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"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/><i>Everyday Mathematics Grade 4</i></p> <ul style="list-style-type: none"> <li>• Units 4,5,10,11</li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• <i>McGraw-Hill Mathematics</i></li> <li>• <i>Teacher Created Materials</i></li> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>• <i>Mathematics Books by Marilyn Burns</i></li> <li>• <i>Exemplars</i></li> <li>• <i>Problem Solvers</i></li> <li>• <i>Necap Prep Grade 4</i></li> <li>• <i>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</i></li> <li>• <i>Teaching Children Mathematics</i>, NCTM</li> <li>• <i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><u>Technology</u></p> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> |

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|---|--------------------------------------|--|---|---|--|
|   |                                      | <p>where the left to right computations are modified only by the use of parentheses.</p> <p>1.2.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>1.2.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Real World 1,00,00 - Open Ended Assessment in Math (8)</li> <li>• Dividing Squares - <i>Comprehensive Math</i> (9)</li> <li>• Equivalent Fractions - Open Ended Assessment in Math (10)</li> <li>• Comparing Decimals - Open Ended Assessment in Math (11)</li> <li>• Comparing Fractions - Open Ended Assessment in Math (12)</li> </ul>                                      | <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <ul style="list-style-type: none"> <li>• Calculators</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> <li>• NECompact.org</li> <li>• HMS Resource Folder</li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> <li>• Number lines</li> <li>• Multiplication charts</li> <li>• Fraction bars</li> <li>• EDM cards</li> <li>• EDM games</li> </ul> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction That Works</i>, Marzano</li> <li>• Literature Link in HMS Resource Folder</li> </ul> <p><u>Community</u></p> | <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p>  |
| <p>1. NUMBER and OPERATIONS</p> <p>1.3 Operations</p> |                                      | <p>The student</p> <p>1.3.1 <b>Demonstrates conceptual understanding of mathematical operations</b> using models, number lines, or explanations by describing or illustrating</p> <ul style="list-style-type: none"> <li>• <u>the relationship between repeated subtraction and division (no remainders)</u> <ul style="list-style-type: none"> <li>○ e.g. <math>12-4-4-4=0</math>; <math>12/4=3</math></li> </ul> </li> <li>• <u>the inverse relationship between multiplication and division of whole numbers</u> <ul style="list-style-type: none"> <li>○ e.g. <math>4 \times 4=16</math>; <math>16/4=4</math></li> </ul> </li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> </ul>  | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li>• <i>Everyday Mathematics Grade 4</i></li> <li>• <i>Units 3,7</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• <i>McGraw-Hill Mathematics</i></li> <li>• <i>Teacher Created Materials</i></li> </ul>  | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST</li> </ul> |

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|----------------|-----------------------------|--|---|---|--|
|                |                             | <ul style="list-style-type: none"> <li>the addition or subtraction of positive fractional numbers with like denominators (<b>state assessment</b>) M(N&amp;O)-4-3</li> <li>adding and subtracting decimals to hundredths and positive proper fractions with unlike denominators. <b>(D)</b> M(N&amp;O)-5-3</li> </ul> <p>1.3.2 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</p> <p>1.3.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>1.3.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>Division Mistake - <i>Comprehensive Math</i> (13)</li> <li>Helping the Youth Center - <i>Exemplars</i> (14)</li> <li>Postage Due - <i>Teaching Children Mathematics</i> (15)</li> <li>Spilled Milk - <i>Exemplar</i> (16)</li> <li>Multiplication Mistake - <i>Open Ended Math Assessment</i> (17)</li> </ul> | <ul style="list-style-type: none"> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>K-W-L</li> <li>visualizing</li> <li>asking strategies</li> <li>inferring</li> <li>predicting</li> <li>making connections</li> <li>determining importance</li> <li>synthesizing</li> </ul> | <ul style="list-style-type: none"> <li><i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li><i>Exemplars</i></li> <li><i>Problem Solvers</i></li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li><i>Teaching Children Mathematics</i>, NCTM</li> <li><i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>Calculators</li> <li>Overhead calculator</li> <li>Computer lab</li> <li><a href="http://www.ride.net">www.ride.net</a></li> <li><a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Unifix cubes</li> <li>3D-solids</li> <li>Rulers (metric), protractors</li> <li>Number lines</li> <li>Multiplication charts</li> <li>Fraction bars</li> <li>EDM cards</li> <li>EDM games</li> </ul> | <p>EDM/GLE UNIT TESTS</p> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

# Mathematics Grade 4

Curriculum Writers: Kate Carroll, Judy Hamilton, and Abigail Williams

| STANDARDS<br>GLEs  | Applied<br>Learning<br>Stand.<br>SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)   | RESEARCH-BASED<br>INSTRUCTIONAL<br>STRATEGIES   | RESOURCES  | RESEARCH-BASED<br>ASSESSMENT<br>EVIDENCE   |
|--|--------------------------------------|---|---|--|--|
|  |                                      |   |   | <u>School library resources</u> <ul style="list-style-type: none"> <li><i>Classroom Instruction That Works</i>, Marzano</li> </ul> <u>Community</u>  |  |
| <p>1. NUMBER and OPERATIONS</p> <p>1.4 Multiple operations</p> |                                      | <p>The student</p> <p>1.4.1 <b>Accurately solves problems involving</b></p> <ul style="list-style-type: none"> <li>multiple operations on whole numbers (Multiplication limited to 2 digits by 2 digits, <u>and</u> division limited to 1 digit divisors.)</li> <li>the use of the properties of factors and multiples;</li> <li>addition or subtraction               <ul style="list-style-type: none"> <li>decimals</li> <li>positive proper fractions with like denominators. M(N&amp;O)-4-4 (state assessment)</li> </ul> </li> </ul> <p>1.4.2 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</p> <p>1.4.3 Understands, uses, applies appropriate Technology to solve problems.</p> <p>1.4.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>Pepperoni Pizza - <i>Comprehensive Math</i> (18)</li> <li>Annual School Play - <i>Vermont Problem Solving</i> (19)</li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li><i>Everyday Mathematics Grade 4</i></li> <li>Units, 3, 4, 6 &amp; 7</li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li><i>McGraw-Hill Mathematics</i></li> <li>Teacher Created Materials</li> <li><i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li><i>Exemplars</i></li> <li><i>Problem Solvers</i></li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li><i>Teaching Children Mathematics</i>, NCTM</li> <li><i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><u>Technology</u></p> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> |

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|--|--------------------------------------|---|---|---|---|
|  |                                      |   | <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <ul style="list-style-type: none"> <li>• Calculators</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.ri.gov/instruction/curriculum">www.ridoe.ri.gov/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> <li>• NECompact.org</li> <li>• HMS Resource Folder</li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> <li>• Number lines</li> <li>• Multiplication charts</li> <li>• Fraction bars</li> <li>• EDM cards</li> <li>• EDM games</li> </ul> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction That Works</i>, Marzano</li> </ul> <p><u>Community</u></p> | <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p>   |
| <p>1. NUMBER and OPERATIONS</p> <p>1.5 Mental calculations</p> |                                      | <p>The student</p> <p>1.5.1 <b>Mentally</b></p> <ul style="list-style-type: none"> <li>• adds and subtracts whole number facts through 20</li> <li>• <u>multiplies whole number facts to a product of 100, and calculates related division facts:</u></li> <li>• adds (limited to two addends)             <ul style="list-style-type: none"> <li>○ <u>two-digit whole numbers, e.g. 67+24</u></li> <li>○ combinations of two-digit and 3-</li> </ul> </li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> </ul>  | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/><i>Everyday Mathematics Grade 4</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• <i>McGraw-Hill Mathematics</i></li> <li>• <i>Teacher Created Materials</i></li> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach</i></li> </ul>   | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> |

# Mathematics Grade 4

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|----------------|-----------------------------|---|---|---|--|
|                |                             | <p>digit whole numbers that are multiples of ten, e.g. <math>320 + 430</math></p> <ul style="list-style-type: none"> <li>4-digit whole numbers that are multiples of 100, e.g. <math>1,300 + 1,400</math></li> <li>subtracts a one-digit whole number from a two-digit whole number (e.g., <math>67 - 9</math>);</li> <li>subtracts combinations of two-digit and three-digit whole numbers that are multiples of ten (e.g., <math>50 - 20</math>, <math>230 - 80</math>, <math>520 - 200</math>). M(N&amp;O)-4-6</li> <li>calculates change back from \$1.00, \$5.00, and \$10.00 (D)</li> <li>calculates multiplication and related division facts to a product of 144; (D)</li> <li>multiplies a two-digit whole number by a one-digit whole number (e.g., <math>45 \times 5</math>), two-digit whole numbers that are multiples of ten (e.g., <math>50 \times 60</math>), a three digit whole number that is a multiple of 100 by a two- or three digit number which is a multiple of 10 or 100, respectively (e.g., <math>400 \times 50</math>, <math>400 \times 600</math>) (D)</li> <li>divides 3- and 4-digit multiples of powers of ten by their compatible factors (e.g., <math>360 \div 6</math>; <math>360 \div 60</math>; <math>3600 \div 6</math>; <math>3600 \div 60</math>; <math>3600 \div 600</math>; <math>360 \div 12</math>; <math>360 \div 120</math>; <math>3600 \div 12</math>; <math>3600 \div 120</math>; <math>3600 \div 1200</math>). (D) M(N&amp;O)-5-6</li> </ul> <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 Applies the conventions of order of operations</p> | <ul style="list-style-type: none"> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>K-W-L</li> <li>visualizing</li> <li>asking strategies</li> <li>inferring</li> <li>predicting</li> <li>making connections</li> <li>determining importance</li> <li>synthesizing</li> </ul> | <p><i>Math, K-6</i>, Arthur Hyde</p> <ul style="list-style-type: none"> <li>Mathematics Books by Marilyn Burns</li> <li>Exemplars</li> <li>Problem Solvers</li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li>Teaching Children Mathematics, NCTM</li> <li>Comprehensive Math Assessment, Options Pub., Inc.</li> <li>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>Calculators</li> <li>Overhead calculator</li> <li>Computer lab</li> <li><a href="http://www.rido.net">www.rido.net</a></li> <li><a href="http://www.rido.net/instruction/curriculum">www.rido.net/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Unifix cubes</li> <li>3D-solids</li> <li>Rulers (metric), protractors</li> <li>Number lines</li> <li>Multiplication charts</li> <li>Fraction bars</li> <li>EDM cards</li> <li>EDM games</li> </ul> | <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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| STANDARDS GLEs                                       | Applied Learning Stand. SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)   | RESEARCH-BASED INSTRUCTIONAL STRATEGIES   | RESOURCES  | RESEARCH-BASED ASSESSMENT EVIDENCE   |
|--|-----------------------------|---|---|--|--|
|  |                             | <p>where the left to right computations are modified only by the use of parentheses.</p> <p>1.5.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>1.5.4 <b>REQUIRED PROBLEMS</b></p>  |   | <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li>Classroom Instruction That Works, Marzano</li> </ul> <p><u>Community</u></p>   |  |
| <p>1. NUMBER and OPERATIONS</p> <p>1.6 Estimates</p> |                             | <p>The student</p> <p>1.6.1 <b>Makes estimates</b> in a given situation by</p> <ul style="list-style-type: none"> <li>identifying when estimation is appropriate,</li> <li>selecting the appropriate method of estimation,</li> <li>evaluating the reasonableness of solutions appropriate to <u>grade level GLEs</u> across content strands. M(N&amp;O)-4-7</li> </ul> <p>IMPORTANT: <i>The intent of this GLE is to embed estimation throughout the instructional program, not to teach it as a separate unit.</i></p> <p>1.6.2 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</p> <p>1.6.2 Understands, uses, applies appropriate technology to solve problems.</p> <p>1.6.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>How Many Circles - Balanced Assessment (20)</li> <li>How Many Students - Open Ended Math</li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/>Everyday Mathematics Grade 4</p> <ul style="list-style-type: none"> <li>Unit 5</li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>McGraw--Hill Mathematics</li> <li>Teacher Created Materials</li> <li>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li>Exemplars</li> <li>Problem Solvers</li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li>Teaching Children Mathematics, NCTM</li> <li>Comprehensive Math Assessment, Options Pub., Inc.</li> <li>Open-ended Assessments in Math:</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process)</p> |

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|--|--------------------------------------|--|---|---|--|
|  |                                      | <p>Assessment (21)</p> <ul style="list-style-type: none"> <li>School Assembly - Open Ended Math Assessment (22)</li> </ul>   | <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>K-W-L</li> <li>visualizing</li> <li>asking strategies</li> <li>inferring</li> <li>predicting</li> <li>making connections</li> <li>determining importance</li> <li>synthesizing</li> </ul> | <p><i>A Searchable Collection of 450+ Questions,</i><br/>Heinemann</p> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>Calculators</li> <li>Overhead calculator</li> <li>Computer lab</li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Unifix cubes</li> <li>3D-solids</li> <li>Rulers (metric), protractors</li> <li>Number lines</li> <li>Multiplication charts</li> <li>Fraction bars</li> <li>EDM cards</li> <li>EDM games</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li><i>Classroom Instruction That Works,</i> Marzano</li> </ul> <p><b>Community</b></p> | <p>and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p>  |
| <p>1. NUMBER and OPERATIONS</p> <p>1.7 Properties of numbers</p> |                                      | <p>The student</p> <p>1.7.1 Applies properties of numbers to solve problems and to simplify computations</p> <ul style="list-style-type: none"> <li>odd, even</li> <li><u>multiplicative property of zero</u></li> <li><u>remainders M(N&amp;O)-4-8</u></li> <li>divisibility (D)</li> </ul> | <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"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> </ul>   | <p>Resources, also see pages 1-2</p> <p><b>Textbook</b></p> <p><i>Everyday Mathematics Grade 4</i></p> <ul style="list-style-type: none"> <li>Unit 5</li> </ul> <p><b>Supplementary books</b></p>   | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR</li> </ul> |

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| STANDARDS GLEs | Applied Learning Stand. SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)  | RESEARCH-BASED INSTRUCTIONAL STRATEGIES   | RESOURCES  | RESEARCH-BASED ASSESSMENT EVIDENCE  |
|----------------|-----------------------------|--|---|--|---|
|                |                             | <p>1.7.2 Applies field properties to solve problems and to simplify computations</p> <ul style="list-style-type: none"> <li>commutative <math>(6+4 = 4+6; 9 \cdot 5 = 5 \cdot 9)</math></li> <li>associative <math>(2+7)+3 = 2+(7+3); (9 \cdot 4) 5 = 9(4 \cdot 5)</math></li> <li>identity <math>(a \cdot 1=a \ a+0=a \ a \cdot 1=a)</math> M(N&amp;O)-4-8</li> <li>distributive <math>3(3+6) = 3 \cdot 3 + 3 \cdot 6; 6(7-4) = 6(7)-6(4)</math> (D) M(N&amp;O)- 5-8</li> </ul> <p>1.7.3 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</p> <p>1.7.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>1.7.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>Mr. Miller's Zero - Open Ended Math Assessment (24)</li> <li>Division Story - Open Ended Math Assessment (23)</li> </ul> | <ul style="list-style-type: none"> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>K-W-L</li> <li>visualizing</li> <li>asking strategies</li> <li>inferring</li> <li>predicting</li> </ul> | <ul style="list-style-type: none"> <li>McGraw--Hill Mathematics</li> <li>Teacher Created Materials</li> <li>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li>Exemplars</li> <li>Problem Solvers</li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li>Teaching Children Mathematics, NCTM</li> <li>Comprehensive Math Assessment, Options Pub., Inc.</li> <li>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>Calculators</li> <li>Overhead calculator</li> <li>Computer lab</li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ridoe.ri.gov/instruction/curriculum">www.ridoe.ri.gov/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Unifix cubes</li> <li>3D-solids</li> <li>Rulers (metric), protractors</li> </ul> | <p>ASSESSMENT (EDM and Problem Solver)</p> <ul style="list-style-type: none"> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

# Mathematics Grade 4

Curriculum Writers: Kate Carroll, Judy Hamilton, and Abigail Williams

| STANDARDS GLEs   | Applied Learning Stand. SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)   | RESEARCH-BASED INSTRUCTIONAL STRATEGIES   | RESOURCES  | RESEARCH-BASED ASSESSMENT EVIDENCE   |
|--|-----------------------------|---|---|--|--|
|  |                             |   | <ul style="list-style-type: none"> <li>making connections</li> <li>determining importance</li> <li>synthesizing</li> </ul>  | <ul style="list-style-type: none"> <li>Number lines</li> <li>Multiplication charts</li> <li>Fraction bars</li> <li>EDM cards</li> <li>EDM games</li> </ul> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li>Classroom Instruction That Works, Marzano</li> </ul> <p><u>Community</u></p>  |  |
| <p><b>2. GEOMETRY AND MEASUREMENT</b></p> <p>2.1 Angle relationships</p> |                             | <p>The student</p> <p>2.1.1 Uses properties or attributes of angles (number of angles) or sides (number of sides, length of sides, <u>parallelism</u>, or <u>perpendicularity</u>)</p> <ul style="list-style-type: none"> <li>to identify, describe, or distinguish among triangles, squares, rectangles, rhombi, trapezoids, hexagons, or octagons;</li> <li>classify angles relative to 90° as more than, less than, or equal to. M(G&amp;M)-4-1 (<b>state assessment</b>)</li> </ul> <p>2.1.2 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</p> <p>2.1.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>2.1.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>Parallel and Perpendicular - Open Ended Math Assessment (25)</li> <li>Two Lines - Open Ended Math Assessment (26)</li> <li>Triangle Angles - Open Ended Math Assessment</li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/><i>Everyday Mathematic Grade 4</i></p> <ul style="list-style-type: none"> <li>Units 1&amp; 6</li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>McGraw-Hill Mathematics</li> <li>Teacher Created Materials</li> <li>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li>Exemplars</li> <li>Problem Solvers</li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li>Teaching Children Mathematics, NCTM</li> <li>Comprehensive Math Assessment, Options Pub., Inc.</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> |

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|-------------------|--------------------------------------|---|---|---|---|
|                   |                                      | (27)  | <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <ul style="list-style-type: none"> <li>• <i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>• Calculators</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.rido.net">www.rido.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• <b>NECAP Release tasks</b></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• HMS Resource Folder</li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> <li>• EDM cards</li> <li>• EDM games</li> <li>• Geoboards</li> <li>• Geometry template</li> <li>• Graphing paper</li> <li>• Dot paper</li> </ul> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction That Works</i>, Marzano</li> <li>• <i>Knights of the Round Table Series</i></li> </ul> <p><u>Community</u></p> | <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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| STANDARDS GLEs   | Applied Learning Stand. SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)   | RESEARCH-BASED INSTRUCTIONAL STRATEGIES  | RESOURCES  | RESEARCH-BASED ASSESSMENT EVIDENCE  |
|--|-----------------------------|---|--|--|---|
| <p>2. GEOMETRY AND MEASUREMENT</p> <p>2.2 Properties or attributes</p> |                             | <p>The student</p> <p>2.2.1 Uses properties or attributes (shape of bases or number of lateral faces) to identify, compare, or describe three-dimensional shapes (rectangular prisms, triangular prisms, cylinders, or spheres). (state assessment ) M(G&amp;M)-4-3</p> <p>2.2.2 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</p> <p>2.2.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>2.2.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>Geometric Figures - NNECAP Prep (28)</li> <li>Mr. Jackson's Mystery Shape - Open Ended Math Assessment (29)</li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/><i>Everyday Mathematics Grade 4 Units 1,4,8,10, &amp; 11</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>McGraw--Hill Mathematics</li> <li>Teacher Created Materials</li> <li><i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li><i>Exemplars</i></li> <li><i>Problem Solvers</i></li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li><i>Teaching Children Mathematics</i>, NCTM</li> <li><i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li><i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>Calculators</li> <li>Overhead calculator</li> <li>Computer lab</li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ridoe.net/instru">www.ridoe.net/instru</a></li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p> <p>Tests/ quizzes</p> |

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|--|--------------------------------------|--|--|---|--|
|  |                                      |  | Rading strategies to teach mathematics (Hyde) <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul>   | ction/curriculum <ul style="list-style-type: none"> <li>• <a href="#">NECAP Release tasks</a></li> <li>• <a href="#">NECompact.org</a></li> <li>• <a href="#">HMS Resource Folder</a></li> </ul> <u>Materials</u> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> <li>• EDM cards</li> <li>• EDM games</li> <li>• Geoboards</li> <li>• Geometry template</li> <li>• Graphing paper</li> <li>• Dot paper</li> </ul> <u>School library resources</u> <ul style="list-style-type: none"> <li>• <a href="#">Classroom Instruction That Works, Marzano</a></li> </ul> <u>Community</u> | Visual representation (e.g. Power Point™)  |
| <b>2. GEOMETRY AND MEASUREMENT</b><br><br>2.3 Congruency |                                      | <b>The student</b><br><br>2.3.1 Uses models or explanations and <b>demonstrates conceptual understanding of congruency</b> by matching congruent figures <ul style="list-style-type: none"> <li>• using reflections, translations, or rotations (flips, slides, or turns), or</li> <li>• as the result of composing or decomposing shapes M(G&amp;M)-4-4 <b>(state assessment)</b></li> </ul> 2.3.2 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses. | <b>Teacher may model and/or facilitate the following: (also see pages 1-2)</b><br><br><b>Mathematics best practice e.g.</b> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> </ul> | <b>Resources, also see pages 1-2</b><br><br><u>Textbook</u><br><i>Everyday Mathematics Grade 4 Units 1,4,8,10, &amp; 11</i><br><br><u>Supplementary books</u> <ul style="list-style-type: none"> <li>• <i>McGraw--Hill Mathematics</i></li> <li>• <i>Teacher Created Materials</i></li> <li>• <i>Escher - Tessellations</i></li> <li>• <i>Quilting books</i></li> <li>• <i>Weekly Activities</i></li> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach</i></li> </ul>  | <b>Assessments/evidence, also see pages 1-2</b><br><br><u>REQUIRED LOCAL ASSESMENTS</u> <ul style="list-style-type: none"> <li>• <b>MID-YEAR ASSESSMENT (EDM and Problem Solver)</b></li> <li>• <b>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</b></li> <li>• <b>PRE AND POST EDM/GLE UNIT TESTS</b></li> </ul> <u>SUGGESTED ASSESSMENTS</u><br>Anecdotal record (e.g. defends |

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|-------------------|--------------------------------------|---|---|---|---|
|                   |                                      | <p>2.3.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>2.3.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Old Ruins - Balanced Assessment Pkg. 2 (30)</li> <li>• Flipped Triangle - Open Ended Math Assessment (31)</li> <li>• Alphabet Letters - Open Ended Math Assessment (32)</li> <li>• Parallelogram Change - Open Ended Math Assessment (33)</li> </ul> | <ul style="list-style-type: none"> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <p><i>Math, K-6, Arthur Hyde</i></p> <ul style="list-style-type: none"> <li>• Mathematics Books by Marilyn Burns</li> <li>• Exemplars</li> <li>• Problem Solvers</li> <li>• Necap Prep Grade 4</li> <li>• Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li>• <i>Teaching Children Mathematics</i>, NCTM</li> <li>• <i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li>• <i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Calculators</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.ri.gov/instruction/curriculum">www.ridoe.ri.gov/instruction/curriculum</a></li> <li>• <b>NECAP Release tasks</b></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> <li>• EDM cards</li> <li>• EDM games</li> <li>• Geoboards</li> <li>• Geometry template</li> <li>• Tangrams</li> <li>• Graphing paper</li> <li>• Dot paper</li> </ul> | <p>student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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|--|--------------------------------------|---|---|--|--|
|  |                                      |   |   | <u>School library resources</u> <ul style="list-style-type: none"> <li>Classroom Instruction That Works, Marzano</li> </ul> <u>Community</u>   |  |
| <p>2. GEOMETRY AND MEASUREMENT</p> <p>2.4 Similarity</p> |                                      | <p>The student</p> <p>2.4.1 <b>Demonstrates conceptual understanding of similarity</b></p> <ul style="list-style-type: none"> <li>by applying scales on maps</li> <li>by applying characteristics of similar figures (same shape but not necessarily the same size) to identify similar figures</li> <li>or to solve problems involving similar figures.</li> </ul> <p>Describes relationships using models or<sup>sc</sup> explanations. M(G&amp;M)-4-5 (state assessment)</p> <p>2.4.2 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</p> <p>2.4.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>2.4.4 <b>REQUIRED PROBLEMS</b></p> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/>Everyday Mathematics Grade 4<br/>Units 1,4,8,10, &amp; 11</p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>McGraw-Hill Mathematics</li> <li>Teacher Created Materials</li> <li>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li>Exemplars</li> <li>Problem Solvers</li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li>Teaching Children Mathematics, NCTM</li> <li>Comprehensive Math Assessment, Options Pub., Inc.</li> <li>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions,</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> |

# Mathematics Grade 4

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| STANDARDS<br>GLEs   | Applied<br>Learning<br>Stand.<br>SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)   | RESEARCH-BASED<br>INSTRUCTIONAL<br>STRATEGIES   | RESOURCES  | RESEARCH-BASED<br>ASSESSMENT<br>EVIDENCE  |
|---|--------------------------------------|---|---|--|---|
|   |                                      |   | <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <p><a href="#">Heinemann</a></p> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Calculators</a></li> <li>• <a href="#">Overhead calculator</a></li> <li>• <a href="#">Computer lab</a></li> <li>• <a href="#">www.ridoe.net</a></li> <li>• <a href="#">www.ridoe.net/instruction/curriculum</a></li> <li>• <a href="#">NECAP Release tasks</a></li> <li>• <a href="#">NECompact.org</a></li> <li>• <a href="#">HMS Resource Folder</a></li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> <li>• EDM cards</li> <li>• EDM games</li> <li>• Geoboards</li> <li>• Geometry template</li> <li>• Tangrams</li> <li>• Graphing paper</li> <li>• Dot paper</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Classroom Instruction That Works, Marzano</a></li> </ul> <p><b>Community</b></p> | <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p>   |
| <p><b>2. GEOMETRY AND MEASUREMENT</b></p> <p>2.5 Perimeter of polygons and area</p> |                                      | <p>The student</p> <p>2.5.1 <b>Demonstrates conceptual understanding of perimeter of polygons, and the area of rectangles, polygons or irregular shapes on grids</b> using a variety of models, manipulatives, or formulas. M(G&amp;M)-4-6 5 (state assessment)</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"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> </ul>   | <p>Resources, also see pages 1-2</p> <p><b>Textbook</b><br/><i>Everyday Mathematics Grade 4</i><br/>Units 1,4,8,10, &amp; 11</p> <p><b>Supplementary books</b></p> <ul style="list-style-type: none"> <li>• <a href="#">McGraw-Hill</a></li> </ul>   | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR</li> </ul> |

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|----------------|-----------------------------|--|---|---|---|
|                |                             | <p>2.5.2 Expresses all measures using appropriate units. M(G&amp;M)-4-6 5 (state assessment)</p> <p>2.5.3 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</p> <p>2.5.4 Understands, uses, applies appropriate technology to solve problems.</p> <p>2.5.5 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Hampden Meadows Cafeteria - <i>Teaching Children Mathematics</i> (35)</li> <li>• Shape Up! - <i>Balanced Assessment Pkg. 1</i> (36)</li> <li>• Perimeter - <i>Comprehensive Math</i> (37)</li> <li>• Grid Shapes - <i>Comprehensive Math</i> (38)</li> <li>• Finding Perimeter - <i>Comprehensive Math</i> (39)</li> </ul> | <ul style="list-style-type: none"> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> </ul> | <p><i>Mathematics Teacher Created Materials</i></p> <ul style="list-style-type: none"> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>• <i>Mathematics Books</i> by Marilyn Burns</li> <li>• <i>Exemplars</i></li> <li>• <i>Problem Solvers</i></li> <li>• <i>Necap Prep Grade 4</i></li> <li>• <i>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</i></li> <li>• <i>Teaching Children Mathematics</i>, NCTM</li> <li>• <i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li>• <i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Calculators</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• <i>NECAP Release tasks</i></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> <li>• EDM cards</li> </ul> | <p>ASSESSMENT (EDM and Problem Solver)</p> <ul style="list-style-type: none"> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Performance-based Tasks</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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|--|--------------------------------------|--|--|--|---|
|  |                                      |  | <ul style="list-style-type: none"> <li>determining importance</li> <li>synthesizing</li> </ul>   | <ul style="list-style-type: none"> <li>EDM games</li> <li>Geoboards</li> <li>Geometry template</li> <li>Tangrams</li> <li>Graphing paper</li> <li>Dot paper</li> </ul> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li><i>Classroom Instruction That Works</i>, Marzano</li> </ul> <p><u>Community</u></p>   |   |
| <p>2. GEOMETRY AND MEASUREMENT</p> <p>2.6 Units of measure</p> |                                      | <p>The student</p> <p>2.6.1 Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands. M(G&amp;M)-4-7</p> <ul style="list-style-type: none"> <li><b>Length</b> <ul style="list-style-type: none"> <li><b>units (accuracy):</b> Inch (to 1/4); Foot; Centimeter (to 0.5 centimeter); Meter (to .5 centimeter) yard; Mile (use in scale questions); Kilometers ( use in scale questions)</li> <li><b>equivalencies:</b> 12 inches in 1 foot; 100 centimeters in 1 meter; 3 feet in 1 yard; 36 inches in 1 yard</li> </ul> </li> <li><b>Time</b> <ul style="list-style-type: none"> <li><b>units (accuracy):</b> hour (to 5 minute interval); day; year</li> <li><b>equivalencies:</b> 24 hours in 1 day; 7 days in 1 week; 365 days in 1 year; 60 seconds in 1 hour, 60 minutes in 1 hour</li> </ul> </li> <li><b>Temperature</b></li> </ul> | <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"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/><i>Everyday Mathematics Grade 4</i><br/><i>Units 1,4,8,10, &amp; 11</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li><i>McGraw--Hill Mathematics</i></li> <li><i>Teacher Created Materials</i></li> <li><i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li><i>Mathematics Books by Marilyn Burns</i></li> <li><i>Exemplars</i></li> <li><i>Problem Solvers</i></li> <li><i>Necap Prep Grade 4</i></li> <li><i>Balanced Assessment Elementary Grades</i> Pkgs. 1&amp;2</li> <li><i>Teaching Children Mathematics</i>, NCTM</li> <li><i>Comprehensive Math Assessment</i>, Options</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><u>REQUIRED LOCAL ASSESMENTS</u></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <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>Oral presentation</p> |

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|---|--------------------------------------|---|---|---|---|
|   |                                      | <ul style="list-style-type: none"> <li>• <b>unit (accuracy):</b> <math>C^\circ</math> and <math>F^\circ</math> (to 1 degree) capacity</li> <li>• <b>unit (accuracy):</b> quart (to whole quart)</li> <li>• <b>Mass</b> <ul style="list-style-type: none"> <li>• <b>unit (accuracy):</b> Kilogram (to whole gram), Gram (to whole gram)</li> </ul> </li> <li>• <b>Weight</b> <ul style="list-style-type: none"> <li>• <b>unit (accuracy):</b> pound (to whole pound)</li> </ul> </li> </ul> <p>2.6.2 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</p> <p>2.6.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>2.6.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• <i>Getting Ready - Exemplars (40)</i></li> <li>• <i>Fridge Temperature - Open Ended Math Assessment (41)</i></li> <li>• <i>Measuring a Bookshelf - Open Ended Math Assessment (42)</i></li> </ul> | <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <p>Pub., Inc.</p> <ul style="list-style-type: none"> <li>• <i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Calculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• <b>NECAP Release tasks</b></li> <li>• <b>NECompact.org</b></li> <li>• HMS Resource Folder</li> <li>• Geometers Sketch Pad</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction That Works</i>, Marzano</li> </ul> <p><b>Community</b></p> | <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p>  |
| <p>2. GEOMETRY AND MEASUREMENT</p> <p>2.7 Spatial relationships</p> |                                      | <p>The student</p> <p>2.7.1 <b>Demonstrates understanding of spatial relationships using location and position in first quadrant (all 4 quadrants (b) by</b></p> <ul style="list-style-type: none"> <li>▪ interpreting and giving directions between locations on a map or coordinate grid</li> <li>▪ plotting points in the first quadrant in</li> </ul>   | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> </ul>  | <p><b>Resources, also see pages 1-2</b></p> <p><b>Textbook</b></p> <p><i>Everyday Mathematics Grade 4 Units 1,4,8,10, &amp; 11</i></p> <p><b>Supplementary books</b></p>  | <p><b>Assessments/evidence, also see pages 1-2</b></p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• <b>MID-YEAR ASSESSMENT (EDM and Problem Solver)</b></li> <li>• <b>END-OF-YEAR</b></li> </ul> |

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|-------------------|--------------------------------------|--|---|--|--|
|                   |                                      | <p><u>context (e.g., games, mapping)</u></p> <ul style="list-style-type: none"> <li>finding the <u>horizontal and vertical distances between points on a coordinate grid</u>. M(G&amp;M)-4-9</li> </ul> <p>2.7.2 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</p> <p>2.7.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>2.7.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>Marta's Neighborhood - NECAP Prep (43)</li> </ul> | <ul style="list-style-type: none"> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>K-W-L</li> <li>visualizing</li> <li>asking strategies</li> <li>inferring</li> <li>predicting</li> </ul> | <ul style="list-style-type: none"> <li><i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li><i>Exemplars</i></li> <li><i>Problem Solvers</i></li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li><i>Teaching Children Mathematics</i>, NCTM</li> <li><i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li><i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>Calculator</li> <li>Overhead calculator</li> <li>Computer lab</li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>HMS Resource Folder</li> <li>Geometers Sketch Pad</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Unifix cubes</li> <li>3D-solids</li> <li>Rulers (metric), protractors</li> </ul> <p>School library resources</p> | <p>ASSESSMENT (EDM and Problem Solver)</p> <ul style="list-style-type: none"> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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|---|--------------------------------------|---|--|--|--|
|   |                                      |   | <ul style="list-style-type: none"> <li>making connections</li> <li>determining importance</li> <li>synthesizing</li> </ul>   | <ul style="list-style-type: none"> <li><i>Classroom Instruction That Works</i>, Marzano</li> </ul> <p><u>Community</u></p>   |  |
| <p><b>2. GEOMETRY AND MEASUREMENT</b><br/>2.8 Spatial reasoning and visualization</p> |                                      | <p>The student</p> <p>2.8.1 <b>Demonstrates conceptual understanding of spatial reasoning and visualization</b> by</p> <ul style="list-style-type: none"> <li>copying, comparing, and drawing models of triangles, squares, rectangles, rhombi, trapezoids, hexagons, <u>octagons</u>, and circles;</li> <li>building models of rectangular prisms from <u>two-</u> or three-dimensional representations. M(G&amp;M)-4-10</li> </ul> <p>2.8.2 Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</p> <p>2.8.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>2.8.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>Night Crawlers - <i>Teaching Children Mathematics</i> (44)</li> <li>Terrific Trapezoids - <i>Teaching Children Mathematics</i> (45)</li> <li>Comparing Shapes - <i>Balanced Assessment Pkg. 1</i> (46)</li> <li>Skware's Solar Panel - <i>Teaching Children Mathematics</i> (47)</li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/><i>Everyday Mathematics Grade 4 Units 1,4,8,10, &amp; 11</i></p> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li><i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li><i>Exemplars</i></li> <li><i>Problem Solvers</i></li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li><i>Teaching Children Mathematics</i>, NCTM</li> <li><i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li><i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>Calculator</li> <li>Overhead calculator</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> |

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|---|--------------------------------------|--|---|--|---|
|   |                                      |  | <ul style="list-style-type: none"> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <ul style="list-style-type: none"> <li>• Computer lab</li> <li>• <a href="http://www.rido.net">www.rido.net</a></li> <li>• <a href="http://www.rido.net/instruction/curriculum">www.rido.net/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• HMS Resource Folder</li> <li>• Geometers Sketch Pad</li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> </ul> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li>• <i>Spaghetti and Meatballs for All</i>, Marilyn Burns</li> <li>• <i>Classroom Instruction That Works</i>, Marzano</li> <li>• <i>Math Who Needs It?</i> (video)</li> </ul> <p><u>Community</u></p> | <p>Visual representation (e.g. Power Point™)</p>  |
| <p>3. FUNCTIONS AND ALGEBRA</p> <p>6.2 Variety of patterns</p> <p>7</p> |                                      | <p>The student</p> <p>3.1.1 Identifies and extends to specific cases a variety of patterns (linear and nonlinear) represented in models, tables or sequences. M(F&amp;A)-4-1 (state assessment) e.g.</p> <p>3.1.2 Writes rule in words or<sup>sc</sup> symbols to find the next case. M(F&amp;A)-4-1 (state assessment)</p> <ul style="list-style-type: none"> <li>• day *2= # of seeds (words)</li> <li>• 2D=S (symbols)</li> </ul> | <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"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> </ul>   | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/><i>Everyday Mathematics Grade 4</i></p> <ul style="list-style-type: none"> <li>• Unit 3</li> </ul> <p><u>Supplementary books/materials</u></p> <ul style="list-style-type: none"> <li>• Hands-on Algebra</li> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur</li> </ul>   | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> |

# Mathematics Grade 4

Curriculum Writers: Kate Carroll, Judy Hamilton, and Abigail Williams

| STANDARDS<br>GLEs | Applied<br>Learning<br>Stand.<br>SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)   | RESEARCH-BASED<br>INSTRUCTIONAL<br>STRATEGIES   | RESOURCES   | RESEARCH-BASED<br>ASSESSMENT<br>EVIDENCE  |
|-------------------|--------------------------------------|---|---|---|---|
|                   |                                      | <p>3.1.3 Applies the conventions of order of operations.</p> <p>3.1.4 Understands, uses, applies appropriate technology to solve problems.</p> <p>3.1.5 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Brigit's Pattern - Comprehensive Math (48)</li> <li>• Can Stack - NECAP Prep (49)</li> <li>• Nathan's Allowance (51)</li> <li>• Make a Rule (52)</li> </ul> | <ul style="list-style-type: none"> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <p>Hyde</p> <ul style="list-style-type: none"> <li>• Mathematics Books by Marilyn Burns</li> <li>• Exemplars</li> <li>• Problem Solvers</li> <li>• Necap Prep Grade 4</li> <li>• Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li>• Teaching Children Mathematics, NCTM</li> <li>• Comprehensive Math Assessment, Options Pub., Inc.</li> <li>• Open-ended Assessments in Math: A Searchable Collection of 450+ Questions, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Calculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> <li>• NECompact.org</li> <li>• HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Pattern tiles</li> <li>• Unifix cubes</li> <li>• Rulers (metric)</li> <li>• Pan balances</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• Classroom Instruction That Works, Marzano</li> </ul> <p><b>Community</b></p> | <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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|---|--------------------------------------|---|--|--|---|
| <p>3. FUNCTIONS AND ALGEBRA</p> <p>3.2 Linear relationships</p> |                                      | <p>The student</p> <p>3.2.1 Demonstrates conceptual understanding of linear relationships (<math>y=kx</math>) as a constant rate of change by</p> <ul style="list-style-type: none"> <li>• identifying</li> <li>• describing               <ul style="list-style-type: none"> <li>○ faster</li> <li>○ slower</li> <li>○ greater</li> <li>○ smaller</li> </ul> </li> <li>• comparing situations that represent constant rates of change (e.g., tell a story given a line graph about a trip). M(F&amp;A)-4-2</li> </ul> <p>3.2.2 Applies the conventions of order of operations.</p> <p>3.2.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>3.2.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Megan's Car Count (53)</li> <li>• EDM Study Link 12.2 TE p. 378</li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/><i>Everyday Mathematics Grade 4</i></p> <ul style="list-style-type: none"> <li>• Units 3, 12</li> </ul> <p><u>Supplementary books/materials</u></p> <ul style="list-style-type: none"> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>• <i>Mathematics Books by Marilyn Burns Exemplars</i></li> <li>• <i>Problem Solvers</i></li> <li>• <i>Necap Prep Grade 4</i></li> <li>• <i>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</i></li> <li>• <i>Teaching Children Mathematics</i>, NCTM</li> <li>• <i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li>• <i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>• Calculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• <i>NECAP Release tasks</i></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g.</p> |

# Mathematics Grade 4

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|--|--------------------------------------|---|---|---|---|
|  |                                      |   | Reading strategies to teach mathematics (Hyde) <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul>   | <ul style="list-style-type: none"> <li>• HMS Resource Folder</li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>• Pattern tiles</li> <li>• Unifix cubes</li> <li>• Rulers (metric)</li> <li>• Pan balances</li> <li>• Graphing paper</li> </ul> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li>• Classroom Instruction That Works, Marzano</li> </ul> <p><u>Community</u></p>   | Power Point™)   |
| <b>3. FUNCTIONS AND ALGEBRA</b><br><br>3.3 Algebraic expressions |                                      | <p>The student</p> <p>3.3.1 Demonstrates conceptual understanding of algebraic expressions by</p> <ul style="list-style-type: none"> <li>• using letters or symbols to represent unknown quantities to write simple linear algebraic expressions involving any one (two(D) of the four operations . M(F&amp;A)-4-3 (state assessment)</li> <li>• evaluating simple linear algebraic expressions using whole numbers, e.g.               <ul style="list-style-type: none"> <li>◦ determine the value of y when given <math>6 = y + 2</math> M(F&amp;A)-4-3 (state assessment)</li> </ul> </li> </ul> <p>3.3.2 Applies the conventions of order of operations.</p> <p>3.3.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>3.3.4 <b>REQUIRED PROBLEMS</b></p> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/> <i>Everyday Mathematics Grade 4</i><br/>           Unit 3</p> <p><u>Supplementary books/materials</u></p> <ul style="list-style-type: none"> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>• Mathematics Books by Marilyn Burns</li> <li>• <i>Exemplars</i></li> <li>• <i>Problem Solvers</i></li> <li>• <i>Necap Prep Grade 4</i></li> <li>• <i>Balanced Assessment Elementary Grades</i> Pkgs. 1&amp;2</li> <li>• <i>Teaching Children Mathematics</i>, NCTM</li> <li>• <i>Comprehensive Math Assessment</i>, Options</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b><br/>           Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> |

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|-------------------|--------------------------------------|--|---|--|---|
|                   |                                      | <ul style="list-style-type: none"> <li>Vilma's Shopping - Open Ended Math Assessment (50)</li> </ul> | <p>to modify instruction</p> <ul style="list-style-type: none"> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>K-W-L</li> <li>visualizing</li> <li>asking strategies</li> <li>inferring</li> <li>predicting</li> <li>making connections</li> <li>determining importance</li> <li>synthesizing</li> </ul> | <p>Pub., Inc.</p> <ul style="list-style-type: none"> <li>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>Calculator</li> <li>Overhead calculator</li> <li>Computer lab</li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Pattern tiles</li> <li>Unifix cubes</li> <li>Rulers (metric)</li> <li>Pan balances</li> <li>Graphing paper</li> <li>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li>Exemplars</li> <li>Problem Solvers</li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li>Teaching Children Mathematics, NCTM</li> <li>Comprehensive Math Assessment, Options Pub., Inc.</li> <li>Open-ended Assessments in Math:</li> </ul> | <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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|---|--------------------------------------|---|--|---|--|
|   |                                      |   |  | <p><i>A Searchable Collection of 450+ Questions</i>, Heinemann</p> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li><i>Classroom Instruction That Works</i>, Marzano</li> </ul> <p><u>Community</u></p>  |  |
| <p>3. FUNCTIONS AND ALGEBRA</p> <p>3.4 Equality</p> |                                      | <p>The student</p> <p>3.4.1 Demonstrates conceptual understanding of equality by</p> <ul style="list-style-type: none"> <li>showing equivalence between two expressions using models or different representations of the expressions</li> <li>simplifying numerical expressions where left to right computations may be modified only by the use of parentheses [e.g., <math>14 - (2 \times 5)</math>] (expressions consistent with the parameters of M(F&amp;A)-4-3)</li> <li>solving one-step linear equations of the form <math>ax = c</math>, <math>x + b = c</math>, where <math>a</math>, <math>b</math>, and <math>c</math> are whole numbers with <math>a \neq 0</math>. M(F&amp;A)-4-4 (state assessment) e.g.               <ul style="list-style-type: none"> <li><math>ax=c</math> (<math>3x=24</math>; <math>x=8</math>)</li> <li><math>x+b=c</math> (<math>x+5=20</math>; <math>x=15</math>)</li> <li><math>x-b=c</math> (<math>x-5=20</math>; <math>x=25</math>)</li> </ul> </li> </ul> <p>3.4.2 Applies the conventions of order of operations.</p> <p>3.4.3 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"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <p><i>Everyday Mathematics Grade 4</i><br/>Unit 3</p> <p><u>Supplementary books/materials</u></p> <ul style="list-style-type: none"> <li><i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li>Exemplars</li> <li>Problem Solvers</li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li><i>Teaching Children Mathematics</i>, NCTM</li> <li><i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li><i>Open-ended Assessments in Math: A Searchable Collection of 450+</i></li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process)</p> |

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| STANDARDS GLEs   | Applied Learning Stand. SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)   | RESEARCH-BASED INSTRUCTIONAL STRATEGIES   | RESOURCES   | RESEARCH-BASED ASSESSMENT EVIDENCE  |
|--|-----------------------------|---|---|---|---|
|  |                             | <p>3.4.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• How Many? (54)</li> </ul>  | <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <p><i>Questions, Heinemann</i></p> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Calculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>• <b>NECAP Release tasks</b></li> <li>• <b>NECompact.org</b></li> <li>• HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Pattern tiles</li> <li>• Unifix cubes</li> <li>• Rulers (metric)</li> <li>• Pan balances</li> <li>• Graphing paper</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction That Works, Marzano</i></li> </ul> <p><b>Community</b></p> | <p>and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p>  |
| <p><b>4. DATA, STATISTICS, AND PROBABILITY</b></p> <p>4.1 Given Representation</p> |                             | <p>The student</p> <p>4.1.1 <b>Interprets a given representation</b> (line plots, tables, bar graphs, <u>pictographs</u>, or <u>circle graphs</u>) (line graphs <b>(D)</b> to</p> <ul style="list-style-type: none"> <li>▪ answer questions related to the data,</li> <li>▪ analyze the data</li> <li>▪ formulate or <u>justify conclusions</u></li> <li>▪ make predictions</li> <li>▪ <u>solve problems</u>. M(DSP)-4-1 <b>(state assessment)</b></li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> </ul>  | <p>Resources, also see pages 1-2</p> <p><b>Textbook</b><br/><i>Everyday Mathematics Grade 4</i><br/>Units 2, 7 &amp; 9</p> <p><b>Supplementary books/materials</b></p> <ul style="list-style-type: none"> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6, Arthur Hyde</i></li> </ul>   | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESMENTS</b></p> <ul style="list-style-type: none"> <li>• <b>MID-YEAR ASSESSMENT</b> (EDM and Problem Solver)</li> <li>• <b>END-OF-YEAR ASSESSMENT</b> (EDM and Problem Solver)</li> <li>• <b>PRE AND POST EDM/GLE UNIT TESTS</b></li> </ul> |

# Mathematics Grade 4

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| STANDARDS<br>GLEs | Applied<br>Learning<br>Stand.<br>SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)   | RESEARCH-BASED<br>INSTRUCTIONAL<br>STRATEGIES   | RESOURCES  | RESEARCH-BASED<br>ASSESSMENT<br>EVIDENCE  |
|-------------------|--------------------------------------|---|---|--|---|
|                   |                                      | <p>IMPORTANT: <i>Analyzes data consistent with concepts and skills in M(DSP)-4-2.)</i></p> <p>4.1.2 Applies the conventions of order of operations.</p> <p>4.1.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>4.1.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Amusement Park - NECAP Prep (55)</li> <li>• Fruit for Lunch - NECAP Prep (57)</li> <li>• Rob's Survey - Open Ended Assessment in Math (58)</li> <li>• Pictograph - Open Ended Assessment in Math (59)</li> </ul> | <ul style="list-style-type: none"> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <ul style="list-style-type: none"> <li>• Mathematics Books by Marilyn Burns</li> <li>• Exemplars</li> <li>• Problem Solvers</li> <li>• Necap Prep Grade 4</li> <li>• Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li>• Teaching Children Mathematics, NCTM</li> <li>• Comprehensive Math Assessment, Options Pub., Inc.</li> <li>• Open-ended Assessments in Math: A Searchable Collection of 450+ Questions, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Calculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> <li>• NECompact.org</li> <li>• HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Dice</li> <li>• Spinners</li> <li>• Two-colored Chips</li> <li>• Graphing paper</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• Classroom Instruction That Works, Marzano</li> </ul> <p><b>Community</b></p> | <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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|---|--------------------------------------|---|---|---|--|
| <p><b>4. DATA, STATISTICS, AND PROBABILITY</b></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"> <li>• <u>measures of central tendency</u> <ul style="list-style-type: none"> <li>◦ <u>median</u></li> <li>◦ <u>mode</u></li> </ul> </li> <li>• <u>range</u>. M(DSP)-4-2 (<b>state assessment</b>)</li> <li>• mean (<b>D</b>) M(DSP)-4-2</li> </ul> <p>4.2.2 Applies the conventions of order of operations</p> <p>4.2.3 Understands, uses, applies appropriate technology to solve problems</p> <p>4.2.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Median - NECAP (60)</li> <li>• Peanuts - <i>Upper Elementary Mathematics Performance Tasks</i> (61)</li> <li>• Landmark Search (62)</li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/><i>Everyday Mathematics Grade 4</i><br/>Units 2, 7 &amp; 9</p> <p><u>Supplementary books/materials</u></p> <ul style="list-style-type: none"> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>• Mathematics Books by Marilyn Burns</li> <li>• <i>Exemplars</i></li> <li>• <i>Problem Solvers</i></li> <li>• <i>Necap Prep Grade 4</i></li> <li>• <i>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</i></li> <li>• <i>Teaching Children Mathematics</i>, NCTM</li> <li>• <i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li>• <i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> |

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| STANDARDS GLEs  | Applied Learning Stand. SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)   | RESEARCH-BASED INSTRUCTIONAL STRATEGIES   | RESOURCES   | RESEARCH-BASED ASSESSMENT EVIDENCE  |
|---|-----------------------------|---|---|---|---|
|   |                             |   | <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Calculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> <li>• NECompact.org</li> <li>• HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Dice</li> <li>• Spinners</li> <li>• Two-colored Chips</li> <li>• Graphing paper</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction That Works</i>, Marzano</li> </ul> <p><b>Community</b></p> | <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p>  |
| <p><b>4. DATA, STATISTICS, AND PROBABILITY</b></p> <p>4.3 Organizes and displays data</p> |                             | <p><b>The student</b></p> <p>4.3.1 <b>Organizes and displays data</b> using tables, <u>line plots</u>, bar graphs, <u>pictographs</u>, (and line graphs <b>(D)</b>) to</p> <ul style="list-style-type: none"> <li>• answer questions related to the data, to</li> <li>• analyze the data to             <ul style="list-style-type: none"> <li>○ formulate or justify conclusions</li> <li>○ make predictions</li> <li>○ solve problems. M(DSP)-4-3</li> </ul> </li> </ul> <p>IMPORTANT: Analyzes data consistent with concepts and skills in M(DSP)-4-2.)</p> <p>4.3.2 <b>Applies the conventions of order of operations</b></p> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> </ul>  | <p>Resources, also see pages 1-2</p> <p><b>Textbook</b></p> <p><i>Everyday Mathematics Grade 4</i><br/>Units 2, 7 &amp; 9</p> <p><b>Supplementary books/materials</b></p> <ul style="list-style-type: none"> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>• Mathematics Books by Marilyn Burns</li> <li>• Exemplars</li> <li>• Problem Solvers</li> </ul>  | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends</p> |

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|-------------------|--------------------------------------|---|---|--|--|
|                   |                                      | <p>4.3.3 Understands, uses, applies appropriate technology to solve problems</p> <p>4.3.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Field Trip - <i>Balanced Assessment</i> (63)</li> <li>• Favorite Ice Cream - <i>Comprehensive Math</i> (64)</li> <li>• Farmer McDonald - <i>Teaching Children Mathematics</i> (65)</li> </ul> | <ul style="list-style-type: none"> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <ul style="list-style-type: none"> <li>• <i>Necap Prep Grade 4</i></li> <li>• <i>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</i></li> <li>• <i>Teaching Children Mathematics</i>, NCTM</li> <li>• <i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li>• <i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Calculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• <i>NECAP Release tasks</i></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Dice</li> <li>• Spinners</li> <li>• Two-colored Chips</li> <li>• Graphing paper</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction That Works</i>, Marzano</li> </ul> <p><b>Community</b></p> | <p>student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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|--|--------------------------------------|--|--|---|---|
| <p>4. DATA,<br/>STATISTICS, AND<br/>PROBABILITY</p> <p>4.4 Representations<br/>or elements</p> |                                      | <p>The student</p> <p>4.4.1 Identifies or describes representations or elements of representations that best display a given set of data or situation, consistent with the representations required in <u>M(DSP)-5-1. (b)</u> M(DSP)-5-3</p> <p>4.4.2 Applies the conventions of order of operations.</p> <p>4.4.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>4.4.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>Distance of U.S. Cities (66)</li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/><i>Everyday Mathematics Grade 4</i><br/>Units 2, 7 &amp; 9</p> <p><u>Supplementary books/materials</u></p> <ul style="list-style-type: none"> <li><i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li><i>Exemplars</i></li> <li><i>Problem Solvers</i></li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li><i>Teaching Children Mathematics</i>, NCTM</li> <li><i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li><i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>Calculator</li> <li>Overhead calculator</li> <li>Computer lab</li> <li><a href="http://www.glencoe.com">www.glencoe.com</a></li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>NECAP Release tasks</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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|---|--------------------------------------|---|---|---|---|
|   |                                      |   | Reading strategies to teach mathematics (Hyde) <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul>   | <ul style="list-style-type: none"> <li>• <a href="#">NECompact.org</a></li> <li>• <a href="#">HMS Resource Folder</a></li> </ul> <u>Materials</u> <ul style="list-style-type: none"> <li>• Dice</li> <li>• Spinners</li> <li>• Two-colored Chips</li> <li>• Graphing paper</li> </ul> <u>School library resources</u> <ul style="list-style-type: none"> <li>• <a href="#">Classroom Instruction That Works, Marzano</a></li> </ul> <u>Community</u>  |   |
| <b>4. DATA, STATISTICS AND PROBABILITY</b><br>4.5 Counting techniques |                                      | <p>The student</p> <p>4.5.1 Uses counting techniques to solve problems in context involving combinations or simple permutations (e.g., Given a map - Determine the number of paths from point A to point B.) using a variety of strategies e.g.</p> <ul style="list-style-type: none"> <li>• organized lists</li> <li>• tables</li> <li>• tree diagrams</li> <li>• models (DSP)-4-4 (state assessment)</li> </ul> <p>4.5.2 Applies the conventions of order of operations.</p> <p>4.5.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>4.5.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Juanita's Lunch - <i>Comprehensive Math</i> (67)</li> <li>• Mr. Gumpy - <i>Teaching Children</i></li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/> <i>Everyday Mathematics Grade 4</i><br/>           Units 2, 7 &amp; 9</p> <p><u>Supplementary books/materials</u></p> <ul style="list-style-type: none"> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>• Mathematics Books by Marilyn Burns</li> <li>• <i>Exemplars</i></li> <li>• <i>Problem Solvers</i></li> <li>• <i>Necap Prep Grade 4</i></li> <li>• <i>Balanced Assessment Elementary Grades</i> Pkgs. 1&amp;2</li> <li>• <i>Teaching Children Mathematics</i>, NCTM</li> <li>• <i>Comprehensive Math Assessment, Options</i></li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b><br/>           Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> |

# Mathematics Grade 4

Curriculum Writers: Kate Carroll, Judy Hamilton, and Abigail Williams

| STANDARDS GLEs  | Applied Learning Stand. SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)  | RESEARCH-BASED INSTRUCTIONAL STRATEGIES   | RESOURCES  | RESEARCH-BASED ASSESSMENT EVIDENCE   |
|---|-----------------------------|--|---|--|--|
|   |                             | <p><i>Mathematics</i> (68)</p> <ul style="list-style-type: none"> <li><i>Can Stack - NECAP Prep</i> (70)</li> </ul>  | <p>to modify instruction</p> <ul style="list-style-type: none"> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>K-W-L</li> <li>visualizing</li> <li>asking strategies</li> <li>inferring</li> <li>predicting</li> <li>making connections</li> <li>determining importance</li> <li>synthesizing</li> </ul> | <p>Pub., Inc.</p> <ul style="list-style-type: none"> <li><i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>Calculator</li> <li>Overhead calculator</li> <li>Computer lab</li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>HMS Resource Folder</li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>Dice</li> <li>Spinners</li> <li>Two-colored Chips</li> <li>Graphing paper</li> </ul> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li><i>Classroom Instruction That Works</i>, Marzano</li> <li><i>Mr. Grumpy's Outing</i>, John Burningham</li> </ul> <p><u>Community</u></p> | <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p>  |
| <p><b>4. DATA, STATISTICS, AND PROBABILITY</b></p> <p>4.6 Probability event</p> |                             | <p>The student</p> <p>4.6.1 For a probability event in which the sample space may or may not contain equally likely outcomes,</p> <ul style="list-style-type: none"> <li>predicts the likelihood of an event <u>as a</u> <ul style="list-style-type: none"> <li><u>part to whole relationship</u> (e.g., two out of five, zero out of five,</li> </ul> </li> </ul> | <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"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> </ul>   | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <p><i>Everyday Mathematics Grade 4</i><br/>Units 2, 7 &amp; 9</p> <p><u>Supplementary</u></p>  | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR</li> </ul> |

# Mathematics Grade 4

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| STANDARDS GLEs | Applied Learning Stand. SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)  | RESEARCH-BASED INSTRUCTIONAL STRATEGIES   | RESOURCES   | RESEARCH-BASED ASSESSMENT EVIDENCE   |
|----------------|-----------------------------|--|---|---|--|
|                |                             | <p>five out of five)</p> <ul style="list-style-type: none"> <li>○ fraction (D) M(DSP)-5-5</li> </ul> <ul style="list-style-type: none"> <li>• tests the prediction through experiments;</li> <li>• determines if a game is fair. M(DSP)-4-5</li> </ul> <p>4.6.2 Applies the conventions of order of operations</p> <p>4.6.3 Understands, uses, applies appropriate technology to solve problems</p> <p>4.6.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• <i>Spinner Game - Balanced Assessment (69)</i></li> </ul> | <ul style="list-style-type: none"> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> </ul> | <p><b>books/materials</b></p> <ul style="list-style-type: none"> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>• <i>Mathematics Books by Marilyn Burns</i></li> <li>• <i>Exemplars</i></li> <li>• <i>Problem Solvers</i></li> <li>• <i>Necap Prep Grade 4</i></li> <li>• <i>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</i></li> <li>• <i>Teaching Children Mathematics</i>, NCTM</li> <li>• <i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li>• <i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Calculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ride.net">www.ride.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• <b>NECAP Release tasks</b></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Dice</li> <li>• Spinners</li> <li>• Two-colored Chips</li> <li>• Graphing paper</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction</i></li> </ul> | <p><b>ASSESSMENT (EDM and Problem Solver)</b></p> <ul style="list-style-type: none"> <li>• <b>PRE AND POST EDM/GLE UNIT TESTS</b></li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

# Mathematics Grade 4

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| STANDARDS<br>GLEs   | Applied<br>Learning<br>Stand.<br>SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)  | RESEARCH-BASED<br>INSTRUCTIONAL<br>STRATEGIES  | RESOURCES   | RESEARCH-BASED<br>ASSESSMENT<br>EVIDENCE   |
|---|--------------------------------------|--|--|---|--|
|   |                                      |  | <ul style="list-style-type: none"> <li>making connections</li> <li>determining importance</li> <li>synthesizing</li> </ul>   | <i>That Works</i> , Marzano<br><br><u>Community</u>   |  |
| <p><b>4. DATA, STATISTICS, AND PROBABILITY</b></p> <p>4.7 Experimental or theoretical probability</p> |                                      | <p>The student</p> <p>4.7.1 For a probability event in which the sample space may or may not contain equally likely outcomes, determines the theoretical (experimental <b>(D)</b>) probability of an event and expresses the result as</p> <ul style="list-style-type: none"> <li>part to whole (e.g., two out of five). M(DSP)-4-5 (<b>state assessment</b>)</li> <li>fraction <b>(D)</b> M(DSP-5-5)</li> </ul> <p>4.7.2 Applies the conventions of order of operations.</p> <p>4.7.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>4.7.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>Matties's Phone Number - <i>Comprehensive Math</i> (71)</li> <li>Marble Game - <i>Comprehensive Math</i> (72)</li> <li>Make a Spinner - <i>Open Ended Assessment in Math</i> (73)</li> <li>Cube Drop Experiment EDM Lesson 7.12</li> <li>Drawing a Spinner - <i>Balanced Assessment</i> (56)</li> </ul> | <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"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u><br/> <i>Everyday Mathematics Grade 4</i><br/>           Units 2, 7 &amp; 9</p> <p><u>Supplementary books/materials</u></p> <ul style="list-style-type: none"> <li><i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li><i>Exemplars</i></li> <li><i>Problem Solvers</i></li> <li><i>Necap Prep Grade 4</i></li> <li><i>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</i></li> <li><i>Teaching Children Mathematics</i>, NCTM</li> <li><i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li><i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> |

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| STANDARDS<br>GLEs  | Applied<br>Learning<br>Stand.<br>SIP | OUTCOMES/BENCHMARKS<br>Barrington Public Schools<br>(NECAP GLE/GLE)  | RESEARCH-BASED<br>INSTRUCTIONAL<br>STRATEGIES   | RESOURCES   | RESEARCH-BASED<br>ASSESSMENT<br>EVIDENCE  |
|--|--------------------------------------|--|---|---|---|
|  |                                      |  | <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Calculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> <li>• NECompact.org</li> <li>• HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Dice</li> <li>• Spinners</li> <li>• Two-colored Chips</li> <li>• Graphing paper</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction That Works</i>, Marzano</li> </ul> <p><b>Community</b></p> | <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p>  |
| <p><b>4. DATA, STATISTICS, AND PROBABILITY</b></p> <p>4.8 Question or hypothesis</p> |                                      | <p>The student</p> <p>4.8.1 In response to a teacher or student generated question or hypothesis, groups decide the most effective method (e.g. survey, observation, experimentation) to</p> <ul style="list-style-type: none"> <li>• collect the data (numerical or categorical) necessary to answer the question</li> <li>• collect, organize, and appropriately display the data</li> <li>• analyze the data to draw conclusions about the question or hypothesis being tested, and when appropriate</li> <li>• make predictions</li> <li>• <u>ask new questions and make connections to</u></li> </ul> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> </ul>  | <p>Resources, also see pages 1-2</p> <p><b>Textbook</b></p> <p><i>Everyday Mathematics Grade 4</i><br/>Units 2, 7 &amp; 9</p> <p><b>Supplementary books/materials</b></p> <ul style="list-style-type: none"> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>• Mathematics Books by Marilyn Burns</li> <li>• <i>Exemplars</i></li> <li>• <i>Problem Solvers</i></li> </ul>  | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends</p> |

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|-------------------|--------------------------------------|--|---|---|--|
|                   |                                      | <p><u>real world situations</u>. M(DSP)-4-6</p> <p>IMPORTANT: Analyzes data consistent with concepts and skills in M(DSP)-4-2.)</p> <p>4.8.2 Applies the conventions of order of operations</p> <p>4.8.3 Understands, uses, applies appropriate technology to solve problems</p> <p>4.8.4 <b>REQUIRED PROBLEMS</b></p> | <ul style="list-style-type: none"> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of a calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <ul style="list-style-type: none"> <li>• <a href="#">Necap Prep Grade 4</a></li> <li>• <a href="#">Balanced Assessment Elementary Grades Pkgs. 1&amp;2</a></li> <li>• <a href="#">Teaching Children Mathematics</a>, NCTM</li> <li>• <a href="#">Comprehensive Math Assessment</a>, Options Pub., Inc.</li> <li>• <a href="#">Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</a>, Heinemann</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Calculator</a></li> <li>• <a href="#">Overhead calculator</a></li> <li>• <a href="#">Computer lab</a></li> <li>• <a href="http://www.glencoe.com">www.glencoe.com</a></li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>• <a href="#">NECAP Release tasks</a></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• <a href="#">HMS Resource Folder</a></li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Dice</a></li> <li>• <a href="#">Spinners</a></li> <li>• <a href="#">Two-colored Chips</a></li> <li>• <a href="#">Graphing paper</a></li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Classroom Instruction That Works</a>, Marzano</li> </ul> <p><b>Community</b></p> | <p>student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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|--|--------------------------------------|--|--|--|---|
| <p><b>5. PROBLEM SOLVING, REASONING, AND PROOF</b></p> <p>5.1 Problem Solving strategies</p> |                                      | <p>The student will use problem-solving strategies to investigate and understand increasingly complex mathematical content and be able to:</p> <p>5.1.1 Determine the reasonableness of solutions to real world problems.</p> <p>5.1.2 Generalize solutions and apply strategies to new problem situations.</p> <p>5.1.3 Add to the repertoire of problem-solving strategies (e.g., looking for similar problems) and use those strategies in more sophisticated ways.</p> <ul style="list-style-type: none"> <li>• identify the problem/question/task</li> <li>• make a list</li> <li>• create a diagram</li> <li>• organize data</li> <li>• determine a pattern</li> <li>• identify and use formulas when appropriate</li> <li>• begin to create algebraic representation</li> <li>• use technology when appropriate to solve problems</li> </ul> <p>5.1.4 Solve problems with multiple solutions, recognize when a problem has no solution, and recognize problems where more information is needed.</p> <p>5.1.5 Translate results of a computation into solutions that fit the real-world problem (e.g., when computation shows that one needs 3.2 gallons of paint to paint a room, how much paint do you buy?).</p> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of the calculator</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li>• <i>Everyday Mathematics Grade 4</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>• <i>Mathematics Books by Marilyn Burns Exemplars</i></li> <li>• <i>Problem Solvers</i></li> <li>• <i>Necap Prep Grade 4</i></li> <li>• <i>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</i></li> <li>• <i>Teaching Children Mathematics</i>, NCTM</li> <li>• <i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li>• <i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>• Calculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>• <i>NECAP Release tasks</i></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• <i>HMS Resource Folder</i></li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

# Mathematics Grade 4

Curriculum Writers: Kate Carroll, Judy Hamilton, and Abigail Williams

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|---|--------------------------------------|---|---|--|---|
|   |                                      | <p>5.1.6 Determine, collect and organize the relevant information needed to solve real-world problems (B)</p> <p>5.1.1 Reflect on solutions and the problem-solving process for a given situation and refine strategies as needed. (B) M(PRP) 6 to 8 -1</p> <ul style="list-style-type: none"> <li>• contain accurate and appropriate data/responses</li> <li>• apply conventions of mathematics, e.g.               <ul style="list-style-type: none"> <li>○ labeling, money two decimal places</li> <li>○ correct estimations</li> <li>○ accurate level of precision (rounding off)</li> </ul> </li> <li>• proper execution of selected strategies</li> </ul> | <ul style="list-style-type: none"> <li>• synthesizing</li> </ul>  | <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> </ul> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li>• Classroom Instruction That Works, Marzano</li> </ul> <p><u>Community</u></p>   |   |
| <p>5. PROBLEM SOLVING, REASONING, AND PROOF</p> <p>5.2 Mathematical reasoning and proof</p> |                                      | <p>The student will use mathematical reasoning and proof and be able to:</p> <p>5.2.1 Draw conclusions and solve problems using elementary deductive reasoning and reasoning by analogy. from:</p> <ul style="list-style-type: none"> <li>• patterns</li> <li>• graphs</li> <li>• tables</li> </ul> <p>5.2.2 Make and defend conjectures and generalizations.</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"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li>• Everyday Mathematics Grade 4</li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• Comprehending Math: Adapting Reading Strategies to Teach Math, K-6, Arthur Hyde</li> <li>• Mathematics Books by Marilyn Burns</li> <li>• Exemplars</li> <li>• Problem Solvers</li> <li>• Necap Prep Grade 4</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><u>REQUIRED LOCAL ASSESSMENTS</u></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> |

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|-------------------|--------------------------------------|---|---|--|---|
|                   |                                      | <p>5.2.3 Use models, known facts, properties, and relationships to explain thinking and to justify answers and solution processes.</p> <p>5.2.4 Recognize the pervasive use and power of reasoning as a part of mathematics. M(PRP)-5-2</p> | <p>student's mathematics</p> <ul style="list-style-type: none"> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of the calculator</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul> | <ul style="list-style-type: none"> <li>• <a href="#">Balanced Assessment Elementary Grades Pkgs. 1&amp;2</a></li> <li>• <a href="#">Teaching Children Mathematics, NCTM</a></li> <li>• <a href="#">Comprehensive Math Assessment, Options Pub., Inc.</a></li> <li>• <a href="#">Open-ended Assessments in Math: A Searchable Collection of 450+ Questions, Heinemann</a></li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Ccalculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridee.net">www.ridee.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• <a href="#">NECAP Release tasks</a></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Classroom Instruction That Works, Marzano</a></li> </ul> <p><b>Community</b></p> | <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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|---|--------------------------------------|---|--|---|---|
| <p><b>6. COMMUNICATION, CONNECTIONS AND REPRESENTATION</b></p> <p>6.1 Communicate understanding</p> |                                      | <p>The student will communicate their understanding of mathematics and be able to:</p> <p>6.1.1 Discuss mathematical ideas and write convincing arguments.</p> <p>6.1.2 Understand, explain, analyze, and evaluate mathematical arguments and conclusions presented by others.</p> <p>6.1.3 Ask clarifying and extending questions related to mathematics they have heard or read about.</p> <p>6.1.4 Understand and appreciate the economy and power of mathematical symbolism and its role in the development of mathematics.</p> <p>6.1.5 Demonstrate an understanding of mathematical concepts and relationships through a variety of methods (e.g., writing, graphing, charts, diagrams, number sentences, or symbols).</p> <p>6.1.6 Use a variety of technologies (e.g., computers, calculators, video, probes) to represent and communicate mathematical ideas.</p> <p>6.1.7 Articulate ideas clearly and logically in both written and oral form. (B)</p> <p>6.1.8 Present, share, explain and justify thinking with others and build upon the ideas of others to solve problems. (B)</p> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• modeling functions of the calculator</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li>• <i>Everyday Mathematics Grade 4</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>• <i>Mathematics Books by Marilyn Burns Exemplars Problem Solvers</i></li> <li>• <i>Necap Prep Grade 4</i></li> <li>• <i>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</i></li> <li>• <i>Teaching Children Mathematics</i>, NCTM</li> <li>• <i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li>• <i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>• Calculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>• <i>NECAP Release tasks</i></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• HMS Resource Folder</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |

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|--|-----------------------------|--|---|--|--|
|  |                             |  | <ul style="list-style-type: none"> <li>synthesizing</li> </ul>  | <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>Unifix cubes</li> <li>3D-solids</li> <li>Rulers (metric), protractors</li> </ul> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li><i>Classroom Instruction That Works</i>, Marzano</li> </ul> <p><u>Community</u></p>  |  |
| <p>6. COMMUNICATION, CONNECTIONS, AND REPRESENTATION</p> <p>6.2 Create and use representations</p> |                             | <p>The student will create and use representations to communicate mathematical ideas and to solve problems and be able to:</p> <p>6.2.1 Use physical models and diagrams to represent important mathematical ideas (e.g. multiplication).</p> <p>6.2.2 Use appropriate representations to solve problems or to portray, clarify, or extend a mathematical idea, e.g.</p> <ul style="list-style-type: none"> <li>graphs</li> <li>tables/charts</li> <li>geometric representations</li> </ul> <p>6.2.3 Recognize equivalent representations of concepts and procedures and translate among them as appropriate (for example, understand how the addition of whole numbers, fractions, and decimals are related).</p> <p>6.2.4 Convert between representations (e.g., a table of values, an equation, a graph, and words or symbols may all be representations of the</p> | <p>Teacher may model and/or facilitate the following: (also see pages 1-2)</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>using manipulatives</li> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of the calculator</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li><i>Everyday Mathematics Grade 4</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li><i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>Mathematics Books by Marilyn Burns</li> <li><i>Exemplars</i></li> <li><i>Problem Solvers</i></li> <li>Necap Prep Grade 4</li> <li>Balanced Assessment Elementary Grades Pkgs. 1&amp;2</li> <li><i>Teaching Children Mathematics</i>, NCTM</li> <li><i>Comprehensive Math Assessment</i>, Options Pub., Inc.</li> <li><i>Open-ended Assessments in Math: A Searchable Collection of 450+ Questions</i>, Heinemann</li> </ul> | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> |

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|--|-----------------------------|---|---|--|--|
|  |                             | same function). (B) M(CCR)-8-2  | <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>• K-W-L</li> <li>• visualizing</li> <li>• asking strategies</li> <li>• inferring</li> <li>• predicting</li> <li>• making connections</li> <li>• determining importance</li> <li>• synthesizing</li> </ul>  | <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>• Calculator</li> <li>• Overhead calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• HMS Resource Folder</li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>• Unifix cubes</li> <li>• 3D-solids</li> <li>• Rulers (metric), protractors</li> </ul> <p><u>School library resources</u></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction That Works</i>, Marzano</li> </ul> <p><u>Community</u></p> | <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p>   |
| <p>6. COMMUNICATION, CONNECTIONS, AND REPRESENTATION</p> <p>6.3 Mathematical connections</p> |                             | <p>The student will recognize, explore, and develop mathematical connections and be able to:</p> <p>6.3.1 See mathematics as an integrated whole.</p> <p>6.3.2 Recognize relationships among different topics in mathematics.</p> <p>6.3.3 Recognize and use mathematics in other curriculum areas and in their daily lives.</p> <p>6.3.4 Link concepts and procedures.</p> <p>6.3.5 Use mathematical skills, concepts, and</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"> <li>• using manipulatives</li> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> </ul> | <p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li>• <i>Everyday Mathematics Grade 4</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• <i>Comprehending Math: Adapting Reading Strategies to Teach Math, K-6</i>, Arthur Hyde</li> <li>• Mathematics Books by Marilyn Burns</li> <li>• <i>Exemplars</i></li> <li>• <i>Problem Solvers</i></li> <li>• <i>Necap Prep Grade 4</i></li> </ul>  | <p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED LOCAL ASSESMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• END-OF-YEAR ASSESSMENT (EDM and Problem Solver)</li> <li>• PRE AND POST EDM/GLE UNIT TESTS</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> |

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|-------------------|--------------------------------------|--|--|--|---|
|                   |                                      | <p>applications in other disciplines, e.g.</p> <ul style="list-style-type: none"> <li>graphs in social studies</li> <li>patterns in art</li> <li>music and geometry in technology education</li> </ul> | <ul style="list-style-type: none"> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of the calculator</li> </ul> <p>Reading strategies to teach mathematics (Hyde)</p> <ul style="list-style-type: none"> <li>K-W-L</li> <li>visualizing</li> <li>asking strategies</li> <li>inferring</li> <li>predicting</li> <li>making connections</li> <li>determining importance</li> <li>synthesizing</li> </ul> | <ul style="list-style-type: none"> <li><a href="#">Balanced Assessment Elementary Grades Pkgs. 1&amp;2</a></li> <li><a href="#">Teaching Children Mathematics, NCTM</a></li> <li><a href="#">Comprehensive Math Assessment, Options Pub., Inc.</a></li> <li><a href="#">Open-ended Assessments in Math: A Searchable Collection of 450+ Questions, Heinemann</a></li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>Calculator</li> <li>Overhead calculator</li> <li>Computer lab</li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>HMS Resource Folder</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Unifix cubes</li> <li>3D-solids</li> <li>Rulers (metric), protractors</li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li><a href="#">Classroom Instruction That Works, Marzano</a></li> </ul> <p><b>Community</b></p> | <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Rubrics</p> <p>Tests/ quizzes</p> <p>Visual representation (e.g. Power Point™)</p> |