

Grade 4		
Numbers and Operations		
GLE	Key Content & Skills	Common Benchmark Assessments
<p><b>M:N&amp;O:4:1 Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 999,999</b> through equivalency, composition, decomposition, or place value <b>using models, explanations, or other representations; and positive fractional numbers</b> (benchmark fractions: <math>a/2</math>, <math>a/3</math>, <math>a/4</math>, <math>a/5</math>, <math>a/6</math>, <math>a/8</math>, or <math>a/10</math>, where <math>a</math> is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area, set, or <u>linear models</u> where the number of parts in the whole are equal to, and a <u>multiple or factor of the denominator</u>; and <u>decimals as hundredths</u> within the context of money, or tenths <u>within the context of metric measurements (e.g. 2.3 cm)</u> <b>using models, explanations, or other representations.</b></p>	<p><b>Rational Numbers</b>            -Whole Numbers 0 to 999,999            - Decimals as hundredths or tenths  <b>Benchmark Fractions:</b>            - <math>a/2</math>, <math>a/3</math>, <math>a/4</math>, <math>a/5</math>, <math>a/6</math>, <math>a/8</math>, <math>a/10</math>  <b>Types of Fractions</b>            - <math>a</math> is a whole number greater than 0 and less than or equal to the denominator  <b>Activities</b>            - Models, explanations or other representations</p>	<p>Rational Numbers:            enVision Topic 1 Test (Numeration)            Pgs. 22 &amp; 23</p> <p>enVision Topic 10 Test (Fractions)            Pgs. 242 &amp; 243</p> <p>NH State Support Materials - #15</p>
<p><b>M:N&amp;O:4:2 Demonstrates understanding of the relative magnitude of numbers from 0 to 999,999</b> by ordering or comparing whole numbers; and ordering, comparing, or identifying equivalent proper positive <u>fractional numbers</u>; or <u>decimals</u> using models, number lines, or explanations.</p>	<p><b>Range</b> 0-999,999  <b>Type of Numbers</b>            Whole numbers; fractional numbers equal to or less than 1 (<math>1/2</math>, <math>1/3</math>, <math>1/4</math>); plus decimals  <b>Comparisons</b>            -Whole numbers to benchmark numbers 100,250,500, 750            - Whole numbers to each other,            - Equivalent positive fractional numbers            - Decimals  <b>Connecting</b>            -<i>Words to numerals and quantities</i>  <b>Activity</b>            - Models, number lines, explanations</p>	<p>enVision Topic 1 Test            Pgs. 22 &amp; 23</p> <p>enVision Topic 10 Test (Fractions)</p> <p>enVision Topic 12 Test (Decimals)</p> <p>NH State Support Materials - #16, 17, 18</p>
<p><b>M:N&amp;O:4:3 Demonstrates conceptual understanding of mathematical operations</b> by describing or illustrating <u>the relationship between repeated subtraction and division (no remainders)</u>; <u>the inverse relationship between multiplication and division of whole numbers</u>; or <u>the addition or subtraction of positive fractional numbers with like denominators</u> using models, number lines, or explanations.</p>	<p><b>Operations</b>            - Relationship between repeated subtraction and division (no remainders)            - Inverse relationship between multiplication and division of whole numbers            - Addition or subtraction of positive fractional numbers with like denominators.  <b>Activities</b>            -Describing or illustrating using models, number lines and explanations.</p>	<p>enVision Topic 4 Test            Pgs. 90-91 (Division)</p> <p>enVision Topic 10 Test (Fractions)</p> <p>NH State Support Materials - #19</p>

Highlighted Boxes are Power Standards

**Bolded Boxes are Standards tested on NECAP**

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<p><b>M:N&amp;O:4:4 Accurately solves problems involving <u>multiple operations on whole numbers or the use of the properties of factors and multiples</u>; and addition or subtraction of <u>decimals and positive proper fractions with like denominators</u>. (Multiplication limited to 2 digits by 2 digits, and division limited to 1 digit divisors.)</b></p> <p><i>(IMPORTANT: <u>Applies the conventions of order of operations where the left to right computations are modified only by the use of parentheses.</u>)</i></p>	<p><b>Operations</b></p> <ul style="list-style-type: none"> <li>-Multiple operations</li> <li>-Use of properties</li> <li>-Addition and subtraction (<i>with regrouping</i>)</li> <li>-Multiplication and division (Multiplication limited to 2 digit by 2 digit; Division limited to 1 digit divisors.)</li> </ul> <p><b>Types of numbers</b></p> <ul style="list-style-type: none"> <li>- Whole numbers</li> <li>- Factors and multiples</li> <li>- Decimals and proper fractions with like denominators.</li> <li>- <i>Whole numbers and decimals within the context of money</i></li> </ul> <p><b>Order of Operations Applications -</b></p> <p>Applies the conventions of order of operations where left to right computations are modified only by the use of parentheses.</p>	<p>enVision</p> <ul style="list-style-type: none"> <li>- Topic 2 Test Pgs. 48-49 (+/- whole #'s)</li> <li>- Topic 5 Test Pgs. 120-121 (x by 1digit #'s)</li> <li>- Topic 8 Test Pgs. 188-189 (Multi-step problems. Div. by 1 divisor – problem Solv. w/ Factors/ multiples)</li> <li>- Topic 7 Test Pgs. 158-159 (2 dig x 2 dig)</li> <li>- Topic 4 Test Pgs. 90-91 (properties)</li> </ul> <p>NH State Support Materials #20, 21, 22</p>
<p><b>M:N&amp;O:4:6 Mentally adds and subtracts whole number facts through 20 (addends whose sum is at most 20 and related subtraction facts); <u>multiplies whole number facts to a product of 100, and calculates related division facts</u>; adds <u>two-digit whole numbers</u>, combinations of two-digit and 3-digit whole numbers that are multiples of ten, and <u>4-digit whole numbers that are multiples of 100</u> (limited to two addends) (e.g., 67 + 24; 320 + 430; 320 + 90; 1,300 + 1,400); and subtracts a one-digit whole number from a two-digit whole number (e.g., 67 – 9); and <u>subtracts combinations of two-digit and three-digit whole numbers that are multiples of ten</u> (e.g., 50 – 20, 230 – 80, 520 – 200).</b></p> <p><i>(IMPORTANT: 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><b>Mental operations</b></p> <ul style="list-style-type: none"> <li>- Adds, Subtracts, Multiplies and Divides</li> </ul> <p><b>Types of numbers</b></p> <p><b>Add/Subt:</b></p> <ul style="list-style-type: none"> <li>- Addends to sum of 20 &amp; related subtraction facts.</li> </ul> <p><b>Mult/Div:</b></p> <ul style="list-style-type: none"> <li>- Whole number facts to a product of 100; can calculate related division facts.</li> </ul> <p><b>Strategies</b></p> <p><b>Adds:</b></p> <ul style="list-style-type: none"> <li>- 2 digit whole numbers</li> <li>- Combinations of 2 and 3 digit 2 whole numbers that are multiples of 10</li> <li>- 4 digit whole numbers that are multiples of 100 (limit of 2 addends).</li> </ul> <p><b>Subtracts:</b></p> <ul style="list-style-type: none"> <li>- 1 digit whole number from 2 digit whole number</li> <li>- Combinations of 2 and 3 digit whole numbers that are multiples of 10</li> </ul>	<p>enVision</p> <ul style="list-style-type: none"> <li>Topic 2 Test Pgs. 48-49</li> <li>Topic 5 Test Pgs. 120-121</li> <li>Topic 7 Test Pgs. 158-159</li> <li>Topic 8 Test Pgs. 188-189</li> </ul>
<p><b>M:N&amp;O:4:7 Makes estimates in a given situation by identifying when estimation is appropriate, selecting the appropriate method of estimation, and evaluating the reasonableness of solutions appropriate <u>to grade level GLEs</u> across content strands.</b></p> <p><i>(IMPORTANT: The intent of this GLE is to embed estimation throughout the instructional program, not to teach it as a separate unit.)</i></p>	<p><b>Activity</b></p> <p>Estimates 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 GLEs across content strands.</li> </ul>	

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M:N&O:4:8 <b>Applies properties of numbers</b> (odd, even, <u>multiplicative property of zero</u> , and <u>remainders</u> ) and <b>field properties</b> ( <u>commutative</u> , <u>associative</u> , and identity) <b>to solve problems and to simplify computations.</b>	<b>Properties of numbers</b> -Odd, even, multiplicative property of zero and remainders. <b>Field properties</b> -Commutative, associative and identity <b>Types of numbers</b> -Whole numbers	enVision Topic 3 Test Pgs. 70-71 Topic 2 Test Pgs. 48-49

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