

## MATH COMPETENCY CURRICULUM GUIDE

**Exit Competency A:** Students will demonstrate competency in number sense, properties, and operations, including:

**1:** Calculation and understanding of integers basic whole numbers

<b>Objectives:</b>	<b>Assessment:</b>	<b>Possible Resources:</b>	<b>Possible Strategies:</b>
<p><u>By the end of 6<sup>th</sup> grade, students will:</u></p> <p>1. Understand that patterns are the basis of math by showing structures of the number system such as:</p> <ul style="list-style-type: none"> <li>-identifying odd/even numbers</li> <li>-showing relationships of numbers.</li> </ul> <p>Example: 22, 33, __, 55 3, 5, 4, 6, 5, __, 6</p> <p>Time: Ongoing, embedded with other skills</p> <p>2. Understand place value up to 999,999,999 by:</p> <ul style="list-style-type: none"> <li>-reading numerals</li> <li>-writing numerals when given orally</li> <li>-identifying place value, for example: Given 437,821,596 identify the numeral in the ten thousands place Given 437,821,596 identify the value of the digit "2". (20,000)</li> </ul> <p>Time:</p>	<p style="text-align: center;"><b><u>A-1 Assessment Examples</u></b></p> <p style="text-align: center;"><b>EXAMPLES OF THE TYPES OF ALT ASSESSMENT ACTIVITIES THAT CAN BE USED TO ASSESS THE LEARNING OBJECTIVES</b></p> <p><b>Find the set with all odd numbers.</b></p> <p>A. (4, 6, 8, 10, 12) B. (1, 3, 6, 9, 11) C. (5, 10, 15, 20) <input checked="" type="checkbox"/>D. (1, 3, 9, 11) E. (1, 2, 3, 4, 5)</p> <p><b>What number comes next?</b></p> <p style="text-align: center;"><b>21, 17, 13, 9, ...</b></p> <p>A. 11    <input checked="" type="checkbox"/>B. 5 C. 2      D. 7 E. 12</p> <p><b>What is missing?</b></p> <p style="text-align: center;"><b>16, 14, 12, 10, 8, 4</b></p> <p>A. 9      B. 7 <input checked="" type="checkbox"/>C. 6      D. 4 E. none of these</p>	<p>1. Provided Instructional Resources:</p> <p>S <u>Houghton Mifflin Mathematics©2005</u>, Houghton Mifflin Co., 2005</p> <p>Supplementary Resources:</p> <p>S <u>Bellworks</u></p> <p>S <u>Word Problems</u> by Bill Linderman Instructional Fair, Inc., 1992</p> <p>S 100's chart</p> <p>S <u>Investigations in Numbers, Data and Space</u>, Pearson Scott Foresman</p> <p>2. Provided Instructional Resources:</p> <p>S <u>Houghton Mifflin Mathematics©2005</u>, Houghton Mifflin Co., 2005</p> <p>Supplementary Resources:</p> <p>S <u>Super Workbook</u> - Instructional Fair, Grade 4</p> <p>S <u>Investigations in Numbers, Data and Space</u>, Pearson Scott Foresman</p>	<p>1. Instructional strategies could include:</p> <p>S White boards</p> <p>2. Instructional strategies could include:</p> <p>S Place Value chart/work mats with base ten manipulatives</p> <p>S Teacher-generated cards with large number words written on them. Students line up in that order with numbers. (Could use paper plate numbers.)</p> <p>S Integrate it with populations in Social Science</p>

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<p><u>4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup></u>      Ongoing</p> <p>3. Understand that there are numbers less than 0 on the number line by applying real life situations such as, but not limited to:</p> <ul style="list-style-type: none"> <li>-temperature</li> <li>-below sea level</li> </ul> <p>Time:            Integrated with other subjects</p>	<p><u><b>A-1 Assessment Examples</b></u>  <b>EXAMPLES OF THE TYPES OF ALT ASSESSMENT ACTIVITIES THAT CAN BE USED TO ASSESS THE LEARNING OBJECTIVES</b></p>	<p>3. Provided Instructional Resources:</p> <p>S <u>Houghton Mifflin Mathematics©2005.</u></p> <p>S Maps</p> <p>S Thermometers</p> <p>Supplementary Resources:</p> <p>S <u>Investigations in Numbers, Data and Space</u>, Pearson Scott Foresman</p>	<p>3. Instructional strategies could include:</p> <p>S Use weather page in U.S.A. Today.</p> <p>S Look at wind chill factors</p> <p>S Integrate with geography when talking about below 0</p> <p>S Play a football simulated game to show yardage</p>

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<p>4. Demonstrate a further understanding of multiplication by:</p> <ul style="list-style-type: none"> <li>-constructing arrays</li> <li>-using multiplication facts for 0's through 10's</li> <li>-completing multiplication problems that have up to two-digit multipliers and up to three-digit multiplicands (with and without a calculator)</li> <li>-multiplying up to four one-digit factors, for example: <math>2 \times 3 \times 4 \times 5 =</math></li> <li>-completing multiplication problems that have larger than two-digit multipliers and larger than three-digit multiplicands with a calculator (See also Competency A3.)</li> </ul> <p>Time: Ongoing process. By the end of the 4<sup>th</sup>, master the first four bullets. By the end of the 6<sup>th</sup>, master</p>	<p><u>A-1 Assessment Examples</u>  <b>EXAMPLES OF THE TYPES OF ALT ASSESSMENT ACTIVITIES THAT CAN BE USED TO ASSESS THE LEARNING OBJECTIVES</b></p>	<p>4. Provided Instructional Resources:</p> <p>S <u>Houghton Mifflin Mathematics©2005</u>,</p> <p>Supplementary Resources:</p> <p>S Manipulatives: Cuisenaire rods Base ten blocks</p> <p>S Math Learning Center Resources</p> <p>S Self-made x problems</p> <p>S <u>Touch Point Math</u>, Janet Bullock, 4<sup>th</sup> Edition</p> <p>S <u>Investigations in Numbers, Data and Space</u>, Pearson Scott Foresman</p>	<p>4. Instructional strategies could include:</p> <p>S Story problems</p> <p>S Use lattice multiplication</p>

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<p>fifth bullet.</p> <p>5. Understand division concepts by using manipulatives, pictures, patterns, simple algorithms to:</p> <ul style="list-style-type: none"> <li>-show groups and sets of division problems up to 100, including problems that have remainders</li> <li>-show that division is the inverse of multiplication</li> </ul> <p>Time: Half of fourth grade year, mastered in 5<sup>th</sup> grade.</p> <p>6. Know division facts by saying or</p>	<p><b><u>A-1 Assessment Examples</u></b></p> <p><b>EXAMPLES OF THE TYPES OF ALT ASSESSMENT ACTIVITIES THAT CAN BE USED TO ASSESS THE LEARNING OBJECTIVES</b></p> <p><b>If <math>437 \times \square = 437</math>, then <math>\square</math> must equal</b></p> <p>A. 0      B. 11            C. 10     <input checked="" type="checkbox"/> D. 1            E. There is no such number.</p> <p><b><math>90,000 \div 300 = \square</math></b></p> <p>A. 3,000    B. <math>\frac{1}{30}</math>            C. 30        D. <math>\frac{1}{3}</math>  <input checked="" type="checkbox"/> E. 300</p>	<p>5. Provided Instructional Resources:</p> <p>S <a href="#">Houghton Mifflin Mathematics@2005</a>,</p> <p>Supplementary Resources:</p> <p>S <a href="#">Coupon Math</a> (book of ideas)</p> <p>S <a href="#">Division by All Means</a>, by M. Burns</p> <p>S <a href="#">Dr. Jim's Elementary Math Prescription</a></p> <p>S Manipulatives</p> <p>S <a href="#">Middle School Math with Pizzazz</a>, Creative Publications, Book A</p> <p>S <a href="#">One Hundred Hungry Ants</a></p> <p>S Teacher-created menu items            Resource available at D.O. Curriculum Office</p> <p>S <a href="#">The Doorbell Rang</a></p> <p>S Tocowans - Interact - Replacement units</p> <p>S <a href="#">17 Kings and 42 Elephants</a></p> <p>S <a href="#">Investigations in Numbers, Data and Space</a>, Pearson Scott Foresman</p> <p>6. Provided Instructional Resources:</p> <p>S <a href="#">Houghton Mifflin Mathematics@2005</a>,</p> <p>Supplementary Resources:</p>	<p>5. Instructional strategies could include:</p> <p>S Menus</p> <p>S Morning sponge provides extra drill</p> <p>S Shop in the class store</p> <p>6. Instructional strategies could include:</p> <p>S Advertisements (ex: Raley's, Toys R' Us) with teacher or</p>

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<p>writing the facts upon demand, given 3 to 5 seconds for each fact.</p> <p>Time: Master by end of 5<sup>th</sup> grade.</p> <p>7. Demonstrate a further understanding of division by:</p> <ul style="list-style-type: none"> <li>-demonstrating “divisibility rules”</li> <li>-using compatible number estimation, for example:  <math>9 / 350</math>                      Find the number that is close to the quotient that the divisor goes into evenly (<math>9 / 360</math>, so students know the quotient will be approximately 40.)</li> <li>-completing division problems that have up</li> </ul>	<p><b><u>A-1 Assessment Examples</u></b></p> <p><b>EXAMPLES OF THE TYPES OF ALT ASSESSMENT ACTIVITIES THAT CAN BE USED TO ASSESS THE LEARNING OBJECTIVES</b></p>	<ul style="list-style-type: none"> <li>S Flash cards</li> <li>S Mad Minutes</li> <li>S <u>Super Workbook</u>, Instructional Fair, Grades 4/5</li> <li>S Teacher-made division sheets Resource available at D.O. Curriculum Office</li> <li>S Work sheets from various sources - Frank Schaffer</li> <li>S <u>Investigations in Numbers, Data and Space</u>.</li> </ul> <p>7. Provided Instructional Resources:</p> <ul style="list-style-type: none"> <li>S <u>Houghton Mifflin Mathematics©2005</u>.</li> </ul> <p>Supplementary Resources:</p> <ul style="list-style-type: none"> <li>S <u>Coupon Math</u> (book of ideas)</li> <li>S <u>Division by All Means</u>, by M. Burns</li> <li>S <u>Dr. Jim’s Elementary Math Prescription</u></li> <li>S Manipulatives</li> <li>S <u>Middle School Math with Pizzazz</u>, Creative Publications, Book A</li> <li>S <u>One Hundred Hungry Ants</u></li> <li>S Teacher-created menu items on division Resource available at D.O. Curriculum Office</li> <li>S <u>The Doorbell Rang</u></li> <li>S Tocowans - Interact -</li> </ul>	<ul style="list-style-type: none"> <li>student generated questions</li> <li>S Menus</li> </ul> <p>7. Instructional strategies could include:</p> <ul style="list-style-type: none"> <li>S Averaging grades</li> <li>S Menus</li> <li>S Morning sponge provides extra drill</li> <li>S Shop in the class store</li> </ul>

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<p>to two-digit divisors and up to three-digit dividends (with and without a calculator), for example:  <math>21 \overline{) 363}</math></p> <p>-completing division problems that have larger than two-digit divisors and larger than three-digit dividends with a calculator (See also Competency A3.)</p> <p>-dividing a number up to 100 into its prime factors</p> <p>Time: Ongoing</p> <p>8. Understand math functions by deciding whether to use addition, subtraction, multiplication or division in real world problem solving situations.</p> <p>Time: Frequently and repeatedly throughout the years</p>	<p><b><u>A-1 Assessment Examples</u></b>  <b>EXAMPLES OF THE TYPES OF ALT ASSESSMENT ACTIVITIES THAT CAN BE USED TO ASSESS THE LEARNING OBJECTIVES</b></p>	<p>Replacement units</p> <p>S <a href="#">17 Kings and 42 Elephants</a></p> <p>S <a href="#">Investigations in Numbers, Data and Space</a></p> <p>8. Provided Instructional Resources:</p> <p>S <a href="#">Houghton Mifflin Mathematics©2005</a>.</p> <p>Supplementary Resources:</p> <p>S <a href="#">Algebra Thinking</a>, J. Gordnow, 1994</p> <p>S <a href="#">Daily Oral Math</a></p> <p>S <a href="#">Math Quest</a> (simulation) Interact</p> <p>S <a href="#">Problem Solver</a>, Creative Publications</p> <p>S <a href="#">Sixth Grade Brain Teasers</a>, C. Eichel, 1995</p> <p>S <a href="#">Word Problems</a>, B. Linderman, 1992</p> <p>S <a href="#">Investigations in Numbers, Data and Space</a></p>	<p>8. Instructional strategies could include:</p> <p>S Learn key words to look for</p> <p>S Math logs for students to write how they solved a problem</p> <p>S Math problem solving “opportunities” present themselves in the world around us all of the time on a daily basis - utilize them</p> <p>S Newspapers/want ads</p> <p>S Use problem solving strategies such as: draw a picture, guess and check, work backwards, etc.</p>

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