



# Math Connects

4

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STANDARDS	PAGE REFERENCES
<p><b>STANDARD 4.1 (NUMBER AND NUMERICAL OPERATIONS) ALL STUDENTS WILL DEVELOP NUMBER SENSE AND WILL PERFORM STANDARD NUMERICAL OPERATIONS AND ESTIMATIONS ON ALL TYPES OF NUMBERS IN A VARIETY OF WAYS.</b></p>	
<p>Building upon knowledge and skills gained in preceding grades, by the end of <b>Grade 4</b>, students will:</p>	
<p><b>Number Sense</b></p>	
<p><b>NUMBER SENSE</b></p>	
<ul style="list-style-type: none"> <li>Use <b>real-life experiences, physical materials, and technology</b> to construct meanings for numbers</li> </ul>	<p><b>Student Edition:</b> 14, 17, 20-21, 22, 28, 32, 35, 36, 546-547 <i>Game Time</i> 35 <i>Get Ready to Learn</i> 17 <i>Math Activity</i> 20-21, 546-547</p> <p><b>Teacher Edition:</b> A 546-547; AC 22, 28, 32, 36; CCL 14G-14H; ETC 21; ITC 14, 20, 546; SQ 22, 32; WIM 14</p>
<ul style="list-style-type: none"> <li>Understand the place value structure of the base ten number system:             <ul style="list-style-type: none"> <li>10 ones = 1 ten;</li> <li>10 tens = 1 hundred;</li> <li>10 hundreds = 1 thousand;</li> <li>10 thousands = 1 ten thousand...</li> </ul> </li> </ul>	<p><b>Student Edition:</b> 14-15, 17-19, 20-21, 22-25, 28-30, 31, 32-34, 36-39, 42-43, 44-48, 49, 50-51, R2-R3 <i>Math Activity</i> 20-21</p> <p><b>Teacher Edition:</b> AC 17, 22; AE 18, 29, 33; FA 19; I 17; SQ 17, 22</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Understand place value through <b>millions</b></li> </ul>	<p><b>Student Edition:</b> 14-15, 17-19, 20-21, 22-25, 31, 44-45, 49, 50-51, R2-R3 <i>Math Activity</i> 20-21</p> <p><b>Teacher Edition:</b> AC 22; AE 18, 23; ATS 18, 23; CE 24; FA 19, 25; ITC 14; ITF 19; SQ 17, 22; WIM 14</p>
<ul style="list-style-type: none"> <li>Read and write numbers through <b>millions</b> place. Do this in standard form, word form, and expanded form. Use place value chart for these exercises</li> </ul>	<p><b>Student Edition:</b> 17-19, 22-25, 28-30, 31, 43, 44-45, R2, <i>Game Time</i> 35 <i>Remember</i> 18</p> <p><b>Teacher Edition:</b> 5MC 26A; AE 18, 23; ATS 18; CE 18, 24, 30; FA 19; GRTL 22; ITF 19; P 19, 24; SQ 17; UPV 29</p>
<ul style="list-style-type: none"> <li>Demonstrate a sense of the <b>relative magnitudes</b> of numbers</li> </ul>	<p><b>Student Edition:</b> 17-19, 20-21, 22-25, 28-30, 31, 32-34, 35, 42-43, 44-47, 49, 50-51, R2-R3 <i>Math Activity</i> 20-21 <i>Game Time</i> 35</p> <p><b>Teacher Edition:</b> AE 29, 33; ATS 33; ETC 21; FA 30; FCTA 21; SQ 22, 28, 32</p>
<ul style="list-style-type: none"> <li>Compare and order numbers to 10,000</li> </ul>	<p><b>Student Edition:</b> 16, 20-21, 22-25, 28-30, 31, 32-34, 35, 39, 42-43, 44-45, 49, 50-51, R2-R3 <i>Game Time</i> 35 <i>Get Ready to Learn</i> 28 <i>Math Activity</i> 20-21 <i>Remember</i> 29</p> <p><b>Teacher Edition:</b> 5MC 32A, 36A; AC 28, 32; SQ 22, 28, 32</p>
<ul style="list-style-type: none"> <li>Recognize <b>equivalent</b> numbers up to <b>four</b> digits. (900 + 100.) by composing and decomposing numbers</li> </ul>	<p><b>Student Edition:</b> 16, 17-19, 20-21, 22-25, 44-45, 49, 50-51, R2-R3 <i>Math Activity</i> 20-21 <i>Remember</i> 18</p> <p><b>Teacher Edition:</b> 5MC 26A; AC 22; AE 18, 23; ATS 18, 23; FA 19, 25; FOMB 17A; ITF 19; SQ 17, 22</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>• <b>Skip count</b> by 1,000s</li> </ul>	<p><b>Student Edition:</b> 144, 154-155, 166, R60</p> <p><b>Teacher Edition:</b> AC 166; ATS 155, 166; RMV 154A; SQ 154</p>
<ul style="list-style-type: none"> <li>• Identify <b>even and odd</b> numbers</li> </ul>	<p><b>Student Edition:</b> 129, 154-157, R58</p> <p><b>Teacher Edition:</b> AC 154; CWYN 129; D 155; M 155; SQ 154</p>
<ul style="list-style-type: none"> <li>• Explore settings that give rise to negative numbers:</li> </ul>	<p><b>Student Edition:</b> 468-471, R61</p>
<ul style="list-style-type: none"> <li>• temperature; check book balance; overspending</li> </ul>	<p><b>Student Edition:</b> 468-471, 478, 481, R30 <i>Hands-On Mini Activity</i> 469</p> <p><b>Teacher Edition:</b> AC 468; AE 469; ATS 469; BL 468B; BMV 468A; CE 469; EF 468B; FA 471; FMB 468A; HOMA 469; RT 469; SQ 468</p>
<ul style="list-style-type: none"> <li>• extension of the number line</li> </ul>	<p><b>Student Edition:</b> 28, 32, 36-37, 47, 395-397, 406-408, 409, 429, 546-547, 588-589, R37, R61 <i>Math Activity</i> 546-547</p> <p><b>Teacher Edition:</b> AC 395, 488; AE 396; ATS 396, 589; FA 397; SQ 395, 588</p>
<ul style="list-style-type: none"> <li>• Review and maintain <b>ordinal numbers</b> up to fiftieth.</li> </ul>	<p><b>Teacher Edition:</b> 5MC 332A</p>
<ul style="list-style-type: none"> <li>• Use concrete and pictorial models to relate whole numbers, commonly used fractions, and decimals to each other, and to represent equivalent forms of the same number</li> </ul>	<p><b>Student Edition:</b> 166-169, 537-539, 546-547, 548-551, 574, 577-578, 579-581, 582-585, 596-599, 602-604, 605, 610, 611, R59 <i>Game Time</i> 552, 604 <i>Math Activity</i> 546-547, 577-578</p> <p><b>Teacher Edition:</b> AC 166; FA 169; ITC 574; SQ 166</p>
<ul style="list-style-type: none"> <li>• Understand the various uses of numbers: <ul style="list-style-type: none"> <li>• Counting, measuring, labeling, accounting...</li> </ul> </li> </ul>	<p><b>Student Edition:</b> 32-34, 58-61, 98-101, 108-110, 154-157, 198-201, 204-206, 208-211, 214-216, 220-223, 242-244, 282-283, 288-291, 332-334, 359-361, 362-365, 400-403, 450-452, 456-459, 508-510, 512-515, 630-632</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Understand the meaning of the four basic arithmetic operations</li> </ul>	<p><b>Student Edition:</b> 52, 64-67, 68, 70-71, 72-74, 142, 145-146, 147-149, 158-159 <i>Math Activity</i> 70-71, 145-146 <i>Technology Activity</i> 68</p> <p><b>Teacher Edition:</b> 5MC 150A, 160A; AC 147; AE 148; ATS 148, 159; CE 158; FA 149; ITC 142, 145</p>
<ul style="list-style-type: none"> <li>Addition and subtraction: joining, separating and comparing numbers</li> </ul>	<p><b>Student Edition:</b> 52, 54, 55-57, 58-61, 62-63, 64-67, 68, 69, 70-71, 72-74, 75, 76, 78-79, 80-83, 85-88, 89 <i>Game Time</i> 75 <i>Math Activity</i> 70-71 <i>Technology Activity</i> 68</p> <p><b>Teacher Edition:</b> AC 55, 58, 64, 72, 80</p>
<ul style="list-style-type: none"> <li>Multiplication: repeated additions; area/array</li> </ul>	<p><b>Student Edition:</b> 142, 144, 145-146, 147-149, 150-153, 154-157, 160-162, 163, 166-169, 180-184, 187, 272, 275 <i>Math Activity</i> 145-146</p> <p><b>Teacher Edition:</b> 5MC 158A, 166A, 170A; AC 147, 154, 160; D155; SQ 147, 154, 160</p>
<ul style="list-style-type: none"> <li>Division: Repeated subtractions, sharing</li> </ul>	<p><b>Student Edition:</b> 145-146, 147-149, 150-153, 154-157, 160-162, 163, 180-184, 187 <i>Math Activity</i> 145-146</p> <p><b>Teacher Edition:</b> 5MC 158A, 166A, 170A; AC 147; AE 148; ATS 155, CE 148; D 155, 161</p>
<b>DECIMALS</b>	
<ul style="list-style-type: none"> <li>Recognize the decimal nature of United States currency</li> </ul>	<p><b>Student Edition:</b> 574, 577-578, 579-581, 582-585, 593, 622-625, 630-632, 633 <i>Math Activity</i> 577-578</p> <p><b>Teacher Edition:</b> AC 590, 622; AE 583, 623, 631; ATS 580; BL 579B; ITC 574; POD 630A; SGO 638B; SQ 582; T 578; WIM 574</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Develop an understanding of decimals as part of a whole</li> </ul>	<p><b>Student Edition:</b> 574, 577-578, 579-581, 582-585, 593, 616, 622-625, 628-629, 630-632, 636-637, 638-641, R36, R38 <i>Math Activity</i> 577-578, 628-629, 636-637</p> <p><b>Teacher Edition:</b> ATS 580, 583, 623; MND 582; SQ 630; TOD 581</p>
<ul style="list-style-type: none"> <li>Read and write decimals expressed in <b>tenths</b> in standard and written form</li> </ul>	<p><b>Student Edition:</b> 574, 577-578, 579-581, 582-585, 593, 596-599, 602-605, 607, 610, 611 <i>Math Activity</i> 577-578</p> <p><b>Teacher Edition:</b> 5MC 582A; AC 579; AE 580; ATS 580; CE 580, 584; FA 581, 585; FCA 578; SQ 579; WND 583; WTH 580</p>
<ul style="list-style-type: none"> <li>.1 = 10 cents; one tenth</li> </ul>	<p><b>Student Edition:</b> 574, 577-578, 579-581, 582-585, 590, 593, 596-599, 607</p> <p><b>Teacher Edition:</b> AC 579, 590; AE 580; ATS 580, 583; BL 579B; CE 580; FA 581; ITC 574; SGO 638B; SQ 579, 582, 596</p>
<ul style="list-style-type: none"> <li>Read and write decimal numbers to the <b>hundredth</b> place in standard and written form</li> </ul>	<p><b>Student Edition:</b> 577-578, 579-581, 582-585, 593, 596-599, 602-605 <i>Math Activity</i> 577-578</p> <p><b>Teacher Edition:</b> 5MC 582A, 602A; AC 579; AE 580; ATS 580; CE 580; FA 581, 599; SQ 579, 602; TOD 581; WND 583; WTH 580</p>
<ul style="list-style-type: none"> <li>.01 = 1 cent; one hundredth</li> </ul>	<p><b>Student Edition:</b> 574, 577-578, 579-581, 582-585, 593, 596-599, 607 <i>Math Activity</i> 577-578</p> <p><b>Teacher Edition:</b> AC 579, 590; AE 580; ATS 580, 583, 597; CE 580; FA 581; ITC 574; SQ 579, 582, 596; T 578; WTH 580</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Explore operations with decimals – adding and subtracting with money <b>problems</b></li> </ul>	<p><b>Student Edition:</b> 614, 622-625, 628-629, 630-633, 636-637, 638-641, 647-648, 649, R40, R41 <i>Math Activity</i> 628-629, 636-637</p> <p><b>Teacher Edition:</b> AC 622, 630, 638; ATS 623, 631, 639; SQ 622, 630, 638; NTM 625</p>
<ul style="list-style-type: none"> <li>Use the <b>place value chart</b> to show decimals</li> </ul>	<p><b>Student Edition:</b> 579-581, 582-585, 590, 607-609, 618, 631, 639</p> <p><b>Teacher Edition:</b> ATS 583, 618, 631, 639; CE 580</p>
<ul style="list-style-type: none"> <li>Use concrete materials and visual models to compare and order decimals up to <b>hundredths</b></li> </ul>	<p><b>Student Edition:</b> 574, 577-578, 579-581, 582-585, 590-592, 593, 596-599, 605, 609, 611, 628-629, 636-637, R38 <i>Game Time</i> 605 <i>Math Activity</i> 578-579, 628-629, 636-637</p> <p><b>Teacher Edition:</b> 5MC 594B; AC 590; AE 591; ATS 591; CE 591; FA 592; OD 591; SQ 590</p>
<b>FRACTIONS</b>	
<ul style="list-style-type: none"> <li>Understand the <b>commonly used fractions</b> (denominators of 2, 3, 4, 5, 6, 8, 10, 12) as part of a whole, as a <b>subset of a set</b> and as a location on a <b>number line</b>. <b>Also use real materials to show the fractions.</b></li> </ul>	<p><b>Student Edition:</b> 534, 537-539, 540-543, 546-547, 548-551, 552, 553, 554-557, 560-563, 567-570, 571, 572-573, R34, R35 <i>Game Time</i> 552 <i>Math Activity</i> 546-547</p> <p><b>Teacher Edition:</b> AC 537, 540; ATS 541; IWO 537B; SQ 537</p>
<ul style="list-style-type: none"> <li><b>Note:</b> It is critically important to perform all fraction exercise “live” so students can see the fractions as part of a whole, as equivalent to other fractions.</li> </ul>	<p><b>Student Edition:</b> 534, 537-539, 540-543, 546-547, 548-551, 552, 554, 560-562, 577-578 <i>Game Time</i> 552 <i>Math Activity</i> 546-547, 577-578</p> <p><b>Teacher Edition:</b> 5MC 540A, 548A, 554A, 560A; AC 537, 540, 548, 554, 560; ATS 541, 549, 562</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Recognize and generate <b>equivalent fractions</b> (halves, thirds, fourths, fifths, sixths, eighths, tenths and twelfths) using manipulatives, visual models and illustrations.</li> </ul>	<p><b>Student Edition:</b> 537-539, 546-547, 548-551, 552, 553, 566, 569, 571 <i>Game Time</i> 552 <i>Math Activity</i> 546-547</p> <p><b>Teacher Edition:</b> 5MC 548A, 553A; AC 548; AE 549; ATS 549; FA 551; FCA 547; FMB 548A; ITC 546; NTM 551; SQ 548; T 546-547</p>
<b>NUMERICAL OPERATIONS</b>	
<b>ADDITION AND SUBTRACTION</b>	
<ul style="list-style-type: none"> <li>Perform operations for addition of <b>3 digit numbers with and without regrouping</b></li> </ul>	<p><b>Student Edition:</b> 64-67, 68, 69, 85, 87, 89, 157 #47, R5 <i>Hands-On Math Activity</i> 64 <i>Technology Activity</i> 68</p> <p><b>Teacher Edition:</b> 5MC 72A, 76A, 95A; AC 64; AE 65; AMDN 65; ATS 65 CE 66; FA 67; NTM 67; SQ 64</p>
<ul style="list-style-type: none"> <li>Perform operations for subtraction of <b>3 digit numbers with and without regrouping</b></li> </ul>	<p><b>Student Edition:</b> 70-71, 72-74, 75, 80-83, 87-88, 89 <i>Game Time</i> 75 <i>Math Activity</i> 70-71</p> <p><b>Teacher Edition:</b> 5MC 76A, 95A; AC 72, 80; AE 73, 81; ATS 73, 82; CE 73, 83; ETC 71; FA 74, 83; ITC 70; SQ 72, 80; T 70</p>
<ul style="list-style-type: none"> <li><b>Add and subtract numbers with zeros</b></li> </ul>	<p><b>Student Edition:</b> 80-83, 88, 89, 101 #22, 622-625, 631, 636-637, 638-641, R6 <i>Math Activity</i> 636-637</p> <p><b>Teacher Edition:</b> 5MC 95A; AC 80; AD 631; AE 81, 623; ATS 82, 639, 631; CE 83; ES 623; FA 83; SAZ 81; SQ 80; YN 83</p>
<ul style="list-style-type: none"> <li><b>Add and subtract money</b></li> </ul>	<p><b>Student Edition:</b> 54, 55, 58-60, 62-63, 65-66, 69, 73-74, 79, 81-83, 85-87, 89, 210, 762</p> <p><b>Teacher Edition:</b> 5MC 62A, 64A; AE 59, 73; FA 63; POD 62A, 64A, 76A, 80A; R 52G; SQ 58</p>

STANDARDS	PAGE REFERENCES
<b>MULTIPLICATION</b>	
<ul style="list-style-type: none"> <li>Perform operations for multiplication of <b>2 digit numbers by one digit multiplier</b></li> </ul>	<p><b>Student Edition:</b> 234, 237-239, 246-248, 249, 250-251, 263-264, R16 <i>Hands-On Mini Activity</i> 246</p> <p><b>Teacher Edition:</b> 5MC 240A; AC 237, 246; AE 238, 247; ATS 247; CE 238, 247; FA 239, 248; HOMA 246; MWR 247; SQ 246; YN 248</p>
<ul style="list-style-type: none"> <li>Perform operations for multiplication of <b>2 digit numbers by 2 digit multipliers</b></li> </ul>	<p><b>Student Edition:</b> 270, 273-275, 276-279, 282-283, 284-286, 287, 291, 301, 303, 305, R17, R18 <i>Math Activity</i> 282-283</p> <p><b>Teacher Edition:</b> 5MC 288A; AE 285; ATS 285; CE 285; FA 286; ITC 270, 282; NTW 286; SQ 284</p>
<ul style="list-style-type: none"> <li>Perform operations of multiplying by 10, 100, 1000</li> </ul>	<p><b>Student Edition:</b> 234, 237-239, 242-244, 249, 252-255, 258-261, 262, 263-266, 267, 268-269 <i>Remember</i> 238</p> <p><b>Teacher Edition:</b> 5MC 246A; AC 237; AE 238, 243; ATS 238; CE 238; FA 239; FMB 242A; M 238; SQ 237, 242; TOD 239</p>
<b>DIVISION</b>	
<ul style="list-style-type: none"> <li>Divide by <b>2,3,4 digits by 2 digit</b> divisor without remainders</li> </ul>	<p><b>Student Edition:</b> LA2-LA5, LA6-LA9</p> <p><b>Teacher Edition:</b> 5MC LA6A; AC LA2, LA6; AE LA3, LA7; ATS LA3, LA7; CE LA4, LA7; DTDD LA7; EQ LA3; FA LA5, LA9; FMB LA2A, LA6A; NTM LA5; SQ LA2, LA6</p>
<ul style="list-style-type: none"> <li>Divide by 2,3,4 digit by 2 digits divisors with remainders</li> </ul>	<p><b>Student Edition:</b> LA6-LA9</p> <p><b>Teacher Edition:</b> 5MC LA10A; AE LA7; ATS LA7; TOD LA9</p>
<ul style="list-style-type: none"> <li>Divide with zeros in the quotient</li> </ul>	<p><b>Student Edition:</b> 316-319, 322-324, 325, 336-338, 342-345, 347, 351, 353, LA6</p> <p><b>Teacher Edition:</b> 5MC 320A, 342A; AC 316, 336; AE 317, 337; ATS 317, 337; CE 318, 337, 344; DM 317; FA 318, 338; NTM 319; SQ 316, 336</p>

STANDARDS	PAGE REFERENCES
<b>FRACTIONS</b>	
<ul style="list-style-type: none"> <li>Add and subtract proper fractions <b>with like denominators</b> <math>\frac{1}{4} + \frac{1}{4} = \frac{2}{4}</math></li> </ul>	<p><b>Student Edition:</b> LA14-LA17</p> <p><b>Teacher Edition:</b> A LA14; ATS LA16; FA LA17; SQ LA14</p>
<b>DECIMALS</b>	
<ul style="list-style-type: none"> <li><b>Express decimals</b> as an equivalent form of fractions to tenths and hundredths.</li> </ul>	<p><b>Student Edition:</b> 577-578, 579-581, 582-585, 593, 596-599, 602-604 <i>Math Activity</i> 577-578</p> <p><b>Teacher Edition:</b> 5MC 586A, 602A; AC 596; AE 583, 597; ATS 597, 603; CE 597; FA 599; FCA 578; FFDE 597; ITC 577; SQ 596, 602; WND 583</p>
<ul style="list-style-type: none"> <li><b>Add and subtract</b> decimals to tenths and hundredths</li> </ul>	<p><b>Student Edition:</b> 614, 628-629, 630-633, 634, 635, 636-637, 638-641, 647-648, 649, R40, R41 <i>Math Activity</i> 628-629, 636-637</p> <p><b>Teacher Edition:</b> 5MC 634A; AC 630; AD 631; AE 631, 639; ATS 631; CE 631; FA 632, 641; ITC 614; SQ 630; T 629, 637</p>
<b>ACCURACY AND SPEED</b>	
<ul style="list-style-type: none"> <li>Know with accuracy and speed all <b>multiplications facts</b> up to 10.</li> </ul>	<p><b>Student Edition:</b> 147-149, 150-153, 154-157, 160-162, 163, 175, R57 <i>Game Time</i> 175</p> <p><b>Teacher Edition:</b> 5MC 150A, 166A; AC 154, 160; AE 155, 161; ATS 148, 155, 161; CE 156, 161; D 155, 161; FA 157, 162; FMB 166A; M 155; SQ 154, 160</p>
<b>MENTAL MATH</b>	
<ul style="list-style-type: none"> <li>Do lots and lots of <b>mental math</b> using all four arithmetic operations.</li> </ul>	<p><b>Student Edition:</b> 55-57, 67, 147-149, 150-153, 154-157, 160-162, 163, 175, 198-201, 217, 237-239, 262-263, 267-273-275, R4, R13, R15, R17, R18, R19, R20, R57 <i>Game Time</i> 175, 217</p> <p><b>Teacher Edition:</b> 5MC 198A; AE 56 #3</p>

STANDARDS	PAGE REFERENCES
<b>ESTIMATION</b>	
<ul style="list-style-type: none"> <li>Judge without counting whether a set of objects has less than, more than, or the same number of objects as a reference set.</li> </ul>	<p><b>Student Edition:</b> 28-30, 42-43, 540-543, 544-545, 554-557, 568, 570, 622-625 <i>Problem Solving in Science</i> 42-43</p> <p><b>Teacher Edition:</b> AC 28, 540, 622; AE 29; ATS 623; CE 556; ES 623; SQ 28, 622; USP 42</p>
<ul style="list-style-type: none"> <li>Construct and use a variety of estimation strategies (e.g., rounding and mental math) for estimating both quantities and the results of computations.</li> </ul>	<p><b>Student Edition:</b> 36-39, 58-61, 62-63, 72-73, 84-85, 86, 240-241, 242-244, 245, 253, 276-279, 300-301, 631-632, 639-640, 647-648, R5, LA2-LA5 <i>Game Time</i> 245</p> <p><b>Teacher Edition:</b> AE 37, 59, 243, 277, LA3; CE 38</p>
<ul style="list-style-type: none"> <li>Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.</li> </ul>	<p><b>Student Edition:</b> 36-39, 62-63, 58-61, 77, 86, 118, 240-241, 242-244, 245, LA2-LA5 <i>Game Time</i> 245</p> <p><b>Teacher Edition:</b> 5MC 64A, 80A; A 118; AC 62, 240, 242, LA2; AE 59, 243; FA 63, 77, 241, 244</p>
<ul style="list-style-type: none"> <li>Use estimation to determine whether the result of a computation (either by calculator or by hand) is reasonable.</li> </ul>	<p><b>Student Edition:</b> 58-61, 62-63, 72-73, 86, 240-241, 242-244, 245, 276-279, 300-301, R5, LA2-LA5 <i>Game Time</i> 245</p> <p><b>Teacher Edition:</b> AC 62, 240, 242, 276; AE 59, 243, 277; SQ 36, 62, 240, 242, 276</p>
<ul style="list-style-type: none"> <li>Round whole numbers to the nearest million, thousands, hundreds...</li> </ul>	<p><b>Student Edition:</b> 16, 36-39, 48, 58-61, 62-63, 72-73, 84-85, 242-243, 276-279, R3, R4, R5 <i>Get Ready to Learn</i> 36</p> <p><b>Teacher Edition:</b> 5MC 40A; AC 36; AE 37, 243, 277; CE 38; SQ 36, 242, 276; RWN 37</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Round each decimal to the nearest one and tenth</li> </ul>	<p><b>Student Edition:</b> 617-629, 621, 622-625, 633, 641, 645, 647, 649, R39 <i>Game Time</i> 621</p> <p><b>Teacher Edition:</b> 5MC 622A, 626A; AC 617, 622; AE 618, 623; ATS 618, 623; CE 618, 624; FA 620, 625; SQ 617, 622</p>
<ul style="list-style-type: none"> <li>Round money to the nearest \$10. and \$100.</li> </ul>	<p><b>Student Edition:</b> 58-61, 62-63, 69, 73-74, 85, 86, 243-244, 253-254, 258-260, 277, 285-286, 289, 301, 323, 329</p> <p><b>Teacher Edition:</b> 5MC 62A, 64A; AE 59, 73, 243, 277, 289; CE 60; FA 63; SQ 58; T 62</p>
<p><b>STANDARD 4.2 (GEOMETRY AND MEASUREMENT) ALL STUDENTS WILL DEVELOP SPATIAL SENSE AND THE ABILITY TO USE GEOMETRIC PROPERTIES, RELATIONSHIPS, AND MEASUREMENT TO MODEL, DESCRIBE AND ANALYZE PHENOMENA.</b></p>	
<p><b>Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will</b></p>	
<p><b>GEOMETRIC PROPERTIES</b></p>	
<ul style="list-style-type: none"> <li>Identify and describe <b>spatial relationships</b> of two or more objects in space and their relative shapes and sizes: <ul style="list-style-type: none"> <li>Inside/outside; left/right; above/below; between</li> <li>Smaller/larger/same size; wider/narrower; longer shorter</li> </ul> </li> </ul>	<p><b>Student Edition:</b> 10-11, 356, 358, 359-361, 418-420, 421, 432, 433, 439-440, R23, R24, R25, R27 <i>Measurement Activity</i> 439-440 <i>Technology Activity</i> 421</p> <p><b>Teacher Edition:</b> AC 11; APK 10; FA 420; ITC 356; TDF 11; WIM 11</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Use concrete objects, drawings, and computer graphics to identify, classify and describe standard <b>two dimensional and three dimensional shapes</b>:               <ul style="list-style-type: none"> <li>Vertex, edge, face and side of objects</li> <li>2D figures: square, rectangle, circle, triangle</li> <li>3D figures: cube, rectangular prism, sphere, cone, cylinder, pyramid</li> <li>Study the relationship between 3D and 2D figures: (e.g. the face of a 3D shape is a 2D shape;</li> <li>Notice Inclusive relationships squares are rectangles; cubes are rectangular prisms</li> </ul> </li> </ul>	<p><b>Student Edition:</b>            356, 358, 359-361, 362-365, 372-375, 376-378, 379, 385, 387-388, 389, 390-391  <i>Game Time</i> 379  <i>Hands-On Mini Activity</i> 360</p> <p><b>Teacher Edition:</b>            AC 372, 376; APK 10; HOMA 360; ITC 356; SQ 372, 376; TOD 361</p>
<ul style="list-style-type: none"> <li>Identify and describe <b>relationships</b> among two dimensional shapes:               <ul style="list-style-type: none"> <li>Congruence</li> <li>Lines of Symmetry</li> </ul> </li> </ul>	<p><b>Student Edition:</b>            356, 418-420, 421, 422-424, 425, 432, 433  <i>Game Time</i> 425  <i>Technology Activity</i> 421</p> <p><b>Teacher Edition:</b>            5MC 422A; AC 418, 422; AE 419, 423; ATS 419, 423; CE 419, 423; FA 420, 424; FMB 422A; ICF 419; SQ 418, 422</p>
<ul style="list-style-type: none"> <li>Understand and apply concepts involving <b>lines, angles and circles</b> <ul style="list-style-type: none"> <li><b>Lines:</b> Point, line, segment, endpoint, parallel, perpendicular</li> <li><b>Angles:</b> Acute, right, obtuse</li> <li><b>Circles:</b> Diameter, radius, center</li> </ul> </li> </ul>	<p><b>Student Edition:</b>            368-370, 371, 372-375, 395-397, 398-399, 400-403, R24  <i>Math Activity</i> 398-399</p> <p><b>Teacher Edition:</b>            5MC 372A, 404A; AC 368, 400; AE 369, 373, 401; ATS 369, 373, 401; CA 369; FA 370, 375; SQ 368, 400</p>
<b>TRANSFORMING SHAPES</b>	
<ul style="list-style-type: none"> <li>Use simple shapes to cover an area (tessellations).</li> </ul>	<p><b>Student Edition:</b>            366-367, 380-381, 418, 421  <i>Technology Activity</i> 421</p> <p><b>Teacher Edition:</b>            EF 418B; T380</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Describe and use geometric transformations (<b>slide, flip, turn</b>).</li> </ul>	<p><b>Student Edition:</b> 410-411, 412-415, 418-420, R26, R27 <i>Geometry Activity</i> 410-411 <i>Hands-On Mini Activity</i> 418</p> <p><b>Teacher Edition:</b> 5MC 416A, 422A; AC 412; ATS 413, 419; CE 414; DIT 413; FA 415; FMB 412A; HOMA 418; I 410; SQ 412, 418; T 410</p>
<ul style="list-style-type: none"> <li>Investigate the occurrence of geometry in nature and art.</li> </ul>	<p><b>Student Edition:</b> 382-383, 426-427</p> <p><b>Teacher Edition:</b> APK 382, 426; ETS 383, 427; RWM 383, 427; USP 382, 426; WIM 383</p>
<b>COORDINATE GEOMETRY</b>	
<ul style="list-style-type: none"> <li>Locate and name points in the <b>first quadrant on a coordinate grid</b>.</li> </ul>	<p><b>Student Edition:</b> 406-408, 409, 415, 430, 435, R26</p> <p><b>Teacher Edition:</b> 5MC 412A; AC 406; AE 407; ATS 407; CE 408; FA 408; SQ 406</p>
<ul style="list-style-type: none"> <li>Use coordinates to give or follow directions from one point to another on a map or grid.</li> </ul>	<p><b>Student Edition:</b> 406-408, 415, 435 #10</p> <p><b>Teacher Edition:</b> AE 407; ATS 407; SQ 406</p>
<b>UNITS OF MEASUREMENT</b>	
<ul style="list-style-type: none"> <li>Understand that everyday objects have a variety of attributes, each of which can be measured in many ways.</li> </ul>	<p><b>Student Edition:</b> 359-361, 362-365, 368-370, 372-375, 376-378, 496-497 <i>Hands-On Mini Activity</i> 360</p> <p><b>Teacher Edition:</b> 5MC 362A; AC 359, 362, 372, 376; AE 373; AT 373; CS 373; FA 375, 378; HOMA 360; SQ 359, 362, 372</p>
<ul style="list-style-type: none"> <li>Select and use appropriate standard units of measure and measurement tools to solve real-life problems</li> </ul>	<p><b>Student Edition:</b> 436, 439-440, 441-443, 444-445, 448-449, 450-452, 453, 456-459, 468-471, 473-475, 478 <i>Measurement Activity</i> 439-440, 448-449</p> <p><b>Teacher Edition:</b> 5MC 444A; AC 441, 450; AE 442, 451, 457; ATS 442, 445, 451; FA 443; FCA 449</p>

STANDARDS	PAGE REFERENCES
<b>LENGTH</b>	
<ul style="list-style-type: none"> <li>Measure objects using fractions of an inch, foot, mile, decimeter, kilometer (<math>\frac{1}{8}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>),</li> </ul>	<p><b>Student Edition:</b> 441-443, 448-449, 453, 473, 583-584, 639, R28 <i>Measurement Activity</i> 448-449</p> <p><b>Teacher Edition:</b> 5MC 444A; A 449; AC 441; AE 442, 583; ATS 442; FA 443; I 448; SQ 441; T 448</p>
<ul style="list-style-type: none"> <li>Measure and calculate: Area, length, width using ruler or yardstick, one inch squares, one centimeter squares</li> </ul>	<p><b>Student Edition:</b> 441-443, 448-449, 450-453, 456-459, 460-462, 463, 464-465, 473, 475-477, 478 <i>Game Time</i> 463 <i>Measurement Activity</i> 448-449, 464-465</p> <p><b>Teacher Edition:</b> 5MC 444A; AC 441, 456, 460; ATS 442, 457, 461; FA 441, 459, 465; I 448; ITC 464; ML 451; SQ 441, 456, 460; T 449</p>
<b>CAPACITY</b>	
<ul style="list-style-type: none"> <li>Capacity – fluid ounce, cup, pint, quart, gallon, milliliter</li> </ul>	<p><b>Student Edition:</b> 485, 486-489, 490-491, 492-495, 501, 525-526, 531 <i>Hands-On Mini Activity</i> 492</p> <p><b>Teacher Edition:</b> 5MC 492A, 498A; AC 486, 490, 492; AE 487, 493; ATS 487, 491, 493; CE 488, 493; HOMA 492; SQ 486, 490, 492</p>
<b>MASS</b>	
<ul style="list-style-type: none"> <li>Measure and calculate: Volume using one inch cubes and one centimeter cubes</li> </ul>	<p><b>Student Edition:</b> 512-515, 523, 529, 531, R33</p> <p><b>Teacher Edition:</b> 5MC 518A; AC 512; AE 513, ATS 513, BMV 512A; CE 513, EV 513; FA 515; FMB 512A; NTM 515; SQ 512</p>
<b>WEIGHT</b>	
<ul style="list-style-type: none"> <li>Measure: Ounce, pound</li> </ul>	<p><b>Student Edition:</b> 496-497, 498-500, 501, 504-507, 526, 528 <i>Measurement Activity</i> 496-497</p> <p><b>Teacher Edition:</b> 5MC 502A, 508A; AC 498, 504; AE 499, 505; ATS 499, 505; CCW 505; CE 499; EW 499; FA 497, 500, 507; SQ 498, 504</p>

STANDARDS	PAGE REFERENCES
<b>VOLUME</b>	
<ul style="list-style-type: none"> <li>Measure: Cubic inch, cubic centimeter</li> </ul>	<p><b>Student Edition:</b> 512-515, 524, 529, 531, R33 <i>Hands-On Mini Activity 512</i></p> <p><b>Teacher Edition:</b> 5MC 518A; AC 512; ATS 513; CE 513; EV 513; FA 515; HOMA 512; NTM 515; SQ 512</p>
<b>AREA</b>	
<ul style="list-style-type: none"> <li>Measure area using: Square inch, square centimeter</li> </ul>	<p><b>Student Edition:</b> 460-462, 463, 464-465, 476, 477, 479, R29 <i>Game Time 463</i> <i>Measurement Activity 464-465</i></p> <p><b>Teacher Edition:</b> 5MC 466A; AC 460; AE 461; AS 461; ATS 461; CE 462; FA 462; ITF 462; SQ 460; TNT 461</p>
<b>TIME</b>	
<ul style="list-style-type: none"> <li>Solve problems involving elapsed time to the nearest five minutes during the same twelve hour period</li> </ul>	<p><b>Student Edition:</b> 484, 520-523, 530, 531, R33 <i>Hands-On Mini Activity 520</i></p> <p><b>Teacher Edition:</b> 5MC 537A; AC 520; ATS 521; CE 521; ET 521; FA 523; HOMA 520; SQ 520; TOD 523</p>
<b>TEMPERATURE</b>	
<ul style="list-style-type: none"> <li>Read thermometer in Fahrenheit and Celsius</li> </ul>	<p><b>Student Edition:</b> 468-471, 478, 481, R30 <i>Hands-On Mini Activity 469</i></p> <p><b>Teacher Edition:</b> AC 468; AE 469; ATS 469; BL 468B; BMV 468A; CE 469; EF 468B; FA 471; FMB 468A; HOMA 469; RT 469; SQ 468</p>
<ul style="list-style-type: none"> <li>Read temperatures below 0°</li> </ul>	<p>See <i>Math Connects 5</i> © 2009.</p> <p><b>Student Edition:</b> 533-534</p> <p><b>Teacher Edition:</b> R 533</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Develop and use personal referents to approximate standard units</li> </ul>	<p><b>Student Edition:</b> 240-241, 439-440, 441-443, 448-449, 496-497, 498-500, 501, 507, LA 21 <i>Measurement Activity</i> 439-440, 448-449, 496-497</p> <p><b>Teacher Edition:</b> 5MC 444A, 490A, 498A, 512A; A 440; AC 441; AE 442; ATS 442; CE 240; I 439; SQ 441</p>
<b>Estimation</b>	
<ul style="list-style-type: none"> <li>Use <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math> to estimate length, area and amount</li> </ul>	<p><b>Student Edition:</b> 439-440, 441-443, 448-449, 461-462, 463, 473, 475 <i>Game Time</i> 463 <i>Measurement Activity</i> 439-440, 448-449, 485</p> <p><b>Teacher Edition:</b> 5MC 444A; A 440; AC 441; ATS 442; FA 440, 443; FCMB 441A; I 439; SGO 441B; SQ 441</p>
<ul style="list-style-type: none"> <li>Estimate volume, length, area using standard units</li> </ul>	<p><b>Student Edition:</b> 439-440, 441-443, 448-449, 451-452, 461-462, 463, 473, 475, 485, 487-489, 492-495, 512-515, 525-526, 529, R28, R29, R30, R31 <i>Game Time</i> 463 <i>Hands-On Mini Activity</i> 512 <i>Measurement Activity</i> 439-440, 448-449, 485</p>
<ul style="list-style-type: none"> <li>Estimate measure of angle in various orientations</li> </ul>	<p><b>Student Edition:</b> 369-370, 371, 372-375, 387, 389, 390-391, R24</p> <p><b>Teacher Edition:</b> 5MC 372A; AC 368; AE 369, ATS 369, CA 369, FA 370; SQ 368</p>
<ul style="list-style-type: none"> <li>Estimate when using Fahrenheit and Celsius scales to measure temperature</li> </ul>	<p><b>Student Edition:</b> 468-471, 478, 481 #12, R30 <i>Hands-On Mini Activity</i> 469</p> <p><b>Teacher Edition:</b> AC 468; AE 469; ATS 469; BL 468B; CE 469; FA 471; HOMA 469; RT 469; SQ 468</p>
<ul style="list-style-type: none"> <li>Estimate time to the nearest minute</li> </ul>	<p><b>Student Edition:</b> 484, 520-523, 530, 531, R33 <i>Hands-On Mini Activity</i> 520</p> <p><b>Teacher Edition:</b> 5MC 537A; AC 520; ATS 521; CE 521; ET 521; FA 523; HOMA 520; SQ 520; TOD 523</p>

STANDARDS	PAGE REFERENCES
<b>MEASURING GEOMETRIC OBJECTS</b>	
<ul style="list-style-type: none"> <li>Determine the <b>area</b> of simple <b>two-dimensional</b> shapes on a square grid.</li> </ul>	<p><b>Student Edition:</b> 460-462, 463, 464-465, 476, 477, 479 <i>Game Time</i> 463 <i>Measurement Activity</i> 464-465</p> <p><b>Teacher Edition:</b> 5MC 466A; AC 460; AE 461; AS 461; ATS 461; ETC 465; FA 462; ITC 464; SQ 460</p>
<ul style="list-style-type: none"> <li>Distinguish between <b>perimeter and area</b> and use each appropriately in problem-solving situations.</li> </ul>	<p><b>Student Edition:</b> 460-462, 464-465, 476, 474, 477 <i>Measurement Activity</i> 464-465</p> <p><b>Teacher Edition:</b> CE 462; EC 465; FA 465; FCA 465; ITC 464; ITF 462; T 464; TAI 465</p>
<ul style="list-style-type: none"> <li>Measure and compare the volume of three-dimensional objects using materials such as rice or cubes.</li> </ul>	<p><b>Student Edition:</b> 485, 486, 488, 490, 492 <i>Hands-On Mini Activity</i> 492 <i>Measurement Activity</i> 485</p> <p><b>Teacher Edition:</b> AC 486, 490, 492; ATS 487, 491, 493; CE 488; GT 486B; HOMA 492; I 485; SQ 486, T 485</p>
<p><b>STANDARD 4.3 (PATTERNS AND ALGEBRA) ALL STUDENTS WILL REPRESENT AND ANALYZE RELATIONSHIPS AMONG VARIABLE QUANTITIES AND SOLVE PROBLEMS INVOLVING PATTERNS, FUNCTIONS, AND ALGEBRAIC CONCEPTS AND PROCESSES.</b></p>	
<p>Building upon knowledge and skills gained in preceding grades, by the end of <b>Grade 4</b>, students will:</p>	
<p><b>PATTERNS</b></p>	
<ul style="list-style-type: none"> <li>Recognize, describe, extend, and create <b>patterns</b>: <ul style="list-style-type: none"> <li>using words, number sentences/expressions,</li> <li><b>graphs, tables, variables</b> (e.g., shape, blank, or letter);</li> </ul> </li> </ul>	<p><b>Student Edition:</b> 6, 40, 118-119, 134, 137, 192, 204-206, 207, 208-211, 212-213, 218-219, 220-223, 227-228, 230, 232-233, 353, 366-367</p> <p><b>Teacher Edition:</b> AC 208, 366; FA 119, 206, 367</p>
<ul style="list-style-type: none"> <li>Study whole number patterns that grow or shrink as a result of <b>repeatedly</b> adding, subtracting, multiplying by, or dividing by a fixed number (e.g., 5, 8, 11, . . . or 800, 400, 200, . . .)</li> </ul>	<p><b>Student Edition:</b> 6, 40, 118-119, 134, 192, 204-206, 207, 208-211, 212-213, 218-219, 220-223, 227-228, 230, 232-233, 353, 366-367</p> <p><b>Teacher Edition:</b> 5MC 208A; AC 204, 208, 220, 366; AE 205, 207, 221</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Investigate and describe patterns that continue indefinitely</li> </ul>	<p><b>Student Edition:</b> 6, 204-206, 207, 208-211, 212-213, 218-219, 220-223, 227-228, 230, 232-233, 353, 366-367, R13, R14, R15, R23</p> <p><b>Teacher Edition:</b> AC 204; AE 205; ATS 205; FA 206, 367; P6; SQ 204; T 366</p>
<ul style="list-style-type: none"> <li><b>Observe sequences</b> that stop or that continue <b>infinitely</b></li> </ul>	<p><b>Student Edition:</b> 6, 118-119, 134, 204-206, 207, 208-211, 212-213, 218-219, 220-223, 227-228, 230, 232-233, 366-367, R13, R14, R15, R23</p> <p><b>Teacher Edition:</b> AC 366; CE 366; FA 367; P6; SQ 204; T366</p>
<ul style="list-style-type: none"> <li>Observe that sequences can often be <b>extended in more than one way</b> (e.g., the next term after 1, 2, 4, . . . could be 8, or 7, or)</li> </ul>	<p><b>Student Edition:</b> 40, 366-367</p> <p><b>Teacher Edition:</b> FA 367; T 40, 466</p>
<b>FUNCTIONS AND RELATIONSHIPS</b>	
<ul style="list-style-type: none"> <li>Use concrete and pictorial models to explore the basic concept of a function. <ul style="list-style-type: none"> <li>Explore, generate input/output tables, T-charts</li> <li>Solve equations by combining two function machines</li> <li>Solve equations Reversing a function machine</li> </ul> </li> </ul>	<p><b>Student Edition:</b> 204-206, 207, 208-211, 220-223, 224, 227-228, 230, 231, 232-233, 260, 266, R13, R14, R15</p> <p><b>Teacher Edition:</b> AC 208, 220; AE 209, 221; ATS 209, 221; FA 208A, 211, 223; SQ 208, 220</p>
<b>MODELING</b>	
<ul style="list-style-type: none"> <li>Recognize and describe change in quantities. <ul style="list-style-type: none"> <li>Develop graphs representing change over time (e.g., temperature, height)</li> <li>Show how change in one physical quantity can produce a corresponding change in another (e.g., pitch of a sound depends on the rate of vibration)</li> <li>Construct and solve simple open sentences involving any one operation (e.g., <math>3 \times 6 = \underline{\quad}</math>, <math>n = 15 \div 3</math>, <math>3 \times \underline{\quad} = 0</math>, <math>16 - c = 7</math>). <math>4 \times 25</math>)</li> </ul> </li> </ul>	<p><b>Student Edition:</b> 40, 118-119, 192, 193-195, 196-197, 198-201, 214-216, 217, 204-206, 207, 208-211, 220-223, 227-228, 230, 231, 232-233, 266, 267, R13, R14, R15</p> <p><i>Algebra Activity</i> 196-197 <i>Game Time</i> 217</p>

STANDARDS	PAGE REFERENCES
<b>PROCEDURES</b>	
<ul style="list-style-type: none"> <li>Understand, name, and apply the properties of operations and numbers:</li> </ul>	<p><b>Student Edition:</b> 55-57, 84-85, 150-153, 157, 163, 172, 180, 182, 187, 273-274, R10</p> <p><b>Teacher Edition:</b> 5MC 58A, 154A; AC 55, 150; AE 56, 151, ATS 56, 151, CE 56, 152; FA 57, 153, 157; SQ 55, 150</p>
<ul style="list-style-type: none"> <li><b>Commutative</b> (e.g., <math>3 \times 7 = 7 \times 3</math>)</li> </ul>	<p><b>Student Edition:</b> 150-153, 157, 163, 180, 182, 187, 273-274, R10</p> <p><b>Teacher Edition:</b> 5MC 154A; AC 150; AE 151; ATS 151; BMV 150A; CE 152; FA 157; FMB 150A, 154A; SQ 150; TOD 153</p>
<ul style="list-style-type: none"> <li><b>Identity element</b> for multiplication is 1 (e.g., <math>1 \times 8 = 8</math>)</li> </ul>	<p><b>Student Edition:</b> 150-153, 157 #42, 163, 180, 182, 187, R10</p> <p><b>Teacher Edition:</b> 5MC 154A; AC 150; AE 151; ATS 151; BMV 150A; FA 153; FMB 150A, 154A; SQ 150; TOD 153</p>
<ul style="list-style-type: none"> <li><b>Associative</b> (e.g., <math>2 \times 4 \times 25</math> can be found by first multiplying either <math>2 \times 4</math> or <math>4 \times 25</math>)</li> </ul>	<p><b>Student Edition:</b> 150-153, 157, 163, 172-173, 180, 182, 187, 273-274, R10</p> <p><b>Teacher Edition:</b> 5MC 154A; AC 150, 172; AE 151, 173; ATS 151, 173; CE 173; FA 153, 174; MBT 274; SQ 150, 172; TOD 153, 174</p>
<ul style="list-style-type: none"> <li>Division by <b>zero</b> is undefined</li> </ul>	<p><b>Student Edition:</b> 151-152</p>
<ul style="list-style-type: none"> <li>Any number multiplied by zero is zero.</li> </ul>	<p><b>Student Edition:</b> 150-153, 180, 234, 237-239, 258-261, 263, 266, 267, 273-274</p> <p><b>Teacher Edition:</b> 5MC 240A, 273A; AC 237, 258; SE 151, 238, 259; ATS 238, 259; CE 238, 260; FA 239, 261; FMB 258A; SQ 237, 258</p>
<ul style="list-style-type: none"> <li>Understand and use the concepts of <b>equals, less than, and greater than</b> in simple number sentences.</li> </ul>	<p><b>Student Edition:</b> 28-30, 31, 39, 44, 47, 49, 61, 127, 168, 554-557, 567, 590-592, 593, 609, R3, R31, R35</p> <p><b>Teacher Edition:</b> 5MC 32A, 154A, 560A; CE 168; FMB 154A</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Understand and use the concepts of equals, less than, and greater than in simple number sentences (<math>= &lt; &gt;</math>)</li> </ul>	<p><b>Student Edition:</b> 28-30, 31, 39, 44, 47, 49, 61, 127, 168, 554-557, 567, 590-592, 593, 609, R3, R31, R35</p> <p><b>Teacher Edition:</b> 5MC 32A, 154A, 560A; CE 168; FMB 154A</p>
<p><b>STANDARD 4.4 (DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS) ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF THE CONCEPTS AND TECHNIQUES OF DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS, AND WILL USE THEM TO MODEL SITUATIONS, SOLVE PROBLEMS, AND ANALYZE AND DRAW APPROPRIATE INFERENCES FROM DATA.</b></p>	
<p>Building upon knowledge and skills gained in preceding grades, by the end of <b>Grade 4</b>, students will:</p>	
<p><b>DATA ANALYSIS</b></p>	
<ul style="list-style-type: none"> <li>Collect, generate, organize, and display data in response to questions, claims, or curiosity. <ul style="list-style-type: none"> <li>Collect data from the school environment</li> <li>Collect data generated from chance devices, such as spinners and dice</li> </ul> </li> </ul>	<p><b>Student Edition:</b> 92, 95-97, 98-101, 104-107, 108-110, 111, 112-114, 115 <i>Game Time 115</i></p> <p><b>Teacher Edition:</b> AC 95, 98, 104; AE 96, 99, 105; ATS 96, 99, 105; FA 97, 101; SQ 95, 98</p>
<ul style="list-style-type: none"> <li>Read, interpret, construct, analyze, generate questions about, and draw Inferences from displays of data. <ul style="list-style-type: none"> <li>Pictograph, tally charts, pictographs, bar graph, Venn diagrams</li> <li>Average (mean); most frequent (mode), middle term (median)</li> </ul> </li> </ul>	<p><b>Student Edition:</b> 92, 94, 95-97, 98-101, 104-107, 108-110, 111, 112-114, 115 <i>Game Time 115</i></p> <p><b>Teacher Edition:</b> 5MC 98A, 102A; AC 95, 98, 104; AE 96, 99, 105; ATS 96, 99, 105; CE 100; FA 97, 101; ITC 92; SQ 95, 98</p>
<p><b>PROBABILITY</b></p>	
<ul style="list-style-type: none"> <li>Use everyday events and chance devices, such as dice, coins, and unevenly divided spinners, to explore concepts of probability: <ul style="list-style-type: none"> <li>Certain, impossible</li> <li>More likely, less likely, equally likely</li> <li>Fair, unfair</li> </ul> </li> </ul>	<p><b>Student Edition:</b> 124-127, 128-130, 131, 132, 138, 139, R9 <i>Technology Activity 131</i></p> <p><b>Teacher Edition:</b> 5MC 147A; AC 128; AE 129; ATS 129; CE 129; FA 130; P 130; SQ 128</p>
<ul style="list-style-type: none"> <li>Determine probabilities of simple events based on equally likely outcomes and express them as fractions</li> </ul>	<p><b>Student Edition:</b> 128-130, 131, 132, 138, 139, R9 <i>Technology Activity 131</i></p> <p><b>Teacher Edition:</b> 5MC 147A; AC 128; AE 129, ATS 129; CE 129; DO 129; FA 130; P 130; SQ 128</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Predict probabilities in a variety of situations (e.g. given the number of items of each color in a bag what is the probability that an item picked will have a particular color               <ul style="list-style-type: none"> <li>First determine what students think will happen (intuitive)</li> <li>Collect data and use that data to predict the probability (experimental)</li> <li>Analyze all possible outcomes to find the probability (theoretical)</li> </ul> </li> </ul>	<p><b>Student Edition:</b> 128-130, 131, 132, 138, 139, R9 <i>Technology Activity</i> 131</p> <p><b>Teacher Edition:</b> 5MC 147A; AC 128; AE 129; ATS 129; CE 129; DO 129; FA 130; P 130; SQ 128</p>
<b>DISCRETE MATHEMATICS SYSTEMATIC LISTING AND COUNTING</b>	
<ul style="list-style-type: none"> <li>Represent and classify data according to attributes, such as shape or color, and relationships.               <ul style="list-style-type: none"> <li>Create Venn diagrams based on math data</li> <li>Numerical and alphabetical order</li> </ul> </li> </ul>	<p><b>Student Edition:</b> 32-34, 35, 92, 94, 95-97, 98-101, 124-127, 372-375, 376-378, 387-388, 389 <i>Game Time</i> 35</p> <p><b>Teacher Edition:</b> AE 33, 99, 125, 373, 377; ATS 99, 373, 377; FA 34, 101, 375, 378</p>
<ul style="list-style-type: none"> <li>Represent all possibilities for a simple counting situation in an organized way and draw conclusions from this representation.</li> </ul>	<p><b>Student Edition:</b> 94, 95-97, 98-101, 102-103, 111, 118, 133, 134, 404-405, 430</p> <p><b>Teacher Edition:</b> 5MC 98A, 406A; AC 95, 404; AE 96; ATS 405; CE 404; FA 127, 405; SQ 95; T 404; UTE 405</p>
<ul style="list-style-type: none"> <li>Organized lists, charts, tree diagrams</li> </ul>	<p><b>Student Edition:</b> 94, 95-97, 98-101, 102-103, 118, 124-127, 133, 134, 138, 141, 404-405, 430</p> <p><b>Teacher Edition:</b> 5MC 98A, 128A, 406A; AC 95, 404; AE 96, 125; ATS 405; FA 127, 405; SQ 95; T 404</p>
<ul style="list-style-type: none"> <li>Divide objects into categories (e.g., to find the total number of rectangles in a grid, find the number of rectangles of each size and add the results)</li> </ul>	<p><b>Student Edition:</b> 94, 95-97, 282-283, 359-361, 362-365, 372-375, 376-378, 485, 486-489, 490-491 <i>Hands-On Mini Activity</i> 360 <i>Math Activity</i> 282-283 <i>Measuring Activity</i> 439-440, 485</p> <p><b>Teacher Edition:</b> AC 95, 362, 372; HOMA 360; SQ 95, 362, 372; 5MC 376A</p>

STANDARDS	PAGE REFERENCES
<b>DISCRETE MATHEMATICS VERTEX-EDGE GRAPHS AND ALGORITHMS</b>	
<ul style="list-style-type: none"> <li>Follow, devise, and describe practical sets of directions (e.g., to add two 2-digit numbers).</li> </ul>	<p><b>Student Edition:</b> 64-67, 70-71, 72-75, 237-239, 246-248, 252-255, 258-261, 264-266, 273-275, 282-283, 284-286, 288-291, 296-298, 301, 630-632, 636-637, 638-641, 647, 648</p>
<ul style="list-style-type: none"> <li>Play two-person games and devise strategies for winning the games (e.g., "make 5" where players alternately add 1 or 2 and the person, who reaches 5, or another designated number, is the winner).</li> </ul>	<p><b>Student Edition:</b> 35, 75, 115, 175, 217, 245, 299, 339, 379, 425, 463, 511, 552, 605, 621 <i>Game Time</i> 35, 75, 115, 175, 217, 245, 299, 339, 379, 425, 463, 511, 552, 605, 621</p>
<ul style="list-style-type: none"> <li>Explore vertex-edge graphs and tree diagrams.</li> </ul>	<p><b>Student Edition:</b> 124-127, 138, 141, R9 <b>Teacher Edition:</b> 5MC 128A; FA 127</p>
<ul style="list-style-type: none"> <li>Explore Vertex, edge, neighboring/adjacent, number of neighbors</li> </ul>	<p><b>Student Edition:</b> 10-11, 358, 359-361 <i>Hands-On Mini Activity</i> 360 <b>Teacher Edition:</b> AAC 11; AC 359; APK 10; BMV 359A; CE 360; FMB 359A; HOMA 360; ITDO 360; SQ 359; TDF 11; WIM 11</p>
<ul style="list-style-type: none"> <li>Explore path, circuit (i.e., path that ends at its starting point)</li> </ul>	<p>This objective can be met through classroom discussion and activities.</p>
<ul style="list-style-type: none"> <li>Find the smallest number of colors needed to color a map or a graph.</li> </ul>	<p>This objective can be met through classroom discussion and activities.</p>

STANDARDS	PAGE REFERENCES
<p><b>STANDARD 4.5 (MATHEMATICAL PROCESSES) ALL STUDENTS WILL USE MATHEMATICAL PROCESSES OF PROBLEM SOLVING, COMMUNICATION, CONNECTIONS, REASONING, REPRESENTATIONS, AND TECHNOLOGY TO SOLVE PROBLEMS AND COMMUNICATE MATHEMATICAL IDEAS.</b></p>	
<p>At each grade level, with respect to content appropriate for that grade level, students will:</p>	
<p><b>PROBLEM SOLVING</b></p>	
<ul style="list-style-type: none"> <li>Learn mathematics through problem solving, inquiry, and discovery.</li> </ul>	<p><b>Student Edition:</b> 40-41, 48, 76-77, 88, 118-119, 137, 170-172, 185, 218-219, 230, 250-251, 265, 294-295, 304, 330-331, 350, 380-381, 388, 416-417, 471, 466-467, 477, 518-519</p>
<ul style="list-style-type: none"> <li>Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3).             <ul style="list-style-type: none"> <li>Open-ended problems</li> <li>Non-routine problems</li> <li>Problems with multiple solutions</li> <li>Problems that can be solved in several ways</li> </ul> </li> </ul>	<p><b>Student Edition:</b> 5, 40-41, 48, 76-77, 88, 118-119, 137, 170-172, 185, 218-219, 230, 250-251, 265, 294-295, 304, 330-331, 350, 380-381, 388, 416-417, 471, 466-467, 477, 518-519</p>
<ul style="list-style-type: none"> <li>Select and apply a variety of appropriate problem-solving strategies (e.g., “try a simpler problem” or “make a diagram”) to solve problems.</li> </ul>	<p><b>Student Edition:</b> 2-3, 4-5, 6-7, 8-9, 10-11, 12-13, 26-27, 102-103, 134, 280-281, 302, 320-321, 348, 366-367, 386, 404-405, 430, 446-447, 474, 502-503, 527, 544-545, 586-587, 626-627</p>
<ul style="list-style-type: none"> <li>Pose problems of various types and levels of difficulty.</li> </ul>	<p><b>Student Edition:</b> 40-41, 48, 76-77, 88, 118-119, 137, 170-172, 185, 218-219, 230, 250-251, 265, 294-295, 304, 330-331, 350, 380-381, 388, 416-417, 471, 466-467, 477, 518-519</p>
<ul style="list-style-type: none"> <li>Monitor their progress and reflect on the process of their problem solving activity.</li> </ul>	<p><b>Teacher Edition:</b> QC 27, 41, 63, 77, 103, 119, 159, 171, 203, 219, 241, 251; T 26, 40, 62, 76, 102, 118, 158, 170, 202, 218, 240, 250</p>
<p><b>COMMUNICATION</b></p>	
<ul style="list-style-type: none"> <li>Use communication to organize and clarify their mathematical thinking.             <ul style="list-style-type: none"> <li>Reading and writing, discussions, listening, and questioning</li> </ul> </li> </ul>	<p><b>Teacher Edition:</b> ITC 14, 52, 92, 142, 190, 234, 270, 308, 356, 392, 436, 482, 534, 547, 614; WIM 52, 92, 142, 190, 234, 270, 308, 356, 392, 436, 482, 534, 574, 614</p>
<ul style="list-style-type: none"> <li>Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.</li> </ul>	<p><b>Teacher Edition:</b> ITC 14, 52, 92, 142, 190, 234, 270, 308, 356, 392, 436, 482, 534, 547, 614; WIM 14, 52, 92, 142, 190, 234, 270, 308, 356, 392, 436, 482, 534, 574, 614</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Analyze and evaluate the mathematical thinking and strategies of others.</li> </ul>	<p><b>Student Edition:</b> 57 #25, 39 #26, 82 #25, 101 #17, 174 #35, 200 #27, 255 #34, 261, #29, 390 #25, 315 #32, 329 #30, 365 #28, 420 #15, 471 #29, 523 #15, 543 #23, 551 #30, 563 #30, 585 #34, 604 #26, 641 #28</p>
<ul style="list-style-type: none"> <li>Use the language of mathematics to express mathematical ideas precisely.</li> </ul>	<p><b>Teacher Edition:</b> ITC 14, 52, 92, 142, 190, 234, 270, 308, 356, 392, 436, 482, 534, 547, 614; WIM 52, 92, 142, 190, 234, 270, 308, 356, 392, 436, 482, 534, 574, 614</p>
<b>CONNECTIONS</b>	
<ul style="list-style-type: none"> <li>Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).</li> </ul>	<p><b>Student Edition:</b> 6, 40, 118-119, 134, 137, 144, 192, 204-206, 208-211, 220-223, 227-228, 230, 237-239, 251, 316-319, 366-367, 381, 386, 467, 519, 565, 625, 633, R15</p>
<ul style="list-style-type: none"> <li>Use connections among mathematical ideas to explain concepts (e.g., two linear equations have a unique solution because the lines they represent intersect at a single point).</li> </ul>	<p><b>Student Edition:</b> 19, 25, 30, 34, 39, 57, 61, 110, 114, 126, 153, 162, 174, 179, 195, 206, 298, 315, 329, 338, 365, 378, 403, 471, 489, 506, 515, 543, 557, 581, 589, 620</p>
<ul style="list-style-type: none"> <li>Recognize that mathematics is used in a variety of contexts outside of mathematics.</li> </ul>	<p><b>Student Edition:</b> 40-41, 76-77, 118-119, 164-165, 170-171, 218-219, 250-251, 292-293, 294-295, 330-331, 380-381, 416-417, 466-467, 518-519, 564-565, 594-595, 634-635, 642-643</p>
<ul style="list-style-type: none"> <li>Apply mathematics in practical situations and in other disciplines.</li> </ul>	<p><b>Student Edition:</b> 42-43, 78-79, 120-121, 164-165, 212-213, 256-257, 292-293, 340-341, 382-383, 426-427, 454-455, 516-517, 558-559, 600-601, 642-643</p> <p><b>Teacher Edition:</b> 14G-14H, 52G-52H, 92I-92J, 142G-142H, 190G-190H, 234G-234H, 270G-270H</p>
<ul style="list-style-type: none"> <li>Trace the development of mathematical concepts over time and across cultures (cf. world languages and social studies standards).</li> </ul>	<p><b>Student Edition:</b> 292-293, 458, 642-643</p> <p><b>Teacher Edition:</b> APK 292, 642; ETS 293; RWM 293; USP 292, 642</p>
<ul style="list-style-type: none"> <li>Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.</li> </ul>	<p><b>Student Edition:</b> 208-211, 212-213, 588-589, 596-599, 602-604, 605, 610, 611, 630-633, 638-641</p> <p><i>Game Time</i> 605</p> <p><b>Teacher Edition:</b> AC 588, 596, 602, 630, 638; AE 209; ATS 597; FA 604; RWE 603; SQ 596, 602, 630</p>

STANDARDS	PAGE REFERENCES
<b>REASONING</b>	
<ul style="list-style-type: none"> <li>Recognize that mathematical facts, procedures, and claims must be justified.</li> </ul>	<p><b>Student Edition:</b> 37, 208-211, 322-324, 368-369, 326-329, 402 #10</p> <p><b>Teacher Edition:</b> ATS 209; CA 369; CE 211; FA 211</p>
<ul style="list-style-type: none"> <li>Use reasoning to support their mathematical conclusions and problem solutions.</li> </ul>	<p><b>Student Edition:</b> 48, 88, 137, 185, 230, 265, 304, 350, 388, 431, 477, 529, 570, 609, 647</p> <p><b>Teacher Edition:</b> T 48, 88, 137, 185, 230, 265, 304, 350, 388, 431, 477, 529, 570, 609, 647</p>
<ul style="list-style-type: none"> <li>Select and use various types of reasoning and methods of proof.</li> </ul>	<p><b>Student Edition:</b> 2-3, 4-5, 6-7, 8-9, 10-11, 12-13, 26-27, 102-103, 134, 280-281, 302, 320-321, 348, 366-367, 386, 404-405, 430, 446-447, 474, 502-503, 527, 544-545, 586-587, 626-627</p>
<ul style="list-style-type: none"> <li>Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions.</li> </ul>	<p><b>Student Edition:</b> 37, 48, 88, 137, 185, 230, 265, 304, 322-324, 326-329, 332-334, 336-338, 342-345, 347-352, 350, 353, 388, 431, 477, 529, 570, 609, 647</p>
<ul style="list-style-type: none"> <li>Make and investigate mathematical conjectures.</li> </ul>	<p><b>Student Edition:</b> 25 #11, 31 #18, 57 #26-#27, 61 #29-#30, 67 #21, 82 #25-#26, 97 #14, 117 #5, 126 #10-#11, 149 #27, 153 #24, 162 #31-#34, 179 #37-#38, 200 #27, 206 #15, 210 #18-#19, 222 #15, 239 #29, 244 #30, 298 #23-#24, 376-378</p>
<ul style="list-style-type: none"> <li>Counterexamples as a means of disproving conjectures.</li> </ul>	<p><b>Student Edition:</b> 378 #23-#24</p>
<ul style="list-style-type: none"> <li>Verifying conjectures using informal reasoning or proofs.</li> </ul>	<p><b>Student Edition:</b> 20-21, 25 #41, 31 #18, 39 #26, 41 #11, 55-57, 67 #21, 82 #25-#26, 126 #10-#11, 153 #24-#25, 162 #32 &amp; #34, 206 #15, 222 #15, 239 #29, 244 #30, 275 #31, 279 #31, 298 #23-#24, 378, 403 #19-#21, 420 #16, 434 #21</p>
<ul style="list-style-type: none"> <li>Evaluate examples of mathematical reasoning and determine whether they are valid.</li> </ul>	<p><b>Student Edition:</b> 39 #26, 57 #24-#25, 82 #25, 101 #17, 153 #25, 162 #34, 174 #35, 200 #27, 255 #34, 261 #29, 290 #25, 298 #23-#24, 315 #32, 329 #30, 365 #28, 403 #19-#21, 420 #16, 471 #29, 523 #15, 543 #23, 551 #30, 563 #30, 585 #34, 604 #26</p>

STANDARDS	PAGE REFERENCES
<b>REPRESENTATIONS</b>	
<ul style="list-style-type: none"> <li>Create and use representations to organize, record, and communicate mathematical ideas.</li> </ul>	<p><b>Student Edition:</b> 193-195, 196-197, 198-201, 202-203, 204-206, 207, 208-211, 214-216, 220-223, 225-230, 231 <i>Algebra Activity</i> 196-197</p> <p><b>Teacher Edition:</b> AC 193, 208; AE 194, 205, 209; FA 195; SQ 208</p>
<ul style="list-style-type: none"> <li>Concrete representations (e.g., base-ten blocks or algebra tiles)</li> </ul>	<p><b>Student Edition:</b> 20-21, 70-71, 122-123, 145-146, 196-197, 311-312, 398-399, 546-547, 577-578, 628-629, 630, 636-637 <i>Math Activity</i> 20-21, 70-71, 122-123, 145-146, 196-197, 311-312, 398-399, 546-547, 577-578, 628-629, 636-637</p>
<ul style="list-style-type: none"> <li>Pictorial representations (e.g., diagrams, charts, or tables)</li> </ul>	<p><b>Student Edition:</b> 92, 94, 95-97, 102-103, 134, 208-211, 218-219, 220-223, 227-228, 544-545, 568</p> <p><b>Teacher Edition:</b> 5MC 104A, 546A; AC 102, 544; AE 209, 221; ATS 103, 209, 221, 545; FA 103, 545; T 102, 544</p>
<ul style="list-style-type: none"> <li>Symbolic representations (e.g., a formula)</li> </ul>	<p><b>Student Edition:</b> 193-195, 196-197, 198-201, 202-203, 208-211, 214-216, 220-223, 225, 228-230, 231, 232-233 <i>Algebra Activity</i> 196-197</p> <p><b>Teacher Edition:</b> 5MC 214A; AC 208, 220; AE 194, 209, 221; ATS 209, 221; CE 194; FA 195 ITC 196; SQ 208, 220</p>
<ul style="list-style-type: none"> <li>Graphical representations (e.g., a line graph)</li> </ul>	<p><b>Student Edition:</b> 104-107, 108-110, 111, 112-114, 115, 116-117, 135-136, 139, R7, R8 <i>Game Time</i> 115 <i>Statistics Activity</i> 116-117</p> <p><b>Teacher Edition:</b> 5MC 108A; AC 104; AE 105; ATS 105; FA 107; FMB 108A; RLP 105; SQ 104; T 116-117</p>
<ul style="list-style-type: none"> <li>Select, apply, and translate among mathematical representations to solve problems.</li> </ul>	<p><b>Student Edition:</b> 95-98, 193-195, 196-197, 198-201, 204-206, 207, 208-211, 214-216, 220-223, 225-230, 231, 232-233, 366-367 <i>Algebra Activity</i> 196-197</p> <p><b>Teacher Edition:</b> AC 208, 220; AE 209, 221; CE 366, SQ 208, 220</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> <li>Use representation to model and interpret physical, social, and mathematical phenomena.</li> </ul>	<p><b>Student Edition:</b> 20-21, 64, 104-107, 108-110, 111, 112-114, 115, 116-117, 208-211, 212-213, 218-219, 220-223 <i>Game Time</i> 115 <i>Hands-On Mini Activity</i> 64 <i>Statistics Activity</i> 116-117</p> <p><b>Teacher Edition:</b> AC 208, 220; AE 209, 221, 105; HOMA 64; SQ 208, 220</p>
<b>TECHNOLOGY</b>	
<ul style="list-style-type: none"> <li>Use technology to gather, analyze, and communicate mathematical information.</li> </ul>	<p><b>Student Edition:</b> 68, 131, 335, 421 <i>Technology Activity</i> 68, 131, 335, 421</p>
<ul style="list-style-type: none"> <li>Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information (cf. workplace readiness standard 8.4-D).</li> </ul>	<p><b>Student Edition:</b> 68, 131, 335, 421 <i>Technology Activity</i> 68, 131, 335, 421</p>
<ul style="list-style-type: none"> <li>Use graphing calculators and computer software to investigate properties of functions and their graphs.</li> </ul>	<p><b>Student Edition:</b> 68, 131, 335, 421 <i>Technology Activity</i> 68, 131, 335, 421</p>
<p>1. Use calculators as problem-solving tools (e.g., to explore patterns, to validate solutions).</p>	<p>See <i>Math Connects 5</i> © 2009.</p> <p><b>Student Edition:</b> 133-135, 175, 206-207</p> <p><b>Teacher Edition:</b> A 135; T 133</p>
<ul style="list-style-type: none"> <li>Use computer software to make and verify conjectures about geometric objects.</li> </ul>	<p><b>Student Edition:</b> 68, 131, 335, 421 <i>Technology Activity</i> 68, 131, 335, 421</p>
<ul style="list-style-type: none"> <li>Use computer-based laboratory technology for mathematical applications in the sciences (cf. science standards)</li> </ul>	<p>This objective can be met through classroom activities.</p>