



Math Connects

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STANDARDS	PAGE REFERENCES
<p>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.</p>	
<p>Building upon knowledge and skills gained in preceding grades, by the end of Grade 3, students will:</p>	
<p>NUMBER SENSE</p>	
<ul style="list-style-type: none"> Use real-life experiences, physical materials, and technology to construct meanings for number experiences and problems 	<p>Teacher Edition: AR 14G; CP 14, 66, 108, 154, 198, 248, 292, 370, 464, 598, 632; H 14H, 198H, 292H, 510H, 556H, 632H; IC 66, 154, 330, 370, 420, 464, 598; R 248G; S 370J; SS 292H, 420H, 510H, 632 H; W 370I</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Demonstrate an understanding of whole number place value concepts: 10 ones = 1 ten; 10 tens = 1 hundred; 10 hundreds = 1 thousand 	<p>Student Edition: 24-26 <i>Are You Ready</i> 16 #1-#12 <i>Big Idea</i> 14 <i>Chapter Test</i> 63 #5, #6, #18 <i>Example</i> 24 <i>Extra Practice</i> R2 <i>Mid-Chapter Check</i> 31 #4, #5 <i>Real-World Example</i> 25 <i>Start Smart</i> 4</p> <p>Teacher Edition: A 30; AE 25; IWO 24B; T 24</p>
<ul style="list-style-type: none"> Identify place value of thousands to hundred thousand 	<p>Student Edition: 29 #1-#4, 30 #13-#20 <i>Chapter Test</i> 63 #5, #18 <i>Example</i> 24, 28 <i>Extra Practice</i> R3 <i>H.O.T. Problems</i> 30 <i>Mid-Chapter Check</i> 31 #14 <i>Real-World Example</i> 25 <i>Study Guide and Review</i> 58 #20, #21 <i>Test Practice</i> 65 #9</p> <p>Teacher Edition: AE 29; FMB 28A; SGO 28B</p>
<ul style="list-style-type: none"> Explore the extension of the place value system to decimals through hundredths 	<p>Student Edition: 608 <i>Example</i> 609 <i>Explore</i> 601-602 <i>Real-World Example</i> 603, 608</p> <p>Teacher Edition: ATS 604, 609; I 603; SGO 608B</p>
<ul style="list-style-type: none"> Explore the meaning of whole numbers through hundred thousands 	<p>Student Edition: 28-30 <i>Example</i> 28 <i>Real-World Example</i> 29</p> <p>Teacher Edition: A 30; ATS 29</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> • Skip count by 25, 50, 100 up to 1000 	<p>Student Edition: 17</p> <p>Teacher Edition: I 17; T 17</p>
<ul style="list-style-type: none"> • Read and write whole numbers up to 1,000 	<p>Student Edition: 25-26 <i>Chapter Test</i> 63 #8-#10 <i>Extra Practice</i> R2 <i>H.O.T. Problems</i> 27 <i>Mid-Chapter Check</i> 31 #6, #7 <i>Real-World Example</i> 25 <i>Study Guide and Review</i> 58 <i>Test Practice</i> 64 #2, #4</p> <p>Teacher Edition: CE 26</p>
<ul style="list-style-type: none"> • Compare and order numbers to 1,000 	<p>Student Edition: 34-36, 38-40 <i>Chapter Test</i> 63 #12-#15 <i>Extra Practice</i> R3, R4 <i>H.O.T. Problems</i> 37, 41 <i>Real-World Example</i> 34, 35, 38, 39 <i>Real-World Problem Solving</i> 40 <i>Study Guide and Review</i> 60 <i>Test Practice</i> 37</p> <p>Teacher Edition: A 37, 41; AE 35, 39; ATS 36, 39; CE 40; I 38; IWO 34B, 38B</p>
<ul style="list-style-type: none"> • Identify whether any whole number is odd or even 	<p>Student Edition: <i>Concepts and Skills</i> R64</p> <p>Teacher Edition: SGO 184B</p>
<ul style="list-style-type: none"> • Understand the various uses of numbers. Counting, measuring, labeling (e.g., numbers on baseball uniforms) 	<p>Student Edition: <i>Real-World Math</i> 43, 87, 123, 183, 227, 275, 311, 361, 405, 443, 499, 541, 586, 613, 661</p>
<ul style="list-style-type: none"> • Read and write ordinal numbers first to fiftieth 	<p>See Math Connects 4 © 2009.</p> <p>Teacher Edition: 5MC 332A</p>

STANDARDS	PAGE REFERENCES
ADDITION AND SUBTRACTION	
<ul style="list-style-type: none"> Relate addition to subtraction; subtraction to addition 	<p>Student Edition: <i>Real-World Example</i> 11, 112, 119, 135, 139</p> <p>Teacher Edition: ATS 112; I 111</p>
MULTIPLICATION AND DIVISION	
<ul style="list-style-type: none"> Explore the meaning of multiplication through child centered activities 	<p>Student Edition: <i>Explore</i> 157-158, 201-202 <i>Extend</i> 165-166</p> <p>Teacher Edition: IC 198; IWO 159B; SGO 159B</p>
<ul style="list-style-type: none"> Relate multiplication to addition 	<p>Student Edition: <i>Explore</i> 157-158 <i>Real-World Example</i> 159, 162, 168, 174, 179, 204, 206 <i>Test Practice</i> 196 #4</p> <p>Teacher Edition: IC 154; T 159</p>
<ul style="list-style-type: none"> Discover and explain what happens when 1 and 0 are factors of multiplication 	<p>Student Edition: 186-187 <i>Extra Practice</i> R13 <i>Mid-Chapter Check</i> 195 #21 <i>Real-World Example</i> 186 <i>Study Guide and Review</i> 194 <i>Test Practice</i> 188, 196 #2</p> <p>Teacher Edition: A 188; ATS 187; FMB 186A</p>
<ul style="list-style-type: none"> Understand division using concrete materials on real world – child centered - problems 	<p>Student Edition: <i>Explore</i> 251-252, 295-296 <i>Real-World Example</i> 253</p> <p>Teacher Edition: ATS 254; H 248H, 292H; S 292H; SS 248H</p>
<ul style="list-style-type: none"> Show division as a way of sharing equally 	<p>Student Edition: <i>Explore</i> 251-252 <i>Real-World Example</i> 253, 264, 270, 297, 300, 313, 317</p> <p>Teacher Edition: ELL 253B; I 253, 297; T 253, 264</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Demonstrate division by using manipulatives 	<p>Student Edition: <i>Explore</i> 251-252, 295-296 <i>Extend</i> 267</p> <p>Teacher Edition: ATS 254, 265, 271, 279, 298, 313; I 253, 264, 270, 278, 282, 297, 316; SGO 282B, 297B; T 253, 264, 270, 278, 282</p>
<ul style="list-style-type: none"> Use tables, patterns, halving, and lots of manipulatives to provide meaning for division 	<p>Student Edition: <i>Big Idea</i> 248 <i>Explore</i> 251-252, 295-296 <i>Extend</i> 267-268 <i>Real-World Example</i> 253, 254, 264, 270, 297, 300, 306, 313, 316, 317</p> <p>Teacher Edition: ATS 254, 265, 279, 298; I 253, 264, 278, 282; SGO 253B, 282B; T 253, 264, 278</p>
FRACTIONS	
<ul style="list-style-type: none"> Identify fractions as part of a whole using concrete materials with child centered activities 	<p>Student Edition: <i>Explore</i> 559-560</p> <p>Teacher Edition: H 556H; I 561; IC 556; IWO 561B; SS 556H</p>
<ul style="list-style-type: none"> Compare common equivalent fractions using concrete and representative material 	<p>Student Edition: <i>Example</i> 572 <i>Explore</i> 570-571 <i>Extend</i> 575</p> <p>Teacher Edition: A 574; ATS 573; I 570, 572; NM 574; T 572</p>
<ul style="list-style-type: none"> Recognize, read and write fractional parts of a group whose denominators are: 2, 3, 4, 5, 6, 8, and 10 $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$....) 	<p>Student Edition: 564-566 <i>Chapter Test</i> 595 #9, #13 <i>Data File</i> 566 <i>Extra Practice</i> R35 <i>Hands-On Mini Activity</i> 564 <i>H.O.T. Problems</i> 567 <i>Mid-Chapter Check</i> 577 #7 <i>Real-World Example</i> 564, 565 <i>Study Guide and Review</i> 591 #11-#13 <i>Test Practice</i> 567, 596 #2, #12</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Understand and recognize the meaning and word for numerator and denominator. 	<p>Student Edition: 561 <i>Chapter Test</i> 595 #1 <i>Glossary</i> R83, R92 <i>Hands-On Mini Activity</i> 564 <i>H.O.T. Problems</i> 567</p> <p>Teacher Edition: A 563</p>
<ul style="list-style-type: none"> Explore equivalent fractions ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$) 	<p>Student Edition: 572-573 <i>Chapter Test</i> 595 #2, #7 <i>Example</i> 572 <i>Explore</i> 570-571 <i>Extend</i> 575 <i>Extra Practice</i> R36 <i>Game Time</i> 576 <i>H.O.T. Problems</i> 574 <i>Study Guide and Review</i> 592 <i>Test Practice</i> 574, 596 #6, #13</p> <p>Teacher Edition: A 574; ATS 573; I 570, 572; NM 574; SGO 572B; T 572</p>
MONEY	
<ul style="list-style-type: none"> Compare amounts; make change 	<p>Student Edition: 52-54 <i>H.O.T. Problems</i> 55, 120 <i>Mid-Chapter Check</i> 121 #16 <i>Real-World Math</i> 123 #6</p> <p>Teacher Edition: A 55; ATS 119; ELL 118B; IWO 118B; T 52</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Add money 	<p>Student Edition: 82-84 <i>Chapter Test</i> 105 #9, #12 <i>Concepts and Skills</i> R65 <i>Extra Practice</i> R6 <i>H.O.T. Problems</i> 85 <i>Real-World Example</i> 82, 83 <i>Real-World Problem Solving</i> 84 <i>Study Guide and Review</i> 103 <i>Test Practice</i> 85, 106 #1, #13</p> <p>Teacher Edition: A 85; AE 83; ATS 83; ELL 82B; SGO 82B</p>
<ul style="list-style-type: none"> Subtract money 	<p>Student Edition: 118-120 <i>Chapter Test</i> 151 #7 <i>Concepts and Skills</i> R65 <i>Extra Practice</i> R8 <i>Mid-Chapter Check</i> 121 #16-#22 <i>Real-World Example</i> 118, 119 <i>Study Guide and Review</i> 146 <i>Test Practice</i> 152 #2, #9</p> <p>Teacher Edition: A 120; AE 119; ATS 119; ELL 118B; I 118; SGO 118B; T 118</p>
DECIMALS	
<ul style="list-style-type: none"> Explore equivalent money value - \$1.00 = 10 dimes; 20 nickels, 100 pennies; 2 half dollars... 	<p>Student Edition: <i>H.O.T. Problems</i> 55 <i>Key Concept</i> 52</p> <p>Teacher Edition: ATS 54; FMB 618A; I 618; TOD 55</p>

STANDARDS	PAGE REFERENCES
NUMERICAL OPERATION	
ADDITION AND SUBTRACTION	
<ul style="list-style-type: none"> Perform two and three digit addition with regrouping 	<p>Student Edition: 78-80, 92-94 <i>Chapter Test</i> 105 #6-#9 <i>Data File</i> 80 <i>Explore</i> 90-91 <i>Extra Practice</i> R6, R7 <i>Hands-On Mini Activity</i> 78 <i>Mid-Chapter Check</i> 81 #12, #14-#16 <i>Real-World Example</i> 78, 92, 93 <i>Study Guide and Review</i> 102, 104 <i>Test Practice</i> 106 #2</p> <p>Teacher Edition: A 80, 94; AE 79, 93; ATS 79, 93; I 78, 92; IWO 78B, 92B; SGO 78B; T 92</p>
<ul style="list-style-type: none"> Perform two and three digit addition without regrouping 	<p>Student Edition: 79-80 <i>Data File</i> 80 <i>Example</i> 79 <i>Extra Practice</i> R6 <i>Mid-Chapter Check</i> 81 #7, #13 <i>Study Guide and Review</i> 102 #20 <i>Test Practice</i> 106 #1</p> <p>Teacher Edition: A 80; AWR 79</p>
<ul style="list-style-type: none"> Perform two and three digit subtraction with regrouping 	<p>Student Edition: 112-113, 128-130 <i>Big Idea</i> 108 <i>Chapter Test</i> 151 #7, #10 <i>Explore</i> 126-127 <i>Extra Practice</i> R8, R9 <i>H.O.T. Problems</i> 131 <i>Real-World Example</i> 112, 128, 129 <i>Real-World Problem Solving</i> 113, 130 <i>Study Guide and Review</i> 145 #8, #9, #11, #12 <i>Test Practice</i> 131, 153 #8, #10</p> <p>Teacher Edition: A 113; AE 129; CE 129; I 128; NM 113; T 111, 128</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Perform two and three digit subtraction without regrouping 	<p>Student Edition: 112-113, 130 #9-#12 <i>Chapter Test</i> 151 #9 <i>Real-World Example</i> 111 <i>Study Guide and Review</i> 145 #6, #7, #10</p> <p>Teacher Edition: I 111, 128</p>
<ul style="list-style-type: none"> Subtract three digit numbers with regrouping across zeros 	<p>Student Edition: 138-140 <i>Extra Practice</i> R10 <i>H.O.T. Problems</i> 141 <i>Real-World Example</i> 138, 139 <i>Study Guide and Review</i> 149 <i>Test Practice</i> 152 #2</p> <p>Teacher Edition: A 141; AE 139; ATS 140; IWO 138B; SGO 138B; T 138</p>
<ul style="list-style-type: none"> Add and subtract money to three digits 	<p>Student Edition: 82-84, 118-120, 129 <i>Concepts and Skills</i> R65 <i>Extra Practice</i> R6, R8 <i>H.O.T. Problems</i> 85, 131 <i>Real-World Example</i> 82, 83, 93, 118, 119, 129 <i>Real-World Problem Solving</i> 84</p> <p>Teacher Edition: A 85; ATS 119, 129; I 118; SGO 82B; T 118</p>
MULTIPLICATION AND DIVISION	
<ul style="list-style-type: none"> Multiply two by one digit (24x3) 	<p>Student Edition: 644-646, 652-654 <i>Big Idea</i> 632 <i>Example</i> 645 <i>Explore</i> 650-651 <i>Extra Practice</i> R40 <i>Real-World Example</i> 644, 645, 652, 653 <i>Study Guide and Review</i> 664, 665 <i>Test Practice</i> 647, 668 #1, #11, #12</p> <p>Teacher Edition: A 655; AE 645, 653; ATS 646, 653; SGO 644B, 652B; T 652</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Know with accuracy and speed – by the end of Grade the - multiplication facts to 9 	<p>Student Edition: <i>Explore</i> 201-202 <i>Facts Practice</i> 177, 189, 210, 225, R46, R47</p>
ESTIMATION	
<ul style="list-style-type: none"> Judge without counting whether a set of objects has less than, more than, or the same number of objects as a reference set. 	<p>The following references can be used in classroom activity to meet the objective.</p> <p>Student Edition: 34-36</p> <p>Teacher Edition: I 38; IWO 34B</p>
<ul style="list-style-type: none"> Use concrete and semi-concrete activities to estimate quantities of 10, 100, 1000 	<p>The following references can be used in classroom activity to meet the objective.</p> <p>Teacher Edition: ELL 72B; IWO 48B; SGO 48B</p>
<ul style="list-style-type: none"> Estimate numbers up to 500 	<p>Student Edition: 44-46 <i>Game Time</i> 47 <i>Real-World Example</i> 44, 45, 74, 75, 114, 640, 641</p> <p>Teacher Edition: AGO 44B, T 44</p>
<ul style="list-style-type: none"> Construct and use a variety of estimation strategies (e.g., rounding and mental math) for estimating both quantities and the result of computations. 	<p>Student Edition: 44-46, 74-76, 114-116, 640-642 <i>Are You Ready</i> 68 #12-#23, 110 #11-#22 <i>Chapter Test</i> 63 #16, #17, #19, 106 #4, #5, 151 #5, #6, 667 #9, #10, #13-#15 <i>Data File</i> 116 <i>Example</i> 75 <i>Game Time</i> 47 <i>H.O.T. Problems</i> 117, 642 <i>Real-World Example</i> 44, 45, 74, 75, 114, 115, 640, 641 <i>Study Guide and Review</i> 61, 62, 102, 145, 664 <i>Test Practice</i> 65 #3, #8, 77, 107 #9, 117, 152 #4, #11, 668 #4, #11</p> <p>Teacher Edition: A 51, 77; AE 49, 75; ATS 50, 75, 115, 641; FMB 640A; I 48, 114, 640; SGO 44B, 48B, 640B; SS 14H; T 48, 114</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer. 	<p>Student Edition: 72-73 <i>Mid-Chapter Check</i> 81 #7 <i>Study Guide and Review</i> 101</p> <p>Teacher Edition: A 73; ATS 73; IWO 72B; T 72</p>
<p>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.</p>	
<p>Building upon knowledge and skills gained in preceding grades, by the end of Grade 3, students will:</p>	
<p>GEOMETRIC PROPERTIES</p>	
<ul style="list-style-type: none"> Identify and describe spatial relationships of two or more objects in space 	<p>See <i>Math Connects 4</i> © 2009.</p> <p>Student Edition: 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>Teacher Edition: AC 11; APK 10; FA 420; ITC 356; TDF 11; WIM 11</p>
<ul style="list-style-type: none"> Use concrete materials to show: Direction, orientation, and perspectives (e.g., which object is on your left when you are standing here) 	<p>This objective can be met through classroom discussion and activities.</p>
<ul style="list-style-type: none"> Compare and contrast relative shapes and sizes 	<p>Student Edition: 484-485 <i>Are You Ready</i> 466 <i>Concepts and Skills</i> R73 <i>Example</i> 484 <i>Extra Practice</i> R30 <i>H.O.T. Problems</i> 485</p> <p>Teacher Edition: ATS 485; ELL 484B; FMB 484A; I 484; T 484</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Identify and describe relationships among two and three dimensional shapes 	<p>The following references can be used in classroom discussion to meet this objective.</p> <p>Student Edition: <i>Example</i> 467, 468 <i>H.O.T. Problems</i> 470 #28, #31, 475 #32-#34 <i>Real-World Example</i> 472</p> <p>Teacher Edition: A 471, 475; ATS 469; CE 470; ELL 472B; I 472; SGO 472B; T 467, 472; W 464G</p>
<ul style="list-style-type: none"> Use properties of standard two - dimensional and three-dimensional shapes to identify, classify and describe the shapes by: <ol style="list-style-type: none"> Their parts: Vertex, edge, face, side, angle 2D figures – square, rectangle, circle, triangle, pentagon, hexagon, octagon 3D figures – cube, rectangular prism, sphere, cone, cylinder, and pyramid 	<p>Student Edition: 467-470, 472-475 <i>Chapter Test</i> 507 #1-#7 <i>Example</i> 467, 468, 473 <i>Extra Practice</i> R29 <i>Game Time</i> 482 <i>H.O.T. Problems</i> 470, 475 <i>Key Concepts</i> 467 <i>Mid-Chapter Check</i> 483 #1-#6, #8 <i>Real-World Example</i> 489 <i>Start Smart</i> 10-11 <i>Study Guide and Review</i> 501 <i>Test Practice</i> 471, 508 #3, #9, #10, #12</p> <p>Teacher Edition: AE 468; ATS 469, 473; I 467, 472; IWO 467B; T 472; W 464G</p>
<ul style="list-style-type: none"> Identify, describe and study the relationship among two dimensional shapes: <ol style="list-style-type: none"> Same size; same shape Lines of symmetry 	<p>Student Edition: 484-485, 488-490 <i>Example</i> 484, 488 <i>Extend</i> 491 <i>Extra Practice</i> R30, R31 <i>H.O.T. Problems</i> 485, 490 <i>Real-World Example</i> 489</p> <p>Teacher Edition: A 485, 490; ATS 485, 489; SGO 488B; T 484, 488</p>
<ul style="list-style-type: none"> Understand and apply concepts involving lines, angles, and circles Line, line segment, endpoint 	<p>Student Edition: <i>Concepts and Skills</i> R68, R69</p>

STANDARDS	PAGE REFERENCES
TRANSFORMING SHAPES	
<ul style="list-style-type: none"> Describe and use geometric transformations (slide, flip, turn). 	<p>Student Edition: <i>Concepts and Skills</i> R74</p> <p>Teacher Edition: SGO 478B, 484B</p>
<ul style="list-style-type: none"> Investigate the occurrence of geometry in nature and art. 	<p>Teacher Edition: A 464G; H 464H; IWO 484B, 488B</p>
COORDINATE GEOMETRY	
<ul style="list-style-type: none"> Locate and name points in the first quadrant on a coordinate grid. 	<p>Student Edition: 494-496, 497 #25 <i>Extra Practice</i> R32 <i>H.O.T. Problems</i> 496 <i>Real-World Example</i> 494, 495 <i>Study Guide and Review</i> 506</p> <p>Teacher Edition: A 497; AE 495; ATS 495; IWO 494B; NM 497; SGO 494B; T 494</p>
UNITS OF MEASUREMENT	
<ul style="list-style-type: none"> Understand that everyday objects have a variety of attributes, each of which can be measured in many ways. 	<p>Student Edition: 378, 386 <i>Explore</i> 373-374, 384-385</p> <p>Teacher Edition: ATS 388; CP 370; IWO 378B; SGO 375B; T 384</p>
<ul style="list-style-type: none"> Select and use appropriate standard units of measure and measurement tools to solve real-life problems. 	<p>Student Edition: 378, 386 <i>Real-World Example</i> 378, 386, 387</p> <p>Teacher Edition: A 381, 389; ATS 380, 389; CE 380; FMB 378A; I 378; IWO 378B, 386B; T 386; TOD 389</p>
<ul style="list-style-type: none"> Incorporate estimation in measurement activities (e.g., estimate before measuring). 	<p>Student Edition: 376-377, 379-380, 388 <i>Explore</i> 373-374, 384-385 <i>Real-World Example</i> 375, 376, 379, 387</p> <p>Teacher Edition: AR 370I; I 373, 378; IC 370; SGO 378B</p>

STANDARDS	PAGE REFERENCES
LENGTH	
<ul style="list-style-type: none"> Measure length of a body part (foot, hand) and use this to determine actual measurements of various items 	<p>Student Edition: 386 <i>Chapter Test</i> 417 #1</p> <p>Teacher Edition: ELL 378B; FMB 378A; I 375; SGO 378B</p>
<ul style="list-style-type: none"> Length – fraction of an inch $\frac{1}{2}$, $\frac{1}{4}$ 	<p>Student Edition: 375-377 <i>Chapter Test</i> 417 #3, #4 <i>Explore</i> 373-374 <i>Extra Practice</i> R24 <i>Mid-Chapter Check</i> 391 #1, #2 <i>Real-World Example</i> 375, 376 <i>Test Practice</i> 418 #2, #12</p> <p>Teacher Edition: A 370I; ATS 376; CE 376; IWO 375B; SGO 375B</p>
<ul style="list-style-type: none"> Area – square inch, square centimeter 	<p>Student Edition: 398, LA18-LA20 <i>Explore</i> 396-397</p> <p>Teacher Edition: A LA21; ATS 399; I 398, LA18; T 398</p>
<ul style="list-style-type: none"> Measure various lengths in inches, feet, yards 	<p>Student Edition: 376 #1, #2, 377 #5-#9 <i>Explore</i> 373-374 <i>Real-World Example</i> 375, 376, 379</p> <p>Teacher Edition: ATS 376; ELL 375B; H 370J; SGO 378B; T 378; W 370I</p>
<ul style="list-style-type: none"> Measure various lengths to nearest centimeters and meters 	<p>Student Edition: 386-388 <i>Explore</i> 384-385 <i>Test Practice</i> 419 #8</p> <p>Teacher Edition: ELL 386B; I 386; SGO 386B</p>

STANDARDS	PAGE REFERENCES
CAPACITY	
<ul style="list-style-type: none"> Measure fluid ounce, cup, gallon, 	<p>Student Edition: <i>Explore</i> 423-424 <i>Game Time</i> 429</p> <p>Teacher Edition: ATS; 426; ELL 425B; T 423</p>
<ul style="list-style-type: none"> Measure liquids in milliliter 	<p>Student Edition: 432 <i>Hands-On Mini Activity</i> 432</p> <p>Teacher Edition: ELL 432B; I 432; SGO 432B; SS 420H</p>
MASS	
<ul style="list-style-type: none"> Measure food and drink in grams, kilograms 	<p>Student Edition: 444 <i>Hands-On Mini Activity</i> 445</p> <p>Teacher Edition: ATS 446; I 444</p>
WEIGHT	
<ul style="list-style-type: none"> Measure weight in ounces 	<p>The following page references discuss ounces and pounds and can be used to meet this objective.</p> <p>Student Edition: 438</p> <p>Teacher Edition: A 441; ELL 438B; I 438; IWO 438B; S 420H; W 420G</p>
MONEY	
<ul style="list-style-type: none"> Express money values using appropriate decimal terms 	<p>Student Edition: 618-620 <i>Chapter Test</i> 629 #6, #7, #12, #13 <i>Explore</i> 616-617 <i>Extra Practice</i> R38 <i>H.O.T. Problems</i> 621 <i>Key Concepts</i> 618 <i>Real-World Example</i> 619 <i>Study Guide and Review</i> 627</p> <p>Teacher Edition: ELL 618B</p>

STANDARDS	PAGE REFERENCES
TIME	
<ul style="list-style-type: none"> Determine elapsed time given start and finish to nearest hour during same twelve hour period 	<p>The following references can be used in classroom discussion to meet this objective.</p> <p>Student Edition: 455 #13 <i>Chapter Test</i> 461 #11 <i>Test Practice</i> 463 #7</p>
<ul style="list-style-type: none"> Read time on an analog clock to the nearest minute 	<p>Student Edition: 455 #3, #4, #9-#12 <i>Example</i> 454 <i>Extra Practice</i> R29 <i>H.O.T. Problems</i> 455 <i>Study Guide and Review</i> 460</p> <p>Teacher Edition: A 455; ATS 455; IWO 454B; SGO 454B; T 454</p>
TEMPERATURE	
<ul style="list-style-type: none"> Read thermometer in Fahrenheit and Celsius to nearest degree 	<p>Student Edition: 408-410 <i>Chapter Test</i> 417 #11 <i>Extra Practice</i> R26 <i>Real-World Example</i> 408 <i>Study Guide and Review</i> 416 <i>Test Practice</i> 411, 462 #1</p> <p>Teacher Edition: AE 409; ATS 409; I 408; SGO 408B; T 408</p>
ESTIMATION	
<ul style="list-style-type: none"> Estimate weight in ounces, 	<p>The following page references discuss ounces and pounds and can be used to meet this objective.</p> <p>Student Edition: 438, 439 #4, 440 #14, #16 <i>Extra Practice</i> R28 <i>Real-World Example</i> 439 <i>Study Guide and Review</i> 459</p> <p>Teacher Edition: IWO 438B</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Estimate capacity using cups, gallons, millimeters 	<p>The following page references use more capacity units of measure and can be used to meet this objective.</p> <p>Student Edition: 425-427, 432-434 <i>Explore</i> 423-424 <i>Extra Practice</i> R26, R27 <i>Game Time</i> 429 <i>Real-World Example</i> 426, 433 <i>Study Guide and Review</i> 457 #7-#9, 458 #12, #13 <i>Test Practice</i> 428, 462 #3</p> <p>Teacher Edition: CE 427; I 425</p>
<ul style="list-style-type: none"> Estimate length, width, height, volume 	<p>Student Edition: 376-377, 380, 388, 451-452 <i>Example</i> 451 <i>Explore</i> 373-374, 384-385, 448-449 <i>Real-World Example</i> 379, 387 <i>Study Guide and Review</i> 413 #6</p> <p>Teacher Edition: I 378</p>
<ul style="list-style-type: none"> Estimate elapsed time 	<p>The following references can be used in classroom discussion to meet this objective.</p> <p>Student Edition: 454-455</p>
MEASURING GEOMETRIC OBJECTS	
<ul style="list-style-type: none"> Find area of objects using one inch squares and centimeter squares on graph paper 	<p>The following page references include the use of geoboards to find area and may be used to meet this objective.</p> <p>Student Edition: 398-400 <i>Example</i> 398 <i>Explore</i> 396-397 <i>Extra Practice</i> R25 <i>Real-World Example</i> 399 <i>Test Practice</i> 401</p> <p>Teacher Edition: AE 399; ATS 399; IWO 398B; SGO 398B; TOD 401</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Determine the area of simple 2D shapes on a square grid. 	<p>Student Edition: 398-400 <i>Example</i> 398 <i>Explore</i> 396-397 <i>Extra Practice</i> R25</p> <p>Teacher Edition: AE 399; ATS 399; SGO 398B</p>
<ul style="list-style-type: none"> Use a ruler to measure the perimeter of objects. Note: Yarn is great for measuring larger objects! 	<p>Student Edition: <i>Hands-On Mini Activity</i> 392</p> <p>Teacher Edition: ELL 392B; I 392</p>
<ul style="list-style-type: none"> Measure and compare the volume of 3D objects using materials such as rice or cubes. 	<p>Student Edition: 450-452 <i>Explore</i> 448-449 <i>Extra Practice</i> R28 <i>Real-World Example</i> 450 <i>Study Guide and Review</i> 460 <i>Test Practice</i> 463 #8, #12</p> <p>Teacher Edition: A 420G; ATS 451; IWO 450B; T 450</p>
<p>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.</p>	
<p>Building upon knowledge and skills gained in preceding grades, by the end of Grade 3, students will:</p>	
<p>PATTERNS</p>	
<ul style="list-style-type: none"> Recognize, describe, extend, and create patterns using concrete materials, pictures, rhythms, whole numbers.... 	<p>Student Edition: 17-19, 478-480 <i>Are You Ready</i> 16, 156, 200 <i>Chapter Test</i> 63 #3, #4 <i>Example</i> 17 <i>Extra Practice</i> R2, R30 <i>Mid-Chapter Check</i> 31 #1, #2, #15 <i>Real-World Example</i> 18, 478, 479 <i>Study Guide and Review</i> 57 <i>Test Practice</i> 65 #5</p> <p>Teacher Edition: A 481; AE 479; I 17, 478; ATS 479; IWO 17B, 478B; SGO 478B</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Describe patterns using words and symbols (e.g. add two....) 	<p>Student Edition: 17-19 <i>Are You Ready</i> 16, 200 <i>Chapter Test</i> 63 #3, #4 <i>Example</i> 17 <i>Extra Practice</i> R2 <i>Mid-Chapter Check</i> 31 #1, #2, #15 <i>Real-World Example</i> 18 <i>Study Guide and Review</i> 57 <i>Test Practice</i> 368 #4</p> <p>Teacher Edition: A 19; AE 18; T 17; TOD 19</p>
<ul style="list-style-type: none"> Discover whole number patterns that grow or shrink as a result of repeatedly adding, subtracting, multiplying by, or dividing by a fixed number (e.g. 5, 8, 11...or 800,400,200...) 	<p>Student Edition: <i>Are You Ready</i> 16, 200 <i>Chapter Test</i> 63 #3, #4 <i>Example</i> 17 <i>Extra Practice</i> R2 <i>Mid-Chapter Check</i> 31 #1, #2, #15 <i>Real-World Example</i> 18 <i>Start Smart</i> 7 <i>Study Guide and Review</i> 57 <i>Test Practice</i> 65 #5</p> <p>Teacher Edition: AE 18; I 17; IWO 17B; T 17</p>
FUNCTIONS AND RELATIONSHIPS	
<ul style="list-style-type: none"> Use concrete and pictorial models to explore the basic concept of a function. Use Input/output tables, T-charts 	<p>Student Edition: 348-351, 356-359 <i>Big Idea</i> 330 <i>Extra Practice</i> R23 <i>H.O.T. Problems</i> 351 <i>Mid-Chapter Check</i> 353 #11 <i>Real-World Example</i> 348, 349, 356, 357 <i>Study Guide and Review</i> 365 #15, 366 #19, #22 <i>Test Practice</i> 368 #1, #9</p> <p>Teacher Edition: AE 349, 357; ATS 350, 358; I 348, 356; IWO 356B; SGO 348B, 356B; T 348</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Represent unknown quantities using symbols, boxes, pictures, blanks $27 + \underline{\quad} = 35$ 	<p>Student Edition: 94 #28-#31, 187 #29-#36, 207 #5-#8, 208 #23-#26, 220 #23-#26, 224 #27-#32, 236 #4-#6, #15-#20, 302 #17-#20, 318 #21-#26 <i>Chapter Test</i> 195 #10, #11, 245 #6-#11 <i>Explore</i> 336-337 <i>Mid-Chapter Check</i> 269 #8-#11, #16, 309 #7-#10, #14, #15 <i>Start Smart</i> 6</p>
<ul style="list-style-type: none"> Explore substitution a number value for letters to find the sum, using concrete and semi-concrete activities ($3+a= _$) if $a=2$; if $a=3$ 	<p>The following reference can be used to meet this objective. Student Edition: 236 #23-#26</p>
MODELING	
<ul style="list-style-type: none"> Recognize and describe change in quantities....from graphs showing temperature, height... 	<p>Student Edition: 530 #10, #13, 534 #8, #10, #11 <i>Real-World Example</i> 532 <i>Study Guide and Review</i> 551 #15 Teacher Edition: T 532</p>
<ul style="list-style-type: none"> Construct and solve simple open sentences involving addition or subtraction ($3 + 6 = \underline{\quad}$) $N = 15-3$ $16 - c = 7$ 	<p>Student Edition: 333-335 <i>Example</i> 334 <i>Extra Practice</i> R21 <i>H.O.T. Problems</i> 335 <i>Real-World Example</i> 333, 334 Teacher Edition: A 335; AE 334; ATS 334; EF 333B; T 333</p>
PROCEDURES	
<ul style="list-style-type: none"> Understand and apply the properties of operations and numbers Commutative (e.g., $3 \times 7 = 7 \times 3$) 	<p>Student Edition: 69-71, 160-161 <i>Chapter Test</i> 105 #1 <i>Extra Practice</i> R5, R11 <i>H.O.T. Problems</i> 71 <i>Key Concept</i> 69, 160 <i>Mid-Chapter Check</i> 81 #1, #5, 167 #7, #8, #11 <i>Real-World Example</i> 160 <i>Study Guide and Review</i> 101 #6, 191 #8, #9 Teacher Edition: A 161; AE 70, 160; ATS 70; I 69; T 69; TOD 71</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Associative (e.g. $7+3+2$ can be found by first adding either $7+3$ or $3+2$) 	<p>Student Edition: 69-71, 234-236 <i>Chapter Test</i> 105 #3 <i>Example</i> 234 <i>Extra Practice</i> R5, R16 <i>H.O.T. Problems</i> 71, 237 <i>Key Concept</i> 69, 234 <i>Mid-Chapter Check</i> 81 #2, #3, #6 <i>Real-World Example</i> 70, 235 <i>Study Guide and Review</i> 101 #8, 244</p> <p>Teacher Edition: ATS 70, 235; I 234; IWO 69B; R 66G; T 69, 234; TOD 71</p>
<ul style="list-style-type: none"> Identify element for multiplication is 1 (e.g. $1 \times 8 = 8$) 	<p>Student Edition: 186-187 <i>Chapter Test</i> 195 #17, #21 <i>Extra Practice</i> R13 <i>H.O.T. Problems</i> 188 <i>Real-World Example</i> 186 <i>Study Guide and Review</i> 194</p> <p>Teacher Edition: A 188; ATS 187; FMB 186A; IWO 186B; T 186</p>
<ul style="list-style-type: none"> Any number multiplied by zero is zero ($2 \times 0 = 0$) 	<p>Student Edition: 186-187 <i>Chapter Test</i> 195 #18 <i>Example</i> 186 <i>Extra Practice</i> R13 <i>H.O.T. Problems</i> 188 <i>Study Guide and Review</i> 194 <i>Test Practice</i> 196 #2</p> <p>Teacher Edition: A 188; ATS 187; FMB 186A; IWO 186B; T 186</p>
<ul style="list-style-type: none"> Understand and use the concepts of equals, less than, and greater than to describe relations 	<p>Student Edition: 34-36 <i>Real-World Example</i> 35, 44, 45</p> <p>Teacher Edition: A 37; AE 35; I 34; IWO 34B</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Compare numbers using symbols (=, <, >.) 	<p>Student Edition: 34-36 <i>Chapter Test</i> 63 #11, #12 <i>Extra Practice</i> R3 <i>Real-World Example</i> 34, 35, 580 <i>Study Guide and Review</i> 60 <i>Test Practice</i> 41</p> <p>Teacher Edition: CE 581; SGO 34B</p>
<p>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.</p>	
<p>Building upon knowledge and skills gained in preceding grades, by the end of Grade 3, students will:</p>	
<p>DATA ANALYSIS</p>	
<ul style="list-style-type: none"> Collect, generate, organize, and display data in response to questions, claims, or curiosity. Collect data from the classroom environment 	<p>Student Edition: <i>Explore</i> 513-514 <i>H.O.T. Problems</i> 530 #16, 535 #15</p> <p>Teacher Edition: CP 510; I 515, 526, 528, 536; IWO 515B, 528B, 536B; S 510H, SGO 515B, 528B, 536B; SS 510H</p>
<ul style="list-style-type: none"> Read, interpret, construct, analyze, generate questions about, and draw inferences from displays of data. 	<p>Student Edition: 518-520, 532-534 <i>Extra Practice</i> R32, R33 <i>Real-World Example</i> 518, 519, 532, 533 <i>Real-World Math</i> 541 <i>Study Guide and Review</i> 549, 551</p> <p>Teacher Edition: ATS 516, 519, 533; I 518, 532; IWO 528B, 532B; SGO 518B, 532B; T 518, 532</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Read, generate pictograph, bar graph, table 	<p>Student Edition: 515-517, 528-530 <i>Are You Ready</i> 512 <i>Big Idea</i> 510 <i>Chapter Test</i> 553 #3, #4 <i>Explore</i> 513-514, 526-527 <i>Extra Practice</i> R32, R33 <i>Mid-Chapter Check</i> 525 #1, #2 <i>Real-World Example</i> 515, 528, 529 <i>Study Guide and Review</i> 549, 550 <i>Test Practice</i> 531, 554 #1, #5</p> <p>Teacher Edition: AE 516, 529; ATS 529; I 515, 528; IWO 515B, 528B; SGO 515B, 528B; SS 510H; T 528</p>
PROBABILITY	
<ul style="list-style-type: none"> Use everyday events and chance devices, such as dice, coins, and unevenly divided spinners, to explore concepts of probability: Likely, unlikely, certain, possible, impossible, more likely, less likely, equally likely 	<p>Student Edition: 542-544 <i>Chapter Test</i> 553 #6-#10 <i>Data File</i> 544 <i>Key Concept</i> 542 <i>H.O.T. Problems</i> 545 <i>Real-World Example</i> 542, 543 <i>Study Guide and Review</i> 552 <i>Test Practice</i> 554 #4, #9, #10</p> <p>Teacher Edition: AE 543; ATS 543; ELL 542B; I 542; SGO 542B; T 542</p>
<ul style="list-style-type: none"> 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?) 	<p>Student Edition: 542-544 <i>Real-World Example</i> 542, 543</p> <p>Teacher Edition: A 545; AE 543; NM 545</p>
<ul style="list-style-type: none"> Notice what students think will happen? (intuitive skills) 	<p>Teacher Edition: I 542; IWO 542B; SGO 542B; T 542</p>
<ul style="list-style-type: none"> Collect data and use that data to predict the probability (experimental) 	<p>Teacher Edition: AR 510G; ATS 543; H 510H; IWO 542B; T 542</p>

STANDARDS	PAGE REFERENCES
DISCRETE MATHEMATICS – SYSTEMATIC LISTING AND COUNTING	
<ul style="list-style-type: none"> Represent and classify data according to attributes, such as shape or color, and relationships: 	<p>Student Edition: 472-473 <i>Are You Ready</i> 466 <i>Test Practice</i> 481</p> <p>Teacher Edition: A 475; I 472; IWO 467B; T 467, 472</p>
<ul style="list-style-type: none"> Create Venn diagrams based on math data 	<p>See <i>Math Connects 4</i> © 2009.</p> <p>Student Edition: 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>Teacher Edition: AE 33, 99, 125, 373, 377; ATS 99, 373, 377; FA 34, 101, 375, 378</p>
<ul style="list-style-type: none"> Put digits in numerical order 	<p>Student Edition: <i>Real-World Example</i> 35, 38, 39</p> <p>Teacher Edition: ATS 36</p>
<ul style="list-style-type: none"> Represent all possibilities for a simple counting situation in an organized way and draw conclusions from this representation: 	<p>Student Edition: 522-523 <i>Extra Practice</i> R33 <i>Mid-Chapter Check</i> 525 #6 <i>Study Guide and Review</i> 550</p> <p>Teacher Edition: A 523; ATS 523; ELL 522B, IWO 522B; SGO 522B; T 522</p>
<ul style="list-style-type: none"> Create and organized lists, charts on real world data 	<p>Student Edition: 522-523</p> <p>Teacher Edition: IWO 522B</p>
DISCRETE MATHEMATICS – VERTEX-EDGE GRAPHS AND ALGORITHMS	
<ul style="list-style-type: none"> Follow, devise, and describe practical sets of directions (e.g., to add two 2-digit numbers). 	<p>Student Edition: <i>Example</i> 645 <i>Real-World Example</i> 78, 92, 93, 96, 97, 111, 112, 128, 129, 134, 135, 138, 139, 652, 653, 656, 657</p> <p>Teacher Edition: CE 79, 98, 112, 129; T 92, 128, 134, 138, 652, 656</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Explore vertex-edge graphs: Note the vertex, edge; follow the path 	<p>The following references in Math Connects 4 © 2009 can be used to meet this objective.</p> <p>Student Edition: 124-127, 138, 141, R9</p> <p>Teacher Edition: 5MC 128A; FA 127</p>
<ul style="list-style-type: none"> Find the smallest number of colors needed to color a map. 	<p>This objective can be met through classroom discussion and activities.</p>
<p>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.</p>	
<p>At each grade level, with respect to content appropriate for that grade level, students will</p>	
<p>PROBLEM SOLVING</p>	
<ul style="list-style-type: none"> Learn mathematics through problem solving, inquiry, and discovery. 	<p>Student Edition: <i>Explore</i> 22-23, 90-91, 126-127, 157-158, 251-252, 256-257, 295-296, 336-337, 373-374, 384-385, 396-397, 406-407, 423-424, 448-449, 513-514, 526-527, 559-560, 570-571, 601-602, 616-617, 650-651</p> <p><i>Project</i> P1-P9</p> <p>Teacher Edition: CP 14, 66, 108, 154, 292</p>
<ul style="list-style-type: none"> Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3). <ul style="list-style-type: none"> Open-ended problems Non-routine problems Problems with multiple solutions Problems that can be solved in several ways 	<p>Student Edition: <i>H.O.T. Problems</i> 37, 55, 279, 314, 377, 381, 395, 411, 427, 434, 441, 447, 481, 490, 496, 517, 521, 535, 621</p> <p>Teacher Edition: ATS 437; IWO 228B, 578B; SGO 546B</p>
<ul style="list-style-type: none"> Select and apply a variety of appropriate problem-solving strategies (e.g., “try a simpler problem” or “make a diagram”) to solve problems. 	<p>Student Edition: 20-21, 32-33, 72-73, 88-89, 132-133, 184-185, 212-213, 228-229, 276-277, 304-305, 320-321, 342-343, 354-355, 382-383, 402-403, 430-431, 436-437, 476-477, 486-487, 522-523, 546-547, 568-569, 578-579, 614-615, 622-623, 638-639, 648-649</p>
<ul style="list-style-type: none"> Pose problems of various types and levels of difficulty. 	<p>Teacher Edition: SGO 72B, 88B, 184B, 212B, 276B, 304B, 342B, 354B, 402B, 430B, 436B, 476B, 486B, 522B, 546B, 568B, 578B, 614B, 622B, 638B, 648B</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Monitor their progress and reflect on the process of their problem solving activity. 	Teacher Edition: ATS 21, 89, 213, 229, 277, 321, 343, 355, 403, 431, 437, 477, 487, 523, 547, 579, 615, 639, 649
COMMUNICATION	
<ul style="list-style-type: none"> Use communication to organize and clarify their mathematical thinking, reading and writing, discussions, listening, and questioning 	Teacher Edition: WM 14, 66, 108, 154, 198, 248, 292, 330, 370, 420, 510, 556
<ul style="list-style-type: none"> Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing. 	Student Edition: <i>H.O.T. Problems</i> 46, 51, 71, 80, 205, 389, 538, 563 <i>Writing in Math 5</i> , 13, 19, 23, 30, 37, 46, 80, 89, 127, 136, 158, 161, 216, 252, 257, 266, 269, 279, 283, 296, 299, 377, 397, 434, 441, 455, 496, 514, 530, 563, 577, 583, 595, 621, 647, 658
<ul style="list-style-type: none"> Analyze and evaluate the mathematical thinking and strategies of others. 	Student Edition: <i>H.O.T. Problems</i> 27, 41, 77, 99, 117, 131, 141, 161, 170, 205, 216, 224, 237, 266, 303, 309, 319, 335, 351, 453, 496, 545, 587 <i>Writing in Math 7</i> , 289
<ul style="list-style-type: none"> Use the language of mathematics to express mathematical ideas precisely. 	Student Edition: <i>Chapter Test</i> 105 #16, 195 #22, 289 #19, 367 #10, 417 #16, 553 #11 <i>Mid-Chapter Check</i> 81 #17, 121 #22, 643 #15 <i>Test Practice</i> 107 #13, 153 #14, 247 #13, 597 #14, 669 #14 <i>Writing in Math 9</i> , 11, 13, 51, 71, 141, 176, 181, 188, 224, 255, 261, 308, 347, 385, 389, 395, 403, 427, 447, 449, 453, 475, 517, 521, 527, 535, 538, 571, 574, 602, 642, 649, 655

STANDARDS	PAGE REFERENCES
CONNECTIONS	
<ul style="list-style-type: none"> Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry). 	<p>Patterns are discussed in the following references and can be used to meet this objective.</p> <p>Student Edition: 17-19, 212-213, 478-480 <i>Are You Ready</i> 16, 156, 200 <i>Big Idea</i> 330 <i>Example</i> 17 <i>Extra Practice</i> R2, R14, R30 <i>Real-World Example</i> 18, 478, 479 <i>Study Guide and Review</i> 57, 240</p> <p>Teacher Edition: A 19, 481; AE 18, 479; ATS 18, 213, 479; I 17, 478; SGO 212B; T 17, 479</p>
<ul style="list-style-type: none"> 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). 	<p>The following references can be used in classroom discussion and activities to meet this objective.</p> <p>Student Edition: 258-260 <i>Big Idea</i> 598 <i>Explore</i> 256-257, 601-602, 616-617 <i>Game Time</i> 607</p> <p>Teacher Edition: ATS 259; IWO 258B, 608B; SGO 258B, 603B</p>
<ul style="list-style-type: none"> Recognize that mathematics is used in a variety of contexts outside of mathematics. 	<p>Student Edition: <i>Data File</i> 30, 80, 116, 176, 232, 266, 314, 346, 393, 440, 544, 566, 605, 658</p>
<ul style="list-style-type: none"> Apply mathematics in practical situations and in other disciplines. 	<p>Student Edition: <i>Real-World Math</i> 43, 87, 123, 183, 227, 275, 311, 361, 405, 443, 499, 541, 589, 613, 661</p>
<ul style="list-style-type: none"> Trace the development of mathematical concepts over time and across cultures (cf. world languages and social studies standards). 	<p>See <i>Math Connects 4</i> © 2009.</p> <p>Student Edition: 292-293, 458, 642-643</p> <p>Teacher Edition: APK 292, 642; ETS 293; RWM 293; USP 292, 642</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Understand how mathematical ideas interconnect and build on one another to produce a coherent whole. 	<p>Multiplication is discussed in the following references and can be used to meet this objective.</p> <p>Student Edition: 162-164, 168-170, 174-176, 186-188, 203-205, 206-208, 214-216, 218-220, 222-224, 230-232, 644-646, 652-654, 656-658, <i>Facts Practice</i> 177, 189, 210, 225 <i>Real-World Example</i> 162, 163, 168, 174, 186, 203, 204, 206, 207, 214, 215, 218, 219, 222, 223, 230, 644, 645, 652, 653, 656, 657</p> <p>Teacher Edition: ATS 163, 169, 175, 204, 207, 215, 223, 231, 646, 653, 657</p>
REASONING	
<ul style="list-style-type: none"> Recognize that mathematical facts, procedures, and claims must be justified. 	<p>Division is discussed in the following references and can be used to meet this objective.</p> <p>Student Edition: <i>Explore</i> 251-252, 256-257, 295-296 <i>Key Concept</i> 282 <i>Real-World Example</i> 253, 254, 258, 259, 264, 270, 271, 278, 282, 297, 298, 300, 301, 306, 307, 312, 313, 316, 317</p> <p>Teacher Edition: FMB 264A, 270A, 300A, 316A; T 253, 264, 270, 278</p>
<ul style="list-style-type: none"> Use reasoning to support their mathematical conclusions and problem solutions. 	<p>Student Edition: 79-80, 93-94, 98, 119-120, 129-130, 140 <i>Real-World Example</i> 78, 92, 97, 119</p>
<ul style="list-style-type: none"> Select and use various types of reasoning and methods of proof. 	<p>The following references use inverse operations as a method of proof and can be used to meet this objective.</p> <p>Student Edition: 112-113, 119-120, 129-130, 132, 135-136, 140, 262, 276 <i>Real-World Example</i> 111, 112, 119, 139, 270, 316</p>
<ul style="list-style-type: none"> Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions. 	<p>Student Edition: 72, 78, 92, 119, 124, 129, 139, 184, 476, 522, 546, 578, 614, 638, 648, 653</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Make and investigate mathematical conjectures. 	Temperature is discussed in the following references and can be used to meet this objective. Student Edition: <i>Explore</i> 406-407 <i>Writing in Math</i> 407 #6 Teacher Edition: A 407; I 408
<ul style="list-style-type: none"> Counterexamples as a means of disproving conjectures. 	Teacher Edition: SGO 124B, 184B, 234B
<ul style="list-style-type: none"> Verifying conjectures using informal reasoning or proofs. 	Teacher Edition: ELL 430B; E 396B; IWO 124B, 450B; SGO 234B
<ul style="list-style-type: none"> Evaluate examples of mathematical reasoning and determine whether they are valid. 	Teacher Edition: IWO 52B, 124B, 142B, 172B, 356B
REPRESENTATIONS	
<ul style="list-style-type: none"> Create and use representations to organize, record, and communicate mathematical ideas. 	Student Edition: 212-213, 304-305, 430-431, 522-523, 578-579, 638-639 Teacher Edition: A 523, 579; ATS 213, 431; ELL 522B; T 212, 304, 430
<ul style="list-style-type: none"> Concrete representations (e.g., base-ten blocks or algebra tiles) 	Student Edition: <i>Big Idea</i> 108, 248, 632 <i>Explore</i> 22-23, 90-91, 126-127, 157-158, 251-252, 256-257, 295-296, 336-337, 650-651 <i>Get Ready To Learn</i> 635 <i>Hands-On Mini Activity</i> 78 <i>Real-World Example</i> 138, 159, 206, 214, 222, 230, 253, 264, 270, 297, 300, 306, 316, 317, 333, 652 Teacher Edition: I 28, 78, 92, 96, 111, 128, 134, 138, 159, 162, 168, 206, 218, 253, 258, 264, 278, 282, 297, 300, 306, 316, 635, 652, 656; IWO 24B, 78B, 138B, 159B, 253B, 635B, 652B; SGO 128B, 138B, 282B
<ul style="list-style-type: none"> Pictorial representations (e.g., diagrams, charts, or tables) 	Student Edition: 304-305, 528-530, 534, 536-538 <i>Explore</i> 513-514, 526-527 <i>Real-World Example</i> 24, 25, 28, 35, 38, 39

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Symbolic representations (e.g., a formula) 	<p>Student Edition: LA18-LA20 <i>Key Concept</i> LA 18 <i>Real-World Example</i> LA19</p>
<ul style="list-style-type: none"> Graphical representations (e.g., a line graph) 	<p>Student Edition: 494-496, 518-519, 528-534, 536-538 <i>Explore</i> 526-527 <i>Extra Practice</i> R32-R34 <i>Real-World Example</i> 494, 495, 528, 529, 536, 537</p> <p>Teacher Edition: IWO 494B, 536B</p>
<ul style="list-style-type: none"> Select, apply, and translate among mathematical representations to solve problems. 	<p>Student Edition: <i>Key Concept</i> 204 <i>Real-World Example</i> 162, 163, 168, 174, 178, 179, 203, 204, 206, 207, 214, 215, 218, 219, 222, 223, 230, 231</p> <p>Teacher Edition: FMB 162A; I 162; IWO 162B, 218B, 222B; SGO 214B; T 162</p>
<ul style="list-style-type: none"> Use representation to model and interpret physical, social, and mathematical phenomena. 	<p>Teacher Edition: A 510G; S 14H, 420H, 510H; SS 510H, W 420G</p>
TECHNOLOGY	
<ul style="list-style-type: none"> Use technology to gather, analyze, and communicate mathematical information. 	<p>Student Edition: <i>Extend</i> 165-166, 267-268, 491, 575</p>
<ul style="list-style-type: none"> Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information (cf. workplace readiness standard 8.4-D). 	<p>See <i>Math Connects 4</i> © 2009.</p> <p>Student Edition: 68, 131, 335, 421 <i>Technology Activity</i> 68, 131, 335, 421</p>
<ul style="list-style-type: none"> Use graphing calculators and computer software to investigate properties of functions and their graphs. 	<p>See <i>Math Connects 4</i> © 2009.</p> <p>Student Edition: 68, 131, 335, 421 <i>Technology Activity</i> 68, 131, 335, 421</p>
<ul style="list-style-type: none"> Use calculators as problem-solving tools (e.g., to explore patterns, to validate solutions). 	<p>Student Edition: <i>Extend</i> 165-166, 267-268, 491, 575</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> Use computer software to make and verify conjectures about geometric objects. 	Student Edition: <i>Extend</i> 491
<ul style="list-style-type: none"> Use computer-based laboratory technology for mathematical applications in the sciences (cf. science standards) 	This objective can be met through classroom activities and assignments.