



Math Connects

Concepts, Skills, and Problem Solving

Course 1

© 2009

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 6, students will:</p>	
<p>4.1.6 A. Number Sense</p>	
<p>1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 6 pertain to these sets of numbers as well).</p> <ul style="list-style-type: none"> All integers All fractions as part of a whole, as subset of a set, as a location on a number line, and as divisions of whole numbers All decimals 	<p>Student Edition: 121-122, 150-151, 220-222, 225 <i>Check Your Understanding</i> 123 #1-#7, 152 #7, 222 #6 <i>Practice and Problem Solving</i> 123-124 #8-#35, 153 #16-#17, #30-#33, 223 #21-#29, 227 #32-#36 <i>Spiral Review</i> 125 #38-#45, 224 #38 <i>Test Practice</i> 125 #36-#37</p> <p>Teacher Edition: A 125, 151, 152, 224; AE 121, 122, 222; FA 123, 153</p>

STANDARDS	PAGE REFERENCES
<p>2. Recognize the decimal nature of United States currency and compute with money.</p>	<p>Student Edition: 121, 146-147 <i>Check Your Understanding</i> 147 #8, 153 #16-#17 <i>Practice and Problem Solving</i> 27 #7, 52 #20, 55 #6, 159 #40, 165 #34, 215 #11-#12, 255 #7, #13 <i>Practice Test</i> 73 #16, 191 #20</p> <p>Teacher Edition: AE 25, 147</p>
<p>3. Demonstrate a sense of the relative magnitudes of numbers.</p>	<p>Student Edition: 142-143, 220-221, 572-573 <i>Check Your Understanding</i> 143 #1-#6, 222 #1-#5, 572 #1-#9 <i>Practice and Problem Solving</i> 144-145 #7-#35, 223-224 #7-#32, 574-575 #10-#37 <i>Test Practice</i> 145 #36-#38, 224 #33-#35, 575 #32</p> <p>Teacher Edition: A 145, 224, 575; AE 221, 222, 573; FA 143, 573</p>
<p>4. Explore the use of ratios and proportions in a variety of situations.</p>	<p>Student Edition: 314-316, 322-324, 329-331, 365-366 <i>Check Your Understanding</i> 316 #1-#7, 325 #1-#4, 331 #1-#5 <i>Math Lab</i> 320-321 <i>Practice and Problem Solving</i> 317-319 #8-#31, 325-327 #5-#20, 332-333 #6-#26 <i>Test Practice</i> 319 #32-#33, 327 #21-#29, 333 #27-#28</p> <p>Teacher Edition: A 319, 333; AE 315-316 #1-#3, 323-324 #1-#4, 330, 331; EA 318; FA 316, 325, 327</p>
<p>5. Understand and use whole-number percents between 1 and 100 in a variety of situations.</p>	<p>Student Edition: 365-367, 370-372, 401-403 <i>Check Your Understanding</i> 367 #1-#11, 373 #1-#4, 403 #1-#8 <i>Practice and Problem Solving</i> 368-369 #12-#40, 373-374 #5-#18, 404 #9-#30 <i>Spiral Review</i> 375 #20-#22 <i>Test Practice</i> 369 #41-#42, 375 #19, 405 #31-#34</p> <p>Teacher Edition: A 369, 375, 402, 403, 405; AE 366, 367, 371, 372; FA 367, 373</p>

STANDARDS	PAGE REFERENCES
<p>6. Use whole numbers, fractions, and decimals to represent equivalent forms of the same number.</p>	<p>Student Edition: 225-226, 229-230, 378, 406 <i>Check Your Understanding</i> 227 #1-#9, 231 #1-#10, 378 #1-#13 <i>Lesson-by-Lesson Review</i> 239 #16-#27, 241 #44-#52, 407 #7-#13, 408 #18-#26 <i>Practice and Problem Solving</i> 223-224 #7-#32, 231 #11-#30, 378-380 #14-#41 <i>Test Practice</i> 380 #44</p> <p>Teacher Edition: AE 226, 230, 378; FA 227, 231, 379</p>
<p>7. Develop and apply number theory concepts in problem solving situations.</p> <ul style="list-style-type: none"> • Primes, factors, multiples • Common multiples, common factors • Least common multiple, greatest common factor 	<p>Student Edition: 28-29, 197-199, 205-206, 216-217, 225-226 <i>Check Your Understanding</i> 30 #1-#9, 199 #1-#8, 218 #1-#5, 227 #1-#9 <i>Practice and Problem Solving</i> 30-31 #10-#48, 200-201 #9-#39, 218-219 #6-#25, 227-228 #10-#39 <i>Test Practice</i> 31 #49-#50, 201 #40-#42, 219 #26-#27</p> <p>Teacher Edition: A 31, 201, 219; AE 29, 198, 199, 217, 226; FA 30, 199, 218, 227</p>
<p>8. Compare and order numbers.</p>	<p>Student Edition: 142-143, 220-221, 572-573 <i>Check Your Understanding</i> 143 #1-#6, 222 #1-#5, 572 #1-#9 <i>Practice and Problem Solving</i> 144-145 #7-#35, 223-224 #7-#32, 574-575 #10-#37 <i>Test Practice</i> 145 #36-#38, 224 #33-#35, 575 #32</p> <p>Teacher Edition: A 145, 224, 575; AE 221, 222, 573; FA 143, 573</p>
<p>4.1.6 B. Numerical Operations</p>	
<p>1. Recognize the appropriate use of each arithmetic operation in problem situations.</p>	<p>Student Edition: 163-164, 256-258, 282-283 <i>Check Your Understanding</i> 165 #10, 258 #7 <i>Mini-Lab</i> 280-281 <i>Practice and Problem Solving</i> 165 #33-#36, #43, 166 #44-#45, 259 #20-#30, 284-285 #9-#47 <i>Test Practice</i> 166 #47-#48</p> <p>Teacher Edition: AE 258, 283; FA 165, 284</p>

STANDARDS	PAGE REFERENCES
<p>2. Construct, use, and explain procedures for performing calculations with fractions and decimals with:</p> <ul style="list-style-type: none"> • Pencil-and-paper • Mental math • Calculator 	<p>Student Edition: 156-158, 163-164, 169-170, 263-265, 282-283 <i>Check Your Understanding</i> 158 #1-#12, 165 #1-#10, 170 #1-#41, 266 #1-#11, 284 #1-#8 <i>Graphing Calculator Lab</i> 328 <i>Mini-Lab</i> 155, 162 <i>Practice and Problem Solving</i> 159-160 #12-#44, 165-166 #11-#46, 266-268 #12-#49, 284-285 #9-#47 <i>Test Practice</i> 160 #45-#46, 166 #47-#48</p> <p>Teacher Edition: A 268; AE 164, 157, 158, 170, 283; FA 165, 266, 328, 284</p>
<p>3. Use an efficient and accurate pencil-and-paper procedure for division of a 3-digit number by a 2-digit number.</p>	<p>Student Edition: 173-174 <i>Practice and Problem Solving</i> 175 #14, #16, 176 #28</p> <p>Teacher Edition: AE 174</p>
<p>4. Select pencil-and-paper, mental math, or a calculator as the appropriate computational method in a given situation depending on the context and numbers.</p>	<p>Student Edition: 24-26 <i>Check Your Understanding</i> 26 #1-#2 <i>Graphing Calculator Lab</i> 328 #47-#48 <i>Practice and Problem Solving</i> 27 #3-#8 <i>Problem-Solving Investigation</i> 661-662 #1-#15</p> <p>Teacher Edition: A 27, 662; AE 26, 661; FA 48</p>
<p>5. Find squares and cubes of whole numbers.</p>	<p>Student Edition: 32-34 <i>Check Your Understanding</i> 34 #2, #7, #9 <i>Practice and Problem Solving</i> 35-36 #10, #14, #16, #17, #20, #24, #26-#34, #38-#42</p> <p>Teacher Edition: AE 33, 34</p>
<p>6. Check the reasonableness of results of computations.</p>	<p>Student Edition: 24-26, 257, 270-271 <i>Check Your Understanding</i> 26 #1-#2 <i>Practice and Problem Solving</i> 27 #3-#10 <i>Problem-Solving Investigation</i> 184-185 #1-#12</p> <p>Teacher Edition: A 27, 185; AE 26, 184, 271; FA 271</p>

STANDARDS	PAGE REFERENCES
7. Understand and use the various relationships among operations and properties of operations.	<p>Student Edition: 632-633, 636-638 <i>Check Your Understanding</i> 634 #1-#13, 638 #1-#10 <i>Practice and Problem Solving</i> 634-635 #14-#44, 639-640 #11-#49 <i>Test Practice</i> 634 #45-#46, 640 #50-#51</p> <p>Teacher Edition: AE 633, 636, 638; FA 638</p>
8. Understand and apply the standard algebraic order of operations for the four basic operations, including appropriate use of parentheses.	<p>Student Edition: 37-38, 632-633, 636-638 <i>Check Your Understanding</i> 39 #1-#7, 634 #1-#13, 638 #1-#10 <i>Practice and Problem Solving</i> 39-40 #8-#33, 634-635 #14-#44, 639-640 #11-#49 <i>Test Practice</i> 39 #34, 634 #45-#46, 640 #50-#51</p> <p>Teacher Edition: AE 28, 633, 636, 638; FA 39, 638</p>
4.1.6 C. Estimation	
1. Use a variety of strategies for estimating both quantities and the results of computations.	<p>Student Edition: 150-152, 276-277, 401-403 <i>Check Your Understanding</i> 152 #1-#9, 277 #1-#10, 403 #1-#8 <i>Practice and Problem Solving</i> 153 #10-#33, 278 #36-#38</p> <p>Teacher Edition: A 154, 279, 405; AE 151, 152, 277; FA 278, 403</p>
2. Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.	<p>Student Edition: 150-152, 276-277, 283, 401-403, 432-433 <i>Check Your Understanding</i> 152 #1-#9, 277 #1-#10 <i>Practice and Problem Solving</i> 153 #10-#33, 278 #11-#35, 477 #36</p> <p>Teacher Edition: A 154, 279; AE 151, 152, 277; FA 278, 283</p>
3. Determine the reasonableness of an answer by estimating the result of operations.	<p>Student Edition: 184-185, 270-271, 282-283, 433 <i>Check Your Understanding</i> 434 #5-#6 <i>Practice and Problem Solving</i> 285 #37-#40</p> <p>Teacher Edition: FA 271, 283, 444</p>

STANDARDS	PAGE REFERENCES
<p>4. Determine whether a given estimate is an overestimate or an underestimate.</p>	<p>Student Edition: 270-271, 276-277, 282-283, 432-433 <i>Check Your Understanding</i> 434 #5-#6 <i>Practice and Problem Solving</i> 151 #37, 278 #31-#34, 404 #29</p> <p>Teacher Edition: FA 271, 283, 444</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 6, students will:</p>	
<p>4.2.6 A. Geometric Properties</p>	
<p>1. Understand and apply concepts involving lines and angles.</p> <ul style="list-style-type: none"> • Notation for line, ray, angle, line segment • Properties of parallel, perpendicular, and intersecting lines • Sum of the measures of the interior angles of a triangle is 180° 	<p>Student Edition: 470-471, 479-481, 486-488, 751 <i>Check Your Understanding</i> 472 #1-#4, 481 #1-#7, 489 #1-#7 <i>Geometry Lab</i> 485 <i>Mini-Lab</i> 479, 486 <i>Practice and Problem Solving</i> 472-473 #5-#21, 482-483 #8-#39, 489-491 #8-#36 <i>Test Practice</i> 473 #22-#23, 484 #40-#48, 491 #37-#38</p> <p>Teacher Edition: A 473; AE 471, 480, 481, 486, 488; FA 472, 481, 489</p>
<p>2. Identify, describe, compare, and classify polygons and circles.</p> <ul style="list-style-type: none"> • Triangles by angles and sides • Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi • Polygons by number of sides. • Equilateral, equiangular, regular • All points equidistant from a given point form a circle 	<p>Student Edition: 486-488, 494-496 <i>Check Your Understanding</i> 489 #1-#7, 496 #1-#4 <i>Practice and Problem Solving</i> 489-491 #8-#36, 497-498 #5-#32 <i>Test Practice</i> 491 #37-#38, 499 #33-#34</p> <p>Teacher Edition: A 499; AE 486, 488, 495, 496; FA 489, 496</p>

STANDARDS	PAGE REFERENCES
3. Identify similar figures.	<p>Student Edition: 502-504, 615-617 <i>Check Your Understanding</i> 505 #1-#3, 617 #1-#6 <i>Mini-Lab</i> 615 <i>Practice and Problem Solving</i> 505-507 #9-#18, #32, 618-619 #7-#28 <i>Study Guide & Review</i> 514 #37 <i>Test Practice</i> 507 #33, 619 #29-#30</p> <p>Teacher Edition: A 619; AE 616; FA 505, 617</p>
4. Understand and apply the concepts of congruence and symmetry (line and rotational).	<p>Student Edition: 502-504 <i>Check Your Understanding</i> 505 #1-#8 <i>Practice and Problem Solving</i> 505-507 #9-#32 <i>Study Guide & Review</i> 514 #37-#40 <i>Test Practice</i> 507 #34</p> <p>Teacher Edition: AE 504, 504; FA 505, 507</p>
5. Compare properties of cylinders, prisms, cones, pyramids, and spheres.	<p>The following sections address rectangular prisms and pyramids and cylinders and can also be used as a basis to discuss spheres and cones.</p> <p>Student Edition: 548-550, 555-556, LA22-LA23 <i>Check Your Understanding</i> 550 #1-#6, 557 #1-#4, LA23-LA24 #1-#10, LA24 #11-#24 <i>Practice and Problem Solving</i> 551 #7-#16, #20-#23, 557 #5-#13, 558 #21-#29 <i>Test Practice</i> 559 #30-#31</p> <p>Teacher Edition: A 559; AE 549, 556; FA 550, 557</p>

STANDARDS	PAGE REFERENCES
<p>6. Identify, describe, and draw the faces or shadows (projections) of three-dimensional geometric objects from different perspectives.</p>	<p>The following sections on three-dimensional objects can be used to address faces or projections of those objects.</p> <p>Student Edition: 548-550, 555-556, LA22-LA23 <i>Check Your Understanding</i> LA23-LA24 #1-#10, 550 #1-#6, 557 #1-#3 <i>Mini-Lab</i> 548 <i>Practice and Problem Solving</i> LA24 #11-#21, 551 #1-#13, #20-#21, 552 #29, #32 <i>Test Practice</i> 553 #34, 555 #5-#11, 556 #21-#24, #27-#28</p> <p>Teacher Edition: AE 549, 556; FA 550, 557</p>
<p>7. Identify a three-dimensional shape with given projections (top, front and side views).</p>	<p>The following sections on three-dimensional objects can be used to identify shapes with given projections.</p> <p>Student Edition: 548-550, 555-556, LA22-LA23 <i>Check Your Understanding</i> 550 #1-#6, 557 #1-#3, LA23-LA24 #1-#10 <i>Mini-Lab</i> 548 <i>Practice and Problem Solving</i> LA24 #11-#21, 551 #1-#13, #20-#21, 552 #29, #32 <i>Test Practice</i> 553 #34, 555 #5-#11, 556 #21-#24, #27-#28</p> <p>Teacher Edition: AE 549, 556; FA 550, 557</p>
<p>8. Identify a three-dimensional shape with a given net (i.e., a flat pattern that folds into a 3D shape).</p>	<p>Student Edition: 555-556 <i>Check Your Understanding</i> 557 #1-#4 <i>Geometry Lab</i> 554 <i>Mini-Lab</i> 555 <i>Practice and Problem Solving</i> 557 #5-#13 <i>Test Practice</i> 559 #30</p> <p>Teacher Edition: A 559; AE 556; FA 557</p>

STANDARDS	PAGE REFERENCES
4.2.6 B. Transforming Shapes	
<p>1. Use a translation, a reflection, or a rotation to map one figure onto another congruent figure.</p>	<p>Student Edition: 604-606, 610-611, 615-617 <i>Check Your Understanding</i> 606 #1-#4, 611 #1-#4, 617 #1-#6 <i>Practice and Problem Solving</i> 607-609 #5-#35, 611-613 #5-#26, 618-619 #7-#28 <i>Test Practice</i> 609 #36-#37, 613 #27-#28, 619 #29-#30</p> <p>Teacher Edition: A 609, 613, 619; AE 605, 606, 611, 616; FA 606, 612, 617</p>
<p>2. Recognize, identify, and describe geometric relationships and properties as they exist in nature, art, and other real-world settings.</p>	<p>Student Edition: 502-503, 540, 541 <i>Check Your Understanding</i> 505 #4-#5, 542 #4 <i>Practice and Problem Solving</i> 505 #15-#16, 506 #17-#18, #25, #28, 542 #13-#15</p> <p>Teacher Edition: AE 503, 541, 611; FA 505</p>
4.2.6 C. Coordinate Geometry	
<p>1. Create geometric shapes with specified properties in the first quadrant on a coordinate grid.</p>	<p>Student Edition: 233-235 <i>Check Your Understanding</i> 235 #1-#8 <i>Practice and Problem Solving</i> 236 #11-#34 <i>Test Practice</i> 237 #38</p> <p>Teacher Edition: A 237; AE 235; FA 235</p>

STANDARDS	PAGE REFERENCES
4.2.6 D. Units of Measurement	
<p>1. Select and use appropriate units to measure angles, area, surface area, and volume.</p>	<p>Student Edition: 534-536, 540-541, 548-550, 555-556, LA15-LA18 <i>Check Your Understanding</i> 536 #1-#5, 542 #1-#4, 550 #1-#6, 557 #1-#4, LA18 #1-#11 <i>Mini-Lab</i> 548, 555 <i>Practice and Problem Solving</i> 537-538 #6-#23, 542-544 #5-#27, 551-552 #7-#33, 557-558 #5-#29, LA19 #12-#29 <i>Test Practice</i> #24-#25, 538 #24-#25, 544 #28-#29, 553 #34-#35, 559 #30-#31</p> <p>Teacher Edition: A 538, 544, 553, 556, LA19; AE 535, 536, 541, 549, 556, LA16, LA18; FA 542, 557, 559, LA17</p>
<p>2. Use a scale to find a distance on a map or a length on a scale drawing.</p>	<p>Student Edition: 233, 432-433, 747 <i>Exercises</i> 747 #1-#9 <i>Practice and Problem Solving</i> 236 #33, 435 #28-#30</p> <p>Teacher Edition: AE 433</p>
<p>3. Convert measurement units within a system (e.g., 3 feet = ___ inches).</p>	<p>Student Edition: 432-433, 437-438, 445-446, 461 <i>Check Your Understanding</i> 447 #1-#7 <i>Lesson-by-Lesson Review</i> 462 #8-#15 <i>Practice and Problem Solving</i> 447-448 #8-#42 <i>Test Practice</i> 449 #43-#45</p> <p>Teacher Edition: AE 446; FA 447, 449, 461</p>
<p>4. Know approximate equivalents between the standard and metric systems (e.g., one kilometer is approximately 6/10 of a mile).</p>	<p>Student Edition: 432-433, 437-438 <i>Practice and Problem Solving</i> 435 #29 <i>Test Practice</i> 436 #40</p>
<p>5. Use measurements and estimates to describe and compare phenomena.</p>	<p>Student Edition: 432-433 <i>Check Your Understanding</i> 434 #5-#6 <i>Practice and Problem Solving</i> 552 #24-#28 <i>Test Practice</i> 434 #15-#20, 435 #23-#28</p> <p>Teacher Edition: A 436; AE 433; FA 434</p>

STANDARDS	PAGE REFERENCES
4.2.6 E. Measuring Geometric Objects	
<p>1. Use a protractor to measure angles.</p>	<p>Student Edition: 470-471 <i>Check Your Understanding</i> 472 #1-#3 <i>Lesson-by-Lesson Review</i> 510 #6-#12 <i>Practice and Problem Solving</i> 472-473 #5-#20 <i>Test Practice</i> 473 #22</p> <p>Teacher Edition: A 473; AE 471; FA 472</p>
<p>2. Develop and apply strategies and formulas for finding perimeter and area.</p> <ul style="list-style-type: none"> • Triangle, square, rectangle, parallelogram, and trapezoid • Circumference and area of a circle 	<p>Student Edition: 494-495, 520-521, 522-523, 528-530, 534-536, 540-541, LA15-LA18 <i>Check Your Understanding</i> 531 #1-#10, 536 #1-#5, 524 #1-#4, 542 #1-#4, LA18 #1-#11 <i>Practice and Problem Solving</i> 524-525 #5-#25, 531-533 #11-#37, 537-538 #6-#23, 542-544 #5-#27, LA19 #12-#29 <i>Test Practice</i> 526 #27-#28, 533 #38-#39, 538 #24-#25, 544 #28-#29</p> <p>Teacher Edition: A 526, 538, 544, LA19; AE 523, 529, 530, 535, 536, 541, LA16, LA18; FA 521, 524, 533, 542, LA17; SR 237 #40</p>
<p>3. Develop and apply strategies and formulas for finding the surface area and volume of rectangular prisms and cylinders.</p>	<p>Student Edition: 555-556, LA20-LA23 <i>Check Your Understanding</i> 557 #1-#4, LA23-LA24 #1-#10 <i>Mini-Lab</i> 555, LA20 <i>Practice and Problem Solving</i> 557-558 #5-#29, LA24 #11-#24 <i>Test Practice</i> 559 #30-#31</p> <p>Teacher Edition: A LA24; AE 556, LA21, LA23; FA 557, 559, LA22</p>
<p>4. Recognize that shapes with the same perimeter do not necessarily have the same area and vice versa.</p>	<p>Student Edition: 520-521, 534-536 <i>Check Your Understanding</i> 536 #1-#5 <i>Practice and Problem Solving</i> 537-538 #6-#23 <i>Test Practice</i> 538 #24-#25</p> <p>Teacher Edition: A 538; AE 535, 536; FA 521</p>

STANDARDS	PAGE REFERENCES
<p>5. Develop informal ways of approximating the measures of familiar objects (e.g., use a grid to approximate the area of the bottom of one's foot).</p>	<p>Student Edition: 432-433, 520 <i>Check Your Understanding</i> 434 #5-#6 <i>Practice and Problem Solving</i> 532 #29, #33, 552 #24-#28 <i>Test Practice</i> 434 #15-#20, 435 #23-#28</p> <p>Teacher Edition: A 436; AE 433; FA 434; LLR 528b</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 6, students will:</p>	
<p>4.3.6 A. Patterns</p>	
<p>1. Recognize, describe, extend, and create patterns involving whole numbers and rational numbers.</p> <ul style="list-style-type: none"> • Descriptions using tables, verbal rules, simple equations, and graphs • Formal iterative formulas (e.g., NEXT = NOW * 3) • Recursive patterns, including Pascal's Triangle (where each entry is the sum of the entries above it) and the Fibonacci Sequence: 1, 1, 2, 3, 5, 8, . . . (where NEXT = NOW + PREVIOUS) 	<p>The following sections on sequences and patterns including Pascal's Triangle can also be used to discuss other sequences including Fibonacci.</p> <p>Student Edition: 88-89, 343-345 <i>Check Your Understanding</i> 89 #1-#6, 346 #1-#4 <i>Graphing Calculator Lab</i> 47-48 <i>Practice and Problem Solving</i> 90-91 #7-#22, 346-348 #5-#28 <i>Problem-Solving Investigation</i> 54-55 #1-#14, 341-342 #1-#14 <i>Test Practice</i> 91 #23-#24, 348 #29-#30</p> <p>Teacher Edition: A 342; AE 89, 341; FA 48, 55, 91</p>
<p>4.3.6 B. Functions and Relationships</p>	
<p>1. Describe the general behavior of functions given by formulas or verbal rules (e.g., graph to determine whether increasing or decreasing, linear or not).</p>	<p>Student Edition: 88-89, 349-351 <i>Check Your Understanding</i> 89 #1-#6, 351 #1-#6 <i>Graphic Calculator Lab</i> 354 <i>Problem-Solving Investigation</i> 90-91 #7-#22, 352-353 #7-#26 <i>Test Practice</i> 91 #23-#24, 353 #27-#28</p> <p>Teacher Edition: A 91; AE 89, 350; FA 90, 91, 351, 353, 354</p>

STANDARDS	PAGE REFERENCES
4.3.6 C. Modeling	
<p>1. Use patterns, relations, and linear functions to model situations.</p> <ul style="list-style-type: none"> Using variables to represent unknown quantities Using concrete materials, tables, graphs, verbal rules, algebraic expressions/equations/inequalities 	<p>Student Edition: 49-50, 57-58 <i>Algebra Lab</i> 655-656 <i>Check Your Understanding</i> 51 #1-#5, 59 #1-#8 <i>Math Lab</i> 57 <i>Practice and Problem Solving</i> 51-53 #6-#28, 59-60 #9-#38 <i>Test Practice</i> 53 #29-#30, 60 #39-#40</p> <p>Teacher Edition: A 53, 60; AE 50, 58; FA 51, 59, 656</p>
<p>2. Draw freehand sketches of graphs that model real phenomena and use such graphs to predict and interpret events.</p> <ul style="list-style-type: none"> Changes over time Relations between quantities Rates of change (e.g., when is plant growing slowly/rapidly, when is temperature dropping most rapidly/slowly) 	<p>Student Edition: 81-83, 88-89 <i>Check Your Understanding</i> 83 #1-#2, 89 #1-#6 <i>Practice and Problem Solving</i> 84-85 #3-#13, 90-91 #7-#22 <i>Test Practice</i> 85 #14, 91 #24</p> <p>Teacher Edition: A 85, 91; AE 82, 83, 89; FA 90, 91</p>
4.3.6 D. Procedures	
<p>1. Solve simple linear equations with manipulatives and informally.</p> <ul style="list-style-type: none"> Whole-number coefficients only, answers also whole numbers Variables on one or both sides of equation 	<p>Student Edition: 57-58, 636-638 <i>Check Your Understanding</i> 59 #1-#8, 638 #1-#10 <i>Math Lab</i> 57 <i>Practice and Problem Solving</i> 59-60 #9-#38, 639-640 #11-#49 <i>Test Practice</i> 60 #39, 641 #50-#51</p> <p>Teacher Edition: A 58; AE 60, 637, 638; FA 59, 638</p>
<p>2. Understand and apply the properties of operations and numbers.</p> <ul style="list-style-type: none"> Distributive property The product of a number and its reciprocal is 1 	<p>Student Edition: 293-294, 630-631, 632-633 <i>Algebra Lab</i> 630 <i>Check Your Understanding</i> 295 #1-#4, 634 #1-#13 <i>Math Lab</i> 293 <i>Practice and Problem Solving</i> 295 #12-#17, 634-635 #14-#44 <i>Test Practice</i> 635 #45-#46</p> <p>Teacher Edition: A 635; AE 294; FA 295, 631, 633, 634</p>

STANDARDS	PAGE REFERENCES
3. Evaluate numerical expressions.	<p>Student Edition: 37-38 <i>Check Your Understanding</i> 39 #1-#7 <i>Practice and Problem Solving</i> 39-40 #8-#33 <i>Study Guide & Review</i> 70 #17-#21 <i>Test Practice</i> 40 #34</p> <p>Teacher Edition: A 40; AE 38; FA 39</p>
4. Extend understanding and use of inequality <ul style="list-style-type: none"> • Symbols (\geq, \neq, \leq) 	<p>Student Edition: 142-143, 572-573 <i>Algebra Lab</i> 655-656 <i>Check Your Understanding</i> 143 #1-#6, 573 #10-#15 <i>Practice and Problem Solving</i> 144-145 #7-#35, 574 #10-#15 <i>Test Practice</i> 145 #36-#38</p> <p>Teacher Edition: AE 143, 573; FA 143, 656</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 6, students will:</p>	
<p>4.4.6 A. Data Analysis</p>	
1. Collect, generate, organize, and display data. <ul style="list-style-type: none"> • Data generated from surveys 	<p>Student Edition: 114-115, 394-395 <i>Check Your Understanding</i> 116 #1-#4, 396 #1-#2 <i>Math Lab</i> 394 <i>Practice and Problem Solving</i> 116-118 #5-#17, 396-397 #3-#15 <i>Statistics Lab</i> 119-120 <i>Test Practice</i> 118 #18-#19</p> <p>Teacher Edition: A 118; AE 115, 116, 395; FA 396</p>

STANDARDS	PAGE REFERENCES
<p>2. Read, interpret, select, construct, analyze, generate questions about, and draw inferences from displays of data.</p> <ul style="list-style-type: none"> • Bar graph, line graph, circle graph, table, histogram • Range, median, and mean • Calculators and computers used to record and process information 	<p>Student Edition: 81-83, 88-89, 96-97, 102-103, 108-110, 370-372, LA25-LA26 <i>Check Your Understanding</i> 83 #1-#2, 89 #1-#6, 98 #1-#4, 104 #1-#5, 111 #1-#5, 373 #1-#4, LA26-LA27 #1-#3 <i>Math Lab</i> 102, 370 <i>Practice and Problem Solving</i> 84-85 #3-#13, 90-91 #7-#22, 98-100 #5-#22, 104-106 #6-#26, 111-112 #6-#21, 373-374 #5-#18, LA27-LA28 #4-#19 <i>Problem-Solving Investigation</i> 78-79 <i>Spreadsheet Lab</i> 86-87, 107 <i>Test Practice</i> 91 #23-#24, 100 #23, 106 #27, 112 #22-#23</p> <p>Teacher Edition: A 79, 85, 87, 91, 107, 113, 375, LA28; AE 82, 83, 89, 97, 103, 109, 110, 371, 372, LA28; FA 90, 98, 111, 373</p>
<p>3. Respond to questions about data, generate their own questions and hypotheses, and formulate strategies for answering their questions and testing their hypotheses.</p>	<p>Student Edition: 88-89, 121-122 <i>Check Your Understanding</i> 89 #1-#6, 123 #1-#7 <i>Practice and Problem Solving</i> 90-91 #7-#22, 123-124 #8-#35 <i>Statistics Lab</i> 119-120 <i>Test Practice</i> 91 #23-#24, 125 #36-#37</p> <p>Teacher Edition: A 120, 125; AE 89, 122; FA 123</p>
<p>4.4.6 B. Probability</p>	
<p>1. Determine probabilities of events.</p> <ul style="list-style-type: none"> • Event, complementary event, probability of an event • Multiplication rule for probabilities • Probability of certain event is 1 and of impossible event is 0 • Probabilities of event and complementary event add up to 1 	<p>These sections address complementary events and probabilities, and also can be used to illustrate the multiplication rule.</p> <p>Student Edition: 381-383, 394-395 <i>Check Your Understanding</i> 384 #1-#7, 396 #1-#2 <i>Math Lab</i> 394 <i>Practice and Problem Solving</i> 384-386 #8-#38, 396-397 #3-#20 <i>Study Guide & Review</i> 408-409 #27-#42 <i>Test Practice</i> 386 #39-#40, 398 #21-#23</p> <p>Teacher Edition: A 386, 398; AE 382, 383, 395; FA 384, 386, 396</p>

STANDARDS	PAGE REFERENCES
<p>2. Determine probability using intuitive, experimental, and theoretical methods (e.g., using model of picking items of different colors from a bag).</p> <ul style="list-style-type: none"> • Given numbers of various types of items in a bag, what is the probability that an item of one type will be picked • Given data obtained experimentally, what is the likely distribution of items in the bag 	<p>Student Edition: <i>Probability Lab</i> 387 <i>Study Guide & Review</i> 408-409 #27-#42</p> <p>Teacher Edition: A 387</p>
<p>3. Explore compound events.</p>	<p>Student Edition: 381-383, 389-390 <i>Check Your Understanding</i> 384 #1-#7, 391 #1-#3 <i>Practice and Problem Solving</i> 384-386 #8-#38, 391-392 #4-#25 <i>Test Practice</i> 386 #39-#40, 393 #26-#27</p> <p>Teacher Edition: A 386, 393; AE 382, 383, 390; FA 384, 386, 391</p>
<p>4. Model situations involving probability using simulations (with spinners, dice) and theoretical models.</p>	<p>Student Edition: 381-383 <i>Check Your Understanding</i> 384 #1-#7 <i>Practice and Problem Solving</i> 384-386 #8-#38 <i>Test Practice</i> 386 #39-#40</p> <p>Teacher Edition: A 386; AE 382, 383; FA 384, 386</p>
<p>5. Recognize and understand the connections among the concepts of independent outcomes, picking at random, and fairness.</p>	<p>Student Edition: 381-383, 389-390 <i>Check Your Understanding</i> 384 #1-#7, 391 #1-#3 <i>Practice and Problem Solving</i> 384-386 #8-#38, 391-392 #4-#25 <i>Study Guide & Review</i> 408-409 #27-#42 <i>Test Practice</i> 386 #39-#40, 393 #26-#27</p> <p>Teacher Edition: A 386, 393; AE 382, 383, 390; FA 384, 386, 391</p>

STANDARDS

PAGE REFERENCES

4.4.6 C. Discrete Mathematics—Systematic Listing and Counting

<p>1. Solve counting problems and justify that all possibilities have been enumerated without duplication.</p> <ul style="list-style-type: none"> Organized lists, charts, tree diagrams, tables Venn diagrams 	<p>Student Edition: 196, 389-390 <i>Check Your Understanding</i> 391 #1-#3 <i>Practice and Problem Solving</i> 196 #1-#5, 391-392 #4-#25 <i>Study Guide & Review</i> 409 #37-#42 <i>Test Practice</i> 393 #26-#27</p> <p>Teacher Edition: A 196, 393; AE 383, 390; FA 391</p>
<p>2. Apply the multiplication principle of counting.</p> <ul style="list-style-type: none"> Simple situations (e.g., you can make $3 \times 4 = 12$ outfits using 3 shirts and 4 skirts). Number of ways a specified number of items can be arranged in order (concept of permutation) Number of ways of selecting a slate of officers from a class (e.g., if there are 23 students and 3 officers, the number is $23 \times 22 \times 21$) 	<p>The following sections address counting and can also be used to illustrate permutations.</p> <p>Student Edition: 389-390 <i>Check Your Understanding</i> 391 #1-#3 <i>Practice and Problem Solving</i> 196 #1-#5, 391-392 #4-#25 <i>Problem-Solving Investigation</i> 214-215 #1-#14 <i>Study Guide & Review</i> 409 #37-#42 <i>Test Practice</i> 393 #26-#27</p> <p>Teacher Edition: A 215, 393; AE 383, 390; FA 391</p>
<p>3. List the possible combinations of two elements chosen from a given set (e.g., forming a committee of two from a group of 12 students, finding how many handshakes there will be among ten people if everyone shakes each other person's hand once).</p>	<p>The following sections address counting and can also be used to illustrate combinations.</p> <p>Student Edition: 389-390 <i>Check Your Understanding</i> 391 #1-#3 <i>Practice and Problem Solving</i> 196 #1-#5, 391-392 #4-#25 <i>Problem-Solving Investigation</i> 214S-215 #1-#14 <i>Study Guide & Review</i> 409 #37-#42 <i>Test Practice</i> 393 #26-#27</p> <p>Teacher Edition: A 215, 393; AE 383, 390; FA 391</p>

STANDARDS

PAGE REFERENCES

4.4.6 D. Discrete Mathematics—Vertex-Edge Graphs and Algorithms

<p>1. Devise strategies for winning simple games (e.g., start with two piles of objects, each of two players in turn removes any number of objects from a single pile, and the person to take the last group of objects wins) and express those strategies as sets of directions.</p>	<p>The following page references may be used to meet this standard.</p> <p>Student Edition: 381-386 <i>Mid-Chapter Quiz</i> 388 <i>Practice Test</i> 411 <i>Probability Lab</i> 387 <i>Study Guide and Review</i> 408</p> <p>Teacher Wraparound Edition: AE 382-383; PAA 384; SQ 381</p>
<p>2. Analyze vertex-edge graphs and tree diagrams.</p> <ul style="list-style-type: none"> • Can a picture or a vertex-edge graph be drawn with a single line? (degree of vertex) • Can you get from any vertex to any other vertex? (connectedness) 	<p>The following page references may be used to meet this standard.</p> <p>Student Edition: 389-393 <i>Practice Test</i> 411 <i>Study Guide and Review</i> 409</p> <p>Teacher Wraparound Edition: 389b AE 390; FMC 390</p>
<p>3. Use vertex-edge graphs to find solutions to practical problems.</p> <ul style="list-style-type: none"> • Delivery route that stops at specified sites but involves least travel • Shortest route from one site on a map to another 	<p>This standard falls outside the scope of this textbook and can be met during teacher/class discussion.</p>

STANDARDS

PAGE REFERENCES

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.

At each grade level, with respect to content appropriate for that grade level, students will:

4.5 A. Problem Solving

<p>1. Learn mathematics through problem solving, inquiry, and discovery.</p>	<p>Student Edition: 24-26 <i>Check Your Understanding</i> 26 #1-#2 <i>Practice and Problem Solving</i> 27 #3-#10 <i>Problem-Solving Investigation</i> 54-55 #1-#14, 184-185 #1-#12, 341-342 #1-#14 <i>Test Practice</i> 27 #11-#12</p> <p>Teacher Edition: A 25, 27, 55, 185, 342; AE 25; FA 26</p>
<p>2. Solve problems that arise in mathematics and in other contexts.</p> <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> 35 #40, 45 #46, 106 #25, 148 #29, 201 #37, 212 #30, 353 #24, 392 #23, 454 #28, 498 #25, 580 #40, 640 #45, 653 #33 <i>Problem-Solving Investigation</i> 546-547 #1-#13, 661-662 #1-#15</p> <p>Teacher Edition: A 547, 662; FA 353</p>
<p>3. Select and apply a variety of appropriate problem-solving strategies (e.g., “try a simpler problem” or “make a diagram”) to solve problems.</p>	<p>Student Edition: <i>Problem-Solving Investigation</i> 54-55 #1-#14, 184-185 #1-#12, 214-215 #1-#14, 254-255 #1-#14, 546-547 #1-#13, 592-593 #1-#14</p> <p>Teacher Edition: A 55, 185, 215, 255, 547, 593</p>
<p>4. Pose problems of various types and levels of difficulty.</p>	<p>Student Edition: <i>Problem-Solving Investigation</i> 78-79 #1-#14, 341-342 #1-#14, 399-400 #1-#16, 500-501 #1-#14, 546-547 #1-#13, 592-593 #1-#14, 661-662 #1-#15</p> <p>Teacher Edition: A 55, 79, 185, 215, 255, 342, 400, 501, 593, 662</p>

STANDARDS	PAGE REFERENCES
5. Monitor their progress and reflect on the process of their problem solving activity.	<p>Student Edition: <i>Problem-Solving Investigation</i> 54-55 #1-#14, 78-79 #1-#14, 184-185 #1-#12, 214-215 #1-#14, 254-255 #1-#14, 341-342 #1-#14, 399-400 #1-#16, 500-501 #1-#14, 546-547 #1-#13, 592-593 #1-#14, 661-662 #1-#15</p> <p>Teacher Edition: A 55, 79, 185, 215, 255, 342, 400, 501, 547, 593, 662</p>
6. Distinguish relevant from irrelevant information, and identify missing information.	<p>The following sections on data collection and outliers can also be used to discuss irrelevant and missing information.</p> <p>Student Edition: 102-103, 119-120</p> <p><i>Problem-Solving Investigation</i> 78-79 #1-#14, 214-215 #1-#14, 341-342 #1-#14</p> <p>Teacher Edition: A 120</p>
<p>4.5 B. Communication</p>	
1. Use communication to organize and clarify their mathematical thinking. <ul style="list-style-type: none"> • Reading and writing • Discussion, listening, and questioning 	<p>Student Edition: 56, 80, 196, 269, 376</p> <p><i>H.O.T. Problems: Writing in Math</i> 5 #2, 7 #7, 9 #6, 11 #6, 13 #6, 15 #5, 27 #10, 31 #48, 36 #46, 40 #33, 46 #50, 53 #28</p> <p>Teacher Edition: A 56, 80, 196, 269, 376</p>
2. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	<p>The following problems using writing can also be used to communicate mathematical thinking orally.</p> <p>Student Edition: <i>H.O.T. Problems: Writing in Math</i> 54 #2, 60 #38, 67 #30, 85 #13, 95 #19, 100 #22, 106 #26, 112 #21, 118 #17, 124 #35, 141 #41, 145 #35, 149 #33, 154 #36, 160 #44, 166 #46, 172 #49, 176 #30, 182 #43, 184 #2</p>
3. Analyze and evaluate the mathematical thinking and strategies of others.	<p>Student Edition: <i>Problem-Solving Investigation</i> 54-55 #1-#14, 78-79 #1-#14, 184-185 #1-#12, 214-215 #1-#14, 254-255 #1-#14, 341-342 #1-#14, 399-400 #1-#16, 500-501 #1-#14, 546-547 #1-#13, 592-593 #1-#14, 661-662 #1-#15</p> <p>Teacher Edition: A 55, 79, 185, 215, 255, 342, 400, 501, 547, 593, 662</p>

STANDARDS	PAGE REFERENCES
<p>4. Use the language of mathematics to express mathematical ideas precisely.</p>	<p>Student Edition: <i>H.O.T. Problems: Writing in Math</i> 201 #39, 208 #37, 212 #33, 214 #2, 224 #32, 228 #39, 232 #37, 253 #41, 254 #2, 268 #49 <i>Problem-Solving Investigation</i> 54-55 #1-#14, 78-79 #1-#14, 184-185 #1-#12, 214-215 #1-#14, 254-255 #1-#14, 341-342 #1-#14, 399-400 #1-#16, 500-501 #1-#14, 546-547 #1-#13, 592-593 #1-#14, 661-662 #1-#15</p> <p>Teacher Edition: A 55, 79, 185, 215, 255, 342, 400, 501, 547, 593, 662</p>
<p>4.5 C. Connections</p>	
<p>1. Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).</p>	<p>Student Edition: 632-633 <i>Algebra Lab</i> 630-631 <i>Check Your Understanding</i> 634 #1-#13 <i>Practice and Problem Solving</i> 634-635 #14-#44 <i>Practice Test</i> 565 #1-#15 <i>Study Guide & Review</i> 561-562 #1-#13 <i>Test Practice</i> 566-567 #1-#12, 635 #45-#46</p> <p>Teacher Edition: A 631, 635; AE 633; FA 634</p>
<p>2. 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>	<p>Student Edition: 632-633 <i>Algebra Lab</i> 630-631 <i>Check Your Understanding</i> 634 #1-#13 <i>Practice and Problem Solving</i> 634-635 #14-#44 <i>Practice Test</i> 565 #1-#15 <i>Study Guide & Review</i> 561-562 #1-#13 <i>Test Practice</i> 566-567 #1-#12, 635 #45-#46</p> <p>Teacher Edition: A 631, 635; AE 633; FA 634</p>
<p>3. Recognize that mathematics is used in a variety of contexts outside of mathematics.</p>	<p>Student Edition: <i>Real World Examples</i> 265 #3, 294 #5, 299 #3, 324 #4, 345 #3, 350 #2, 351 #5, 366 #3, 378 #6, 383 #4, 390 #3, 402 #3, 439 #5, 446 #3, 451 #3, 452 #4, 503 #3, 523 #1, 536 #3, 541 #3</p>

STANDARDS	PAGE REFERENCES
4. Apply mathematics in practical situations and in other disciplines.	<p>Student Edition: <i>Practice and Problem Solving</i> 27 #3, #4, #6-#8 <i>Real World Examples</i> 26 #2, 33 #3, 38 #5, 50 #3, 58 #3, 64 #3, 93 #2, 109 #3, 115 #2, 122 #4, 147 #3, 157 #4, 170 #4, 199 #4, 206 #4, 217 #3, 230 #4, 234 #5, 251 #3, 258 #3</p>
5. Trace the development of mathematical concepts over time and across cultures (cf. world languages and social studies standards).	<p>The following sections can be used to discuss how mathematical concepts have developed across time and cultures.</p> <p>Student Edition: <i>Measurement Lab: The Metric System</i> 430-431 <i>Problem Solving in Art</i> 569, 660 <i>Problem Solving in Science</i> 135, 301 <i>Problem Solving in Social Studies:</i> 311, 405</p> <p>Teacher Wraparound Edition: A 431; T 430</p>
6. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	<p>Each chapter of the book builds and connects with previous sections. The following sections are an example using multiple previous sections.</p> <p>Student Edition: 365-367, 370-372 <i>Check Your Understanding</i> 367 #1-#10, 373 #1-#4 <i>Practice and Problem Solving</i> 368-369 #12-#40, 373-374 #5-#18 <i>Test Practice</i> 369 #41-#42, 375 #19</p> <p>Teacher Edition: A 369, 375; AE 366, 367, 371, 372; FA 373</p>
4.5 D. Reasoning	
1. Recognize that mathematical facts, procedures, and claims must be justified.	<p>The need to justify mathematical facts, procedures, and claims is stressed throughout the book. The following problems are examples.</p> <p>Student Edition: <i>Practice and Problem Solving</i> 59 #33, 60 #35, 105 #22, 112 #19-#21, 118 #15-#16, 124 #34, 160 #42-#43, 201 #33-#38, 338 #33-#35, 422 #23, 454 #27-#29, 477 #36, 525 #23, 543 #17, 544 #26, 551 #23, 552 #27, 558 #26 <i>Practice Test</i> 565 #8</p>

STANDARDS	PAGE REFERENCES
<p>2. Use reasoning to support their mathematical conclusions and problem solutions.</p>	<p>Use of reasoning to support mathematical conclusions and problem solutions is stressed throughout the book. The following problems are examples.</p> <p>Student Edition: <i>Practice and Problem Solving</i> 59 #33, 60 #35, 105 #22, 112 #19-#21, 118 #15-#16, 124 #34, 160 #42-#43, 201 #33-#38, 338 #33-#35, 422 #23, 454 #27-#29, 477 #36, 525 #23, 543 #17, 544 #26, 551 #23, 552 #27, 558 #26 <i>Practice Test</i> 565 #8</p>
<p>3. Select and use various types of reasoning and methods of proof.</p>	<p>Student Edition: <i>Practice and Problem Solving</i> 45 #48, 144 #31, 149 #32, 347 #26, 374 #17, 428 #45</p>
<p>4. Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions.</p>	<p>Relying on reasoning is used in numerous sections throughout the book. The following problems are examples.</p> <p>Student Edition: <i>Practice and Problem Solving</i> 59 #33, 60 #35, 105 #22, 112 #19-#21, 118 #15-#16, 124 #34, 160 #42-#43, 201 #33-#38, 338 #33-#35, 422 #23, 454 #27-#29, 477 #36, 525 #23, 543 #17, 544 #26, 551 #23, 552 #27, 558 #26 <i>Practice Test</i> 565 #8</p>
<p>5. Make and investigate mathematical conjectures.</p> <ul style="list-style-type: none"> • Counterexamples as a means of disproving conjectures • Verifying conjectures using informal reasoning or proofs. 	<p>Student Edition: 150-152, 276-277 <i>Check Your Understanding</i> 152 #1-#9, 277 #1-#10 <i>Practice and Problem Solving</i> 31 #47, 152-154 #10-#36, 160 #42, 201 #34-#36, 278-279 #11-#38, 552 #27 <i>Test Practice</i> 154 #37-#38, 279 #39-#40</p> <p>Teacher Edition: A 154, 201, 279; AE 151, 152, 270; FA 153, 278</p>
<p>6. Evaluate examples of mathematical reasoning and determine whether they are valid.</p>	<p>Student Edition: <i>Practice and Problem Solving</i> 31 #47, 160 #42, 201 #34-#36, #39</p> <p>Teacher Edition: A 201</p>

STANDARDS

PAGE REFERENCES

4.5 E. Representations

<p>1. Create and use representations to organize, record, and communicate mathematical ideas.</p> <ul style="list-style-type: none"> • Concrete representations (e.g., base-ten blocks or algebra tiles) • Pictorial representations (e.g., diagrams, charts, or tables) • Symbolic representations (e.g., a formula) • Graphical representations (e.g., a line graph) 	<p>Student Edition: 534-536, 636-637 <i>Check Your Understanding</i> 536 #1-#5, 638 #1-#10 <i>Math Lab</i> 155, 534 <i>Practice and Problem Solving</i> 537-538 #6-#30, 639-640 #11-#49 <i>Test Practice</i> 538 #24-#25, 641 #50-#51</p> <p>Teacher Edition: A 538, 640; AE 535, 536, 637, 638; FA 536, 638</p>
<p>2. Select, apply, and translate among mathematical representations to solve problems.</p>	<p>Student Edition: 81-82, 540-541, 642-646 <i>Check Your Understanding</i> 83 #1-#2, 542 #1-#4, 646 #1-#5 <i>Math Lab</i> 548-549 <i>Practice and Problem Solving</i> 84-85 #3-#13, 542-544 #5-#27, 647 #6-#33 <i>Problem-Solving Investigation</i> 318 #24-#25, 546-547 #1-#13 <i>Test Practice</i> 544 #28-#29, 648 #34-#35</p> <p>Teacher Edition: A 547; AE 82, 83, 541, 645, 646; FA 83, 542, 544</p>
<p>3. Use representations to model and interpret physical, social, and mathematical phenomena.</p>	<p>Student Edition: 81-83 <i>Check Your Understanding</i> 83 #1-#2 <i>Practice and Problem Solving</i> 84 #3-#13 <i>Real World Examples</i> 550 #2, 556 #2, 573 #3, 584 #4, 588 #5, 606 #3, 617 #2, 638 #5, 646 #3, 652 #3, 658 #3</p> <p>Teacher Edition: AE 82, 83; FA 83</p>

STANDARDS	PAGE REFERENCES
4.5 F. Technology	
<p>1. Use technology to gather, analyze, and communicate mathematical information.</p>	<p>Student Edition: 81-83, 88-89, 114-115 <i>Check Your Understanding</i> 83 #1-#2, 89 #1-#6, 116 #1-#4 <i>Graphing Calculator Lab</i> 47-48, 328, 354 <i>Practice and Problem Solving</i> 84-85 #3-#13, 90-91 #7-#22, 116 #5-#17 <i>Spreadsheet Lab</i> 86-87, 107</p> <p>Teacher Edition: AE 82, 83, 89, 115, 116; FA 48, 87, 90, 328, 354</p>
<p>2. Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information.</p>	<p>Student Edition: 81-83, 88-89, 114-115 <i>Check Your Understanding</i> 83 #1-#2, 89 #1-#6, 116 #1-#4 <i>Practice and Problem Solving</i> 84-85 #3-#13, 90-91 #7-#22, 116 #5-#17 <i>Spreadsheet Lab</i> 86-87, 107</p> <p>Teacher Edition: AE 82, 83, 89, 115, 116; FA 87, 90</p>
<p>3. Use graphing calculators and computer software to investigate properties of functions and their graphs.</p>	<p>Student Edition: <i>Graphing Calculator Lab</i> 47-48, 328, 354</p> <p>Teacher Edition: FA 48, 328, 354</p>
<p>4. Use calculators as problem-solving tools (e.g., to explore patterns, to validate solutions).</p>	<p>Student Edition: <i>Graphing Calculator Lab</i> 47-48, 328, 354</p> <p>Teacher Edition: FA 48, 328, 354</p>
<p>5. Use computer software to make and verify conjectures about geometric objects.</p>	<p>Student Edition: 81-83, 88-89, 114-115 <i>Check Your Understanding</i> 83 #1-#2, 89 #1-#6, 116 #1-#4 <i>Graphing Calculator Lab</i> 47-48, 328, 354 <i>Practice and Problem Solving</i> 84-85 #3-#13, 90-91 #7-#22, 116 #5-#17 <i>Spreadsheet Lab</i> 86-87, 107</p> <p>Teacher Edition: AE 82, 83, 89, 115, 116; FA 48, 87, 90, 328, 354</p>

STANDARDS	PAGE REFERENCES
<p>6. Use computer-based laboratory technology for mathematical applications in the sciences (cf. science standards).</p>	<p>The following sections use technology to analyze and display data, and can be expanded to discuss use of computer-based laboratory technology in science applications.</p> <p>Student Edition: 81-83, 88-89, 114-115 <i>Check Your Understanding</i> 83 #1-#2, 89 #1-#6, 116 #1-#4 <i>Graphing Calculator Lab</i> 47-48, 328, 354 <i>Practice and Problem Solving</i> 84-85 #3-#13, 90-91 #7-#22, 116 #5-#17 <i>Spreadsheet Lab</i> 86-87, 107</p> <p>Teacher Wraparound Edition: AE 82, 83, 89, 115, 116; FA 48, 87, 90, 328, 354</p>