



COLORADO
Content Standards Mathematics Grades 5-8
Mathematics: Applications and Concepts Courses 1, 2, and 3 © 2004

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
STANDARD 1: Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will			
<ul style="list-style-type: none"> construct and interpret number meanings through real-world experiences* and the use of hands-on materials; 	SE: 105 #45 <i>Hands-On Lab</i> 181 <i>Hands-On Mini Lab</i> 102, 219 <i>Real-Life Math</i> 19 TWE: B 10, 14 DI 108, 183, 294	SE: 106 (Football) <i>Hands-On Lab</i> 37, 118-119 <i>Hands-On Mini Lab</i> 134, 207, 224 <i>WebQuest</i> 3 TWE: A 108 B 10 DI 109	SE: 43, 75 #28-#30, 127 Example 7, 129 #49-#50 <i>Hands-On Lab</i> 141 <i>Hands-On Mini Lab</i> 71 <i>When</i> 88, 125 TWE: IE 43 <i>Reading to Learn Mathematics</i> 125
<ul style="list-style-type: none"> represent and use numbers in a variety of equivalent forms (for example, <i>fractions</i>, <i>decimals</i>, <i>percents</i>, <i>exponents*</i>, <i>scientific notation*</i>); 	SE: 18-21, 136, 202-205, 206-209, 400-403, 404-406 TWE: A 205 B 206, 404 DI 19	SE: 10-13, 43-45, 210-213, 216-219, 220-223 TWE: A 213 B 43, 216 DI 11 ICE 221	SE: 64 Examples 4-5, 65 #14-#27, 67 Example 1, 68 Example 3, 107 #37-#41, 125 <i>The Game Zone</i> 33 TWE: A 66 IE 64 <i>Practice: Word Problems</i> 66, 107

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> know the structure and properties of the real number system* (for example, primes*, factors, multiples, relationships among sets of numbers); and 	SE: 10-13, 14-17, 177-179, 194-197 <i>The Game Zone</i> 191 <i>Study Skill</i> 176 TWE: A 179 B 194 DI 15, 195	SE: 10, 109-111, 197-199, 203-205, 224-226, 227-231 <i>The Game Zone</i> 215 <i>Hands-On Lab</i> 196 TWE: DI 204 <i>Practice: Skills</i> 135	SE: 123-124, 125-129 <i>The Game Zone</i> 131 <i>Prerequisite Skills</i> 609-612 TWE: A 129 DI 126 IE 126 <i>Practice: Skills</i> 129 <i>Reading to Learn Mathematics</i> 125
<ul style="list-style-type: none"> use number sense, including estimation and mental arithmetic, to determine the reasonableness of solutions. 	SE: 116-119, 136 Example 3, 223-225, 256-258, 335 Example 5, 415-417 <i>Problem-Solving Strategy</i> 156-157 <i>Reading Math</i> 557 <i>Study Tip</i> 410 TWE: B 116	SE: 228 Example 2, 429 (Study Tip) <i>Problem-Solving Strategy</i> 338-339 TWE: DI 338 ICE 338 The following contain number sense concepts that could be used to determine reasonableness of solutions: SE: 122 #4, 231 #53, 242 #3, 250 #3, 256 #3	SE: 37 #3, 78 Example 5, 90 #3, 121 #4, 163 #2, 172 #2, 187 #21, 322 #2, 324, 344 #1
GRADES 5-8			
As students in grades 5-8 extend their knowledge, what they know and are able to do includes			
<ul style="list-style-type: none"> demonstrating meanings for integers, rational numbers, percents, exponents, square roots, and pi (π) using physical materials and technology in problem-solving situations; 	SE: 294-297, 395-397 <i>Hands-On Lab</i> 234, 299 <i>Hands-On Mini Lab</i> 18, 161, 235, 240 TWE: DI 19, 301	SE: 477 #33 <i>Hands-On Lab</i> 118-119, 274, 322 <i>Hands-On Mini Lab</i> 470 TWE: A 108, 231 B 10 DI 121, 228	SE: 17, 67 Example 1, 117 Example 4, 125, 321 Example 1 <i>Hands-On Mini Lab</i> 116, 132 <i>Study Tip</i> 121 TWE: B 17 DI 99, 105

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> reading, writing, and ordering integers, rational numbers, and common irrational numbers such as $\sqrt{2}$, $\sqrt{5}$, and π; 	SE: 108-110, 162, 198-201, 294-297 <i>Reading Math</i> 294, 295 TWE: A 110 B 202 DI 108, 199	SE: 106-108, 109-111, 213 #44-#45, 227-231, 475-477 TWE: A 111 DI 228 ICE 107, 228-229 <i>Reading to Learn Mathematics</i> 137	SE: 18 Examples 3-5, 20 #5, #33-#36, 21 #51, 68-69, 125-129 TWE: A 139 DI 68 IE 18 <i>Practice: Word Problems 70 Study Guide and Intervention</i> 21, 70
<ul style="list-style-type: none"> applying number theory concepts (<i>for example, primes, factors, multiples</i>) to represent numbers in various ways; 	SE: 14-17, 18-21, 177-180, 182-185, 186-189, 194-197 <i>The Game Zone</i> 23 <i>Hands-On Lab</i> 181 TWE: DI 19, 195	SE: 10-13, 43-45, 197-200 TWE: B 43 ICE 11, 44 <i>Practice: Skills</i> 7, 42, 244 <i>Study Guide and Intervention</i> 6	SE: 34 Examples 1-2, 35 Example 3, 98, 104-107, 157 Example 4 <i>Hands-On Lab</i> 102-103, 183 <i>Prerequisite Skills</i> 609-612
<ul style="list-style-type: none"> using the relationships among fractions, decimals, and percents, including the concepts of ratio and proportion, in problem-solving situations; 	SE: 204-205 #27-#34, 209 #39-#43, 380-383, 386-389, 403 #31-#34, 406 #30-#37 <i>Spreadsheet Investigation</i> 390 TWE: A 389 B 386 <i>Practice: Word Problems</i> 498	SE: 213 #43-#46, 219 #37-#54, 223 #36-#37, 299-300 #40-47, 315 #39-#40 <i>Hands-On Lab</i> 301 TWE: A 213 <i>Practice: Word Problems</i> 387, 397	SE: 62-66, 67-70, 156-159, 160-164, 170-173, 184-187, 188-191 <i>Hands-On Lab</i> 183 <i>Spreadsheet Investigation</i> 165 TWE: A 173 DI 157 <i>Practice: Word Problems</i> 159
<ul style="list-style-type: none"> developing, testing, and explaining conjectures about properties of integers and rational numbers; and 	SE: 188, #3, 298 #60, 313 #41 <i>Hands-On Lab</i> 181, 299 <i>Hands-On Mini Lab</i> 310 TWE: A 298 B 186, 304, 316	SE: 108 #35-#36, 111 #33, 213 #46, 231 #57 <i>Hands-On Lab</i> 118-119, 126-127 <i>Hands-On Mini Lab</i> 134 TWE: A 213 B 106	SE: 13 Example 4, 14 #3, #10-#12, 25, 26 #3, 38 #62-#64, 46, 50-51, 76 <i>Practice: Skills</i> 15

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> using number sense to estimate and justify the reasonableness of solutions to problems involving integers, rational numbers, and common irrational numbers such as $\sqrt{2}$, $\sqrt{5}$, and π. 	SE: 116-119, 136 Example 3, 223-225, 256-258, 416 Examples 3 and 4, 558 #1-#2 <i>Problem-Solving Strategy</i> 157 #5 <i>Reading Math</i> 557 TWE: B 116	SE: 228 Example 2 <i>Problem-Solving Strategy</i> 338-339 TWE: DI 338 ICE 338 The following contain number sense concepts that could be used to determine reasonableness of solutions: SE: 122 #4, 136 #3, 231 #53, 242 #3, 250 #3, 256 #3, 494 #3	SE: 74 #1, 90 #3, 121 #4, 163 #2, 172 #2, 187 #21, 243 #3, 322 #2 <i>Problem-Solving Strategy</i> 96, 324, 488
STANDARD 2 Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will			
<ul style="list-style-type: none"> identify, describe, analyze, extend, and create a wide variety of patterns in numbers, shapes, and data; 	SE: 8-9 #3, #7, #13, 10-13, 21 #42-#47, 27 #47, 33 #9, 193 #13, 196 #23-#24, #29, 414 #12, 489 #9 <i>Hands-On Lab</i> 537 <i>Practice: Word Problems</i> 8	SE: 9 #9, 13 #62, 23 #7, 34-36, 61 Example 2, 226 #21, 291 #38-#39, 392 #10 <i>Hands-On Lab</i> 196 #2 TWE: A 213	SE: 518 Example 3 <i>Hands-On Lab</i> 304-305, 516 <i>Hands-On Mini Lab</i> 11, 300 <i>Problem-Solving Strategy</i> 96-97 <i>When</i> 98 TWE: A 97 B 96 DI 96 IE 301
<ul style="list-style-type: none"> describe patterns using mathematical language; 	SE: 21 #43-#45, 194, 197 #29, 282-284 <i>Hands-On Mini Lab</i> 10 TWE: A 281, 284 B 194, 280, 282 ICE 283	SE: 34 Examples 1 and 2, 35 #3, 41 #47-#50, 226 #21, 291 #38-#39 <i>Hands-On Mini Lab</i> 34 #3 TWE: B 34	SE: 517-520, 522-525 <i>Hands-On Lab</i> 516 <i>Hands-On Mini Lab</i> 11 TWE: A 525 IE 518

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> solve problems and model real-world situations using patterns and functions; 	SE: 365 #21-#24 <i>Problem-Solving Strategy</i> 280-281 <i>WebQuest</i> 369 TWE: B 280 DI 280 ICE 280, 363 #3 <i>Practice: Word Problems</i> 8, 354	SE: 36 #24-#27, 61 Example 2, 179 Example 3, 180 #29- #34 <i>Hands-On Lab</i> 176 <i>Problem-Solving Strategy</i> 132-133 <i>Standardized Test Practice</i> 51 #17 TWE: A 36 ICE 132	SE: 518 Examples 4-5, 520 #23-#24, 525 #23-#24, 529 #22-#23, 534 Examples 4- 6, 566 Example 5 <i>Hands-On Lab</i> 516 #4 <i>Problem-Solving Strategy</i> 537 <i>Practice: Word Problems</i> 563
<ul style="list-style-type: none"> compare and contrast different types of functions; and 	This objective can be met during a teacher/class discussion of functions. SE: 362-365, 366-369 <i>Hands-On Lab</i> 360-361 TWE: A 369	Functions are covered on the following pages: SE: 177-179, 185 #24-#26 <i>Hands-On Lab</i> 176 TWE: B 177 ICE 178-179 <i>Practice: Skills</i> 211 <i>Practice: Word Problems</i> 212	SE: 517-520, 545 Example 3, 560-563 <i>The Game Zone</i> 531 <i>Graphing Calculator Investigation</i> 532, 564 <i>Hands-On Mini Lab</i> 533 TWE: DI 560 IE 561 <i>Practice: Skills</i> 563 <i>Study Guide and Intervention</i> 563
<ul style="list-style-type: none"> describe the connections among representations of patterns and functions, including words, tables, graphs, and symbols. 	This objective can be met during a teacher/class discussion of functions. SE: 362-365, 366-369 <i>Hands-On Lab</i> 360-361 TWE: A 369 DI 366 ICE 367	This objective can be met during a teacher/class discussion using the following examples: SE: 177 (Fast Food), 179 Example 3, 180 #29-#46 <i>Hands-On Lab</i> 176 TWE: A 181 DI 177 ICE 179 <i>Practice: Word Problems</i> 212	SE: 512-515, 518 Example 3, 519 #6-#8, #17-#19, 524 #10-#11, 544-547, 548- 551, 565-568 <i>Hands-On Lab</i> 516, 521 <i>When</i> 517

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GRADES 5-8			
As students in grades 5-8 extend their knowledge, what they know and are able to do includes			
<ul style="list-style-type: none"> representing, describing, and analyzing patterns and relationships using tables, graphs, verbal rules, and standard algebraic notation; 	SE: 8-9, 21 #42-#47, 194 (Patterns), 282-284 <i>Hands-On Lab</i> 360-361 <i>Problem-Solving Strategy</i> 280-281 <i>Standardized Test Practice</i> 47 #25, 171 #9 TWE: B 194 DI 280	SE: 13 #62, 23 #7, 34-36, 41 #47-#50, 61 Example 2, 226 #21, 291 #38-#39 <i>Hands-On Mini Lab</i> 34 #3 TWE: A 213 B 34	SE: 512-515, 518 Example 3, 519 #6-#8, #17-#19, 524 #10-#11, 544-547, 548-551, 565-568 <i>Hands-On Lab</i> 516, 521 When 517
<ul style="list-style-type: none"> describing patterns using variables, expressions, equations, and inequalities in problem-solving situations; 	SE: 8-9 Example 2 <i>Problem-Solving Strategy</i> 280-281 The following contain patterns that could be described using variables, expressions, equations, or inequalities: SE: 21 #42-#47, 197 #29, 282-284, 521 #12 <i>Standardized Test Practice</i> 47 #25, 171 #9 <i>WebQuest</i> 291 TWE: A 284	SE: 20 #39, 21 #44-#45, 36 #27, 226 #21 <i>Hands-On Lab</i> 37 #1-#2 <i>Problem-Solving Strategy</i> 132-133 <i>Standardized Test Practice</i> 51 #17	SE: 37 #33-#34, 40-42 <i>Hands-On Mini Lab</i> 11 <i>Problem-Solving Strategy</i> 43, 324 When 34, 39 TWE: B 39 IE 40 <i>Practice: Skills</i> 42 <i>Reading to Learn Mathematics</i> 11
<ul style="list-style-type: none"> analyzing functional relationships to explain how a change in one quantity results in a change in another (<i>for example, how the area of a circle changes as the radius increases, or how a person's height changes over time</i>); 	SE: 41 #21, 159 #2, 164 #24, 549 #21, 559 #19, 573 #24, 577 #15-#16 <i>Hands-On Lab</i> 464 <i>Spreadsheet Investigation</i> 469	SE: 272 #21, 273 #29, 276 #1, 484 #3, 495 #31, 525 #1, 526 #24-#25 <i>Hands-On Lab</i> 536-537 <i>Spreadsheet Investigation</i> 523 #2-#4 TWE: A 500	SE: 10 #16, 31 #43-#44, 51 Example 3, 517-520, 534 Examples 4-6 When 39 TWE: IE 518 <i>Reading to Learn Mathematics</i> 11, 517

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> distinguishing between linear and nonlinear functions through informal investigations; and 	SE: 323 #38-#39, 369 #23-#24 <i>See Mathematics: Applications and Concepts Course 2 Extending the Lesson</i> page 181 for more examples.	SE: 178, 181 (Extending the Lesson) <i>See Mathematics: Applications and Concepts Course 3</i> Chapters 11 and 12.	SE: 560-563, 568 #41-#44 <i>Study Guide and Review</i> 293 #2, #6-#8, Example 1 TWE: B 560 DI 560 IE 561 <i>Practice: Skills</i> 563 <i>Practice: Word Problems</i> 563 <i>Reading to Learn Mathematics</i> 560 <i>Study Guide and Intervention</i> 563
<ul style="list-style-type: none"> solving simple linear equations in problem-solving situations using a variety of methods (<i>informal, formal, graphical</i>) and a variety of tools (<i>physical materials, calculators, computers</i>). 	SE: 339-342, 344-347, 350-353, 369 #19-#21 <i>Hands-On Lab</i> 337-338 <i>Problem-Solving Strategy</i> 358-359 TWE: A 37 B 350 TNT 340 <i>Practice: Word Problems</i> 33	SE: 159 #37-#39, 162-163 #28-#41, 168-169 #38-#41 <i>Hands-On Mini Lab</i> 160, 166 <i>Problem-Solving Strategy</i> 164-165 TWE: ICE 161, 167	SE: 525 #23-#24, 529 #22-#23, 534 Examples 4-6, 536 #34-#36, 544-547, 548-551, 566 Example 5, 567 #27-#29 <i>Hands-On Lab</i> 521
STANDARD 3: Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will			
<ul style="list-style-type: none"> solve problems by systematically collecting, organizing, describing, and analyzing data using surveys, tables, charts, and graphs; 	SE: 56-59, 86-89 <i>Problem-Solving Strategy</i> 54-55 <i>Spreadsheet Investigation</i> 60-61 <i>WebQuest</i> 377 TWE: A 59 B 50 DI 51, 54, 63	SE: 54-57, 60-63, 64-68, 76-79, 80-83, 85-89 <i>Problem-Solving Strategy</i> 58-59 <i>WebQuest</i> 95 TWE: DI 418 ICE 86-87	SE: 427 Examples 2-3, 477 Example 2 <i>Graphing Calculator Investigation</i> 425 <i>Problem-Solving Strategy</i> 418-419 <i>When</i> 420 TWE: IE 418

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> make valid inferences, decisions, and arguments based on data analysis; and 	SE: 66-69, 86-89 <i>WebQuest 3</i> TWE: A 441 DI 54, 63, 87 ICE 87	SE: 60-63, 68 #23, 79 #23, 89 #17, 92-95 TWE: A 95 DI 92 ICE 93 <i>Practice: Word Problems 104</i> <i>Study Guide and Intervention 102</i>	SE: 423-424 #9-#23, 426, 429 #11, #13, 442, 447 Example 2, 453 #12 <i>Problem-Solving Strategy 418-419</i> TWE: B 426 DI 418 <i>Practice: Word Problems 429</i>
<ul style="list-style-type: none"> use counting techniques, experimental probability, or theoretical probability, as appropriate, to represent and solve problems involving uncertainty. 	SE: 428-431, 433-435, 438-441 <i>Hands-On Lab 426-427, 432</i> TWE: A 441 B 433 DI 429	SE: 370-373, 374-377, 378-380, 393-395, 398-401 <i>Hands-On Lab 397</i> <i>Problem-Solving Strategy 391-392</i> TWE: A 380 B 391 DI 371	SE: 374-377, 381 Example 3, 385 Example 4, 398, 400-403, 424 #27 <i>Study Guide and Review 410-411</i> TWE: IE 375 <i>Practice: Skills 377</i> <i>Practice: Word Problems 377</i> <i>Study Guide and Intervention 377</i>
GRADES 5-8			
As students in grades 5-8 extend their knowledge, what they know and are able to do includes			
<ul style="list-style-type: none"> reading and constructing displays of data using appropriate techniques (<i>for example, line graphs, circle graphs, scatter plots, box plots, stem-and-leaf plots</i>) and appropriate technology; 	SE: 50-53, 56-59, 62-65, 72-75 <i>Graphing Calculator Investigation 84-85</i> <i>Problem-Solving Strategies 54-55</i> <i>Spreadsheet Investigation 60-61</i> TWE: DI 68 ICE 57-58 <i>Practice: Skills 82</i>	SE: 54-57, 64-68, 76-79, 80-83, 85-89 <i>Graphing Calculator Investigation 84</i> <i>Problem-Solving Strategy 58-59</i> <i>Spreadsheet Investigation 90-91</i> TWE: A 68 ICE 81-82	SE: 430-433 <i>Hands-On Lab 434</i> TWE: A 433 B 430 DI 430 IE 431 <i>Practice: Skills 433</i> <i>Practice: Word Problems 433</i> <i>Study Guide and Intervention 433</i>

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> displaying and using measures of central tendency, such as mean, median, and mode, and measures of variability, such as range and quartiles; 	SE: 76-78, 80-83 <i>Graphing Calculator Investigation</i> 84-85 <i>Spreadsheet Investigation</i> 79 TWE: A 83 B 80 <i>Practice: Word Problems</i> 88, 93	SE: 69-72, 80-83 <i>The Game Zone</i> 75 <i>Hands-On Lab</i> 73 TWE: A 72, 82 ICE 81-82 <i>Practice: Skills</i> 93 <i>Practice: Word Problems</i> 84	SE: 36 Example 8, 38 #66, 69 #32, 435-438, 442 <i>Spreadsheet Investigation</i> 439 TWE: DI 439 IE 36, 436 <i>Practice: Skills</i> 438 <i>Practice: Word Problems</i> 438 <i>Study Guide and Intervention</i> 438
<ul style="list-style-type: none"> evaluating arguments that are based on statistical claims; 	SE: 86-89 <i>Hands-On Lab</i> 437 TWE: A 89, 441 DI 87 ICE 87-88 <i>Practice: Skills</i> 97 <i>Practice: Word Problems</i> 98 <i>Study Guide and Intervention</i> 96	SE: 92-95 <i>Study Guide and Review</i> 98 (Misleading Statistics) TWE: A 95 DI 92 ICE 93 <i>Practice: Skills</i> 103 <i>Practice: Word Problems</i> 104 <i>Study Guide and Intervention</i> 102	SE: 423-424 #9-#23, 426, 429 #11, #13, 442, 447 Example 2, 453 #12 <i>Problem-Solving Strategy</i> 418-419 TWE: B 426 DI 418 <i>Practice: Word Problems</i> 429
<ul style="list-style-type: none"> formulating hypotheses, drawing conclusions, and making convincing arguments based on data analysis; 	SE: 66-69, 86-89 <i>Standardized Test Practice</i> 95 #14 <i>WebQuest</i> 3 TWE: A 441 DI 54, 63, 87 ICE 87-88	SE: 57 #19, 60-63, 68 #23, 79 #23, 89 #17, 92-95 TWE: A 95 DI 92 ICE 61 <i>Practice: Word Problems</i> 104	SE: 421 Example 2, 423 #9-#18, 427 Examples 2-3, 438 #18, 450-453 <i>Problem-Solving Strategy</i> 418-419 TWE: IE 418
<ul style="list-style-type: none"> determining probabilities through experiments or simulations; 	SE: <i>Hands-On Lab</i> 426-427, 432 <i>Hands-On Mini Lab</i> 444 TWE: DI 429	SE: 394 Examples 2 and 3 <i>Hands-On Lab</i> 397 <i>Hands-On Mini Lab</i> 393 <i>Problem-Solving Strategy</i> 391-392 TWE: A 373, 503 DI 371, 394 ICE 391 T 385	SE: 400-403 <i>Graphing Calculator Investigation</i> 404-405 TWE: A 377, 403 B 374 IE 401 <i>Study Guide and Intervention</i> 403

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> making predictions and comparing results using both experimental and theoretical probability drawn from real-world problems; and 	SE: 438-441, 444-447 <i>Study Guide and Review</i> 455 #22-#24 <i>WebQuest</i> 3 TWE: B 438, 444 DI 438 TNT 439 <i>Practice: Skills</i> 562 <i>Practice: Word Problems</i> 563	SE: 393-396 <i>Hands-On Mini Lab</i> 374 TWE: A 503 B 391 DI 371, 399 ICE 394 <i>Practice: Skills</i> 511 #6-#9 <i>Practice: Word Problems</i> 512 <i>Study Guide and Intervention</i> 510	SE: 374-377, 381 Example 3, 385 Example 4, 398, 400-403, 424 #27 <i>Study Guide and Review</i> 410-411 TWE: IE 375 <i>Practice: Skills</i> 377 <i>Practice: Word Problems</i> 377 <i>Study Guide and Intervention</i> 377
<ul style="list-style-type: none"> using counting strategies to determine all the possible outcomes from an experiment (for example, the number of ways students can line up to have their picture taken). 	SE: 433-435 <i>Standardized Test Practice</i> 458 #9, #18 <i>Study Guide and Review</i> 455 #16-#21 TWE: A 436 B 433 ICE 434 <i>Practice: Word Problems</i> 558 <i>Study Guide and Intervention</i> 556	SE: 374-377, 378-380, 381-383, 387-390 <i>Hands-On Lab</i> 386 TWE: A 376, 383 B 374 ICE 379, 388	SE: 380-383, 384-387, 388-391 <i>Hands-On Mini Lab</i> 384 TWE: B 380 DI 381, 385 IE 381 <i>Practice: Skills</i> 383 <i>Reading to Learn Mathematics</i> 380 <i>Study Guide and Intervention</i> 383
STANDARD 4: Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will			
<ul style="list-style-type: none"> connect various physical objects with their geometric representation; 	SE: 504, 510, 523 Example 2, 544, 547 Example 3, 573 #21-#23 TWE: A 525 B 570 DI 507, 564	SE: 434 (Basketball), 447 (Tessellation), 450 #28- #30, 479 Example 1, 498 (Architecture), 521 Example 2, 526 #22 <i>Hands-On Mini Lab</i> 524 TWE: A 415 B 413	SE: 264 #6-#9, #16-#23, 265 #24, 268 Example 2, 269 #16, 275 #24, 329 #17-#20 <i>When</i> 279, 331 TWE: IE 268 <i>Practice: Word Problems</i> 265

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	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> connect mathematical concepts from across the standards with their geometric representations; 	SE: 504, 506 (Gardening), 507 Example 3, 508 #6, #15-#16 <i>Problem-Solving Strategy</i> 521 #9, 525 #21, 548 #14	SE: 429 Example 2, 430 #17, 436 #28, 441 Example 2, 473 #37-#44, 522 #16-#17, 526 #27 <i>Mid-Chapter Practice Test</i> 438 #11 TWE: DI 418	SE: 268 Example 2, 272 Example 1, 314-317, 320-323, 335-339, 343-345, 349-351, 352-355 <i>Spreadsheet Investigation</i> 356-357
<ul style="list-style-type: none"> recognize, draw, describe, and analyze geometric shapes in one, two, and three dimensions; 	SE: 522-525, 528-531, 534-536, 564-566 <i>Hands-On Lab</i> 513-514, 526-527, 567, 574 TWE: B 570 DI 40	SE: 275, 413-415, 428-431, 434-437, 446-450, 514-517 <i>Hands-On Lab</i> 432-433 TWE: B 434 DI 434, 515	SE: 267-269, 272-275, 331-334, 337 <i>The Game Zone</i> 341 <i>Hands-On Lab</i> 283, 330, 346 TWE: B 314, 331 IE 332
<ul style="list-style-type: none"> make, investigate, and test conjectures about geometric ideas; and 	SE: 515, 549 #22-#26, 551 (Games) <i>Hands-On Lab</i> 513-514, 526-527 <i>Hands-On Mini Lab</i> 522, 528, 546 TWE: DI 510, 523	SE: <i>Hands-On Lab</i> 426-427, 432-433, 460-461, 478, 488 <i>Hands-On Mini Lab</i> 422, 428, 440 TWE: B 422, 428	SE: 275 #31-#34, 282 #24, 289 #21-#22, 294 #29, 318 #27-#28, 339 #33-#36, 345 #24, 351 #24-#28 <i>Problem-Solving Strategy</i> 276-277
<ul style="list-style-type: none"> solve problems and model real-world situations using geometric concepts. 	SE: 509 #17-#19, 512 #20-#23, 547 Example 3, 559 #17-#18, 576 Example 2 <i>Hands-On Lab</i> 560-561 <i>Problem-Solving Strategy</i> 520-521, 568-569 TWE: A 573 ICE 520	SE: 413 #22-#23, 421 #10-#16, 431 #24-#26, 450 #30, 459 #16-#17, 468, 480 Example 3 <i>Problem-Solving Strategy</i> 444-445, 496-497 TWE: DI 441	SE: 316 Example 4, 327 Example 3, 329 #17-#20, 348 Example 2 <i>When</i> 279, 290, 326 TWE: IE 292

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GRADES 5-8			
As students in grades 5-8 extend their knowledge, what they know and are able to do includes			
<ul style="list-style-type: none"> constructing two- and three-dimensional models using a variety of materials and tools; 	SE: 525 #26 <i>Hands-On Lab</i> 567, 574 <i>Hands-On Mini Lab</i> 522, 570 <i>Problem-Solving Strategy</i> 520-521, 568-869 TWE: A 569 B 546 ICE 568	SE: 541 #19 <i>Hands-On Lab</i> 512-513, 530-531 <i>Problem-Solving Strategy</i> 518-519 TWE: A 495, 517, 541 B 518 DI 515 ICE 518	SE: 267-269, 272-275, 331-334, 337 <i>The Game Zone</i> 341 <i>Hands-On Lab</i> 283, 330, 346 TWE: B 314, 331 IE 332
<ul style="list-style-type: none"> describing, analyzing, and reasoning informally about the properties (<i>for example, parallelism, perpendicularity, congruence</i>) of two- and three-dimensional figures; 	SE: 522-525, 534-536, 549 #22-#26, 564-565 <i>Hands-On Lab</i> 526-527 <i>Hands-On Mini Lab</i> 570 TWE: A 525 B 570 DI 523 ICE 523	SE: 435 #1 <i>Hands-On Lab</i> 432-433, 478, 512-513 <i>Hands-On Mini Lab</i> 428, 440 TWE: B 428, 520 DI 434, 515	SE: 207 Examples 3-4, 256-260, 262-265, 529 <i>Hands-On Mini Lab</i> 71, 132 <i>When</i> 88 TWE: B 132 DI 77
<ul style="list-style-type: none"> applying the concepts of ratio, proportion, and similarity in problem-solving situations; 	SE: 380-383, 386-389, 391-393 <i>Hands-On Lab</i> 384-385, 394 <i>Spreadsheet Investigation</i> 390 TWE: A 393 B 386 DI 391 <i>Practice: Word Problems</i> 676	SE: 299 #40, 304-308, 441 Example 2, 443 #13-#17, 445 #6 <i>Spreadsheet Investigation</i> 309 TWE: B 440 DI 441 ICE 441 <i>Practice: Word Problems</i> 570	SE: 156-159, 160-164, 170-173, 178-182, 184-187 <i>Hands-On Lab</i> 183 <i>Spreadsheet Investigation</i> 165 <i>Study Guide and Review</i> 159 TWE: IE 157, 161, 171
<ul style="list-style-type: none"> solving problems using coordinate geometry; 	SE: <i>Hands-On Lab</i> 532-533 #2 See <i>Mathematics: Applications and Concepts Course 2</i> page 454 #15-#16, #20, <i>Spreadsheet Investigation</i> 455, and 457 Examples 4 and 5.	SE: 452 Example 2, 453 #3-#12, 454 #15-#16, 457 Examples 1 and 2, 458 #11-#14, 459 #19-#20 TWE: ICE 452, 457 <i>Practice: Skills</i> 584 <i>Study Guide and Intervention</i> 573	SE: 143-145, 194-197, 301 <i>When</i> 142 TWE: IE 143, 195, 301 <i>Practice: Skills</i> 197, 303 <i>Study Guide and Intervention</i> 197

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> solving problems involving perimeter and area in two dimensions, and involving surface area and volume in three dimensions; and 	SE: 39-41, 158-160, 546-549, 551-553, 556-559, 570-573, 575-578 TWE: A 573 B 158 DI 576	SE: 270-273, 275-277, 489-492, 493-495, 498-500, 520-522, 524-527, 532-535, 538-541 <i>Practice: Word Problems 631</i>	SE: 44 #10, 53 #46, 85 #36, 95 #36, #41, 101 #43, 119 #43-#45, 128 #16, 227 #10, 229 Example 7 <i>Mid-Chapter Practice Test 32 #19, 86 #17</i>
<ul style="list-style-type: none"> transforming geometric figures using reflections, translations, and rotations to explore congruence. 	SE: 529 Examples 5 and 6 <i>Hands-On Lab 532-533</i> See <i>Mathematics: Applications and Concepts Course 2</i> pages 451-454, 456-459, and 460-461.	Reflections, translations, and rotations are covered on the following pages: SE: 451-454, 456-459 <i>Hands-On Lab 460-461</i> TWE: B 456 DI 451 <i>Practice: Skills 574, 584</i> <i>Study Guide and Intervention 573</i>	SE: 287-289, 290-294, 296-299, 300-303 <i>Hands-On Lab 304-305</i> <i>Hands-On Mini Lab 286</i> TWE: DI 291 IE 291, 297, 301
STANDARD 5: Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems. In order to meet this standard, a student will			
<ul style="list-style-type: none"> understand and apply the attributes of length, capacity*, weight, mass, time, temperature, perimeter, area, volume, and angle measurement in problem-solving situations; 	SE: 468 #30-#36, 470-473, 494-497, 548-549 #16-21, 573 #21-#24 <i>Hands-On Lab 464</i> <i>Problem-Solving Strategy 488-489</i> TWE: A 497 ICE 488 <i>Practice: Word Problems 651</i>	SE: 38-41, 267-269, 270-273, 483-485, 489-492, 493-495, 498-499 <i>Problem-Solving Strategy 496-497</i> TWE: A 273 <i>Practice: Word Problems 38</i>	SE: 315-316, 320, 335-336, 342-343, 347-349 <i>Hands-On Mini Lab 314, 319, 335</i> <i>Prerequisite Skills 604-607</i> <i>Practice: Word Problems 362</i>

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> make and use direct and indirect measurements to describe and compare real-world phenomena; 	SE: <i>The Game Zone</i> 483 <i>Hands-On Mini Lab</i> 465 <i>Problem-Solving Strategy</i> 488-489 <i>Spreadsheet Investigation</i> 469 TWE: B 39, 465, 488 DI 477, 507 ICE 488	SE: 423 Example 4, 441 Example 2, 443 #13-#14 <i>Hands-On Mini Lab</i> 38 TWE: B 43 DI 39, 271, 441 ICE 441 <i>Practice: Word Problems</i> 570	SE: 184-187, 188-191 <i>Study Guide and Review</i> 200 4-6, 4-7 TWE: B 188 DI 189 IE 189 <i>Practice: Skills</i> 191 <i>Practice: Word Problems</i> 191 <i>Study Guide and Intervention</i> 191
<ul style="list-style-type: none"> understand the structure and use of systems of measurement; 	SE: 465-467, 470-476, 476-479, 484-487, 490-493, 494-497 <i>Hands-On Lab</i> 474-475 TWE: A 473, 479 DI 495	SE: 38-41, 267-269 TWE: A 269 B 43, 520 DI 39, 267 <i>Practice: Skills</i> 37 <i>Practice: Word Problems</i> 38, 335	SE: 73 Example 5, 78 Example 6, 173 #39-#42, 184, 358-362 <i>Prerequisite Skills</i> 604-605, 606-607 TWE: IE 185, 359
<ul style="list-style-type: none"> describe and use rates of change (<i>for example, temperature as it changes throughout the day, or speed as the rate of change of distance over time</i>) and other derived measures; and 	SE: 8 #5, 9 #6, #12, 381 Example 3, 383 #28 <i>Practice: Skills</i> 2 #4 <i>Practice: Word Problems</i> 3 #4, 493 #6-#8	SE: 141 #37, 168 #39, 179 Example 3, 260 #35 <i>Hands-On Lab</i> 296 <i>Practice Test</i> 145 #24 <i>Problem-Solving Strategy</i> 133 #9 <i>Study Guide and Review</i> 144 #59 TWE: ICE 161 #3 <i>Practice: Word Problems</i> 212	SE: 160-163, 167 Example 4, 169 #19 <i>Practice Test</i> 201 #5-#6 <i>Spreadsheet Investigation</i> 165 <i>Study Guide and Review</i> 198 #12 <i>When</i> 166 TWE: A 164 IE 161-162
<ul style="list-style-type: none"> select appropriate units, including metric and U.S. customary, and tools (<i>for example, rulers, protractors, compasses, thermometers</i>) to measure to the degree of accuracy required to solve a given problem. 	SE: 465-468, 476-479, 506-509 <i>The Game Zone</i> 483 <i>Hands-On Lab</i> 474-475, 480-481 <i>Hands-On Mini Lab</i> 465 TWE: B 465 DI 477 ICE 507	SE: 542-545 <i>Hands-On Lab</i> 274 <i>Hands-On Mini Lab</i> 38 <i>Study Guide and Review</i> 548 (Precision and Measurement) TWE: B 43 DI 271 ICE 543 <i>Practice: Skills</i> 695 <i>Study Guide and Intervention</i> 694	SE: 358-362 <i>Hands-On Mini Lab</i> 256 <i>Prerequisite Skills</i> 604-605, 606-607 TWE: A 187 DI 359 IE 359-360 <i>Practice: Skills</i> 362 <i>Practice: Word Problems</i> 362 <i>Study Guide and Intervention</i> 362

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
GRADES 5-8			
As students in grades 5-8 extend their knowledge, what they know and are able to do includes			
<ul style="list-style-type: none"> estimating, using, and describing measures of distance, perimeter, area, volume, capacity, weight, mass, and angle comparison; 	SE: 39-41, 465-467, 484-487, 510-512, 570-573 <i>Hands-On Lab 474-475</i> <i>Hands-On Mini Lab 510</i> TWE: A 549 B 484 DI 485	SE: 38-41, 267-269, 270-273, 483-485, 489-492, 493-495, 498-499 <i>Hands-On Lab 412</i> TWE: A 484 DI 271	SE: 136 #32, 138 #7, 139 #14-#17, 140 #18-#21, 229 Example 7, 257 Examples 1-2, 318 #21-#24, 329 #21-#23 <i>Hands-On Mini Lab 347</i> <i>Problem-Solving Strategy 176</i> TWE: IE 134, 229 #7
<ul style="list-style-type: none"> estimating, making, and using direct and indirect measurements to describe and make comparisons; 	SE: 472 #26-#32, 478 #21-#24, 487 #25-#29, 497 #28, 512 #23 <i>Hands-On Mini Lab 465, 510</i> TWE: DI 156 ICE 488	SE: 441 Example 2, 443 #13-#14, 544 #12-#17 <i>Hands-On Mini Lab 38</i> TWE: B 43 DI 271, 441 ICE 441 <i>Practice: Word Problems 570</i>	SE: 189 #2, 191 #15 <i>Study Guide and Review 200 #29</i> TWE: DI 189 IE 185 #4 <i>Practice: Skills 191</i> <i>Practice: Word Problems 191</i> <i>Study Guide and Intervention 191</i>
<ul style="list-style-type: none"> reading and interpreting various scales including those based on number lines, graphs, and maps; 	SE: 56-59, 86-89, 391-393 <i>Hands-On Lab 394</i> <i>Problem-Solving Strategy 54-55</i> TWE: A 393 B 86 ICE 87-88, 392 <i>Practice: Word Problems 98</i>	SE: 13 #65, 88-89 #14-#19, 92-95, 106-107, 304-308, 312 (Surveys) <i>Spreadsheet Investigation 309</i> TWE: A 308 ICE 87 #3, 305	SE: 184-187, 191 #21-#24, 195 Examples 2-3, 197 #17-20 TWE: A 187 IE 185 <i>Practice: Skills 187</i> <i>Practice: Word Problems 187</i> <i>Study Guide and Intervention 187</i>
<ul style="list-style-type: none"> developing and using formulas and procedures to solve problems involving measurement; 	SE: 470-473, 476-479, 484-487, 490-493, 494-495, 497 (Extending the Lesson) <i>Problem-Solving Strategy 488-489</i> TWE: A 489 B 490 ICE 488	SE: 38-41, 267-269, 270-273, 304-308, 422-425 <i>Hands-On Lab 274</i> <i>Hands-On Mini Lab 483, 489</i> <i>Spreadsheet Investigation 309</i> <i>Practice: Word Problems 626</i>	SE: 156-157, 160-162, 166-167, 170-171 <i>Spreadsheet Investigation 165</i> TWE: DI 167

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> describing how a change in an object's linear dimensions affects its perimeter, area, and volume; and 	SE: 41 #21, 159 #2, 164 #24, 549 #21, 559 #19, 573 #24, 577 #15-#16 <i>Hands-On Lab</i> 464 <i>Spreadsheet Investigation</i> 469	SE: 272 #21, 273 #29, 276 #1, 484 #3, 495 #31, 525 #1, 526 #24-#25 <i>Hands-On Lab</i> 536-537 <i>Spreadsheet Investigation</i> 523 #2-#4 TWE: A 500	SE: 182 Example 3, 315 <i>Hands-On Mini Lab</i> 314, 335, 342 <i>Spreadsheet Investigation</i> 356-357 TWE: A 139
<ul style="list-style-type: none"> selecting and using appropriate units and tools to measure to the degree of accuracy required in a particular problem-solving situation. 	SE: 465-468, 476-479, 506-509 <i>The Game Zone</i> 483 <i>Hands-On Lab</i> 474-475, 480-481 <i>Hands-On Mini Lab</i> 465 TWE: B 465 DI 477 ICE 507	SE: 542-545 <i>Hands-On Lab</i> 274 <i>Hands-On Mini Lab</i> 38 <i>Study Guide and Review</i> 548 (Precision and Measurement) TWE: B 43 DI 271 ICE 543 <i>Practice: Skills</i> 695 <i>Study Guide and Intervention</i> 694	SE: 358-362 <i>Hands-On Mini Lab</i> 256 <i>Prerequisite Skills</i> 604-605, 606-607 TWE: A 187 DI 359 IE 359-360 <i>Practice: Skills</i> 362 <i>Practice: Word Problems</i> 362 <i>Study Guide and Intervention</i> 362
STANDARD 6: Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will			
<ul style="list-style-type: none"> model, explain, and use the four basic operations - addition, subtraction, multiplication, and division - in problem-solving situations; 	SE: 300-303, 304-307, 310-313, 316-319 <i>Hands-On Lab</i> 259-260, 299 <i>Problem-Solving Strategy</i> 33, 315 TWE: B 300, 304	SE: 26-27 #40-#46, 33 #39-#40, 120-124, 128-131, 134-137, 138-141 <i>Hands-On Lab</i> 118-119 <i>Problem-Solving Strategy</i> 22-23 TWE: DI 121 <i>Practice: Word Problems</i> 156	SE: 13, 23-24, 34-38, 72-75, 76-80, 82-85, 88-91, 574-577, 580-583, 584-587 <i>Hands-On Mini Lab</i> 28, 71

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> develop, use, and analyze algorithms*; and 	SE: 362-365, 366-369 <i>Hands-On Lab</i> 360-361 <i>Spreadsheet Investigation</i> 390 TWE: A 365 B 362	SE: 177-181 <i>Hands-On Lab</i> 176 <i>Study Guide and Review</i> 188 (Functions and Linear Equations) TWE: A 181 ICE 178-179 <i>Practice: Skills</i> 211	SE: 45-46, 51 Example 3, 52 #32-#39, 497 Example 4, 498 #30-#33, 499 #47-#50, 502 Example 5, 503 #30-#31
<ul style="list-style-type: none"> select and apply appropriate computational techniques to solve a variety of problems and determine whether the results are reasonable. 	SE: 6 (Study Tip) <i>Problem-Solving Strategy</i> 125-126, 156-157 <i>Study Skill</i> 38 TWE: A 126 B 125 DI 156 ICE 125, 156	SE: 429 (Study Tip) <i>Problem-Solving Strategy</i> 22-23, 132-133, 164-165, 201-202, 252-253, 338-339, 444-445 TWE: DI 22, 338	SE: 74 #1, 90 #3, 121 #4, 163 #2, 172 #2, 187 #21, 243 #3, 322 #2 <i>Problem-Solving Strategy</i> 96, 176, 324, 488
GRADES 5-8			
As students in grades 5-8 extend their knowledge, what they know and are able to do includes			
<ul style="list-style-type: none"> using models to explain how ratios, proportions, and percents can be used to solve real-world problems; 	SE: 391-393, 395-397 <i>Hands-On Lab</i> 394 <i>Hands-On Mini Lab</i> 386 TWE: A 389, 397 B 386 DI 391 ICE 392	SE: 216-219, 306 Example 4, 323-325 <i>Hands-On Lab</i> 296, 301, 322 TWE: A 291, 325 ICE 306	SE: 173 #36-#37, 207 Examples 3-4, 208 #1, 212 #1, 213 #63, 227 #10, 229 Example 7 <i>Hands-On Mini Lab</i> 216 <i>When</i> 156 TWE: IE 207 #5
<ul style="list-style-type: none"> constructing, using, and explaining procedures to compute and estimate with whole numbers, fractions, decimals, and integers; 	SE: 101 #3-#4, 116-119, 123 #1, 256-258 <i>Hands-On Lab</i> 299 TWE: A 119 B 24, 316 DI 301 ICE 117	SE: 120-124, 240-243, 244-247, 254-257 <i>Hands-On Lab</i> 118-119, 126-127 TWE: B 240, 254 DI 121 <i>Practice: Skills</i> 309	SE: 7-8, 27 #52, 39-42, 73 Example 5, 78 Example 6, 85 #37, 92-95 <i>Hands-On Lab</i> 22 <i>Hands-On Mini Lab</i> 28 <i>Problem-Solving Strategy</i> 43-44, 96-97

OBJECTIVES	PAGE REFERENCES		
	Course 1	Course 2	Course 3
<ul style="list-style-type: none"> developing, applying, and explaining a variety of different estimation strategies in problem-solving situations, and explaining why an estimate may be acceptable in place of an exact answer; and 	SE: 119 #34-#38 <i>Problem-Solving Strategy</i> 125-126, 156-157 TWE: A 157 B 116, 125 DI 125	SE: 242 #1-#2, 334 (Grilling), 336 #1 <i>Problem-Solving Strategy</i> 338-339 TWE: A 339 B 252, 338 DI 241, 335 <i>Practice: Word Problems</i> 437	SE: 8 Example 2, 21 #67, 27 #52, 78 Example 5, 235 #33 <i>Hands-On Lab 22</i> <i>Problem-Solving Strategy</i> 176-177
<ul style="list-style-type: none"> selecting and using appropriate methods for computing with commonly used fractions and decimals, percents, and integers in problem-solving situations from among mental arithmetic, estimation, paper-and-pencil, calculator, and computer methods, and determining whether the results are reasonable. 	SE: 119 #34-#38, 204-205 #26- #34, 225 #20-#23, 417 #19-#26 <i>Problem-Solving Strategy</i> 125-126, 156-157, 314- 315, 413-414 TWE: DI 156 ICE 125	SE: 210-213, 243 #37-#38, 251 #35-#38, 293 (Study Tip), 334-337 <i>Problem-Solving Strategy</i> 22-23, 338-339 TWE: B 244 DI 211 ICE 338	SE: 13, 23-24, 34-38, 72-75, 76-80, 82-85, 88-91, 235 #34-#37, 574-577, 580- 583, 584-587 <i>Hands-On Mini Lab</i> 28, 71

Codes Used for TWE Codes

Course 1

A Assess
 B Bellringer
 DI Daily Intervention
 ICE In-Class Examples
 TNT Tips for New Teachers

Course 2

A Assess
 B Bellringer
 DI Daily Intervention
 ICE In-Class Examples
 T Tips

Course 3

A Assess
 B Bellringer
 DI Daily Intervention
 IE In-Class Examples