



SOUTH DAKOTA
Mathematics Standards Grade 6
***Mathematics: Applications and Concepts Course 1* © 2004**

STANDARDS	PAGE REFERENCES
SIXTH GRADE ALGEBRA STANDARDS	
1. use order of operations to solve problems.	SE: 24-27, 31 #55-#56, 37 #49, 46 #8, 52 #2, 123 #22, #25-#26, #27, #29-#30, 155 #51-#54, 158-160, 247 #35 TWE: A 27 DI 25 ICE 25
2. explore various properties of equality and inequality.	SE: 339-342, 344-347 <i>Hands-On Lab</i> 343, 354 TWE: B 344 DI 340, 345 ICE 340, 346
3. explain the significance of the equal sign and inequality symbols in algebraic sentences.	This objective can be met during a discussion of solving equations and solving inequalities. SE: 34-35, 37 (Extending the Lesson) <i>Hands-On Lab</i> 354 TWE: B 34
4. write and solve one-step linear equations involving inverse operations, fractions, and decimals.	SE: 339-342, 344-347, 350-353 <i>Hands-On Lab</i> 337-338, 343 TWE: A 353 B 344, 350 DI 340
5. identify and graph ordered pairs in a coordinate plane.	SE: 320-323 <i>Practice Test</i> 327 #21-#24 <i>Standardized Test Practice</i> 328-329 #10, #20 <i>Study Guide and Review</i> 326 #66-#73 TWE: A 323 DI 321 ICE 321-322 <i>Study Guide and Intervention</i> 408
6. analyze tables and graphs to identify relationships between variables in algebraic sentences.	SE: 58 #8-#9, 64 #8-#10, 86-89 <i>Problem-Solving Strategy</i> 54-55 TWE: B 56 DI 54 ICE 57-58 <i>Practice: Skills</i> 67 #7-#8
7. use graphic forms to solve problems involving numerical relationships including inequalities.	SE: <i>Hands-On Lab</i> 100-101, 134, 218, 354, 395 <i>Problem-Solving Strategy</i> 54-55, 226-227, 448-489, 520-521, 568-569

STANDARDS	PAGE REFERENCES
8. use concrete materials and algebraic statements to represent problem situations.	SE: 28-31, 34-37 <i>Hands-On Lab</i> 337-338, 343, 354 <i>Problem-Solving Strategy</i> 358-359 TWE: A 342, 359 DI 29, 340
9. solve problems involving rate of speed, unit cost, or unit weight.	SE: 381 Example 3, 382 #11, #20-#23, 383 #24, #28 TWE: ICE 381 #3 <i>Practice: Word Problems</i> 493 #5, #7-#8
10. use variables to represent given quantities in problem situations.	SE: 28-31, 34-37 <i>Problem-Solving Strategy</i> 358-359 <i>Study Guide and Review</i> 44 #38-#47 TWE: DI 29 <i>Practice: Word Problems</i> 28, 33
SIXTH GRADE GEOMETRY STANDARDS	
1. identify, classify, and describe the characteristics of plane figures, e.g., similarities and differences.	SE: 522-525 <i>Hands-On Lab</i> 526-527 TWE: A 525 DI 523 ICE 523
2. use given attributes to determine congruence of segments, angles, and polygons by direct comparison.	SE: 534-536 <i>Study Guide and Review</i> 540 #32-#34 TWE: A 536 DI 534
3. sketch, construct models, and classify rectangular prisms, cones, cylinders, and pyramids.	SE: 564-566, 572 #3 <i>Hands-On Lab</i> 567, 574 <i>Hands-On Mini Lab</i> 570 #3 <i>Problem-Solving Strategy</i> 568-569 TWE: A 565 DI 564 ICE 568 <i>Practice: Word Problems</i> 716
4. identify, describe, and classify angles.	SE: 506-509 <i>The Game Zone</i> 519 <i>Study Guide and Review</i> 538 #8- #10 TWE: B 510 ICE 507 <i>Study Guide and Intervention</i> 649 <i>Practice: Skills</i> 650
5. explore problems involving regular and irregular shapes.	SE: 522-525, 536 #28 <i>Practice Test</i> 541 #10-#12 <i>Study Guide and Review</i> 539 #22-#23 TWE: A 525 DI 523 ICE 523 <i>Practice: Skills</i> 665 <i>Practice: Word Problems</i> 666 <i>Study Guide and Intervention</i> 664

STANDARDS	PAGE REFERENCES
6. explore ways that shapes can be combined, subdivided, and changed using geometric concepts of symmetry, reflections, congruency, similarity, perpendicularity, and parallelism.	SE: 528-531 <i>Hands-On Lab</i> 532-533, 537 TWE: A 531, 536 B 528 DI 529 ICE 529
7. identify and plot ordered pairs in all four quadrants of the rectangular coordinate system.	SE: 320-323 <i>Study Guide and Review</i> 326 #66-#73 TWE: A 323 DI 321 ICE 321-322 <i>Practice: Skills</i> 409 <i>Study Guide and Intervention</i> 408
8. explore ways to build three-dimensional figures from polygons.	SE: 544, 564-566 <i>Hands-On Lab</i> 567, 574 <i>Hands-On Mini Lab</i> 570, 575 TWE: A 565 DI 571
9. develop two-dimensional representations that demonstrate various perspectives of three-dimensional objects.	SE: 564-566 <i>Hands-On Lab</i> 567 TWE: A 565 DI 564 TNT 576 <i>Practice: Word Problems</i> 716
SIXTH GRADE MEASUREMENT STANDARDS	
1. use arbitrary referents to estimate and compare measurements, e.g., nose to extended fingertip is approximately one yard.	SE: 488-489 <i>Hands-On Mini Lab</i> 465 TWE: A 489 B 488 ICE 488
2. convert units of measure within a measurement system.	SE: 465-468, 470-473, 490-493 <i>Hands-On Lab</i> 474 TWE: A 468, 473 B 490 DI 491 ICE 466, 471
3. explore the use of formulas that assist in measurement situations, e.g., area.	SE: 39-41, 158-160, 161-164, 412 (Extending the Lesson) <i>Hands-On Mini Lab</i> 161 <i>Spreadsheet Investigation</i> 165 TWE: A 41, 164 B 161, 570
4. select models of area that approximate referent values, e.g., a sheet of paper is about one square foot.	This objective can be met during a discussion of area. See Chapter 14 pages 546-559. SE: 39-41 <i>Problem-Solving Strategy</i> 488-489 TWE: B 39 PA 40

STANDARDS	PAGE REFERENCES
5. use the most appropriate tool to measure length, temperature, and angle in customary and metric systems.	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, 476 DI 477 ICE 507
6. examine measurement situations to determine necessary degree of accuracy.	SE: <i>Hands-On Lab</i> 480-481 This concept also could be covered when discussing Chapter 12 pages 462-500.
7. use area formulas to solve problems.	SE: 39-41, 546-549, 551-554, 556-559 <i>Hands-On Lab</i> 555 TWE: DI 557 <i>Practice: Skills</i> 37 <i>Practice: Word Problems</i> 711 <i>Study Guide and Intervention</i> 709
8. apply units or combinations of units for various measurement situations.	SE: 465-468, 470-473, 476-479, 484-487, 494-497 <i>Hands-On Lab</i> 474-475 <i>Problem-Solving Strategy</i> 488-489 TWE: B 465 DI 471 TNT 571
SIXTH GRADE NUMBER SENSE STANDARDS	
1. represent numbers in a variety of equivalent forms, e.g., fractions, decimals, percents.	SE: 202-205, 206-209, 400-403, 404-406 TWE: A 205 B 202, 206 ICE 203, 405 <i>Study Guide and Intervention</i> 246
2. use concepts about numbers to build number sequences, e.g., primes, factors, multiples.	SE: 14-17, 194, 195 Example 1, 196 #23-#24, 282-284 TWE: A 284 B 194 DI 195, 282 ICE 283
3. describe relationships among sets of rational numbers.	See <i>Mathematics: Applications and Concepts Course 2</i> © 2004 page 229.
4. solve problems involving arithmetic operations with fractions and mixed numbers.	SE: 228-231, 235-238, 244-247, 261-264, 265-267, 276-279 <i>The Game Zone</i> 233 <i>Study Skill</i> 239 TWE: A 243 ICE 226
5. select appropriate operations to solve problems involving rational numbers, ratios, proportions, and percents.	Selection of appropriate operations can be covered when problem solving. SE: 243 #34-#37, 383 #24-#29, 388-389 #22-#29 <i>Problem Solving Strategy</i> 125-126, 413-414 <i>Study Skill</i> 38, 239 <i>Spreadsheet Investigation</i> 390 <i>Practice: Word Problems</i> 498, 503

STANDARDS	PAGE REFERENCES
6. model addition and subtraction with integers.	SE: 300-303, 304-307 <i>Study Guide and Review</i> 325 TWE: A 302, 307 B 300 DI 301 <i>Practice: Skills</i> 394 <i>Study Guide and Intervention</i> 393
7. use estimation strategies to help solve multi-step problems involving rational numbers.	SE: 119 #36-#38, 225 #22-#23, 257 #10, 417 #24-#25 <i>Problem-Solving Strategy</i> 125-126, 156-157 TWE: B 415 DI 256, 415 ICE 416 #3
8. identify similarities within different problem-solving situations.	Similarities in the following problem solving situations can be discussed. SE: <i>Problem-Solving Strategies</i> 125 and 156, 226 and 568, 192 and 280
9. create and justify rules that can be applied in unfamiliar problem-solving situations.	Students can use the following problem-solving strategies as a guide in unfamiliar problem-solving situations. SE: 6-9 <i>Problem-Solving Strategy</i> 32, 54, 125, 156, 192, 226, 280, 314, 358, 413, 448, 488, 520, 568
10. test new rules against proven procedures.	The following examples require knowledge of pre-existing rules and procedures. SE: 48, 330, 544 <i>WebQuest</i> 3, 291
11. understand the magnitude of fractions, decimals, and percents.	SE: 108, 110, 119 #38, 207 Example 3, 209 #39-#42 TWE: B 108 DI 153
12. associate mathematical symbols with word names for rational numbers.	SE: 162, 557 Examples 1 & 2
13. explain the effects of operations on the magnitude of rational numbers.	SE: 209 #39-#42 <i>Hands-On Lab</i> 134, 139-140 TWE: NS 263, 266
14. identify, represent, compare, and order rational numbers and represent them on a number line.	SE: 102-105, 108-110, 186, 198-201, 294-298 TWE: A 105, 110 B 102, 108 DI 199
SIXTH GRADE PATTERNS, RELATIONS, AND FUNCTIONS STANDARDS	
1. explain functions using symbols and graphs.	SE: 362-365, 366-369 <i>Hands-On Lab</i> 360-361 TWE: A 369 B 362 ICE 367 PS 373
2. recognize that rate is a measure of one quantity per unit value of another quantity.	SE: 381, 382 #9-#10, #20-#23, 383 #24, #28 <i>Study Guide and Review</i> 418 #14-#17 TWE: ICE 381 #3

STANDARDS	PAGE REFERENCES
3. solve simple problems involving rates, average speed, distance and time.	SE: 8 #5, 381-383, 494-497 <i>Problem-Solving Strategy</i> 414 #10-#11, 489 #7 <i>Study Guide and Review</i> 500 #59-#60 <i>Practice: Word Problems</i> 440 #3, #5, 450 #1, #5, #7-#8
4. recognize, describe, and extend a variety of numeric and geometric patterns.	SE: 8 #3, #7, 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>Standardized Test Practice</i> 46 #2 <i>Practice: Word Problems</i> 8
5. identify, describe, and generalize patterns involving multiples and perfect squares.	SE: 194-197 TWE: B 194 DI 195 ICE 195 <i>Practice: Skills</i> 237 <i>Practice: Word Problems</i> 238 <i>Study Guide and Intervention</i> 236
6. use tables and graphs to represent patterns found in real-world events, e.g., month of birth.	SE: 50-53, 56-59, 62-65, 66-69 <i>Problem-Solving Strategy</i> 54-55 <i>Spreadsheet Investigation</i> 60-61 TWE: A 59 B 56 DI 51, 68
7. apply maximums and minimums to various problem situations, e.g., what is the maximum area that can be enclosed with a minimum amount of fencing?	Further examples of maximums and minimums could be discussed using the following. SE: <i>Spreadsheet Investigation</i> 469
8. investigate the role of constants in determining relationships, e.g., holding perimeter constant, what is the relationship to area?	SE: 548 #14, 549 #21, 559 #19, 573 #23-#24, 557 #15-#16 <i>Hands-On Lab</i> 464 <i>Spreadsheet Investigation</i> 469 TWE: B 546 <i>Practice: Word Problems</i> 711 #5-#6
9. explore the concept of limit using various representations, e.g., $\frac{1}{2}$ distance to the wall followed by another $\frac{1}{2}$ distance to the wall, . . .	The following reference shows how limits are needed to complete the diagram(s). SE: 520-521
SIXTH GRADE STATISTICS & PROBABILITY STANDARDS	
1. identify different ways to select samples and determine when to use sample data or population data.	SE: 438-441 TWE: A 441 DI 438, 440 ICE 439 #1 TNT 439 <i>Study Guide and Intervention</i> 561
2. compare and interpret mean, median, mode, and range.	SE: 80-83 <i>Practice Test</i> 93 #8 <i>Spreadsheet Investigation</i> 79 TWE: B 80 DI 81 ICE 82 <i>Practice: Word Problems</i> 93 <i>Reading to Learn Mathematics</i> 94

STANDARDS	PAGE REFERENCES
3. analyze how data is displayed and its impact on conclusions reached.	SE: 86-89 <i>Study Guide and Review 92 #22-#23</i> TWE: A 89 DI 87 ICE 87-88 <i>Practice: Skills 97</i> <i>Practice: Word Problems 98</i> <i>Study Guide and Intervention 96</i>
4. use data to support or reject hypotheses.	This concept can be covered when discussing Section 11-3 pages 438-441.
5. represent all possible outcomes for compound events in an organized manner, e.g., tables, tree diagrams.	SE: 433-436 <i>Mid-Chapter Practice Test 442 #7</i> <i>Problem-Solving Strategy 448-449</i> <i>Study Guide and Review 455 #16-#21</i> TWE: A 436 B 433 ICE 434 <i>Practice: Skills 557</i> <i>Practice: Word Problems 558</i> <i>Study Guide and Intervention 556</i>
6. identify probabilities of events and predict outcomes.	SE: 428-431, 438-441, 444-447, 450-453 <i>The Game Zone 443</i> <i>Hands-On Lab 432</i> TWE: A 441, 453 B 438 DI 438
7. investigate and describe differences between probabilities of events found through simulation.	SE: <i>Hands-On Lab 426-427, 432</i> <i>Hands-On Mini Lab 444</i> TWE: DI 429
8. identify uses and misuses of probability theory in the everyday world.	SE: <i>Hands-On Lab 437</i> TWE: DI 87 This concept can be emphasized throughout Chapter 11.

Codes Used for TWE Pages

A	Assess
B	Bellringer
DI	Daily Intervention
ICE	In-Class Examples
NS	Number Sense
PA	Practice/Apply
PS	Portfolio Suggestion
TNT	Tips for New Teachers