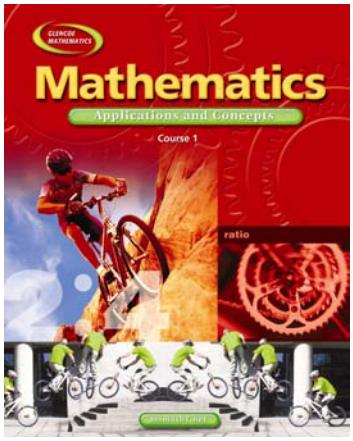
Mc Graw Hill Glencoe

Mathematics
Content Standards
Grade 8

Montana



Mathematics

Applications and Concepts
Course 1
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	STANDARDS	PAGE REFERENCES
	Standard 1-Students engage in the mathematical processes of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology.	
	These processes are essential to all mathematics and must be incorporated in all other mathematics standards.	
	End of Grade 8	
1.	Formulate and solve multi-step and nonroutine problems using a variety of strategies. Generalize methods to new problem situations.	**Student Edition:** 47 #25, 164 #22, 171 #12, 193 #12, 253 #17, 289 #17, 412 #33 *Web Quest* 3, 97, 377 **Teacher Wraparound Edition:** A 359
2.	Select and apply appropriate estimation strategies throughout the problem-solving process.	**Student Edition:** 111-113, 116-119, 130 #7, #8, 154 #37, 221 #31-#35, 223-225, 256-258, 415-417, 472 #31, #32, 592-593 *Data Update* 441 *Test-Taking Tip* 117 **Teacher Wraparound Edition:** A 119, 258; B 116, 125; DI 125, 142, 223

Codes used for Teacher Wraparound Edition pages are the initial caps of headings on that page.

STANDARDS	PAGE REFERENCES
3. Interpret and communicate mathematical ideas and logical arguments using correct mathematical terms and notations.	**Student Edition:** 16 #47, 18-21, 28-31, 37 #38, #39, 95 #14, 136, 205 #34, 215 #20 *Problem-Solving Strategy* 32-33, 156-157, 314-315 **Teacher Wraparound Edition:** A 89, 138; B 18, 125; DI 25, 32
4. Recognize and investigate the relevance and usefulness of mathematics through applications, both in and out of school.	**Student Edition:** 67 #3-#6, 136 EXAMPLE #5, 216, 318 #26, 320 WHEN, 347 #41, 391-393, 503 #21 *Problem-Solving Strategy* 280-281, 568-569 *Real-Life Math* 19, 81, 334 *Web Quest* 3, 173, 291, 461 **Teacher Wraparound Edition:** A 468; PS 45, 457, 581; TT 79
5. Select and use appropriate technology to enhance mathematical understanding. Appropriate technology may include, but is not limited to, paper and pencil, calculator, computer, and data collection devices.	**Student Edition:** 7 EXAMPLE #1, 131 #17, 136 EXAMPLE #5, 205 #33, 206-207, 247 #28 *Spreadsheet Investigation* 60-61, 390 *Study Skill* 38 *Web Quest* 3, 97 **Teacher Wraparound Edition:** DI 68, 136, 295
Standard 2-Students demonstrate understanding of and an ability to use numbers and operations. ***An understanding of numbers and how they are used is necessary in the everyday world. Computational skills and procedures should be developed in context so the learner perceives them as tools for solving problems.***	
1. Use the four basic operations with whole numbers, fractions, decimals, and integers.	**Student Edition:** 7 EXAMPLE #1, 26 #14-#31, 121-124, 135-138, 141-143, 144-147, 152-155, 228-231, 240-243, 300-303, 310-313, 316-319 *Hands-on Lab* 134, 139-140, 150-151, 259-260, 270-271 *Web Quest* 97 **Teacher Wraparound Edition:** A 238; B 121; DI 301; ICE 136; PS 251

STANDARDS	PAGE REFERENCES
2. Use mental mathematics and number sense in using order of operations, and order relations for whole numbers, fractions, decimals, and integers.	**Student Edition:** 24-27, 108-110, 198-201, 275 #45, 295-297, 336 #37-#42 *Study Skill* 38 *Web Quest* 3 **Teacher Wraparound Edition:** A 38; B 108; DI 25, 199; ICE 109, 199
3. Use the relationships and applications of ratio, proportion, percent, and scientific notation.	**Student Edition:** 20 #17, #18, 136, 171 #13, 380-383, 386-389, 391-393, 409-412, 422 #6 *Hands-on Lab* 394, 407-408 *Spreadsheet Investigation* 390 *Web Quest* 3, 377 **Teacher Wraparound Edition:** DI 381, 387, 410; ICE 381; TNT 392
4. Develop and apply number theory concepts (e.g., primes, factors and multiples) in real-world and mathematical problem situations.	**Student Edition:** 14-17, 21 #50-#53, 22 #7-#9, 46 #5, 47 #26, 147 #41, 177-180, 194-197 *Study Skill* 120, 176 **Teacher Wraparound Edition:** A 17, 179, 197; B 14; DI 15, 178, 195; ICE 15, 178, 195; TNT 177
Standard 3-Students use algebraic concepts, processes, and language to model and solve a variety of real-world and mathematical problems. ***Algebra is the language of mathematics and science. Through the use of variables and operations, algebra allows students to form abstract models from contextual information.***	
1. Understand the concepts of variable, expression and equation.	**Student Edition:** 28-31, 34-37, 44 *Problem-Solving Strategy* 358-359 **Teacher Wraparound Edition:** B 34; DI 36
2. Represent situations and number patterns using tables, graphs, verbal rules, equations, and models.	**Student Edition:** 8 #3, 21 #42-#46, 47 #25, 171 #9, 209 #43, 282-284, 362-365, 375 #12 *Hands-on Lab* 360-361 *Problem-Solving Strategy* 280-281 *Web Quest* 291 **Teacher Wraparound Edition:** A 59, 284; B 66, 194; DI 282, 351

STANDARDS	PAGE REFERENCES
3. Recognize and use the general properties of operations (e.g., the distributive property).	**Student Edition:** 333-336, 342 #42-#43, 370 #7-#14, 373 #6, #7 *Hands-on Lab* 270-271, 332 **Teacher Wraparound Edition:** B 333; ICE 334; PC 330F
4. Solve linear equations using concrete, numerical and algebraic methods.	**Student Edition:** 323 (introduces the term) 366-369 can be used as application of linear equation
5. Investigate inequalities and nonlinear relationships informally.	**Student Edition:** Note: A limited reference is found on pages 37, 323 for nonlinear. *Hands-on Lab* 354 is a reference for inequality. Also see *Mathematics: Applications and Concepts Course 2* © 2005 pages 177-181.
Standard 4-Students demonstrate understanding of shape and an ability to use geometry. ***The study of geometry helps students represent and make sense of the world by discovering relationships and developing spatial sense.***	
1. Identify, describe, construct, and compare plane and solid geometric figures.	**Student Edition:** 504, 522-525, 534-536, 539 #22, #23, 543 #17, #19, 564-566 *Hands-on Lab* 526-527, 567 **Teacher Wraparound Edition:** A 525, 565; DI 564; ICE 523, 529; TNT 507
2. Understand and apply geometric properties and relationships (e.g., the Pythagorean Theorem).	**Student Edition:** 528-531, 534-536, 540 #24-#31, 541 #14-#15, 542 #7, #8, 543 #18, #19, 583 #15 *Hands-on Lab* 513-514 Note: See the Pythagorean Theorem in *Mathematics: Applications and Concepts Course 2* © 2005 pages 479-481. **Teacher Wraparound Edition:** A 513, 536; DI 529, 534; ICE 535; PS 541; TNT 528
3. Represent geometric figures on a coordinate grid.	**Student Edition:** 329 #17, #18, 536 #16 *Hands-on Lab* 532-533 **Teacher Wraparound Edition:** T Activity 2, 532-533

STANDARDS	PAGE REFERENCES
4. Explore properties and transformations of geometric figures.	**Student Edition:** *Hands-on Lab* 532-533, 537 **Teacher Wraparound Edition:** T 532, 537
5. Use geometry as a means of describing the physical world.	**Student Edition:** 544, 549 #18, 554 #18, #19 *Hands-on Lab* 394, 532-533, 537 *Problem-Solving Strategy* 520-521 *Web Quest* 461 **Teacher Wraparound Edition:** A 521; DI 564; PS 169
Standard 5-Students demonstrate understanding of measurable attributes and an ability to use measurement processes. ***The first step in scientific investigation is understanding the measurable attributes of objects.***	
1. Estimate, make, and use measurements to describe, compare, and/or contrast object in real-world situations.	**Student Edition:** 31 #49-#51, 279 #42, #43, 375 #10, 462, 465-468, 470-473, 476-479, 486 EXAMPLE #5, 503 #21 *Hands-on Lab* 474-475 *The Game Zone* 483 *Web Quest* 461 **Teacher Wraparound Edition:** B 470; DI 471; ICE 117, 220
2. Select and use appropriate units and tools to measure to a level of accuracy required in a particular setting.	**Student Edition:** 21 #41, 263 #33, 363 EXAMPLE #3, 465-468, 470-473, 476-479, 484-485, 494-497 *Hands-on Lab* 480-481 *Problem-Solving Strategy* 488-489 **Teacher Wraparound Edition:** A 468, 487; B 465; DI 471, 495
3. Apply the concepts of perimeter, area, volume and capacity, weight and mass, angle measure, time, and temperature.	**Student Edition:** 17 #53, 39-41, 158-160, 171 #16, 216, 329 #14, 470-473, 484-487, 494-497, 503 #21, 506-509, 510-512 *Hands-on Lab* 464, 550 *Spreadsheet Investigation* 469 *Web Quest* 173 **Teacher Wraparound Edition:** A 549, 573; B 470, 484; DI 471, 485

STANDARDS	PAGE REFERENCES
4. Demonstrate understanding of the structure and use of systems of measurement, including English and metric.	**Student Edition:** 462, 465-468, 470-473, 476-479, 484-487, 490-493, 498-499 *Hands-on Lab* 474-475 **Teacher Wraparound Edition:** DI 495; ICE 466, 477, 485; TNT 471
5. Use the concepts of rates and other derived and indirect measurements.	**Student Edition:** 9 #12, 30-31, 47 #14, 112 #10, 380-383, 391-393, 412 #38-#40, 421 *Hands-on Lab* 394 **Teacher Wraparound Edition:** ICE 392
6. Demonstrate relationships between formulas and procedures for determining area and volume.	**Student Edition:** 17 #53, 39-41, 171 #16, 215 #9, 268 #18, 353 #53, 546-549, 551-554, 570-573 *Hands-on Lab* 550, 555 **Teacher Wraparound Edition:** DI 40, 547; ICE 571
Standard 6-The students demonstrate understanding of and an ability to use data analysis, probability, and statistics. ***With society's expanding use of data for prediction and decision making, it is important that students develop an understanding of the concepts and processes used in analyzing data.***	
1. Systematically collect, organize, and describe data.	**Student Edition:** 50-53, 56-59, 72-75, 625 *Problem-Solving Strategy* 54-55, 192-193, 448-449 *Web Quest* 3, 97, 377 **Teacher Wraparound Edition:** A 53, 59; DI 51, 57; ICE 55
2. Construct, read, and interpret tables, charts, and graphs.	**Student Edition:** 50-53, 56-59, 62-65, 94 #3, 117 EXAMPLE #4, 124 #36-#39, 182, 222 #39-#40, 403 #31-#33, 625 *Hands-on Lab* 560-561 *Spreadsheet Investigation* 60-61 *Web Quest* 3, 97, 377 **Teacher Wraparound Edition:** A 59; DI 51, 57, 73; ICE 51, 63; TNT 183

STANDARDS	PAGE REFERENCES
3. Draw inferences, construct, and evaluate arguments based on data analysis and measures of central tendency.	**Student Edition:** 48, 66-69, 76-78, 80-83, 86-89, 95 #14, 131 #12, 438-441, 459 #11 *Spreadsheet Investigation* 79 *Study Skill* 176 *Web Quest* 3, 97, 291 **Teacher Wraparound Edition:** A 83; B 66; DI 68, 87; ICE 88
4. Construct sample spaces and determine the theoretical and experimental probabilities of events.	**Student Edition:** 428-431, 433-436, 454, 455, 459 #14, #18 *Hands-on Lab* 426-427, 432 **Teacher Wraparound Edition:** A 430; DI 429; T 432
5. Make predictions based on experimental results or probabilities.	**Student Edition:** 438-441, 442 #12, 454, 455 #22-#24 *Hands-on Lab* 426-427, 432 *The Game Zone* 443 *Web Quest* 3 **Teacher Wraparound Edition:** A 441; B 438; DI 429, 438
Standard 7-Students demonstrate understanding of and an ability to use patterns, relations and functions. ***One of the central themes of mathematics is the study of patterns, relations, and functions. Exploring patterns helps students develop mathematical power and instills in them an appreciation for the beauty of mathematics.***	
1. Describe, extend, analyze, and create a variety of patterns and functions.	**Student Edition:** 10-13, 21 #42-#46, 47 #25, 171 #9, 291, 312 #29, #30, 362-365, 375 #19 *Hands-on Lab* 360-361 *Problem-Solving Strategy* 280-281 *Web Quest* 291 **Teacher Wraparound Edition:** A 284, 365; B 280, 362; ICE 363
2. Describe and represent relationships with tables, graphs, and rules.	**Student Edition:** 8 #2, 21 #42-#46, 56-59, 171 #9, 282-284, 366-369, 373 #25, 375 #12, #21, 383 #33-#35 *Problem-Solving Strategy* 54-55, 448-449 *Spreadsheet Investigation* 60-61 **Teacher Wraparound Edition:** A 59, 365; DI 57; ICE 363

STANDARDS	PAGE REFERENCES
3. Analyze functional relationships to explain how a change in one quantity results in a change in another.	**Student Edition:** 362, 363, 366-369, 383 #33-#35, 389 #34-#35 *Hands-on Lab* 360-361 **Teacher Wraparound Edition:** B 362
4. Use patterns and functions to represent and solve problems.	**Student Edition:** 282-284, 289 #16, 312 #29, #30, 362-365 *Web Quest* 3, 291
5. Describe functions using graphical, numerical, physical, algebraic, and verbal models or representations.	**Student Edition:** 362-365, 366-369, 372, 373 #20, #21, 375 #2, 503 #15-#17, 543 #11, 632 #12, #13 *Hands-on Lab* 360-361