WYOMING
Mathematics Content and Performance Standards – Grade 8
Mathematics: Applications and Concepts
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BENCHMARKS	PAGE REFERENCES
1. NUMBER OPERATIONS AND CONCEPTS **Students use numbers, number sense, and number relationships in a problem-solving situation.**	
1. Students represent and apply numbers in a variety of equivalent forms (such as changing from percent to decimal to fraction, etc.) and in a problem-solving context: ● prime factors, factors, and multiples; ● rational numbers and proportions; and ● square roots and powers.	SE: 34, 98-99, 116-122, 206-209, 210-214, 609, 612, 621, 622, 626-627 *Practice and Applications* 100, 213 TWE: B 62, 116 DI 99, 206, 211 ICE 117 AS 209
2. Students extend understanding and use of basic arithmetic operations on rational numbers. ● Simplify numerical expressions using the order of operations; ● Order rational numbers expressed in a variety of forms	SE: 11-15, 67-70, 76-80, 619 *Hands-on Mini Lab* 71 TWE: DI 68 ICE 68 AS 70
3. Students explain their choice of estimation and problem-solving strategies and justify results of solutions in problem-solving situations involving rational numbers.	SE: 6-10, 62, 67-68, 600-601 *Practice and Application* 9-10, 69 *Problem-Solving Strategies* 96, 226, 488 TWE: DI 7 TNT 7 B 62
4. Students understand properties of operations with rational numbers.	SE: 11-13, 34-36, 616 *Skill and Concept Check* 14 *Practice and Applications* 15, 37 TWE: ICE 13 DI 35, 133
2. GEOMETRY **Students apply geometric concepts, properties, and relationships in a problem-solving situation.**	
1. Students classify and describe one-, two-, and three-dimensional geometric objects, including: ● lines, rays, segments, and angles; ● parallel and perpendicular relationships; ● circles and spheres; ● regular polygon types; ● right prisms, cylinders, cones, and pyramids.	SE: 256-260, 262-265, 272-275, 319-321, 331-334, 335-337, 342-344, 629-634 *Hands-on Lab* 261, 271, 278, 330 *Hands-on Mini Lab* 262, 319 TWE: DI 257, 337 ICE 257, 336

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2. Students make conjectures about geometric objects based on knowledge of geometric transformations, congruence, and similarity.	SE: 178-180, 194-195, 279-282, 625, 630 *Practice and Application* 181, 196 *Hands-on Mini Lab* 194 *Hands-on Lab* 283 TWE: DI 179 ICE 179, 180, 280 B 279
3. Students use geometric formulas including the Pythagorean Theorem.	SE: 132-136, 137-140, 314-316, 319-321, 326-327, 623, 632-634 *Hands-on Mini Lab* 132 *Practice and Applications* 317, 322, 328 TWE: DI 133, 326 ICE 315, 316, 320, 321, 326
4. Students communicate the reasoning used in identifying geometric relationships in problem-solving situations appropriate to grade level.	SE: 182 #18, #19, 303 #25 *Problem-Solving Strategy* 276, 324 TWE: B 276
5. Students represent geometric figures using a rectangular coordinate plane.	SE: 142-144, 194-196, 290, 296-297, 300-301, 614, 623 *Hands-on Mini Lab* 194 *Practice and Applications* 293, 298, 302 TWE: ICE 195, 291, 297, 301 B 290
3. MEASUREMENT **Students use a variety of tools and techniques of measurement in a problem-solving situation.**	
1. Students apply estimation and measurement of weight/mass to content problems and convert within U.S. customary and within metric units (mg, g, kg).	SE: 336, 604-607
2. Students apply estimation and measurement of capacity/volume to content problems and convert within metric units (ml, l).	SE: 336, 606-607 TWE: ICE 337
3. Students select and use the appropriate methods, tools, and units to solve problems involving angle measure, perimeter, circumference, area (including circles), and volume of rectangular solids.	SE: 319-323, 336-337, 613, 633-634 *Practice and Applications* 338 TWE: ICE 320-321
4. ALGEBRA **Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem-solving situation.**	
1. Students translate word phrases, which involve the four basic operations to mathematical expressions.	SE: 13, 39-42, 49-50, 618 *Reading Math* 8 *Study Skill* 215 TWE: B 39, 43 ICE 40, 43 DI 41
2. Students solve one- and two-step linear equations each with an integer coefficient and integer solutions.	SE: 50-53, 474-479, 533-536, 640-641 *Graphing Calculator Investigation* 532 TWE: B 474, 533 DI 475

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3. Students evaluate algebraic expressions and formulas given integer values for variables.	SE: 11-15, 39-42, 122 #35, 129 #50, 242 Example 3, 474-479
4. Using simple linear equations, students create a table, and graph the solutions on the coordinate system.	SE: 166-169, 173 #47, 533-534, 644, 658 TWE: B 533 ICE 534
5. DATA ANALYSIS AND PROBABILITY **Students use data analysis and probability to analyze given situations and the results of experiments.**	
1. Students systematically collect, organize, describe, analyze, and represent data using tables, charts, diagrams, and graphs.	SE: 66 #49, 420-424, 426-429, 430-433, 454-458 *Problem-Solving Strategy* 123, 378, 537 *Guided Practice* 163 TWE: B 420, 426 ICE 421, 422, 427, 428, 431
2. Students calculate mean, median, mode, and range for data sets and use in a real-world setting appropriate to grade level.	SE: 36, 435-438, 442-445, 459, 638 *Practice and Applications* 69 (#32) *Spreadsheet Investigation* 439 TWE: ICE 36, 436 B 435 DI 436, 451
3. Students predict, compare, and calculate probable outcomes of experiments or simulations.	SE: 374-375, 380-381, 384-385, 388-389, 400-403, 635-637 *Hands-on Lab* 392-393 TWE: B 374, 380, 396 ICE 375, 381, 397, 401
4. Students communicate about the likelihood of events using concepts from probability such as impossible, equally likely and certain appropriate to grade level.	SE: 374-375 *Skill and Concept Check* 376 *Practice and Applications* 376-377 TWE: B 374 ICE 375

Codes Used for TWE Pages

AS	Assess
B	Bellringer
DI	Daily Intervention
ICE	In Class Examples
TNT	Tip for New Teachers