



**IDAHO**  
**Mathematics Standards Grade 8**  
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STANDARDS	PAGE REFERENCES
<b>337. BASIC ARITHMETIC, ESTIMATION, AND ACCURATE COMPUTATIONS.</b>	
01. Understand and use numbers.	
a. Read, write, order, and compare real numbers (integers, fractions, decimals, percents, ratios) and absolute values.	SE: 10-11, 13 #30, 202-204, 292, 296-297, 380, 422, 681, 683 <i>Problem Solving Tip</i> 385
b. Understand and use real numbers, both rational and irrational.	SE: 10-11, 15 #49-54, 20-21, 22 #11, 426-427, 429 #41-43 <i>Reading Math</i> 428
c. Show a sense of magnitudes and relative magnitudes of real numbers (integers, fractions, decimals) using scientific notation and exponential numbers.	SE: 38-39, 40 #18, 41 #33, 43 #19-23
d. Develop and apply number theory concepts.	SE: 6-7, 10-11, 13 #30, 16-17, 20-21, 26-27, 34-35, 38-39 <i>Problem Solving Tip</i> 12 ATE: LS 14
e. Understand the position of real numbers on a number line.	SE: 10-11, 12 #5-8, 13 #24-26, 14 #28-31, 17 #2, 20
02. Perform computations accurately.	
a. Consistently and accurately add, subtract, multiply, and divide rational numbers.	SE: 20-21, 22 #1-3, 23 #45-52, 25 #51-56, 26-27, 28 #17-25, 29 #31-36, 31 #15-22, 32 #1-9, 34-35
b. Instantly recall common, equivalent fractions, decimals, and percents.	SE: 380 #1-7, 655, 681 #1-3 <i>Mental Math Tip</i> 183, 604 ATE: TS 422
c. Evaluate numerical expressions using the order of operations.	SE: 26, 30, 32 #1-9, 33 #40-45, 464 #1-10, 670 ATE: EL 465
d. Understand and use exponents.	SE: 34-36, 37 #38-40, 38-39, 40 #29-30, 41 #34-36, 464 #11-22, 475 #45-50
e. Select and use an appropriate method of computation from mental math, paper and pencil, calculator, or a combination of the three.	SE: 7 #3, 8 #4-5, 9 #39-40, 20-21, 26-27, 29 #31-36, 244, 326-327 <i>Technology Note</i> 226, 245
f. Use appropriate vocabulary.	SE: 6-7, 10-11 ATE: RV 20 TS 15 V 34, 358, 412, 464 VR 14, 24, 42, 286

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<b>03. Estimate and judge reasonableness of results.</b>	
a. Use estimation to predict computation results.	SE: 21 #3, 33 #39, 390 #32 ATE: TS 263, 351, 427
b. Recognize when estimation is appropriate and understand the usefulness of an estimate as distinct from an exact answer.	SE: 21 #3, 33 #39, 390 #32 ATE: TS 351, 427
c. Determine whether a given estimate is an overestimate or underestimate.	SE: 33 #39 ATE: EL 22
d. Use appropriate vocabulary.	SE: 21 #2 ATE: RV 20 TS 15 VR 24
<b>338. MATHEMATICAL REASONING AND PROBLEM SOLVING.</b>	
<b>01. Understand and use a variety of problem-solving skills.</b>	
a. Use a variety of strategies, including common mathematical formulas to compute problems drawn from real-world situations.	SE: 13 #28, 21 #3, 22 #22, 29 #37, 37 #42, 39 #3, 65 #17-19, 298 #19, 543 #31, 547 #21
b. Recognize pertinent information for problem solving.	SE: 30-31, 138-139, 215 #27, 227 #15, 274-275, 326-327, 372-373, 388-389, 502-503, 550-551
c. Make predictions and decisions based on information.	SE: 53 #4, 55 #20, 282-283, 295 #1-4, 299 #29, 326-327, 348-349, 351 #15, 360 #19 ATE: EL 54
<b>02. Use reasoning skills to recognize problems and express them mathematically.</b>	
a. Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning and concepts.	SE: 52-54, 62-64, 220-221, 310-313, 492-493, 534-536, 550-551, 566-568, 604-606, 614-616
b. Apply solutions and strategies to new problem situations.	SE: 30-31, 170-171, 216-217, 274-275, 326-327, 372-373, 388-389, 446-447, 572-573, 624-625
c. Formulate conjectures and justify (short of formal proof) why they must be or seem to be true.	SE: 124-125, 127 #10, 128-129, 130 #1, 151 #1, 161 #2, 183 #1
<b>03. Apply appropriate technology and models to find solutions to problems.</b>	
a. Understand the purpose and capabilities of appropriate technology use as a tool to solve problems.	SE: 30-31, 87 #3, 108-110, 395 #30 <i>Technology Note</i> 413, 500, 531
b. Use computer applications to display and manipulate data.	SE: 87 #3, 109, 121 #7, 157 #8-9, 174 #22, 395 #30 <i>Technology Note</i> 106, 316, 413, 500
c. Select appropriate models to represent mathematical ideas.	SE: 62-64, 66, 72, 87 #3, 395 #30, 534 <i>Technology Note</i> 413, 531
<b>04. Communicate results using appropriate terminology and methods.</b>	
a. Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to communicate mathematical information.	SE: 52-54, 62-64, 220-221, 310-313, 492-493, 534-536, 550-551, 566-568, 604-606, 614-616

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b. Use appropriate vocabulary to communicate mathematical information.	SE: 220-221, 430-431, 534, 540, 544-545, 566, 604 ATE: V 6, 434, 574, 618
c. Use appropriate notation.	SE: 6-7, 9 #41-44, 11, 16-17, 38-39, 108-109, 407 #3, 604-605 <i>Reading Math</i> 172
<b>339. CONCEPTS AND PRINCIPLES OF MEASUREMENT.</b>	
01. Understand and use U.S. customary and metric measurements.	
a. Select and use appropriate units and tools to make formal measurements using both systems.	SE: 202-203, 205 #19-22, 216-217 ATE: EL 207 TS 204, 309
b. Apply estimation of measurement to real-world and content problems using actual measuring devices.	SE: 220-221, 227 #22, 233 #21-22, 306-307
c. Recognize the differences and relationships among measures of perimeter, area, and volume (capacity) in both systems.	SE: 206-207, 216-217, 218 #12-14, 220-221, 224-225, 230-231
d. Solve problems involving length, perimeter, area, volume (capacity), weight, mass, and temperature.	SE: 206-207, 208 #5-7, 209 #19-21, 216-217, 218 #12-14, 230-231, 232 #1-5 ATE: TS 309
e. Convert unit of measurement within each system.	SE: 202-203, 204 #1-4, 210 #1-6, 652, 655
f. Use appropriate vocabulary.	SE: 222 #6-8, 228 #1-3 ATE: TS 301, 316 V 220
02. Apply concepts of rates and other derived or indirect measurements.	
a. Use rates to make indirect measurements.	SE: 312 #7, 326-327, 609 #2, 611 #23, 624 #3, 625 #6-7
03. Apply the concepts of ratios and proportions.	
a. Understand and use proportions, ratios, and scales.	SE: 202-204, 205 #28, 244, 292, 296-297, 298 #19, 299 #30, 306-307, 308 #7, 309 #20, 312 #7
04. Apply dimensional analysis.	
a. Understand units and their relationship to one another and to real-world applications.	SE: 202-203, 205 #30, 211 #29-34, 652, 655 ATE: TS 204
<b>340. CONCEPTS AND LANGUAGE OF ALGEBRA.</b>	
01. Use algebraic symbolism as a tool to represent mathematical relationships.	
a. Understand and use variables in expressions, equations, and inequalities.	SE: 7, 57, 62-63, 72-73, 76-78, 254-255, 276-277, 524-525, 580-581, 673
b. Translate simple word statements and story problems into algebraic expressions and equations.	SE: 3, 19 #33, 37 #50, 55 #20, 69 #25-28, 71 #14-15, 135 #3, 389 #6, 621 #30 ATE: TS 66
c. Use symbols ( $<$ , $>$ , $=$ , $\neq$ , $\approx$ ) to express relationships.	SE: 6-7, 9 #41-44, 11, 16-17, 654 <i>Reading Math</i> 172
02. Evaluate algebraic expressions.	
a. Understand and use the following properties in evaluating algebraic expressions: commutative, associative, identity, zero, inverse, distributive, and substitution.	SE: 20-21, 26-27, 34-35, 36 #1-3, 73 #3, 264-266, 267 #16-17

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b. Understand and use the order of operations in evaluating basic algebraic expressions.	SE: 28 #7-10, 29 #46-57, 73 #3, 464 #1-10, 670 ATE: EL 75
c. Simplify algebraic expressions.	SE: 35 #2, 36 #31-34, 37 #38-40, 40 #19-21, 41 #34-36
<b>03. Solve algebraic equations and inequalities.</b>	
a. Solve one- and two-step equations and inequalities using inverse operations.	SE: 66-67, 68 #1-9, 69 #38, 70 #38-39, 71 #63-65
b. Explore graphical representation to show simple linear equations.	SE: 62-64, 65 #12-14, 70 #1-9, 76-78, 107 #21-28, 244-245, 246 #15-17
<b>341. CONCEPTS AND PRINCIPLES OF GEOMETRY.</b>	
<b>01. Apply concepts of size, shape, and spatial relationships.</b>	
a. Precisely describe, classify, and understand relationships among types of one-, two-, and three-dimensional objects using their defining properties.	SE: 104-106, 146, 150-151, 160-161, 164-165, 178-181, 182-185, 188-190, 220-222, 224-225
b. Construct and measure various angles and shapes using appropriate tools.	SE: 108-110, 111 #11-14, 115, 117, 118-120, 178-180, 216-217, 220-222, 300-302, 310-313
c. Understand and apply fundamental concepts, properties, and relationships among points, lines, planes, angles, and shapes.	SE: 104-106, 108-110, 114-116, 118-120, 150-152, 178-180, 220-222, 244-246, 248-250, 254-256
d. Recognize and apply congruence, similarities, and symmetry of shapes.	SE: 154-155, 157 #4-7, 160-161, 162 #8, 163 #12, 300-302, 310-312, 335, 345 #16
e. Apply formulas for perimeter, circumference, and area to polygons and circles.	SE: 198-199, 206-207, 208 #1-4, 209 #25, 210 #19-27, 211 #42-44, 216-217, 218 #12-14, 219 #20-22, 422 #13-18
f. Understand the concept of surface area and volume (capacity).	SE: 224-225, 226 #5-8, 227 #19, 228 #15-17, 229 #19-20, 230-231, 232 #6-9, 233 #14-16, 235 #15-17, 667
g. Explore and model the effects of reflections, translations, and rotations on various shapes.	SE: 338-339, 340 #1-3, 341 #15, 342-343, 344 #3, 345 #16, 346 #9-11, 347 #19-21, 348-349, 351 #15, 352-353
h. Use appropriate vocabulary.	SE: 104-105, 220-221 <i>Reading Math</i> 178 ATE: V 154, 160, 198, 348 VR 234, 346, 374
<b>02. Apply the geometry of right triangles.</b>	
a. Investigate right triangle geometry using the Pythagorean Theorem.	SE: 430-431, 432 #6-11, 433 #16, 434 #37-42, 435 #1-4, 436-438, 439 #15, 608-609, 612 #14, 613 #23-28
<b>03. Apply graphing in two dimensions.</b>	
a. Use the coordinate plane as it relates to real-world applications.	SE: 56-58, 59 #21-22, 60 #17, 61 #1-3, 342-343, 344 #3, 345 #14, 347 #1-2, 348-349, 352-353
<b>342. DATA ANALYSIS, PROBABILITY AND STATISTICS.</b>	
<b>01. Understand data analysis.</b>	
a. Analyze and interpret tables, charts, and graphs (scatter plots, line graphs, bar graphs, pie charts).	SE: 86-87, 88 #6, 89 #15-18, 92-93, 406-408, 409 #6-8, 446-447, 452 #1-6, 459 #17 ATE: EL 453

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b. Explain and justify conclusions drawn from tables, charts, and graphs.	SE: 86-87, 88 #6, 89 #15-18, 92-93, 406-408, 409 #6-8, 446-447, 452 #1-6, 459 #17 ATE: EL 453
c. Understand and use appropriate vocabulary.	SE: 86-87, 406-407 ATE: EL 409 V 92, 446 VR 90, 410
<b>02. Collect, organize, and display data.</b>	
a. Collect, organize, and display data with appropriate notation in tables, charts, and graphs (scatter plots, line graphs, bar graphs, pie charts).	SE: 86-87, 88 #6, 89 #15-18, 92-93, 406-408, 409 #6-8, 446-447, 452 #1-6, 459 #17 ATE: EL 453
<b>03. Apply simple statistical measurements.</b>	
a. Choose and calculate the appropriate measure of central tendency – mean, median, and mode.	SE: 82-83, 84 #6-7, 85 #10-12, 88 #7-11, 89 #15-18, 90 #14-19, 91 #59-60, 406-407, 408 #5, 409 #15
b. Explore the significance of range, frequency, and informal distribution.	SE: 49 #25-28, 82-83, 84 #4-5, 85 #8-9, 86-87, 88 #6, 89 #15-18, 90 #14-19, 91 #61-62
<b>04. Understand basic concepts of probability.</b>	
a. Model situations of probability using simulations.	SE: 388, 389 #7, 390 #32 ATE: TS 391
b. Understand and use the language of probability.	SE: 212-213, 384-385, 387 #19, 388, 389 #8, 392-393, 395 #21-24, 396-397, 402-403 <i>Reading Math 386</i>
c. Recognize equally likely outcomes.	SE: 384, 385 #2, 387 #10-11, 389 #8, 394 #11-14 ATE: TS 386
<b>05. Make predictions or decisions based on data.</b>	
a. Make predictions based on simple experimental and theoretical probabilities.	SE: 384-385, 386 #5-8, 387 #21-24, 388 ATE: EL 390
b. Understand and use appropriate vocabulary.	SE: 384-385 <i>Reading Math 386</i> ATE: TS 389 V 388 VR 390
c. Conduct statistical experiments and interpret results using tables, charts, or graphs.	SE: 82-83, 84 #4-5, 85 #13-14, 86-87, 88 #7-11, 89 #15-18, 388-389, 406-407 ATE: TS 408, 415
<b>343. FUNCTIONS AND MATHEMATICAL MODELS.</b>	
<b>01. Understand the concept of functions.</b>	
a. Extend patterns and identify a rule (function) that generates the pattern using real numbers.	SE: 52-53, 54 #1-5, 55 #16-17, 124-125, 132 #1-8
b. Use functional relationships to explain how a change in one quantity results in a change in another.	SE: 56-57, 59 #21-22, 60 #17, 62-64, 65 #17-19, 66-67, 72-73, 76-78, 244-245, 670-671
c. Understand and use appropriate vocabulary.	SE: 56, 62, 244 ATE: EL 59, 65 V 66 VR 60, 70

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02. Represent equations, inequalities, and functions in a variety of formats.	
a. Represent a set of data in a table, as a graph, and as a mathematical relationship.	SE: 82-83, 84 #4-5, 85 #13-14, 86-87, 88 #7-11, 89 #15-18, 406-407, 408 #1-5, 410 #25-29 ATE: TS 415
03. Apply functions to a variety of problems.	
a. Use patterns and functions to represent and solve problems.	SE: 52-53, 55 #20, 59 #21-22, 61 #1-3, 63 #3, 64 #5, 247 #38-41, 520-521, 522 #17, 527 #21-23

### Codes Used for ATE Pages

EL	Extend the Lesson
LS	Learning Strategies
RV	Representation Vocabulary
TS	Teaching Strategies
V	Vocabulary
VR	Vocabulary Review