



**IDAHO**  
**Mathematics Standards Grade 8**  
***MathScape: Seeing and Thinking Mathematically***  
**Course 3 © 2005**

STANDARDS	PAGE REFERENCES
<b>337. BASIC ARITHMETIC, ESTIMATION, AND ACCURATE COMPUTATIONS.</b>	
<b>01. Understand and use numbers.</b>	
a. Read, write, order, and compare real numbers (integers, fractions, decimals, percents, ratios) and absolute values.	SE: 6-7, 16-17, 32-33, 34, 38, 45, 144-145, 150-151, 162-163, 169, 171, 176 TG: 162A, 163A
b. Understand and use real numbers, both rational and irrational.	SE: 138-139, 162-163, 166, 176, 238-239, 261 TG: 163A
c. Show a sense of magnitudes and relative magnitudes of real numbers (integers, fractions, decimals) using scientific notation and exponential numbers.	SE: 162-163, 176, 296-297, 298-299, 300-301, 311, 312, 313 TG: 298A, 300A
d. Develop and apply number theory concepts.	See <i>MathScape Course 2</i> © 2005 SE: 116-117, 118-119, 120-121, 122-123, 132-135
e. Understand the position of real numbers on a number line.	SE: 138-139, 166
<b>02. Perform computations accurately.</b>	
a. Consistently and accurately add, subtract, multiply, and divide rational numbers.	SE: 6-7, 34, 50-51, 74, 140-141, 144-145, 150-151, 167, 169, 171, 192-193, 214 TG: 50A, 140A, 192A
b. Instantly recall common, equivalent fractions, decimals, and percents.	SE: 144-145, 162-163, 169, 176, 242-243, 246-247, 250-251, 262, 264, 265, 298-299, 300-301, 312, 313 TG: 246A, 300A
c. Evaluate numerical expressions using the order of operations.	SE: 196-197, 202-203, 204-205, 216, 219, 220 TG: 196A, 197A
d. Understand and use exponents.	SE: 298-299, 300-301, 312, 313 TG: 299A
e. Select and use an appropriate method of computation from mental math, paper and pencil, calculator, or a combination of the three.	Method of computation is used with a calculator on pages SE: 138-139, 166, 298-299, 300-301, 312, 313 TG: 140A, 301A
f. Use appropriate vocabulary.	TG: 142A, 143A, 193A, 197A
<b>03. Estimate and judge reasonableness of results.</b>	
a. Use estimation to predict computation results.	SE: 138-139, 144-145, 154-155, 166, 169, 173 TG: 6A, 138A
b. Recognize when estimation is appropriate and understand the usefulness of an estimate as distinct from an exact answer.	SE: 50-51, 52-53, 78, 79, 138-139, 144-145, 150-151, 166, 169, 171 TG: 50A

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c. Determine whether a given estimate is an overestimate or underestimate.	SE: 138-139, 140-141, 144-145, 150-151, 166, 167, 169, 171
d. Use appropriate vocabulary.	SE: 150-151, 171 TG: 6A, 151A
<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: 52-53, 74-75, 76-77, 79, 88, 89, 138-139, 148-149, 158-159, 166, 170, 174, 204-205, 208-209, 219, 221, 292-293 TG: 158A, 198A, 293A
b. Recognize pertinent information for problem solving.	SE: 20-21, 22-23, 40, 41, 70-71, 86, 160-161, 162-163, 175, 176 TG: 20A, 162A
c. Make predictions and decisions based on information.	SE: 22-23, 41, 76-77, 89, 138-139, 154-155, 158-159, 162-163, 166, 173, 174, 176 TG: 22A, 23A, 154A, 158A, 159A
<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: 60-61, 62-63, 66-67, 72-73, 82, 83, 85, 87 TG: 60A, 61A
b. Apply solutions and strategies to new problem situations.	SE: 70-71, 72-73, 86, 87, 148-149, 150-151, 158-159, 162-163, 170, 171, 174, 176, 228-229, 257 TG: 148A, 150A, 158A, 159A
c. Formulate conjectures and justify (short of formal proof) why they must be or seem to be true.	SE: 148-149, 154-155, 158-159, 162-163, 170, 173, 174, 176 TG: 148A, 159A
<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: 150-151, 171 TG: 135G, 140A
b. Use computer applications to display and manipulate data.	SE: 158-159, 174
c. Select appropriate models to represent mathematical ideas.	SE: 144-145, 154-155, 158-159, 160-161, 169, 173, 174, 175, 192-193, 194-195, 214, 215, 228-229, 230-231, 257, 258 TG: 144A, 154A, 155A, 192A, 193A, 195A, 229A
<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: 56-57, 60-61, 62-63, 66-67, 70-71, 74, 81, 82, 83, 85, 86, 88, 138-139, 158-159, 166, 174 TG: 57A, 58, 59, 61A, 70A, 158A
b. Use appropriate vocabulary to communicate mathematical information.	SE: 12-13, 37, 56-57, 60-61, 76-77, 81, 82, 89, 138-139, 140-141, 152-153, 160-161, 163-164, 166, 167, 172, 175, 177 TG: 146, 157
c. Use appropriate notation.	SE: 296-297, 298-299, 300-301, 311, 312, 313 TG: 294, 295, 296A, 297A, 298A

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<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: 50-51, 52-53, 78, 79 TG: 52A
b. Apply estimation of measurement to real-world and content problems using actual measuring devices.	SE: 50-51, 52-53, 78, 79, 226-227, 228-229, 230-231, 256, 257, 258
c. Recognize the differences and relationships among measures of perimeter, area, and volume (capacity) in both systems.	SE: 98-99, 100-101, 106-107, 118-119, 124, 125, 127, 132, 288-289, 292-293, 308, 310 TG: 107A, 118A
d. Solve problems involving length, perimeter, area, volume (capacity), weight, mass, and temperature.	SE: 98-99, 100-101, 106-107, 118-119, 124, 125, 127, 132, 288-289, 292-293, 308, 310 TG: 107A, 118A
e. Convert unit of measurement within each system.	SE: 50-51, 52-53, 78, 79, 118-119, 132
f. Use appropriate vocabulary.	SE: 94-95 TG: 91G, 94A
02. Apply concepts of rates and other derived or indirect measurements.	
a. Use rates to make indirect measurements.	SE: 246-247, 264
03. Apply the concepts of ratios and proportions.	
a. Understand and use proportions, ratios, and scales.	SE: 228-229, 230-231, 242-243, 244-245, 257, 258, 262, 263 TG: 229A, 231A
04. Apply dimensional analysis.	
a. Understand units and their relationship to one another and to real-world applications.	SE: 50-51, 52-53, 70-71, 78, 79, 86, 108-109, 116-117, 128, 131 TG: 51A, 52A
<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: 182-183, 184-185, 188-189, 192-193, 208-209, 210, 211, 213, 217, 221 TG: 179G, 196A
b. Translate simple word statements and story problems into algebraic expressions and equations.	SE: 54-55, 74-75, 80, 88, 182-183, 188-189, 194-195, 196-197, 198-199, 208-209, 210, 213, 215, 216, 217, 221, 272-273, 274-275, 282-283, 284-285, 302, 303, 306, 307 TG: 274A
c. Use symbols (<, >, =, <, >, ≠) to express relationships.	The use of "=" is used consistently on the following pages SE: 184-185, 186-187, 204-205, 206-207, 208-209, 211, 212, 219, 220, 221 TG: 184A, 186A
02. Evaluate algebraic expressions.	
a. Understand and use the following properties in evaluating algebraic expressions: commutative, associative, identity, zero, inverse, distributive, and substitution.	SE: 144-145, 169, 186-187, 196-197, 198-199, 212, 216, 217

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b. Understand and use the order of operations in evaluating basic algebraic expressions.	SE: 196-197, 206-207, 216, 220 TG: 206A
c. Simplify algebraic expressions.	SE: 182-183, 194-195, 196-197, 198-199, 202-203, 210, 215, 216, 217, 218 TG: 191A, 199A
<b>03. Solve algebraic equations and inequalities.</b>	
a. Solve one- and two-step equations and inequalities using inverse operations.	SE: 204-205, 206-207, 219, 220
b. Explore graphical representation to show simple linear equations.	SE: 272-273, 280-281, 282-283, 284-285, 302, 305, 306, 307 TG: 282A
<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: 94-95, 96-97, 114-115, 116-117, 120-121, 122, 123, 130, 131, 133, 252-253, 254-255, 266, 290-291, 309 TG: 94A
b. Construct and measure various angles and shapes using appropriate tools.	SE: 104-105, 108-109, 114-115, 120-121, 126, 128, 130, 133, 230-231, 234-235, 258, 259 TG: 230A, 231A
c. Understand and apply fundamental concepts, properties, and relationships among points, lines, planes, angles, and shapes.	SE: 114-115, 120-121, 130, 133, 254-255, 267, 290-291, 309 TG: 254A, 255A
d. Recognize and apply congruence, similarities, and symmetry of shapes.	SE: 96-97, 108-109, 120-121, 123, 128, 133, 252-253, 254-255, 266, 267, 290-291, 309 TG: 252A, 254A
e. Apply formulas for perimeter, circumference, and area to polygons and circles.	SE: 108-109, 110-111, 128, 129, 292-293, 310
f. Understand the concept of surface area and volume (capacity).	SE: 98-99, 100-101, 104-105, 106-107, 108-109, 110-111, 114-115, 116-117, 124, 125, 126, 127, 128, 129, 130, 131 TG: 98A, 99A, 108A, 114A
g. Explore and model the effects of reflections, translations, and rotations on various shapes.	SE: 228-229, 256, 259 #14, 290-291, 309 TG: 228A
h. Use appropriate vocabulary.	SE: 259 #14 TG: 94A, 95A, 96A, 102, 103, 104A, 111A
<b>02. Apply the geometry of right triangles.</b>	
a. Investigate right triangle geometry using the Pythagorean Theorem.	SE: 234-235, 236-237, 238-239, 246-247, 250-251, 259, 260, 261, 264, 265 TG: 232, 236A, 238A
<b>03. Apply graphing in two dimensions.</b>	
a. Use the coordinate plane as it relates to real-world applications.	SE: 20-21, 40, 292-293, 310 TG: 21A, 292A
<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: 6-7, 8-9, 10-11, 12-13, 16-17, 18-19, 20-21, 22-23, 26-27, 34, 35, 36, 37, 38, 39, 40, 41, 42, 274-275, 303 TG: 3H, 14, 15, 16A, 17A, 26A, 274A

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b. Explain and justify conclusions drawn from tables, charts, and graphs.	SE: 6-7, 10-11, 16-17, 18-19, 20-21, 22-23, 34, 36, 38, 39, 40, 41 TG: 7A
c. Understand and use appropriate vocabulary.	SE: 6-7, 8-9, 12-13, 16-17, 18-19, 34, 35, 37, 38, 39 TG: 6A, 14, 15
<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: 6-7, 8-9, 10-11, 12-13, 16-17, 18-19, 20-21, 22-23, 34, 35, 36, 37, 38, 39, 40, 41 TG: 7A
<b>03. Apply simple statistical measurements.</b>	
a. Choose and calculate the appropriate measure of central tendency – mean, median, and mode.	SE: 6-7, 8-9, 10-11, 12-13, 16-17, 34, 35, 36, 37, 38, 173 #7 TG: 3G, 8A, 11A
b. Explore the significance of range, frequency, and informal distribution.	SE: 6-7, 8-9, 10-11, 12-13, 34, 35, 36, 37
<b>04. Understand basic concepts of probability.</b>	
a. Model situations of probability using simulations.	SE: 26-27, 30-31, 42, 44, 144-145, 154-155, 158-159, 169, 173, 174 TG: 24, 25, 30A, 144A, 158A
b. Understand and use the language of probability.	SE: 26-27, 28-29, 30-31, 32-33, 42, 43, 44, 45 TG: 24, 25, 28A
c. Recognize equally likely outcomes.	SE: 26-27, 28-29, 30-31, 42, 43, 44 TG: 24, 25
<b>05. Make predictions or decisions based on data.</b>	
a. Make predictions based on simple experimental and theoretical probabilities.	SE: 26-27, 28-29, 30-31, 32-33, 42, 43, 44, 45, 144-145, 158-159, 160-161, 162-163, 164-165, 174, 175, 176, 177 TG: 24, 25, 26A, 160A
b. Understand and use appropriate vocabulary.	SE: 26-27, 28-29, 30-31, 32-33, 42, 43, 44, 45 TG: 24, 25
c. Conduct statistical experiments and interpret results using tables, charts, or graphs.	SE: 6-7, 8-9, 10-11, 34, 35, 36, 158-159, 160-161, 162-163, 164-165, 174, 175, 176, 177 TG: 4, 5, 160A
<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: 198-199, 217, 272-273, 280-281, 282-283, 284-285, 302, 305, 306, 307 TG: 272A
b. Use functional relationships to explain how a change in one quantity results in a change in another.	SE: 272-273, 276-277, 302, 306
c. Understand and use appropriate vocabulary.	SE: 272-273, 274-275, 276-277, 280-281, 284-285, 288-289, 302, 303, 304, 305, 307, 308 TG: 270, 271, 272A, 274A, 275A, 280A, 286, 290A, 294

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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: 66-67, 70-71, 85, 87, 272-273, 274-275, 276-277, 280-281, 282-283, 284-285, 302, 303, 305, 306, 307
03. Apply functions to a variety of problems.	
a. Use patterns and functions to represent and solve problems.	SE: 272-273, 274-275, 276-277, 280-281, 284-285, 302, 303, 304, 305, 306, 307