

Math - Grade 5

Idaho Department of Education Content Standards	Objective	Sub Objectives	Task Analysis	Essential Vocabulary	Sample Questions	Resources
Cognitive level codes: • B: Memorize • C: Perform procedures • D: Demonstrate understanding • E: Conjecture, generalize, prove • F: Solve non-routine problems, make connections	Bloom's Equivalent • B = Knowledge • C = Comprehension • D = Comprehension • E = Application and Analysis • F = Synthesis	Calculator codes: NO: student MUST NOT have a calculator while completing this item in order to assess this objective.	Shaded objectives should be assessed in the classroom, but not included on the ISAT assessment. <i>Italic indicates concepts to be introduced in preparation for 6th grade.</i>			
Standard 1: Number and Operation						
Goal 1.1: Understand and use numbers.	5.M.1.1.1 Read, write, compare, and order whole numbers through millions and decimal numbers through thousandths. CL: B, C Calc: CN Content Limit: Numbers may be ordered least to greatest or greatest to least.	• Restate in writing, compare, and order whole numbers through millions and decimal numbers through thousandths.	• Identify and name place and value of whole numbers through millions. • Identify that a decimal is a part of one whole • Identify tenths and hundredths using models (place value chart, base ten blocks, money, etc.) • Identify and name place and value of decimal numbers through thousandths. • Write, order, and compare whole numbers through millions from greatest to least and least to greatest. • Write, order, and compare decimal numbers through thousandths from greatest to least and least to greatest.	compare • place value • tenths • hundredths • thousandths • order • millions • decimal	• Write each number in standard form: six million four hundred twelve twenty seven and twenty three thousandths • Write the following numbers in order from least to greatest: 5.06; 5.6; 5.006 • Compare these two numbers using <, >, or = 504,300 503,900	Learning Math With Calculators Activities For Grades 3-8 by Len Sparrow and Paul Swan Navigating through Number and Operation in Grade 5 by NCTM Groundworks Reasoning with Numbers by Greenes and Findell
	5.M.1.1.2 Identify and apply place value in whole numbers and decimal numbers to thousandths. CL: B Calc: CN Content Limit: Whole numbers through millions and decimal numbers through thousandths.	• Identify the place and the value of individual digits in whole numbers through millions and decimal numbers through thousandths.	• Read and write whole numbers through millions and decimal numbers through thousandths. • Label the one, tens, hundreds pattern in each period for whole numbers through millions. • Label the tenths, hundredths, and thousandths in decimal numbers.	digits • place • value • expanded form • word form • period	• Write the place and value of the underlined digit in the following numbers: 4,8 <u>9</u> 7,666.435 5,999,284.1 <u>6</u> 3	Learning Math With Calculators Activities For Grades 3-8 by Len Sparrow and Paul Swan Navigating through Number in Grade 3-5 by NCTM Groundworks Reasoning with Numbers by Greenes and Findell
	5.M.1.1.3 Count back change from \$10.00. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	• Count back change from \$10.00.	• Count change up to a dollar • Use paper money to count up to \$10.00		• If you spent \$6.43 on candy and paid with a \$10 bill, how much change would you receive?	
	5.M.1.1.4 Compare and order commonly used fractions and their equivalents. CL: C Calc: NO Content Limit: Fraction denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, 16, 20, 24, and 25.	• Using a benchmark of 0, 1/2, and 1, compare and order commonly used fractions and their equivalents.	• Tell what the denominator and numerator represent. • Define a fraction as an equal part of a whole or a set • Compare a fraction to a benchmark of zero, half, and one. • <i>Introduce mixed numbers.</i> • <i>Find equivalent fractions</i>	equivalent • numerator • denominator • set • fraction • benchmark • <i>mixed numbers</i>	• Put the following fractions in order from least to greatest: 3/6; 1/8; 5/8	Teaching Arithmetic: Introducing Fractions by Math Solutions
	5.M.1.1.5 Identify decimal equivalents of commonly used fractions. CL: C Calc: NO Content Limit: Fraction denominators limited to 2, 4, 5, 8, 10, 20, and 25.	• Identify decimal equivalents of commonly used fractions.	• Explain the relationship between a decimal and a whole. • Explain the relationship between a fraction and a whole. • Explain the relationship between decimals and fractions. • Write a decimal as a fraction. • Recognize the fraction bar means to divide the numerator by the denominator • <i>Introduce common percents as they relate to decimals and fractions.</i>	review previous vocabulary • <i>percent</i>	• Write the decimal equivalent of the following fractions: 1/2 = 1/4 = 1/10 =	

Math - Grade 5

Idaho Department of Education Content Standards	Objective	Sub Objectives	Task Analysis	Essential Vocabulary	Sample Questions	Resources
	5.M.1.1.6 Apply the number theory concepts of primes, composites, multiples, and factors. CL: D, E Calc: CN Content Limit: Whole numbers less than 100.	<ul style="list-style-type: none"> Identify a whole number less than 100 as prime or composite. Identify multiples of a whole number less than 100. Identify factors of a whole number less than 100. 	<ul style="list-style-type: none"> Memorization of multiplication tables. Explain and give examples of prime and composite whole numbers less than 100. Skip count by increments of a given number up to 100. Classify numbers as prime or composite. 	multiples • factors • prime • composite	<ul style="list-style-type: none"> Identify which number is prime in the following list: 4, 6, 9, 11 Identify which number is composite in the following list: 3, 13, 15, 17 List three multiples of 6 List three factors for the number 12 	Developing Number Sense by Math Solutions Nimble with Numbers Grades 4-5
	5.M.1.1.7 Select strategies appropriate for solving a problem. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.		<ul style="list-style-type: none"> State what the problem is looking for and state which operations are needed to solve the problem. Identify a strategy appropriate for solving the problem Apply strategies such as: guess and check, draw a picture, estimate, make a table, work backward, look for a pattern, solve a simpler problem, write an equation, choose an operation, etc. 	strategy • expression • equation	<ul style="list-style-type: none"> The first year that Andrea worked she earned \$820 per week. The second year, she earned \$900 per week. The third year, she earned \$980 per week. If the pattern continues, how much per week will Andrea earn the next year? 	Lane County Math (Oregon) Grade 5 Navigating through Problem Solving and Reasoning in Grade 5 by NCTM
	5.M.1.1.8 Use appropriate vocabulary. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.		<ul style="list-style-type: none"> Incorporate the use of appropriate vocabulary in speech and writing as identified in goal 1.1 	See all vocabulary listed		Teaching Mathematics Vocabulary In Context by Miki Murray
Goal 1.2: Perform computations accurately.	5.M.1.2.1 Recall basic multiplication and division facts up to 10's. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.		<ul style="list-style-type: none"> Write and recite division and multiplication facts up to 10 with automaticity. 			Just the Facts by Houghton Mifflin FAST Math by SRA
	5.M.1.2.2 Add and subtract decimal numbers through thousandths. CL: C Calc: NO Content Limit: Decimal numbers through thousandths. Differences must be greater than zero. Expression must be clearly stated.	<ul style="list-style-type: none"> Add and subtract decimal numbers through thousandths. 	<ul style="list-style-type: none"> Illustrate correct alignment of digits according to place value Add and subtract 		<ul style="list-style-type: none"> Solve the following equation: $3.6 + 0.67$ Solve the following equation: $6.2 - 1.34$ 	
	5.M.1.2.3 Multiply and divide whole numbers. CL: C Calc: NO Content Limit: Multiplication items have at most two-digit factors. Division items have only a one-digit divisor and at most a three-digit dividend. Answers can be terminating decimals to the tenths place. Expression must be clearly stated.	<ul style="list-style-type: none"> Multiply whole numbers up to two-digits by two-digit Divide whole numbers with one-digit divisor and up to a three-digit dividend. Write the remainder as a decimal up to the tenths place. 	<ul style="list-style-type: none"> Recall multiplication facts. Recall and demonstrate the steps of division. Illustrate correct alignment of digits. Represent remainders as the fractional part of a mixed number. Represent remainders as a decimal to the tenths place. Estimate quotients with two digit divisors. 	divisor • dividend • quotient	<ul style="list-style-type: none"> Solve: 45×69 $712 \div 7$ 	Multiplication the Algebra Way by AIMS
	5.M.1.2.4 Add and subtract fractions with like denominators without simplification. CL: C Calc: NO Content Limit: Fraction denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, 16, 20, 24, and 25. Improper fractions allowed in answer options. Expression must be clearly stated.	<ul style="list-style-type: none"> Add and subtract fractions with like denominators without simplification. 	<ul style="list-style-type: none"> Model adding and subtracting fractions with like denominators using manipulatives or visual aids Recognize that the denominator represents congruent pieces Recognize that the numerator represents the amounts to be added or subtracted Introduce simplification of fractions. Add and subtract fractions with related denominators 	Improper fraction	<ul style="list-style-type: none"> $2/3 + 2/3 = 4/3$ $5/8 - 3/8 = 2/8$ 	Teaching Arithmetic: Adding and Subtracting Fractions by Math Solutions

Math - Grade 5

Idaho Department of Education Content Standards	Objective	Sub Objectives	Task Analysis	Essential Vocabulary	Sample Questions	Resources
	5.M.1.2.5 Evaluate numerical expressions that include parentheses. CL: C Calc: NO Content Limit: Whole numbers. No more than three operations. Expression must be clearly stated.	• Evaluate expressions that include parentheses	• Recognize what parentheses mean in an expression • Evaluate the contents in the parentheses before evaluating the expression • <i>Multiplication and division before addition and subtraction</i>	parenthesis	• $4 \times (6+2) - 3 = 29$	
	5.M.1.2.6 Select and use an appropriate method of computation from mental math, paper and pencil, calculator or a combination of the three. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	• Select and use an appropriate method of computation from mental math, paper and pencil, calculator or a combination of the three.	• Decide on the appropriate method of computation • Use the appropriate method of computation • Check to see if the answer is reasonable • Use another method to check the answer			
	5.M.1.2.7 Use a variety of strategies to solve real life problems. (308.01.a) CL: F Calc: YES Content Limit: Content limits for objectives 1.2.2, 1.2.3, and 1.2.4 apply. Expression should not be stated. The items could be such that a variety of strategies could be used, but ability to 'Use a variety of strategies' to be assessed in the classroom, not on the ISAT.	• Use a variety of strategies to solve real life problems.	• Identify a strategy appropriate for solving the problem • State what the problem is looking for and state which operations are needed to solve the problem. • Translate the words into a mathematical equation/expression. • Use the identified strategy to solve the problem		• Gino bought 4 pencils for 6 cents each and 2 erasers for 4 cents each. How much money did Gino spend?	Lane County Math (Oregon)
	5.M.1.2.8 Use appropriate vocabulary. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	• Use appropriate vocabulary.	• Incorporate the use of appropriate vocabulary in speech and writing as identified in goal 1.2			Teaching Mathematics Vocabulary In Context by Miki Murray
Goal 1.3: Estimate and judge reasonableness of results.	5.M.1.3.1 Estimate to predict computation results. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	• Estimate to predict computation results.	• Use rounding to estimate • Round to the nearest whole number • Use compatible numbers in estimating quotients	estimate • round	• Susan bought a sweater for \$10.58, a pair of pants for \$12.48, and a pair of shoes for \$15.99. Estimate the total of Susan's purchases.	Learning Math With calculators: Activities for Grades 3-8 by Sparrow and Swan
	5.M.1.3.2 Identify when an estimate is sufficient or when an exact answer is required. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	• Identify when an estimate is sufficient or when an exact answer is required.	• Explain when an estimate is appropriate as compared to an exact answer			
	5.M.1.3.3 Explain why a given estimate is an overestimate or underestimate. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	• Explain why a given estimate is an overestimate or underestimate.	• Recognize if the parts of an expression were rounded up or off • Tell the difference between an overestimate and underestimate	overestimate • underestimate		

Math - Grade 5

Idaho Department of Education Content Standards	Objective	Sub Objectives	Task Analysis	Essential Vocabulary	Sample Questions	Resources
	5.M.1.3.4 Use a four-function calculator to solve complex grade-level problems. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	• Use a four-function calculator to solve complex grade-level problems.	• Perform the basic functions on a calculator (on/off, clear, grade level appropriate computations)			
	5.M.1.3.5 Formulate conjectures and discuss why they must be or seem to be true. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	• Formulate conjectures and discuss why they must be or seem to be true.	• Identify numerical patterns • Formulate a conjecture • Justify the conjecture	conjecture • formulate • justify		Thinking Mathematically: Integrating Arithmetic and Algebra in Elementary School by Carpenter
	5.M.1.3.6 Use appropriate vocabulary. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	• Use appropriate vocabulary.	• Incorporate the use of appropriate vocabulary in speech and writing as identified in goal 1.3			Teaching Mathematics Vocabulary In Context by Miki Murray
Standard 2: Concepts and Principles of Measurement						
Goal 2.1: Understand and use U.S. customary and metric measurements.	5.M.2.1.1 Select and use appropriate units and tools to make formal measurements of length, temperature, weight, and volume (capacity) in both systems. CL: C Calc: CN Content Limit: Select appropriate units and tools only. Units for length are inches, feet, yards, miles; millimeters, centimeters, and meters. Units for time are seconds, minutes, hours, days, and years. Units for weight are ounces, pounds, tons, grams, and kilograms. Units for volume (capacity) are cups, quarts, gallons, milliliter, and liter. 'Use ... tools to make formal measurements' to be assessed in the classroom, not on the ISAT.	• Select and use appropriate units and tools to make formal measurements of length, temperature, weight, and volume (capacity) in standard and metric systems.	• Identify the units of the customary system • Identify the units of the metric system • Select and use an appropriate unit of measurement for a real life example	metric • customary system • volume/capacity • distance • mass/weight • Fahrenheit/Celsius • millimeter • centimeter • meter • kilometer • milligram • gram • kilogram • milliliter • liter	• Write the best unit to measure the following: capacity of a swimming pool (gallons , cups, or pints) length of a pencil (centimeters or meters) weight of an elephant (tons or ounces) length of a movie (hours or seconds)	Groundworks: Reasoning about Measurement Grade 5 Navigating through Measurement Grades 3-5 by NCTM http://www.mathsisfun.com/measure/index.html
	5.M.2.1.2 Estimate length, time, weight, temperature, and volume (capacity) in real-world problems using standard units. CL: C Calc: CN Content Limit: Lengths are measured in inches, feet, and yards. Time is measured in seconds, minutes, hours, and days. Weight is measured in ounces, pounds, and tons. Capacity is measured in cups, quarts, and gallons. May select estimate of size from among list of different numbers with same units (e.g., 1 inch, 1 foot, 10 inches, 10 feet).	• Estimate length, time, weight, temperature, and volume (capacity) in real-world problems using standard units.	• Select the appropriate unit of measure	Refer to 2.1.1	• Estimate the length of the car to the nearest centimeter.	

Math - Grade 5

Idaho Department of Education Content Standards	Objective	Sub Objectives	Task Analysis	Essential Vocabulary	Sample Questions	Resources
	5.M.2.1.3 Tell time to the nearest second. CL: C Calc: CN Content Limit: Items must show a digital stopwatch. Time on stopwatch uses the format HH:MM:SS (e.g., 00:05:20 would be 5 minutes and 20 seconds; 01:10:40 would be 1 hour, 10 minutes, and 40 seconds). May not use an analog clock face.	• Tell time to the nearest second on a digital stopwatch	• Explain the format of a digital stopwatch (HH:MM:SS)	digital • stopwatch	• If a digital stopwatch shows 05:44:16, what time is represented? (_____hours,_____minutes,_____seconds)	
	5.M.2.1.4 Solve real world problems related to elapsed time. CL: F Calc: CR Content Limit: Times given in hours and minutes	• Solve real world problems related to elapsed time.	• Convert seconds to minutes • Convert minutes to hours • Distinguish between AM and PM • Count up and back in minutes and hours • Identify signal words in the problem (before, after, earlier, later,etc.)	elapsed • AM • PM	• What time will it be 2 hours and 45 minutes after 3:00 P.M.?	
	5.M.2.1.5 Calculate the perimeter of polygons and the area of rectangles and squares. CL: C Calc: CR Content Limit: For perimeter items, shapes are limited to triangle, quadrilateral, pentagon, and hexagon. Dimensions given in whole numbers.	• Calculate the perimeter of polygons • Calculate the area of rectangles and squares	• Identify common polygons • Identify length and width • Multiply whole numbers • Add whole numbers • Explain the difference between perimeter and area • Identify when to use units of length vs. units of area	polygons • perimeter • area • square units • quadrilaterals • pentagon • hexagon • dimensions		Area and Perimeter Replacement Unit by Math Solutions
	5.M.2.1.6 Convert units of length within each system. CL: C Calc: CR Content Limit: Conversions between centimeters and meters or between inches, feet, and yards.	• Convert units of length between centimeters and meters • Convert units of length between inches, feet, and yards	• Tell how many centimeters in a meter • Tell how many inches in a foot and a yard; and feet in a yard • Generalize when a conversion requires multiplication or division	convert	• How many inches are in 4 feet? • How many centimeters are in 2 meters? • How many feet are in 6 yards?	
	5.M.2.1.7 Convert days into weeks and years and years into decades and centuries. CL: C Calc: CR Content Limit: Remainders should be expressed as additional units not as fractions (e.g., 51 days is 7 weeks and 2 days not 7 weeks).	• Convert days into weeks and years • Convert years into decades and centuries	• Tell how many days in a week and a year • Tell how many weeks in a year • Tell how many years in a decade and a century	decade • century	• 33 days = ___weeks ___ days • 14 years = ___decades_years	
	5.M.2.1.8 Recall length, volume (capacity), and mass equivalences involving millimeters, centimeters, meters, milliliters, liters, grams, and kilograms in the metric system. CL: B Calc: CN Content Limit: Equivalences include: 1,000 mm = 1 m 10 mm = 1 cm 100 cm = 1m 1,000 mL = 1 L 1,000 g = 1 kg. No conversions.	• Recite length, volume (capacity), and mass equivalences involving millimeters, centimeters, meters, milliliters, liters, grams, and kilograms in the metric system.	• Tell the metric equivalences: 1,000 mm = 1 m 10 mm = 1 cm 100 cm = 1m 1,000 mL = 1 L 1,000 g = 1 kg.	see goal 2.1.1	• 1000mm = _____m • 10 mm = _____cm • 100 cm = _____m • _____ mL = 1 L • _____ g = 1 kg	

Math - Grade 5

Idaho Department of Education Content Standards	Objective	Sub Objectives	Task Analysis	Essential Vocabulary	Sample Questions	Resources
	5.M.2.1.9 Use appropriate vocabulary. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	<ul style="list-style-type: none"> Use appropriate vocabulary. 	<ul style="list-style-type: none"> Incorporate the use of appropriate vocabulary in speech and writing as identified in goal 2.1 			
Goal 2.2: Apply the concepts of rates, ratios, and proportions.	No objectives at this grade level.					
Goal 2.3: Apply dimensional analysis.	No objectives at this grade level.					
Standard 3: Concepts and Language of Algebra and Functions						
Goal 3.1: Use algebraic symbolism as a tool to represent mathematical relationships.	5.M.3.1.1 Write a division problem as a proper and an improper fraction. CL: B Calc: CN Content Limit: Given a division situation choose the appropriate division expression that uses the fraction bar as a division sign. Whole numbers less than 50. Answers will be either a proper or an improper fraction.	<ul style="list-style-type: none"> Write a division problem as a proper and an improper fraction. 	<ul style="list-style-type: none"> Recognize the fraction bar means to divide the numerator by the denominator Recognize that the numerator is the dividend and the denominator is the divisor 	divisor • dividend • numerator • denominator	<ul style="list-style-type: none"> Write 36 divided by 6 as a fraction (36÷6) 	http://www.aaastudy.com/fra.htm http://www.deltastate.edu/docs/math/D%20Curtis%20L.P3.pdf
	5.M.3.1.2 Translate simple word statements for addition and multiplication into numeric expressions. CL: C Calc: CN Content Limit: Whole numbers less than 50. One operation per expression.	<ul style="list-style-type: none"> Write a simple word statement for addition and multiplication as an equation/expression 	<ul style="list-style-type: none"> State what the problem is looking for and state which operation is needed to solve the problem. Translate the words into a mathematical equation/expression. 	numeric expression • equation	<ul style="list-style-type: none"> Matt has two more tickets than Cindy. Write the expression for the number of tickets Matt has. (n+2) 	
	5.M.3.1.3 Write a fact family when given two factors. CL: C Calc: CN Content Limit: Whole number factors between 1 and 10, inclusive.	<ul style="list-style-type: none"> Write a fact family when given two factors. 	<ul style="list-style-type: none"> Use knowledge of multiplication and division facts to write fact families of any number between 1 and 10. 	factors • fact family • product • quotient • divisor	<ul style="list-style-type: none"> Write a fact family for the factors 6 and 8 6x8=48 8x6=48 48÷6=8 48÷8=6	
	5.M.3.1.4 Read and use symbols of "<," ">," and "=" to express relationships. CL: C Calc: CN Content Limit: May compare results of expressions. Use whole numbers less than 50 and expressions with no more than one operation. 'Read' means to express in words.	<ul style="list-style-type: none"> Read and use symbols of "<," ">," and "=" to express relationships. 	<ul style="list-style-type: none"> Recognize the meaning of each symbol: " < " less than " > " greater than " = " equal Compare the numbers and operations on both sides of the relation symbol 	greater than • less than • equal • compare • relationship	<ul style="list-style-type: none"> 6+9 (<, >, =) 4x8 	Thinking Mathematically by Thomas P. Carpenter
Goal 3.2: Evaluate algebraic expressions.	5.M.3.2.1 Use the following properties as they relate to addition and multiplication: commutative, associative, and distributive. CL: D Calc: CN Content Limit: Whole numbers less than 100.	<ul style="list-style-type: none"> Use the commutative, associative, and distributive properties to evaluate an expression or solve an equation. Multiplication and addition only. 	<ul style="list-style-type: none"> Explain in words or models the commutative, associative, and distributive properties related to multiplication and addition Solve for unknowns using the appropriate property Zero property and identity properties for multiplication and addition 	commutative • associative • distributive • zero property • identity property of multiplication and addition	<ul style="list-style-type: none"> 46 + 92 = 92 + 46 (Commutative) (25 x 10) x 2 = (25 x 2) x 10 (Associative) 23 x 5 = (20 x 5) + (3 x 5) or 5x23 = 5 x (4+3) (Distributive) 	Thinking Mathematically by Thomas P. Carpenter

Math - Grade 5

Idaho Department of Education Content Standards	Objective	Sub Objectives	Task Analysis	Essential Vocabulary	Sample Questions	Resources								
Goal 3.3: Solve algebraic equations and inequalities.	5.M.3.3.1 Solve missing factor equations. CL: C Calc: CR Content Limit: Whole numbers less than 100. Geometric symbols (include squares, rectangles, and triangles) used to represent missing factor.	<ul style="list-style-type: none"> Solve missing factor equations. Using whole numbers less than 100 	<ul style="list-style-type: none"> Recognize that a geometric symbol is used for an unknown number (i.e., Squares, rectangles, triangles) Recognize and use the relationship between multiplication and division to find the missing factor 	unknown number/variable • missing factor • equation • relationship	• $6 \times \Delta = 54$									
Goal 3.4: Understand the concept of functions.	5.M.3.4.1 Identify the rule for a pattern using whole numbers and extend the pattern. CL: E Calc: CR Content Limit: Numbers less than 100. Items can ask for a rule, an extension of the pattern, or both.	<ul style="list-style-type: none"> State or write the rule for a pattern using whole numbers Extend the pattern 	<ul style="list-style-type: none"> Recognize a numerical pattern Use words and symbols to describe the rule for the pattern Use the rule to extend the pattern 	pattern • rule • extend	<ul style="list-style-type: none"> State the rule for the pattern and then extend the pattern. 1, 2, 4, 8, _____ Rule = x^2 Extension = 16, 32, 64 									
	5.M.3.4.2 Use appropriate vocabulary. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	<ul style="list-style-type: none"> Use appropriate vocabulary. 	<ul style="list-style-type: none"> Incorporate the use of appropriate vocabulary in speech and writing as identified in goal 3.1 											
Goal 3.5: Represent equations, inequalities and functions in a variety of formats.	No objectives at this grade level.													
Goal 3.6: Apply functions to a variety of problems.	5.M.3.6.1 Use patterns to represent problems. CL: D Calc: CN Content Limit: Numbers less than 100. May include decimals to tenths, fractions with denominators 2, 4, or 8.	<ul style="list-style-type: none"> Represent the pattern in a word problem in a table or chart format 	<ul style="list-style-type: none"> Recognize a pattern within a word problem Represent the pattern in a table or chart 	table • chart	<ul style="list-style-type: none"> Lisa made popcorn using different amounts of kernels. She made a table of her results. Suppose the pattern in the table continues. If Lisa pops 4 cups of kernels, how many cups of popcorn will she make? <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Kernels (Cups)</th> <th>Popcorn (Cups)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3</td> </tr> <tr> <td>2</td> <td>6</td> </tr> <tr> <td>3</td> <td>9</td> </tr> </tbody> </table>	Kernels (Cups)	Popcorn (Cups)	1	3	2	6	3	9	<ul style="list-style-type: none"> Lessons for Algebraic Thinking Grades 3-5 Math Solutions Navigating through Algebra in Grades 3-5
Kernels (Cups)	Popcorn (Cups)													
1	3													
2	6													
3	9													
Standard 4: Concepts and Principles of Geometry														
Goal 4.1: Apply concepts of size, shape, and spatial relationships.	5.M.4.1.1 Identify, compare and analyze attributes of polygons and polyhedra and develop vocabulary to describe the attributes. CL: B, C, D Calc: CN Content Limit: Polygons limited to triangles, quadrilaterals (including square, rectangle, parallelogram, trapezoid, and rhombus), hexagons, and octagons. Polyhedra limited to cubes, triangular prisms, rectangular prisms, and pyramids. *Develop vocabulary to describe the attributes* to be assessed in the classroom, not on the ISAT.	<ul style="list-style-type: none"> Identify, compare and analyze attributes of triangles, quadrilaterals, hexagons, and octagons. Identify, compare, and analyze attributes of squares, rectangles, parallelograms, trapezoids, and rhombi Identify, compare, and analyze attributes of cubes, triangular prisms, rectangular prisms, and pyramids. Develop vocabulary to describe the attributes of polygons and polyhedra 	<ul style="list-style-type: none"> List the attributes of triangles, quadrilaterals, hexagons, and octagons. Classify quadrilaterals according to their attributes. List the attributes of prisms and pyramids. Classify prisms and pyramids according to their attributes 	sides • angles • parallel • quadrilateral • right angle • attribute • classify • polygon • polyhedra • opposite side • faces • edges • vertices • prisms • pyramid • hexagon • octagon • rhombus • parallelogram • square • rectangle • cube • trapezoid • triangular prism • rectangular prism	• How many faces are on a cube?	<ul style="list-style-type: none"> Navigating through Geometry Grades 3-5 NCTM Groundworks: Reasoning with Geometry by Greenes and Findell http://www.learner.org/interactives/geometry/3d.html 								
	5.M.4.1.2 Classify angles without formal measures as acute, right, obtuse, and/or straight. CL: D Calc: CN Content Limit: Pictures or diagrams must be included. Angle measures are limited to increments of 15°.	<ul style="list-style-type: none"> Classify angles without formal measures as acute, right, obtuse, and/or straight. 	<ul style="list-style-type: none"> Define an angle Define a right angle Define a straight angle Define acute and obtuse angles Use angle benchmarks to estimate angle measurement 	right angle • obtuse angle • acute angle • straight angle • angle measurement • degrees • estimate	• Identify the following angles as right, straight, acute or obtuse:	"Sir Cumference and the Great Knight of Angleland" by Neuschwander								

Math - Grade 5

Idaho Department of Education Content Standards	Objective	Sub Objectives	Task Analysis	Essential Vocabulary	Sample Questions	Resources
	5.M.4.1.3 Identify and label points, lines, line segments, rays, and angles. CL: C Calc: CN Content Limit: Symbols that may be used include: capital letter for points, two-headed arrow above two capital letters for lines, line segment above two capital letters for line segments, one-headed arrow above two capital letters for rays, angle symbol with one capital letter or angle symbol with three capital letters for angles. All letters are non-italics.	<ul style="list-style-type: none"> Use symbols to represent points, lines, line segments, rays, and angles. 	<ul style="list-style-type: none"> Use correct symbols (capital letter for points, two-headed arrow above two capital letters for lines, line segment above two capital letters for line segments, one-headed arrow above two capital letters for rays, angle symbol with one capital letter or angle symbol with three capital letters for angles) to represent points, lines, line segments, rays, and angles. 	point • line • line segment • ray • angle • vertex • parallel • perpendicular • intersecting	<ul style="list-style-type: none"> Name the following figure using mathematical symbols: AB 	
	5.M.4.1.4 Discuss and predict the results of sliding, flipping, and turning two-dimensional shapes. CL: D, E Calc: CN Content Limit: Use diagrams showing non-regular polygons on grid. Items may include a given description and a graphic shown for each answer option. 'Discuss' to be assessed in the classroom, not on the ISAT.	<ul style="list-style-type: none"> Identify the results of sliding, flipping, and turning two-dimensional shapes on a grid. 	<ul style="list-style-type: none"> Define sliding, flipping, and turning two-dimensional shapes. Predict and show the results of sliding, flipping, and turning two-dimensional shapes on a grid. Identify the degrees of rotation in 90 degree increments including clockwise and counterclockwise 	slide (translation) • flip (reflection) • turn (rotation) • two-dimensional • grid • predict • result	<ul style="list-style-type: none"> Is this an example of a slide, flip, or turn? (Slide) 	Navigating through Geometry Grades 3-5 NCTM Groundworks: Reasoning with Geometry by Greenes and Findell
	5.M.4.1.5 Identify shapes as congruent, similar, or symmetrical. CL: D Calc: CN Content Limit: Shapes limited to triangles, rectangles, squares, pentagons, and hexagons. Symmetry limited to line symmetry.	<ul style="list-style-type: none"> Identify congruent shapes Identify similar shapes Identify symmetrical shapes 	<ul style="list-style-type: none"> Draw a line or lines of symmetry on a symmetrical shape Classify shapes as congruent or similar Apply similarity and congruence on a grid 	congruent • symmetry • lines of symmetry • similar	<ul style="list-style-type: none"> Are the following shapes congruent or similar? (congruent) Is this shape symmetrical? (Yes) 	Navigating through Geometry Grades 3-5 NCTM Groundworks: Reasoning with Geometry by Greenes and Findell
	5.M.4.1.6 Explain the difference between perimeter and area of a polygon. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	<ul style="list-style-type: none"> Explain the difference between perimeter and area of a polygon. 	<ul style="list-style-type: none"> Define perimeter Define area Explain the difference between perimeter and area Explain the difference between perimeter units and area units Describe the relationship between perimeter and area. 	perimeter • area • units of length • square units		
	5.M.4.1.7 Use appropriate vocabulary. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	<ul style="list-style-type: none"> Use appropriate vocabulary. 	<ul style="list-style-type: none"> Incorporate the use of appropriate vocabulary in speech and writing as identified in goal 4.1 			
Goal 4.2: Apply the geometry of right triangles.	No objectives at this grade level.					
Goal 4.3: Apply graphing in two dimensions.	5.M.4.3.1 Use ordered pairs to identify and plot points in the first quadrant on a coordinate grid. CL: C Calc: CN Content Limit: Coordinates are whole numbers. Point may be on positive x- or y-axis.	<ul style="list-style-type: none"> Use ordered pairs to identify and plot points in the first quadrant on a coordinate grid. 	<ul style="list-style-type: none"> Identify x and y axis Match the numbers in the ordered pair with the appropriate axis Match a point on a grid with an ordered pair Plot points on a grid when given an ordered pair 	point • x axis • y axis • coordinates/ordered pairs • plot • grid	<ul style="list-style-type: none"> What ordered pair gives the location of point B? 	Navigating through Geometry Grades 3-5 NCTM Groundworks: Reasoning with Geometry by Greenes and Findell
Standard 5: Data Analysis, Probability, and Statistics						

Math - Grade 5

Idaho Department of Education Content Standards	Objective	Sub Objectives	Task Analysis	Essential Vocabulary	Sample Questions	Resources
Goal 5.1: Understand data analysis.	5.M.5.1.1 Read and interpret tables, charts, bar graphs, and line graphs. CL: C, D Calc: CN Content Limit: Graphics may have at most ten data categories. Scales are in increments of 1, 2, 5, or 10, or must be consistent with real-world applications. Bar graphs may be vertical or horizontal.	• Read and interpret tables, charts, bar graphs, and line graphs.	<ul style="list-style-type: none"> Identify types of data represented in the graph Identify the purpose of tables, charts, bar graphs, and line graphs. Identify the parts of tables, charts, bar graphs, and line graphs. Solve word problems using data from tables, charts, bar graphs, and line graphs. 	data • tables • charts • bar graphs • line graphs • scale • increments • vertical • horizontal	• How many students are 9 years old?	<p>Groundworks: Reasoning the Data and Probability by Greenes and Findell</p> <p>Navigating Through Data Analysis and Probability Grades 3-5 by NCTM</p>
	5.M.5.1.2 Use appropriate vocabulary. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	• Use appropriate vocabulary.	• Incorporate the use of appropriate vocabulary in speech and writing as identified in goal 5.1			
Goal 5.2: Collect, organize, and display data.	5.M.5.2.1 Collect, organize, and display the data with appropriate notation in tables, charts, bar graphs, and line graphs. CL: C Calc: CR Content Limit: Given data, choose a display. 'Collect' data to be assessed in the classroom, not on the ISAT.	• Collect, organize, and display the data with appropriate notation in tables, charts, bar graphs, and line graphs.	<ul style="list-style-type: none"> Collect and organize data Choose the appropriate format to display the data Display data using appropriate title, axes, labels, reasonable scale 	notation • frequency • frequency table • format • display	• Take a class survey using the favorite color of each student. Organize and display the data in the appropriate format using title, axes, labels, and reasonable scale.	
Goal 5.3: Apply simple statistical measurements.	5.M.5.3.1 Find measures of central tendency - median and mode - with simple sets of data using whole numbers. CL: C Calc: CR Content Limit: At most nine numbers are used to calculate median (must be an odd number of items in data set given in numeric order). At most ten numbers are used to find the mode. Numbers used are less than 100. When determining the mode, the data set must contain a unique mode.	<ul style="list-style-type: none"> Find the median in a data set of up to 9 numbers Find the mode in a data set of up to 10 numbers 	<ul style="list-style-type: none"> Define median and mode Arrange data in numerical order Use models/manipulatives to find the mean of a set of data using whole numbers. 	median • mode • data • arrange	<ul style="list-style-type: none"> What is the median of the following set of data? 2, 5, 6, 8, 9, 11, 12, 14, 17 What is the mode of the following set of data? 8, 10, 5, 8, 10, 6, 7, 8, 4, 2 	http://www.purplemath.com/modules/meanmode.htm
	5.M.5.3.2 Find the range of a set of data using whole numbers. CL: C Calc: CR Content Limit: Data set contains no more than 10 numbers.	• Find the range of a set of data using up to 10 whole numbers.	<ul style="list-style-type: none"> Define range Arrange data in numerical order Find the difference between the highest and lowest 	range	• What is the range of the following set of data? 8, 12, 4, 21, 6, 13, 9, 14	
Goal 5.4: Understand basic concepts of probability.	5.M.5.4.1 Predict, perform, and record results of simple probability experiments using fraction notation. CL: C Calc: CR Content Limit: Predict only. Situation may involve up to two coins, spinners divided into up to six equal sections, or multi-colored items drawn from a container.	• Predict, perform, and record results of simple probability experiments using fraction notation.	<ul style="list-style-type: none"> Using two coins, spinners divided into up to six equal sections, or multi-colored items drawn from a container: Identify possible outcomes Predict possible results Perform simple experiment Record outcomes using fraction notation 	outcome • predict • result • less likely • equally likely • more likely • probability	• What is the probability of the spinner landing on red?	http://www.mathgoodies.com/lessons/vol6/intro_probability.html

Math - Grade 5

Idaho Department of Education Content Standards	Objective	Sub Objectives	Task Analysis	Essential Vocabulary	Sample Questions	Resources
	5.M.5.4.2 Use the language of probability. CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	• Use the language of probability.	• Incorporate the use of appropriate vocabulary in speech and writing as identified in goal 5.4			
Goal 5.5: Make predictions or decisions based on data.	5.M.5.5.1 Make predictions and decisions based on data. CL: E Calc: CR Content Limit: Data given in tables, bar graphs, or line graphs.	• Make predictions and decisions based on data.	<ul style="list-style-type: none"> • Interpret data in tables, bar graphs, or line graphs. • Recognize patterns/trends in data • Use the data to make a reasonable prediction 	interpret • trends • reasonable	• Based on the trend shown in this line graph, will a Beanie Baby Sloth be worth more or less next year?	

General Resources:

[Teaching Student Centered Mathematics](#) by Van de Walle
 Navigating Series NCTM
 Curriculum Focal Points NCTM
www.mathisfun.com
www.k12station.com
<http://www.321know.com/grade5.htm>
<http://www.factmonster.com>
<http://math.pppst.com>
<http://illuminations.nctm.org>
<http://nlvm.usu.edu/>