## Idaho Extended Standards Draft Extended Content Indicators Grade 6 Mathematics

<u>Standard 1: Number and Operation</u> - Students in Grade 6 read, write, compare, and order whole numbers, fractions, and decimals. Students explain the use of fractions and decimals and their interrelationship. Students add, subtract, multiply, and divide whole numbers and decimals and students add and subtract fractions with unlike denominators and simplify as necessary. Students estimate to predict computation results.

Extended Standard 1: Students in Grade 6 read, write compare, and order whole numbers. Students recognize the use of fractions and decimals and their relationship to whole numbers. Students add, subtract, multiply, and divide whole numbers and simple decimals with or without a calculator. Students add simple fractions. Students estimate to predict simple computation results.

Topic	GR	Goals	Objectives	Essence	Extended Content Indicators
	6.M.1.1	Understand and use numbers.	6.M.1.1.1 Compare magnitudes		6.M.1.1.1A
			and relative magnitudes of positive		Recognize the magnitude of difference between small and large whole numbers.
			rational numbers, including whole		
			numbers through billions, fractions,		
			and decimals. (317.01.a, 317.01.d)		
			6.M.1.1.2 Explain the		6.M.1.1.2 A
			interrelationship of fractions,		Recognize corresponding common percents and decimals.
			decimals, and percents. (317.01.b)		
			6.M.1.1.3 Locate the position of		6.M.1.1.3A
			integers on a number line.		Create a number line with positive numbers.
			6.M.1.1.4 Convert between		6M.1.1.4A
			decimals and fractions. (317.01.b)		Match basic equivalent decimals and fractions, ie $.25 = 1/4$
			6.M.1.1.5 Apply number theory		6.M.1.1.5 A
			concepts (prime, composite, prime		Use repeated addition to demonstrate prime numbers or factorization in multiplication.
			factorization) and identify common		
			factors and common multiples.		
			(317.01.e)		
			6.M.1.1.6 Solve problems using the		6.M.1.1.6 A
			4-step process of problem solving		Recognize and demonstrate the appropriate problem solving strategy to solve a multi-step
			(explore, plan, solve, and examine).		problem.
			(318.01.b)		
			6.M.1.1.7 Describe the use of		6.M.1.1.7 A
			integers in real-world situations.		Identify positive and negative numbers in real-world situations.
			(317.01.f)		

	6.M.1.1.8 Use appropriate	6.M.1.1.8 A
	vocabulary.	Use appropriate vocabulary.

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<u>Extended Standard 1</u>: Students in Grade 6 read, write compare, and order whole numbers. Students recognize the use of fractions and decimals and their relationship to whole numbers. Students add, subtract, multiply, and divide whole numbers and simple decimals with or without a calculator. Students add simple fractions. Students estimate to predict simple computation results.

Topic	Gr	Goal	Objectives	Essence	Extended Content Indicators
	6.M.1.2	Perform computations	6.M.1.2.1 Recall basic		6.M.1.2.1A
		accurately.	multiplication and division		Introduce the use of a multiplication chart to solve multiplication and division problems.
			facts from 12 x 12 Times		
			Table. (317.02.d)		
			6.M.1.2.2 Add, subtract,		6.M.1.2.2 A
			multiply, and divide whole		Add, subtract, multiple, or divide single digit whole numbers or simple decimals, with or without
			numbers, decimals, and		the use of a calculator or manipulatives.
			simple fractions (including		
			unlike denominators).		
			(317.02.a, 317.02.b, 317.02.c,		
			317.02.g)		
			6.M.1.2.3 Evaluate numerical		6.M.1.2.3 A
			expressions with whole		Solve single digit addition and subtraction problems using an order of operations, with or without
			numbers using the order of		calculators or manipulatives
			operations (excluding		
			exponents). (317.02.e)		
			6.M.1.2.4 Select and use an		6.M.1.2.4 A
			appropriate method of		Use concrete objects, symbolic systems or calculator to solve addition or subtractions problems.
			computation from mental		
			math, paper and pencil,		
			calculator or a combination of		
			the three. (317.02.h)		
			6.M.1.2.5 Use a variety of		6.M.1.2.5A
			strategies to solve real life		Use a variety of common math computation strategies to solve real life problems.
			problems. (318.01.a)		
			6.M.1.2.6 Use appropriate		6.M.1.2.6 A
			vocabulary and notations.		Use appropriate vocabulary.
			(317.02.i)		

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<u>Extended Standard 1</u>: Students in Grade 6 read, write compare, and order whole numbers. Students recognize the use of fractions and decimals and their relationship to whole numbers. Students add, subtract, multiply, and divide whole numbers and simple decimals with or without a calculator. Students add simple fractions. Students estimate to predict simple computation results.

Topic	Gr	Goal	Objectives	Essence	Alternate Content Indicators
	6.M.1.3	Estimate and judge	6.M.1.3.1 Estimate to predict		6.M.1.3.1A
		reasonableness of results.	computation results.		Estimate to predict results or amounts.
			(317.03.a)		
			6.M.1.3.2 Explain when		6.M.1.3.2 A
			estimation is appropriate.		Identify daily activities where estimation is appropriate.
			(317.03.b)		
			6.M.1.3.3 Identify whether a		6.M.1.3.3 A
			given estimate is an		Determine over and under estimations in daily living activities.
			overestimate or underestimate.		
			(317.03.c)		
			6.M.1.3.4 Use a four-function		6.M.1.3.4A
			calculator to solve complex		Use a calculator to solve problems.
			grade-level problems.		
			6.M.1.3.5 Formulate		6.M.1.3.5 A
			conjectures and discuss why		Formulate a guess to a problem.
			they must be or seem to be		
			true. (318.02.c)		
			6.M.1.3.6 Use appropriate		6.M.1.3.6 A
			vocabulary. (317.03.d)		Use appropriate vocabulary.

<u>Standard 2: Concepts and Principles of Measurement</u> - Students in Grade 6 select and use appropriate units and tools to make formal measurements in both systems. Students use given formulas for perimeter and area of triangles, circles, and parallelograms, and for circumference and area of circles. Students solve problems involving perimeter and area of rectangles. Students convert unit of measurement within each system in one step problems.

Extended Standard 2: Students in Grade 6 select and use appropriate units and tools to make formal measurements. Students recognize the perimeter and area of triangles, circles, and parallelograms, and the circumference and area of circles. Students identify equivalent unit of measurements in one step problems.

Topic	Gr	Goal	Objectives	Essence	Extended Content Indicators
	6.M.2.1	Understand and use U.S.	6.M.2.1.1 Select and use		6.M.2.1.1A
		customary and metric	appropriate units and tools to		Select and use appropriate units and tools to make formal measurements.
		measurements.	make formal measurements in		
			both systems. (319.01.a)		
			6.M.2.1.2 Apply estimation of		6.M.2.1.2 A
			measurement to real-world		Estimate length, time, weight, capacity, temperature, or capacity (volume) in real-world problems.
			and content problems using		
			standard measuring devices.		
			(319.01.b)		
			6.M.2.1.3 Apply		6.M.2.1.3 A
			understanding of relationships		Identify real world problems related to elapsed time.
			to solve real-world problems		
			related to elapsed time.		
			(319.01.f)		
			6.M.2.1.4 Given the formulas,		6.M.2.1.4 A
			find the perimeter or		Recognize the concept of around (perimeter and circumference) for simple shapes, i.e. circle,
			circumference and area of		triangle.
			triangles, circles and		
			parallelograms (all kinds).		
			(319.01.c, 321.01.e)		
			6.M.2.1.5 Convert units of		6.M.2.1.5 A
			measurement within each		Identify equivalent units of measurement.
			system in one-step problems		
			(e.g., quarts to gallons and		
			gallons to quarts). (319.01.e)		
			6.M.2.1.6 Solve problems		6.M.2.1.6 A
			involving perimeter and area		Identify the location of perimeter and area with rectangles.
			of rectangles. (321.01.d)		
			6.M.2.1.7 Use appropriate		6.M.2.1.7 A
			vocabulary and notations.		Use appropriate vocabulary.
			(319.01.g)		

<u>Standard 2: Concepts and Principles of Measurement</u> - Students in Grade 6 select and use appropriate units and tools to make formal measurements in both systems. Students use given formulas for perimeter and area of triangles, circles, and parallelograms, and for circumference and area of circles. Students solve problems involving perimeter and area of rectangles. Students convert unit of measurement within each system in one step problems.

Extended Standard 2: Students in Grade 6 select and use appropriate units and tools to make formal measurements. Students recognize the perimeter and area of triangles, circles, and parallelograms, and the circumference and area of circles. Students identify equivalent unit of measurements in one step problems.

Topic	Gr	Goal	Objectives	Essence	Extended Content Indicators
	6.M.2.2	Apply the concepts of rates,	6.M.2.2.1 Identify and write		6.M.2.2.1A
		ratios, and proportions.	ratios and scales (on a map).		Match a concrete representation to a simple ratio, i.e. 1 sandwich to 2 people
			(319.03.a)		

<u>Standard 2: Concepts and Principles of Measurement</u> - Students in Grade 6 select and use appropriate units and tools to make formal measurements in both systems. Students use given formulas for perimeter and area of triangles, circles, and parallelograms, and for circumference and area of circles. Students solve problems involving perimeter and area of rectangles. Students convert unit of measurement within each system in one step problems.

Extended Standard 2: Students in Grade 6 select and use appropriate units and tools to make formal measurements. Students recognize the perimeter and area of triangles, circles, and parallelograms, and the circumference and area of circles. Students identify equivalent unit of measurements in one step problems.

Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.2.3	Apply dimensional analysis.	No objectives at this grade		No objectives at this grade level.
			level.		
	6.M.2.4	Apply appropriate techniques and tools to determine	No objectives at this grade level.		No objectives at this grade level.
		measurements.			

Topic	Gr	Goal	Objectives	Essence	Extended Content Indicators
	6.M.3.1	Use algebraic symbolism as a	6.M.3.1.1 Discuss the		6.M.3.1.1 A
		tool to represent mathematical	meaning and use of variables		Identify a variable as an unknown quantity using a letter or symbol in a simple equation.
		relationships.	in simple expressions and		
		_	equations. (320.01.a)		
			6.M.3.1.2 Translate simple		6.M.3.1.2A
			word statements into algebraic		Translate simple word statements into numeric expressions.
			equations. (320.01.b)		
			6.M.3.1.3 Read and use		6.M.3.1.3 A
			symbols of "<," ">," and "="		Identify relationships using vocabulary or symbols of "<," ">," and "=".
			to express relationships.		
			(320.01.c)		

Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.3.2	Evaluate algebraic expressions.	6.M.3.2.1 Use the following		6.M.3.2.1 A
			properties in evaluating		Use the following properties in evaluating numerical expressions: commutative, identity, zero, or
			numerical expressions:		inverse.
			commutative, associative,		
			identity, zero, inverse, and		
			distributive. (320.02.a)		
			6.M.3.2.2 Evaluate simple		6.M.3.2.2 A
			algebraic expressions using		Solve simple algebraic expressions.
			substitution.		

Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.3.3	Solve algebraic equations and	6.M.3.3.1 Solve one-step		6.M.3.3.1 A
		inequalities.	equations with whole		Solve one-step equations with whole numbers, using concrete objects or a calculator when
			numbers. (320.03.a)		necessary.

Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.3.4	Understand the concept of	6.M.3.4.1 Extend simple		6.M.3.4.1.A
		functions.	patterns and state a rule		Identify a simple pattern using whole numbers or fractions as inputs.
			(function) that generates the		
			pattern using whole numbers,		
			decimals, and fractions as		
			inputs. (323.01.a)		
			6.M.3.4.2 Describe and		6.M.3.4.2 A
			extend patterns by using		Extend whole number patterns, using manipulatives and pictorial representations if needed.
			manipulatives and pictorial		
			representations. (323.01.b)		
			6.M.3.4.3 Use mathematical		6.M.3.4.3. A
			models to show change in a		Identify change in quantity in real world context.
			real world context. (323.01.c)		
			6.M.3.4.4 Use appropriate		6.M.3.4.4 A
			vocabulary. (323.01.d)		Use appropriate vocabulary.

Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.3.5	Represent equations, inequalities and functions in a variety of formats.	No objectives at this grade level.		No objectives at this grade level.

Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.3.6	Apply functions to a variety of	6.M.3.6.1 Use patterns to		6.M.3.6.1A
		problems.	represent and solve simple		Use concrete manipulatives to represent a pattern and solve simple problems.
			problems.		

Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.4.1	Apply concepts of size, shape,	6.M.4.1.1 Describe		6.M.4.1.1A
		and spatial relationships.	relationships among types of		Recognize the difference between a one and to dimensional geometric figures, using their defining
			one- and two- dimensional		properties.
			geometric figures, using their		
			defining properties. (321.01.a)		
			6.M.4.1.2 Draw and measure		6.M.4.1.2.A
			various angles and shapes		Identify and copy various angles and shapes using appropriate tools.
			using appropriate tools.		
			(321.01.b)		
			6.M.4.1.3 Apply fundamental		6.M.4.1.3 A
			concepts, properties, and		Differentiate between a line segment and a point
			relationships among points,		
			lines, rays, and angles.		
			(321.01.c)		
			6.M.4.1.4 Describe		6.M.4.1.4.A
			reflections, translations, and		Differentiate between reflections, translations, or rotations on various shapes.
			rotations on various shapes.		
			(321.01.g)		
			6.M.4.1.5 Identify		6.M.4.1.5.A
			congruence, similarities, and		Arrange shapes to show congruence, similarities, and line symmetry of shapes.
			line symmetry of shapes.		
			(321.01.d)		
			6.M.4.1.6 Discuss the spatial		6.M.4.1.6.A
			relationship between two- and		Recognize the difference in spatial relationships between two- and three-dimensional objects.
			three-dimensional objects.		
			(321.01.f)		
			6.M.4.1.7 Use appropriate		6.M.4.1.7 A
			vocabulary and symbols.		Recognize appropriate vocabulary and symbols.
			(323.01.h)		

Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.4.2	Apply the geometry of right	No objectives at this grade		No objectives at this grade level.
		triangles.	level.		

Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.4.3	Apply graphing in two	6.M.4.3.1 Identify and plot		6.M.4.3.1.A
		dimensions.	points in the first quadrant on		Identify the first quadrant on a coordinate plane.
			a coordinate plane. (321.02.a)		
			-		

Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.4.4	Represent and graph linear	No objectives at this grade		No objectives at this grade level.
		relationships.	level.		
	6.M.4.5	Use reasoning skills.	No objectives at this grade		No objectives at this grade level.
			level.		

<u>Extended Standard 5</u>: Students in Grade 6 read and interpret charts and graphs, including line graphs, bar graphs, and circle graphs. Students collect, organize, and display the data with appropriate notation in charts and graphs. Students find measures of central tendency – median, and mode – with simple sets of data and students identify the range of a set of data. Students participate in simple probability experiments.

Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.5.1	Understand data analysis.	6.M.5.1.1 Read and interpret		6.M.5.1.1.A
			tables, charts, and graphs,		Read and interpret charts and graphs, including line graphs, bar graphs, frequency charts, or
			including broken line graphs,		circle graphs.
			bar graphs, frequency tables,		
			line plots, and circle graphs.		
			(322.01.a)		
			6.M.5.1.2 Explain and justify		6.M.5.1.2.A
			stated conclusions drawn from		Identify conclusions drawn from charts or graphs.
			tables, charts, and graphs.		
			(322.01.b)		
			6.M.5.1.3 Use appropriate		6.M.5.1.3 A
			vocabulary and notations.		Use appropriate vocabulary.
			(322.01.c)		

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Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.5.2	Collect, organize, and display	6.M.5.2.1 Collect, organize,		6.M.5.2.1.A
		data.	and display the data with		Collect, organize, and display the data with appropriate notation in charts or graphs.
			appropriate notation in tables,		
			charts, and graphs, including		
			broken line graphs, bar		
			graphs, frequency tables and		
			line plots. (322.02.a)		

<u>Extended Standard 5</u>: Students in Grade 6 read and interpret charts and graphs, including line graphs, bar graphs, and circle graphs. Students collect, organize, and display the data with appropriate notation in charts and graphs. Students find measures of central tendency – median or mode – with simple sets of data and students identify the range of a set of data. Students participate in simple probability experiments.

Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.5.3	Apply simple statistical	6.M.5.3.1 Find measures of		6.M.5.3.1.A
		measurements.	central tendency – mean,		Find the median or mode – with simple sets of data.
			median, and mode - with		
			simple sets of data. (322.03.a)		
			6.M.5.3.2 Calculate the range		6.M.5.3.2.A
			of a set of data. (322.03.b)		Calculate the range of a set of data using whole numbers 1-10.

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Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.5.4	Understand basic concepts of	6.M.5.4.1 Predict, perform,		6.M.5.4.1.A
		probability.	and record results of simple		Perform and record results of simple probability experiments.
			probability experiments.		
			(322.04.a)		
			6.M.5.4.2 Use the language of		6.M.5.4.2.A
			probability. (322.04.b)		Use the language of probability.

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Topic	Gr	Goal	Objective	Essence	Extended Content Indicators
	6.M.5.5	Make predictions or decisions	6.M.5.5.1 Make predictions		6.M.5.5.1A
		based on data.	based on data. (318.01.c)		Make predictions based on data.