

# Independent School District of Boise City

## Accelerated Mathematics - 7

### District Course #0802

#### Course Description

Open to: Grade 7 One Year Course

Prerequisite(s): Mathematics 6, survey examination, and counselor approval.

Content: Students will experience a rigorous preparation for algebra with an emphasis on reasoning, problem solving, communication skills, number relationships and theory, patterns and functions, and algebraic concepts.

#### Adopted Materials

Title: Mathematics: Structure and Method, Course 2

Edition: 1992

Publisher: Houghton Mifflin

ISBN: 0-395-57014-X

#### Course Scope for Semester 1

Unit 1	Introduction to Algebra	12 Days
Unit 2	The Decimal System	12 Days
Unit 3	Positive and Negative Numbers	13 Days
Unit 4	Rational Numbers	12 Days
Unit 5	Equations and Inequalities	14 Days
Unit 6	Geometry	9 Days

#### Course Scope for Semester 2

Unit 6	Geometry	7 Days
Unit 7	Ratio, Proportion, and Percent	16 Days
Unit 8	The Coordinate Plane	13 Days
Unit 9	Areas and Volumes	14 Days
Unit 10	Square Roots and Right Triangles	7 Days
Unit 11	Probability	7 Days
Unit 12	Statistics	6 Days
Unit 13	Polynomials	6 Days

<b>Accelerated Mathematics 7</b>		<b>District Reference</b> 0803
<b>Unit 1</b>	<b>Introduction to Algebra</b>	Semester 1, 12 Days

<b>Instructional Objective</b>		<b>Standard Reference</b>	
0803.01 Use appropriate vocabulary.		7.M.1.1.8, 7.M.3.4.3	
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Use, understand, and apply the appropriate vocabulary given specific mathematical concepts.	Ongoing (Ch. 1-13)	TMA, EOC

<b>Instructional Objective</b>			<b>Standard Reference</b>
0803.02 Understand and use a variety of problem-solving skills.			7.M.1.1.6
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Use a variety of strategies to compute problems drawn from real-world situations.	Ongoing (Ch. 1-13)	TMA, EOC
02	Recognize pertinent information for problem solving.	Ongoing (Ch. 1-13)	TMA, EOC
<b>Instructional Objective</b>			<b>Standard Reference</b>
0803.03 Apply appropriate technology and models to find solutions to problems.			7.M.1.3.4
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Use computer applications to display and manipulate data.	Ongoing (Ch. 1-13)	TMA, EOC
02	Select appropriate models to represent mathematical ideas.	Ongoing (Ch. 1-13)	TMA, EOC
03	Use calculator to display, manipulate, and compute data.	Ongoing (Ch. 6.6-13)	TMA, EOC
<b>Instructional Objective</b>			<b>Standard Reference</b>
0803.04 Simplify and evaluate algebraic expressions.			7.M.3.1.2, 7.M.3.2.1, 7.M.3.2.2, 7.M.3.3.1
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Simplify or evaluate a mathematical or variable expression using the order of operations.	1-1, 1-2, 1-6, 2-5	TMA, EOC
02	Find the solution of an equation or inequality in one variable whose replacement set is given.	1-3, 1-4	TMA, EOC
03	Write expressions for word phrases, and equations and inequalities for word sentences.	1-6, 1-7	TMA, EOC
04	Simplify the expressions in an equation to obtain an equivalent equation.	5-2	TMA, EOC

<b>Accelerated Mathematics 7</b>			<b>District Reference</b>
			0803
<b>Unit 2</b>	<b>The Decimal System</b>	Semester 1, 12 Days	

<b>Instructional Objective</b>			<b>Standard Reference</b>
0803.05 Understand and use exponents.			7.M.1.1.4, 7.M.1.2.3
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Read, write, and simplify exponential expressions.	2-2	TMA, EOC
02	Simplify expressions involving negative exponents.	3-7	TMA, EOC

<b>Instructional Objective</b> 0803.06 Read, write, order, and compare real numbers (integers, fractions, decimals, percents, ratios) and absolute values.			<b>Standard Reference</b> 7.M.1.1.1, 7.M.1.1.2, 7.M.1.2.1
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Read, write, and order decimal numbers.	2-2	TMA, EOC
02	Express percents as fractions and as decimals.	7-4	TMA, EOC
03	Express fractions and decimals as percents.	7-4	TMA, EOC
<b>Instructional Objective</b> 0803.07 Recognize when estimation is appropriate and understand the usefulness of an estimate as distinct from an exact answer.			<b>Standard Reference</b> 7.M.1.3.1
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Round decimal numbers and use rounding to estimate an answer.	2-3	TMA, EOC
<b>Instructional Objective</b> 0803.08 Develop and apply number theory concepts.			<b>Standard Reference</b> 7.M.3.2.1
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Use the properties of addition and multiplication.	2-4	TMA, EOC
02	Use terms and properties concerning positive and negative fractions.	4-1	TMA, EOC
03	Use the addition and multiplication properties of equality.	5-1	TMA, EOC

<b>Accelerated Mathematics 7</b>		<b>District Reference</b> 0803
<b>Unit 3</b>	<b>Positive and Negative Numbers</b>	Semester 1, 13 Days

<b>Instructional Objective</b> 0803.09 Understand the position of real numbers on a number line.			<b>Standard Reference</b> 7.M.1.1.1, 7.M.1.1.3
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Represent and compare positive and negative integers on a number line.	3-1	TMA, EOC
02	Represent and compare positive and negative decimals on a number line.	3-2	TMA, EOC
<b>Instructional Objective</b> 0803.10 Consistently and accurately add, subtract, multiply, and divide rational numbers.			<b>Standard Reference</b> 7.M.1.1.5, 7.M.1.2.2
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Find the sum of two or more positive or negative numbers.	3-3	TMA, EOC
02	Find the difference of two positive or negative numbers.	3-4	TMA, EOC

03	Find the product of two or more positive or negative numbers.	3-5	TMA, EOC
04	Find the quotient of two positive or negative numbers.	3-6	TMA, EOC
05	Add and subtract fractions and mixed numbers.	4-4	TMA, EOC
06	Multiply fractions and mixed numbers.	4-5	TMA, EOC
07	Divide fractions and mixed numbers.	4-6	TMA, EOC

<b>Accelerated Mathematics 7</b>		<b>District Reference</b> 0803
<b>Unit 4</b>	<b>Rational Numbers</b>	Semester 1, 12 Days

<b>Instructional Objective</b>		<b>Standard Reference</b>	
0803.11 Understand and use real numbers both rational and irrational.		7.M.1.1.5	
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Write proper and improper fractions as equivalent fractions or mixed numbers in lowest terms.	4-2	TMA, EOC
02	Write two or more fractions as equivalent fractions with the least common denominator.	4-3	TMA, EOC
03	Write fractions and mixed numbers as equivalent terminating or repeating decimals.	4-7	TMA, EOC
04	Write terminating or repeating decimals as equivalent fractions or mixed numbers.	4-7	TMA, EOC
05	Estimate the positive square root of a positive number by determining the two consecutive integers between which the square root lies.	10-1	TMA, EOC

<b>Accelerated Mathematics 7</b>		<b>District Reference</b> 0803
<b>Unit 5</b>	<b>Equations and Inequalities</b>	Semester 1, 14 Days

<b>Instructional Objective</b>		<b>Standard Reference</b>	
0803.12 Solve one- and two-step equations and inequalities using inverse operations.		7.M.3.3.1, 7.M.3.1.2	
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Solve equations and inequalities by using inverse operations.	1-5	TMA, EOC
02	Solve an equation in one variable that involves addition or subtraction.	5-3	TMA, EOC
03	Solve an equation in one variable that involves multiplication or division.	5-4	TMA, EOC
04	Use several transformations to solve an equation in	5-5	TMA, EOC

	one variable.		
05	Solve an inequality in one variable that involves addition, subtraction, multiplication, or division.	5-6	TMA, EOC
06	Use several transformations to solve an inequality in one variable.	5-7	TMA, EOC
07	Use an equation to solve a word problem.	5-9	TMA, EOC
08	Solve equations involving a percent of increase or decrease.	7-6	TMA, EOC
09	Solve percentage equations involving commissions, royalties, and discounts.	7-7	TMA, EOC
10	Solve equations involving simple and compound interest.	7-8	TMA, EOC
11	Find solutions for an equation in two variables.	8-2	TMA, EOC
<b>Instructional Objective</b>			<b>Standard Reference</b>
0803.13 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models to communicate mathematical information.			7.M.3.1.2
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Intepret an equation as a word problem.	5-8	TMA, EOC

<b>Accelerated Mathematics 7</b>		<b>District Reference</b> 0803
<b>Unit 6</b>	<b>Geometry</b>	Semester 1, 9 Days Semester 2, 7 Days

<b>Instructional Objective</b>			<b>Standard Reference</b>
0803.14 Describe, classify, and apply fundamental concepts, properties, and relationships among points, lines, planes, angles, and shapes.			7.M.4.1.3
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Name points, segments, rays, lines, and planes.	6-1	TMA, EOC
02	Identify types of angles.	6-3	TMA, EOC
03	Recognize and use the properties of perpendicular lines, complementary angles, supplementary angles, and vertical angles.	6-4	TMA, EOC
04	Identify special angles associated with parallel lines.	6-5	TMA, EOC
05	Classify triangles.	6-6	TMA, EOC
06	Identify quadrilaterals, parallelograms, rhombuses, rectangles, squares, trapezoids, and isosceles trapezoids.	6-7	TMA, EOC
07	Identify and find the perimeters of polygons.	6-8	TMA, EOC

<b>Instructional Objective</b> 0803.15 Construct and measure various angles and shapes using appropriate tools.			<b>Standard Reference</b> 7.M.4.1.2
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Construct and measure segments and angles.	6-1, 6-3	TMA, EOC
02	Determine measures of angles in triangles	6-6	TMA, EOC
03	Construct a parallelogram.	6-7	TMA, EOC
<b>Instructional Objective</b> 0803.16 Apply formulas for perimeter, circumference, and area to polygons and circles.			<b>Standard Reference</b> 7.M.2.1.4
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Use a circumference formula.	6-2	TMA, EOC
<b>Instructional Objective</b> 0803.17 Recognize and apply congruence, similarities, and symmetry of shapes.			<b>Standard Reference</b> 7.M.4.1.5
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Identify congruent polygons and their corresponding parts.	6-9	TMA, EOC
02	Apply facts about similar triangles.	10-5	TMA, EOC

<b>Accelerated Mathematics 7</b>		<b>District Reference</b> 0803
<b>Unit 7</b>	<b>Ratio, Proportion, and Percent</b>	Semester 2, 16 Days

<b>Instructional Objective</b> 0803.18 Understand and use proportions, ratios, and scales.			<b>Standard Reference</b> 7.M.2.2.1
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Write a ratio in lowest terms.	7-1	TMA, EOC
02	Set up and solve proportions.	7-1	TMA, EOC
03	Interpret and use scale drawings.	7-3	TMA, EOC
04	Use ratios to solve percentage problems.	7-5	TMA, EOC
05	Use proportions to solve problems involving percents.	7-8	TMA, EOC
<b>Instructional Objective</b> 0803.19 Use rates to make indirect measurements.			<b>Standard Reference</b> 7.M.2.2.2
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Express unit rates.	7-2	TMA, EOC
02	Use rates to solve problems.	7-2	TMA, EOC

<b>Instructional Objective</b> 0803.20 Translate simple word statements and story problems into algebraic expressions and equations.			<b>Standard Reference</b> 7.M.3.1.2
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Translate percentage problems into algebraic equations.	7-5	TMA, EOC

<b>Accelerated Mathematics 7</b>		<b>District Reference</b> 0803
<b>Unit 8</b>	<b>The Coordinate Plane</b>	Semester 2, 13 Days

<b>Instructional Objective</b> 0803.21 Use the coordinate plane as it relates to real-world applications.			<b>Standard Reference</b> 7.M.4.3.1
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Assign coordinates to a point in the plane.	8-1	TMA, EOC
02	Graph and ordered pair of numbers in the coordinate plane.	8-1	TMA, EOC
03	Graph a linear equation in two variables.	8-3	TMA, EOC
05	Solve problems using graphs.	8-5	TMA, EOC

<b>Accelerated Mathematics 7</b>		<b>District Reference</b> 0803
<b>Unit 9</b>	<b>Areas and Volumes</b>	Semester 2, 14 Days

<b>Instructional Objective</b> 0803.22 Apply formulas for perimeter, circumference, and area to polygons and circles.			<b>Standard Reference</b> 7.M.2.1.6, 7.M.2.1.4, 7.M.4.1.5
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Find the areas of rectangles and triangles.	9-1	TMA, EOC
02	Find the areas of parallelograms and trapezoids.	9-2	TMA, EOC
03	Find the areas of circles and of regions involving circles.	9-3	TMA, EOC
04	Use point and line symmetry in finding the areas of figures.	9-4	TMA, EOC

<b>Instructional Objective</b> 0803.22 Understand the concept of surface area and volume (capacity).			<b>Standard Reference</b> 7.M.4.1.6
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Find the volumes and capacities of prisms, cylinders, pyramids, and cones.	9-5, 9-6	TMA, EOC

02	Find the surface areas of prisms and cylinders.	9-7	TMA, EOC
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<b>Accelerated Mathematics 7</b>		<b>District Reference</b> 0803	
<b>Unit 10</b>	<b>Square Roots and Right Triangles</b>	Semester 2, 7 Days	

<b>Instructional Objective</b>		<b>Standard Reference</b>	
0803.24 Investigate right triangle geometry using the Pythagorean Theorem.		7.M.4.2	
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Use the Pythagorean Theorem and its converse.	10-4	TMA, EOC

<b>Accelerated Mathematics 7</b>		<b>District Reference</b> 0803	
<b>Unit 11</b>	<b>Probability</b>	Semester 2, 7 Days	

<b>Instructional Objective</b>		<b>Standard Reference</b>	
0803.25 Understand and use the language of probability.		7.M.5.4.1	
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Determine the number of permutations or combinations that can be made from a group of objects.	11-1, 11-2	TMA, EOC
02	Determine the odds in favor of an event and the odds against an event.	11-4	TMA, EOC
<b>Instructional Objective</b>		<b>Standard Reference</b>	
0803.26 Recognize equally likely outcomes.		7.M.5.4.2	
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Determine the probability of an event when the outcomes are equally likely.	11-3	TMA, EOC

<b>Accelerated Mathematics 7</b>		<b>District Reference</b> 0803	
<b>Unit 12</b>	<b>Statistics</b>	Semester 2, 6 Days	

<b>Instructional Objective</b>		<b>Standard Reference</b>	
0803.27 Analyze and interpret tables, charts, and graphs (scatter plots, line graphs, bar graphs, pie charts).		7.M.5.1.1	
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Read single and double bar graphs.	12-1	TMA, EOC
02	Read line graphs.	12-2	TMA, EOC
03	Read frequency distribution tables.	12-4	TMA, EOC

04	Read stem-and-leaf plots.	12-5	TMA, EOC
<b>Instructional Objective</b>		<b>Standard Reference</b>	
0803.28 Collect, organize, and display data with appropriate notation in tables, charts, and graphs (scatter plots, line graphs, bar graphs, pie charts).		7.M.5.2.1	
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Make single and double bar graphs.	12-1	TMA, EOC
02	Make line graphs.	12-2	TMA, EOC
03	Make frequency distribution tables.	12-4	TMA, EOC
04	Make stem-and-leaf plots	12-5	TMA, EOC
<b>Instructional Objective</b>		<b>Standard Reference</b>	
0803.29 Choose and calculate the appropriate measure of central tendency – mean, median, and mode.		7.M.5.3.1	
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Calculate the mean, median, and mode of a set of data.	12-3	TMA, EOC
<b>Instructional Objective</b>		<b>Standard Reference</b>	
0803.30 Explore the significance of range, frequency, and informal distribution.		7.M.5.3.2	
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Calculate the range of a set of data.	12-3	TMA, EOC

<b>Accelerated Mathematics 7</b>		<b>District Reference</b> 0803
<b>Unit 13</b>	<b>Polynomials</b>	Semester 2, 6 Days

<b>Instructional Objective</b>		<b>Standard Reference</b>	
0803.31 Explore the concept of polynomials and the basic techniques by which polynomials are manipulated.			
<b>No.</b>	<b>Performance Objective</b>	<b>Resource Reference</b>	<b>Assessment Correlation</b>
01	Introduce polynomials and the terminology associated with them.	13-1	TMA, EOC
02	Add and subtract polynomials.	13-2	TMA, EOC
03	Multiply and divide polynomials.	13-3	TMA, EOC
04	Multiply and divide a polynomial by a monomial.	13-4	TMA, EOC

**INDEPENDENT SCHOOL DISTRICT OF BOISE CITY  
IDAHO ACHIEVEMENT STANDARDS  
GRADE 7  
MATHEMATICS**

**Students are expected to know content and apply skills from previous grades.**

Mathematical reasoning and problem solving processes should be incorporated throughout all mathematics standards. Students should use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models to communicate mathematical information and to explain mathematical reasoning and concepts.

**Standard 1: Number and Operation**

Students in Grade 7 read, write, compare, order, and place on a number line: rational numbers, including integers, fractions, and decimals, and absolute values. Students solve problems requiring the conversion between simple decimals, fractions, and percents. Students add, subtract, multiply, and divide whole numbers, fractions, and decimals and students evaluate numerical expressions using the order of operations with whole numbers and decimals. Students explain when estimation is appropriate and describe the usefulness of an estimate as opposed to an exact answer.

**Goal 1.1: Understand and use numbers.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.1.1.1 Compare magnitudes and relative magnitudes of rational numbers, including integers, fractions, and decimals
- 7.M.1.1.2 Solve problems requiring the conversion between simple decimals, fractions, ratios, and percents.
- 7.M.1.1.3 Locate the position of rational numbers on a number line.
- 7.M.1.1.4 Rewrite multiple factors using exponents.
- 7.M.1.1.5 Apply the number theory concepts of primes, composites, and prime factorization and find the Least Common Multiple (LCM) and the Greatest Common Factor (GCF).
- 7.M.1.1.6 Recognize pertinent information for problem solving.
- 7.M.1.1.7 Describe the use of integers in real-world situations.
- 7.M.1.1.8 Use appropriate vocabulary.

**Goal 1.2: Perform computations accurately.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.1.2.1 Recall the common equivalent fractions, decimals, and percents of halves, fourths, and tenths.
- 7.M.1.2.2 Add, subtract, multiply, and divide whole numbers, fractions and decimals; and add, multiply, and divide integers.
- 7.M.1.2.3 Evaluate whole numbers in exponential form.
- 7.M.1.2.4 Evaluate numerical expressions using the order of operations with whole numbers and decimals.
- 7.M.1.2.5 Select and use an appropriate method of computation from mental math, paper and pencil, calculator, or a combination of the three.
- 7.M.1.2.6 Use a variety of strategies including common mathematical formulas to compute problems drawn from real life situations.
- 7.M.1.2.7 Use appropriate vocabulary and notations.

**Goal 1.3: Estimate and judge reasonableness of results.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.1.3.1 Estimate to predict computation results.
- 7.M.1.3.2 Explain when estimation is appropriate and describe the usefulness of an estimate as opposed to an exact answer.
- 7.M.1.3.3 Identify whether a given estimate is an overestimate or underestimate.
- 7.M.1.3.4 Use a four-function calculator to solve complex grade-level problems.
- 7.M.1.3.5 Formulate conjectures and discuss why they must be or seem to be true.
- 7.M.1.3.6 Use appropriate vocabulary and notations.

## **Standard 2: Concepts and Principles of Measurement**

Students in Grade 7 select and use appropriate units and tools to make formal measurements in both systems. Students apply given formulas for perimeter, circumference, or area of triangles, circles, and quadrilaterals. Students solve problems involving perimeter and area of rectangles and squares. Students compare units and explain their relationship to one another and to real world applications.

### **Goal 2.1: Understand and use U.S. customary and metric measurements.**

#### **Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.2.1.1 Select and use appropriate units and tools to make formal measurements in both systems.
- 7.M.2.1.2 Apply estimation of measurement to real-world and content problems using standard measuring devices.
- 7.M.2.1.3 Explain the differences between perimeter, area, and volume (capacity) and their measures within both systems.
- 7.M.2.1.4 Given the formulas, find the perimeter, circumference, or area of triangles, circles, and quadrilaterals.
- 7.M.2.1.5 Convert units of measurement within each system.
- 7.M.2.1.6 Solve problems involving perimeter and area of rectangles and triangles.
- 7.M.2.1.7 Use appropriate vocabulary and notations.

### **Goal 2.2: Apply the concepts of rates, ratios, and proportions.**

#### **Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.2.2.1 Explain rates and their relationship to ratios, and use proportions to solve problems represented with a diagram.
- 7.M.2.2.2 Reduce rates to unit rates.

### **Goal 2.3: Apply dimensional analysis.**

#### **Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.2.3.1 Identify properly constructed dimensional analysis conversions.

## **Standard 3: Concepts and Language of Algebra and Functions**

Students in Grade 7 use variables in simple expressions and equations and students use symbols “<,” “>,” “=,” “≠,” “≤,” and “≥” to express relationships. Students use the order of operations in evaluating simple algebraic expressions and students solve one-step equations. Students extend patterns involving rational numbers and describe the rule that generates the pattern.

### **Goal 3.1: Use algebraic symbolism as a tool to represent mathematical relationships.**

#### **Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.3.1.1 Use variables in simple expressions and equations.
- 7.M.3.1.2 Translate simple word statements into algebraic expressions and equations.
- 7.M.3.1.3 Use symbols “<,” “>,” “=,” “≠,” “≤,” and “≥” to express relationships.

**Goal 3.2: Evaluate algebraic expressions.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.3.2.1 Evaluate simple numeric and algebraic expressions using commutative, associative, identity, zero, inverse, distributive, and substitution properties.
- 7.M.3.2.2 Use the order of operations in evaluating simple algebraic expressions.

**Goal 3.3: Solve algebraic equations and inequalities.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.3.3.1 Solve one-step equations.

**Goal 3.4: Understand the concept of functions.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.3.4.1 Extend patterns involving rational numbers and describe the rule that generates the pattern.
- 7.M.3.4.2 Explain how a change in one quantity impacts a change in another quantity.
- 7.M.3.4.3 Use appropriate vocabulary and notations.

**Goal 3.5: Represent equations, inequalities and functions in a variety of formats.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.3.5.1 Represent a simple set of data in a table, as a graph, and as a mathematical relationship.

**Goal 3.6: Apply functions to a variety of problems.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.3.6.1 Use patterns and linear functions to represent and solve simple problems.

**Standard 4: Concepts and Principles of Geometry**

Students in Grade 7 describe and classify relationships among types of one-, two-, and three-dimensional geometric figures using their defining properties. Students draw and measure various angles and shapes using appropriate tools and students identify congruence, similarities, and line symmetry of shapes. Students identify and plot points on a coordinate plane.

**Goal 4.1: Apply concepts of size, shape, and spatial relationships.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.4.1.1 Classify relationships among types of one- and two-, dimensional geometric figures, using their defining properties.
- 7.M.4.1.2 Draw and measure various angles and shapes using appropriate tools.
- 7.M.4.1.3 Apply fundamental concepts, properties, and relationships among points, lines, rays, planes, and angles.
- 7.M.4.1.4 Explain and model the effects of reflections, translations, and rotations on various shapes.
- 7.M.4.1.5 Identify congruence, similarities, and line symmetry of shapes.
- 7.M.4.1.6 Describe the concept of surface area and volume (capacity).
- 7.M.4.1.7 Use appropriate vocabulary and symbols.

**Goal 4.2: Apply the geometry of right triangles.**

No objectives at this grade level.

**Goal 4.3: Apply graphing in two dimensions.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.4.3.1 Identify and plot points on a coordinate plane.

**Standard 5: Data Analysis, Probability, and Statistics**

Students in the Grade 7 read and interpret tables, charts, and graphs, including frequency tables, scatter plots, line graphs, line plots, bar graphs, histograms, circle graphs, and stem-and-leaf plots. Students collect, organize and display data with appropriate notation in tables, charts and graphs, including scatter plots, line graphs, line plots, bar graphs, and stem-and-leaf plots. Students determine the measures of central tendency – mean, median and mode – with sets of data and students predict, perform, and record results of simple probability experiments.

**Goal 5.1: Understand data analysis.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.5.1.1 Read and interpret tables, charts, and graphs, including frequency tables, scatter plots, broken line graphs, line plots, bar graphs, histograms, circle graphs, and stem-and-leaf plots.
- 7.M.5.1.2 Explain conclusions drawn from tables, charts, and graphs.
- 7.M.5.1.3 Use appropriate vocabulary and notations.

**Goal 5.2: Collect, organize, and display data.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.5.2.1 Collect, organize, and display data with appropriate notation in tables, charts and graphs, including scatter plots, broken line graphs, line plots, bar graphs, and stem-and-leaf plots.

**Goal 5.3: Apply simple statistical measurements.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.5.3.1 Determine the measures of central tendency – mean, median and mode – with sets of data.
- 7.M.5.3.2 Discuss distribution of data, including range, frequency, gaps, and clusters.

**Goal 5.4: Understand basic concepts of probability.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.5.4.1 Predict, perform, and record results of simple probability experiments.
- 7.M.5.4.2 Recognize equally likely outcomes.
- 7.M.5.4.3 Explain that probability ranges from impossible to certain (0% to 100%).
- 7.M.5.4.4 Use the language of probability.

**Goal 5.5: Make predictions or decisions based on data.**

**Objective(s): By the end of Grade 7, the student will be able to:**

- 7.M.5.5.1 Make predictions based on simple theoretical probabilities.
- 7.M.5.5.2 Use appropriate vocabulary and notations.