DISTRICT MATHEMATICS PROGRAM

Mathematics Instructional Guide

Fifth Grade – *enVisionMATH* Program

Los Angeles Unified School District
2009-2010

Sample Quarterly Concept Organizer

Big Idea

QUARTER 1

Number Relationships, Equivalence, and Place Value
Numerical values can be represented in multiple ways.

Concept

Equivalent values can have different numerical representations.	Numbers have a unique point on the number line. Two numbers are equal when they represent the same point on the number line.	Numbers can be classified as prime or composite. Numbers can be expressed as a product of factors.

Skills

• Read and write whole numbers in the millions. • Represent fractions, decimals, and mixed numbers in multiple ways. • Round whole numbers to the millions and decimals to two decimal places.	• Order and compare numbers. • Place numbers (including positive and negative integers) on the number line. • Show equivalence of fractions and decimals.	• Decompose whole numbers down to their factors. • Identify prime and composite numbers.

Standards

Number of items

CR = Constructed Response

Concept Lesson includes this standard

CA MATH STANDARDS	NS 1.1	NS 1.2	NS 1.3	NS 1.4	NS 1.5	NS 1.6	NS 1.7	NS 1.8	NS 1.9	NS 2.2	NS 4.1	NS 4.2
KEY STANDARDS	🔑	🔑	🔑	🔑				🔑	🔑			🔑
CONCEPT LESSON						C			C			
ASSESSED QUARTERLY	3	3	3	2/CR	2	2	2	3	3	2	2	2

Big Ideas - Each quarter is designed around a *big idea* within which work on conceptual understanding, specific skills, and problem solving is balanced.

Content Standards - At the beginning of each instructional quarter the content standards for the quarter are provided.

Assessment Tools - *Blueprints* and *sample assessment items* aligned with the periodic assessment program are provided. Teachers are encouraged to use them when planning a standards-based program.

Quarterly Instructional Roadmaps - Instructional roadmaps, (such as the one on the next page) outline available resources that can be used to teach the concepts and skills that are aligned to the content standards within each quarter. All adopted textbook resources and additional resources that address the standards within a quarter are referenced. It is incumbent upon teachers and instructional support staff at a school site to select the lessons and the order in which to teach them that best fit the needs of each classroom and/or grade level. In order to meet the needs of diverse learners and to differentiate instruction within a grade level and within classrooms not all lessons will need to be covered. Furthermore, in order to develop proficiency and conceptual understanding, this guide serves as a springboard for designing and implementing instruction.

Sample Quarterly Instructional Roadmap

Big Idea

Standards

Number Relationships, Equivalence, and Place Value
Numerical values can be represented in multiple ways.

Focus for Standard

Standards:

🔑	NS 1.1	Read and write whole numbers in the millions.
🔑	NS 1.2	Order and compare whole numbers and decimals to two decimal places. *(Focus on whole numbers.)*
🔑	NS 1.3	Round whole numbers through the millions to the nearest ten, hundred, thousand, ten thousand, or hundred thousand.
🔑	NS 1.4	Decide when a rounded solution is called for and explain why such a solution may be appropriate.
	NS 1.5	Explain different interpretations of fractions, for example, parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalents of fractions.
	NS 1.6	Write tenths and hundredths in decimal and fraction notations and know the fraction and decimal equivalents for halves and fourths (e.g., ½ = 0.5 or 0.50; 7/4 = 1 ¾ or 1.75).
	NS 1.7	Write the fraction represented by a drawing of parts of a figure; represent a given fraction by using drawings; and relate a fraction to a simple decimal on a number line.
🔑	NS 1.8	Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in "owing").
🔑	NS 1.9	Identify on a number line the relative position of positive fractions, positive mixed numbers, and positive decimals to two decimal places. (*Focus on fractions and mixed numbers.*)
	NS 2.2	Round two-place decimals to one decimal or the nearest whole n… …sonableness of the rounded answer.
	NS 4.1	Understand that many whole numbers break down in different … 6 = 2 x 2 x 3).
	NS 4.2	Know that numbers such as 2, 3, 5, 7 and 11 do not have any fa… …ves and that such numbers are called prime numbers.

Concepts

Teacher Resources

Concepts	Standards	Scott Foresman Resource	Additional Resources	Time Frame
Equivalent values can have different numerical representations.	🔑 NS 1.1 🔑 NS 1.2 🔑 NS 1.3 🔑 NS 1.4	• Math Background for Teachers, pp. 1C, 1D: Rounding Numbers • Lessons: 1.1 – 1.3, 1.5 • Universal Access, A Million Times, p. 1E: Activity D	*50 Problem Solving Lessons (Burns)* • The Place Value Game, pp. 65-67 • Comparing Fractions, p. 125	

Legend:
🔑 Key Standard
Quarterly Assessed Standard
Dates to be determined

QUARTER 1

Number Relationships and Equivalence
Numerical values can be represented in multiple ways.

Arithmetic operations are represented by both models and algorithms for fractions, decimals, and integers.

- Use mental math when computing with decimals.
- Add, subtract, multiply, and divide whole numbers and decimals accurately.
- Estimate and round numbers.
- Add with negative integers and subtract a positive integer from a negative integer.

Algebraic Reasoning
Equations, expressions, and variables are mathematical models used to represent real situations.

Linear relationships are presented in multiple ways.

- Write and evaluate simple algebraic expressions using one variable.
- Use the distributive property in equations and expressions with variables.

CA MATH STANDARDS	NS 1.1	NS 1.3	NS 2.1	NS 2.2	AF 1.2	AF 1.3
KEY STANDARDS			🔑	🔑	🔑	
CONCEPT LESSON						
QUARTERLY ASSESSED	4	4	9/CR	5	7	1

LOS ANGELES UNIFIED SCHOOL DISTRICT
Fifth Grade: Quarter One
Quarterly Instructional Roadmap

Numerical Relationships and Equivalence
Numerical values can be represented in multiple ways.

Standards:

	NS 1.1	Estimate, round, and manipulate very large (e.g., millions) and very small (e.g. thousandths) numbers.
	NS 1.3	Understand and compute positive integer powers of non-negative integers; compute examples as repeated multiplication.
🔑	NS 2.1	Add, subtract, multiply and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.
🔑	NS 2.2	Demonstrate proficiency with division, including division with positive decimals and long division with multi-digit divisors.
🔑	AF 1.2	Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution.
	AF 1.3	Know and use the distributive property in equations and expressions with variables.

Concepts	Standards	Scott Foresman – Addison Wesley Resources	Additional Resources

Fractions, decimals, and percents are identified and represented on a number line.	NS 1.1	**Topic 1: Numeration**
		• Math Background for Teachers
		• The Language of Math
		• Topic Opener
		• Lessons 1-1 – 1-5
		  o Daily Spiral Review
		  o Develop the Concept: Interactive
		  o Develop the Concept: Visual
		  ▪ Visual Learning Bridge
		  ▪ Guided Practice
		  ▪ Independent Practice
		  o Close/Assess and Differentiate
		• Universal Access
		• Topic Test, Alternate Assessment, Reteaching	

Fractions, decimals, and percents are identified and represented on a number line.	NS 1.1 🔑 NS 2.1	**Topic 2: Addition and Subtraction Number Sense** • Lessons 2-2 – 2-6 (***Lesson 2-1: Grade 4 standard; Lesson 2-7: Grade 6 standard)*** • See Topic 1 for a list of Program Components related to planning and teaching the lessons in this Topic.	*A Collection of Math Lessons from Grades 3 through 6* (Burns), pp. 129 - 138
Arithmetic operations are represented by both models and algorithms for fractions, decimals, and integers.	NS 1.1 NS 1.3	**Topic 3: Reviewing Multiplication of Whole Numbers** • Lessons 3-2, 3-5 – 3-7 (*Lesson 3-1: **Grade 6 standard; Lesson 3-3: Grade 3 standard; Lesson 3-4 Grade 4 standard)*** • See Topic 1 for a list of Program Components	*About Teaching Mathematics* (Burns, 2nd Ed.), pp. 198 – 202, 210, 221

Concepts	Standards	Scott Foresman – Addison Wesley Resources	Additional Resources
		related to planning and teaching the lessons in this Topic.	
Arithmetic operations are represented by both models and algorithms for fractions, decimals, and integers.	NS 1.1 NS 2.2	**Topic 4: Division of Whole Numbers** • Lessons 4-1 – 4-8 (*Lesson 4-9: **Grade 6 standard***) • See Topic 1 for a list of Program Components related to planning and teaching the lessons in this Topic.	*50 Problem Solving Lessons* (Burns, pp. 117 – 120 *Math Matters Grades K-6: Understanding the Math You Teach* (Chapin & Johnson), pp. 67 – 69
Linear relationships are presented in multiple ways.	AF 1.2 AF 1.3	**Topic 5: Variables and Expressions** • Lessons 5-1 – 5-4, 5-6 *(Lesson 5-5: **Grade 6 standard**)* • See Topic 1 for a list of Program Components related to planning and teaching the lessons in this Topic.	*50 Problem Solving Lessons* (Burns), pp. 133 - 135 *Lessons for Algebraic Thinking Grades 3 – 5* (Wickett, Kharas, & Burns), pp. 27-42, 139 -150, 276 - 294
Arithmetic operations are represented by both models and algorithms for fractions, decimals, and integers.	NS 2.1	**Topic 6: Multiplying Decimals** • Lessons 6-1 – 6-6 • See Topic 1 for a list of Program Components related to planning and teaching the lessons in this Topic.	*About Teaching Mathematics* (Burns, 2nd Ed.), pp. 216- 243

Legend:
Key Standard

LOS ANGELES UNIFIED SCHOOL DISTRICT
Instructional Services, District Mathematics Program
Periodic Assessment Blueprint – Fifth Grade, Quarter 1

	STANDARD	Multiple Choice	Constructed Response
NS 1.1	Estimate, round, and manipulate very large (e.g., millions) and very small (e.g. thousandths) numbers.	4	
NS 1.3	Understand and compute positive integer powers of non-negative integers; compute examples as repeated multiplication.	4	
NS 2.1 🔑	Add, subtract, multiply and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results. (*Focus on operations with decimals.*)	9	1
NS 2.2 🔑	Demonstrate proficiency with division, including division with positive decimals and long division with multi-digit divisors.	5	
AF 1.2 🔑	Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution.	7	
AF 1.3	Know and use the distributive property in equations and expressions with variables.	1	
	TOTAL:	30	1

🔑 Key standard

Fifth Grade Quarterly Concept Organizer

QUARTER 2

Number Relationships and Algebraic Reasoning
Arithmetic and algebra are guided by equivalence and properties of operations.

Arithmetic operations are represented by both models and algorithms for fractions, decimals, and integers.

- Solve problems involving addition, subtraction, multiplication, and division of fractions accurately and represent in simplest form.
- Recognize equivalent fractions and solve problems involving fractions with like and unlike denominations.
- Add, subtract, multiply, and divide whole numbers and decimals.
-

Numbers are expressed as the product of prime factors and are written in exponential notation.

- Determine prime factors and write in exponential form.
-
-

Fractions, decimals, and percents are identified and represented on a number line.

- Represent numbers smaller than one, mixed numbers, positive and negative integers on the number line.
-

Geometric Figures
Shapes can be described, classified, and analyzed by their attributes.

Plane Figures have many properties that make them different from one another.

- Use appropriate tools to measure, identify, and draw angles, perpendicular and parallel lines, rectangles, and triangles.
- Know the sum of the angles of a triangle and quadrilateral and apply to problem solving.

CA MATH STAND.	NS 1.4	NS 1.5	NS 2.1	NS 2.2	NS 2.3	NS 2.4	NS 2.5	MG 2.1	MG 2.2
KEY STANDARDS	🔑	🔑	🔑	🔑	🔑			🔑	🔑
CONCEPT LESSO		CL			CL				
QUARTERLY ASS	3	3	5	3	5/CR	2	2	3	4

LOS ANGELES UNIFIED SCHOOL DISTRICT
Fifth Grade: Quarter Two
Quarterly Instructional Roadmap

Number Relationships and Algebraic Reasoning
Arithmetic and algebra are guided by equivalence and properties of operations.

Standards:

- NS 2.1 Add, subtract, multiply and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.
- NS 2.2 Demonstrate proficiency with division, including division with positive decimals and long division with multi-digit divisors.

Concepts	Standards	Scott Foresman – Addison Wesley Resources	Additional Resources
Arithmetic operations are represented by both models and algorithms for fractions, decimals, and integers.	NS 2.1 NS 2.2	**Topic 7: Dividing Decimals** • Math Background for Teachers • The Language of Math • Topic Opener • Lessons 7-1 – 7-5 o Daily Spiral Review o Develop the Concept: Interactive o Develop the Concept: Visual ▪ Visual Learning Bridge ▪ Guided Practice ▪ Independent Practice o Close/Assess and Differentiate • Universal Access Topic Test, Alternate Assessment, Reteaching	*Math Matters Grades K – 6: Understanding the Math You Teach* (Chapin & Johnson), pp. 67 – 69, 107 - 110

Legend:
Key Standard

LOS ANGELES UNIFIED SCHOOL DISTRICT
Fifth Grade: Quarter Two
Quarterly Instructional Roadmap

Geometric Figures
Shapes can be described, classified, and analyzed by their attributes.

Standards:

- MG 2.1 Measure, identify, and draw angles, perpendicular and parallel lines, rectangles, and triangles by using appropriate tools (e.g., straightedge, ruler, compass, protractor, drawing software).
- MG 2.2 Know that the sum of the angles of any triangle is 180° and the sum of the angles of any quadrilateral is 360° and use this information to solve problems.

Concepts	Standards	Scott Foresman – Addison Wesley Resources	Additional Resources
Plane Figures have many properties that make them different from one another.	MG 2.1 MG 2.2	**Topic 8: Shapes** • Lessons 8-1 – 8-6 • See Topic 7 for a list of Program Components related to planning and teaching the lessons in this Topic.	*About Teaching Mathematics* (Burns, 2nd Ed.), pp 91 - 97 *A Collection of Math Lessons from Grades 3 through 6* (Burns), pp 139 – 148 *Math Matters Grades K-6 Understanding the Math You Teach* (Chapin & Johnson), pp 149 -155

Number Relationships and Equivalence
Numerical values can be represented in multiple ways.

Standards:

- NS 1.4 Determine the prime factors of all numbers through 50 and write the numbers as the product of their prime factors by using exponents to show multiples of a factor (e.g. $24 = 2 \times 2 \times 2 \times 3 = 2^3 \times 3$).
- NS 1.5 Identify and represent on a number line decimals, fractions, mixed numbers, and positive and negative integers.
- NS 2.3 Solve simple problems, including ones arising in concrete situation, involving the addition and subtraction of fractions and mixed numbers (like and unlike denominators of 20 or less), and express answers in the simplest form.
- NS 2.4 Understand the concept of multiplication and division of fractions.
- NS 2.5 Compute and perform simple multiplication and division of fractions and apply these procedures to solving problems.

Concepts	Standards	Scott Foresman – Addison Wesley Resources	Additional Resources
Numbers are expressed as the product of prime factors and are written in exponential notation.	NS 1.4	**Topic 9 : Factors and Multiples** • Lessons 9-3, 9-5 (***Lessons 9-1, 9-2: Grade 4 standard; Lesson 9-4: Grade 6 standard)*** • See Topic 7 for a list of Program Components	*A Collection of Math Lessons from Grades 3 through 6* (Burns) • Chapter 6: Exploring Multiplication with Rectangles, pp. 71 - 84 *Math Matters, Grades K- 6, Understanding the Math You Teach* (Chapin & Johnson), pp. 7 – 10, 16 – 17, 65 - 66

Legend:
Key Standard

Concepts	Standards	Scott Foresman – Addison Wesley Resources	Additional Resources
		related to planning and teaching the lessons in this Topic.	
Fractions, decimals, and percents are identified and represented on a number line.	NS 1.5	**Topic 10: Fractions, Mixed Numbers, and Decimals** • Lessons 10-1 – 10-3, 10-7 – 10-9 (***Lesson10-4, 10-6, 10-10: Grade 4 standard; Lesson 10-5: Grade 6 standard)*** • See Topic 7 for a list of Program Components related to planning and teaching the lessons in this Topic.	*Math Matters Grades K – 6: Understanding the Math You Teach* (Chapin & Johnson), pp. 77 – 81, 87 – 90, 103 – 107, *50 Problem Solving Lessons* (Burns), pp. 125 - 128
Arithmetic operations are represented by both models and algorithms for fractions, decimals, and integers.	NS 2.3	**Topic 11: Adding and Subtracting Fractions and Mixed Numbers** • Lessons 11-1, 11-3 – 11-6 (***Lesson 11-2: Grade 6 standard)*** • See Topic 7 for a list of Program Components related to planning and teaching the lessons in this Topic.	*About Teaching Mathematics* (Burns, 2nd Ed.) • The Fraction Kit, pp. 226 – 228 • Build the Yellow Hexagon, p. 235 *Math Matters Grades K – 6: Understanding the Math You Teach* (Chapin & Johnson) • Adding and Subtracting Fractions with Models, pp. 91 – 93 • Modeling Fraction Multiplication, pp. 93 - 94 Division of Fractions, pp. 95 - 97
Arithmetic operations are represented by both models and algorithms for fractions, decimals, and integers.	NS 2.4 NS 2.5	**Topic 12: Multiplying and Dividing Fractions and Mixed Numbers** • Lessons 12-1 – 12-7 (***Lesson 12-8: Grade 6 standard)*** • See Topic 1 for a list of Program Components related to planning and teaching the lessons in this Topic.	*Math Matters Grades K – 6: Understanding the Math You Teach* (Chapin & Johnson), pp. 93 -97

Legend:
Key Standard

LOS ANGELES UNIFIED SCHOOL DISTRICT
Instructional Services, District Mathematics Program
Periodic Assessment Blueprint – Fifth Grade, Quarter 2

	STANDARD	Multiple Choice	Constructed Response
NS 1.4 🔑	Determine the prime factors of all numbers through 50 and write the numbers as the product of their prime factors by using exponents to show multiples of a factor (e.g. 24 = 2 x 2 x 2 x 3 = 2^3 x 3).	3	
NS 1.5 🔑	Identify and represent on a number line decimals, fractions, mixed numbers, and positive and negative integers. (*Focus on integers.*)	3	
NS 2.1 🔑	Add, subtract, multiply, and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results. (*Focus on integers.*)	5	
NS 2.2 🔑	Demonstrate proficiency with division, including division with positive decimals and long division with multi-digit divisors.	3	
NS 2.3 🔑	Solve simple problems, including ones arising in concrete situations, involving the addition and subtraction of fractions and mixed numbers (like and unlike denominators of 20 or less), and express answers in the simplest form.	5	1
NS 2.4	Understand the concept of multiplication and division of fractions.	2	
NS 2.5	Compute and perform simple multiplication and division of fractions and apply these procedures to solving problems.	2	
MG 2.1 🔑	Measure, identify, and draw angles, perpendicular and parallel lines, rectangles, and triangles by using appropriate tools (e.g., straightedge, ruler, compass, protractor, drawing software).	3	
MG 2.2 🔑	Know that the sum of the angles of any triangle is 180° and the sum of the angles of any quadrilateral is 360° and use this information to solve problems.	4	
	TOTAL:	30	1

🔑 Key standard

Fifth Grade Quarterly Concept Organizer

QUARTER 3

Number Relationships and Algebraic Reasoning

Arithmetic and algebra are guided by equivalence and properties of operations.

Linear relationships are presented in multiple ways.

- Write and evaluate simple algebraic expressions using one variable
- Identify and graph ordered pairs in the four quadrants

Arithmetic operations are represented by both models and algorithms for fractions, decimals, and integers.

- Represent and identify positive and negative integers on a number line
- Add with negative integers and subtract a positive integer from a negative integer
- Interpret percents as part of 100

Measurement and Geometry

Some attributes of objects are measurable and quantified using unit

Two- and three-dimensional objects are measured and described both around and within.

- Derive and use the formula for the area of a triangle and of a parallelogram by comparing it with the formula for the area of a rectangle and use appropriate units
- Construct a cube and a rectangular box from two-dimensional objects and use patterns to compute the surface area of these objects
- Compute area, perimeter, volume of rectangular plane and solid figures and use appropriate units
- Draw two-dimensional views of three-dimensional objects made from rectangular solids

Data Analysis

Data can be interpreted from organized visual representations.

Data is collected, sorted and/or classified, and analyzed visually and numerically depending upon the problem situation.

- Identify, graph ordered pairs in the four quadrants, and write ordered pairs of data from a graph and interpret meaning of data
- Solve problems involving linear functions with integer values; write the equation; and graph the resulting ordered pairs of integers on a grid

CA MATH STANDARDS	NS 1.2	NS 1.5	NS 2.1	AF 1.2	AF 1.4	AF 1.5	MG 1.1	MG 1.2	MG 1.3	MG 1.4	MG 2.3	SDAP 1.4	SDAP 1.5
KEY STANDARDS	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
CONCEPT LESSON			CL	CL									
QUARTERLY ASSESSED	5		3	3	2	3/CR	3	3	3			2	3

LOS ANGELES UNIFIED SCHOOL DISTRICT
Fifth Grade: Quarter Three
Quarterly Instructional Roadmap

Measurement and Geometry
Some attributes of objects are measurable and described using unit amounts.

Standards:

🔑	MG 1.1	Derive and use the formula for the area of a triangle and of a parallelogram by comparing each with the formula for the area of a rectangle (i.e., two of the same triangles make a parallelogram with twice the area; a parallelogram is compared with a rectangle of the same area by pasting and cutting a right triangle on the parallelogram).
🔑	MG 1.2	Construct a cube and rectangular box from two-dimensional patterns and use these patterns to compute the surface area of these objects.
🔑	MG 1.3	Understand the concept of volume and use the appropriate units in common measuring systems (i.e., cubic centimeters [cm^3], cubic meter [m^3], cubic inch [in^3], cubic yard [yd^3]) to compute the volume of rectangular solids.
	MG 1.4	Differentiate between, and use appropriate units of measures for two- and three-dimensional objects (i.e., find the perimeter, area, volume).
	MG 2.3	Visualize and draw two-dimensional views of three-dimensional objects made from rectangular solids.

Concepts	Standards	Scott Foresman – Addison Wesley Resources	Additional Resources

Two- and three-dimensional objects are measured and described both around and within.	🔑 MG 1.1
	MG 1.4
		Topic 13: Length, Perimeter, and Area
		• Math Background for Teachers
		• The Language of Math
		• Topic Opener
		• Lessons 13-1, 13-2, 13-4 – 13-7 (***Lesson 13-3: Grade 4 standard***)
		  o Daily Spiral Review
		  o Develop the Concept: Interactive
		  o Develop the Concept: Visual
		  ▪ Visual Learning Bridge
		  ▪ Guided Practice
		  ▪ Independent Practice
		  o Close/Assess and Differentiate
		• Universal Access
		• Topic Test, Alternate Assessments, and Reteaching
			About Teaching Mathematics (Burns, 2nd Ed.), pp. 87, 97 - 99
			
			A Collection of Math Lessons from Grades 3 through 6 (Burns), pp. 139 - 148
			
			Math Matters Grades K-6 Understanding the Math You Teach (Chapin & Johnson), pp. 189- 192

Two- and three-dimensional objects are measured and described both around and within.	🔑 MG 1.2 🔑 MG 1.3 MG 1.4 MG 2.3	**Topic 14: Solids** • Lessons 14-3 – 14-7 (***Lesson 14-1, 14-2: Grade 4 standard***) • See Topic 13 for a list of Program Components related to planning and teaching the lessons in this Topic.	*Math Matters Grades K-6 Understanding the Math You Teach* (Chapin & Johnson) pp. 171 – 176, 194 - 195

Legend:
🔑 Key Standard

Number Relationships and Algebraic Reasoning
Arithmetic and algebra are guided by equivalence and properties of operations.

Standards:

- NS 1.5 Identify and represent on a number line decimals, fractions, mixed numbers, and positive and negative integers.
- NS 2.1 Add, subtract, multiply and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.
- AF 1.2 Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution.
- AF 1.5 Solve problems involving linear functions with integer values; write the equation; and graph the resulting ordered pairs of integers on a grid.

Concepts	Standards	Scott Foresman – Addison Wesley Resources	Additional Resources
Arithmetic operations are represented by both models and algorithms for fractions, decimals, and integers.	NS 1.5 NS 2.1 AF 1.2	**Topic15: Integers** • Lessons 15-1 – 15-7 • See Topic 13 for a list of Program Components related to planning and teaching the lessons in this Topic.	
Linear relationships are presented in multiple ways.	AF 1.2 AF 1.5	**Topic 16: Solving and Writing Equations** • Lessons 16-3 – 16-5 (***Lesson 16-1, 16-2, 16-7: Grade 6 standard***) • See Topic 13 for a list of Program Components related to planning and teaching the lessons in this Topic.	*About Teaching Mathematics* (Burns), pp. 89, 115 – 123, 214 - 215

Number Relationships and Equivalence
Numerical values can be represented in multiple ways.

Standards:

- NS 1.2 Interpret percents as a part of a hundred; find decimal and percent equivalents for common fractions and explain why they represent the same value; compute a given percent of a whole number.

Concepts	Standards	Scott Foresman – Addison Wesley Resources	Additional Resources
Fractions, decimals, and percents are identified and represented on a number line.	NS 1.2	**Topic 17: Percent** • Lessons 17-2 – 17-5 (***Lesson 17-1: Grade 6 standard***) • See Topic 13 for a list of Program Components related to planning and teaching the lessons in this Topic.	*About Teaching Mathematics* (Burns, 2nd Ed.), pp. 249 – 252, 234 – 236, 241, 243 *Math Matters Grades K – 6 Understanding the Math You Teach* (Chapin & Johnson), pp. 114 – 116, 120 - 121

Legend:
Key Standard

Data Analysis
Commonly used statistical measures describe data.

Standards:

- AF 1.4 Identify and graph ordered pairs in the four quadrants of the coordinate plane.
- AF 1.5 Solve problems involving linear functions with integer values; write the equation; and graph the resulting ordered pairs of integers on a grid.
- SDAP 1.4 Identify ordered pairs of data from a graph and interpret the meaning of the data in terms of the situation depicted by the graph.
- SDAP 1.5 Know how to write ordered pairs correctly; for example, (x, y).

Concepts	Standards	Scott Foresman – Addison Wesley Resources	Additional Resources
Data is collected, sorted, and/or classified, and analyzed visually and numerically depending upon the problem situation.	AF 1.4 AF 1.5 SDAP 1.4 SDAP 1.5	**Topic 18: Equations and Graphs** • Lessons 18-1 – 18-4 • See Topic 13 for a list of Program Components related to planning and teaching the lessons in this Topic.	• *50 Problem Solving Lessons* (Burns, 2nd Ed.), pp. 139 - 140 • *Lessons for Algebraic Thinking Grades 3 – 5* (Wickett, Kharas, & Burns), pp 43 – 70, 197 – 221

Legend:
Key Standard

LOS ANGELES UNIFIED SCHOOL DISTRICT
Instructional Services, District Mathematics Program
Periodic Assessment Blueprint – Fifth Grade, Quarter 3

	STANDARD	Multiple Choice	Constructed Response
NS 1.2	Interpret percents as a part of a hundred; find decimal and percent equivalents for common fractions and explain why they represent the same value; compute a given percent of a whole number.	5	
NS 2.1	Add, subtract, multiply and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results. (*Focus on integers.*)	3	
AF 1.2	Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution.	3	
AF 1.4	Identify and graph ordered pairs in the four quadrants of the coordinate plane	2	
AF 1.5	Solve problems involving linear functions with integer values; write the equation; and graph the resulting ordered pairs of integers on a grid.	3	1
MG 1.1	Derive and use the formula for the area of a triangle and of a parallelogram by comparing it with the formula for the area of a rectangle.	3	
MG 1.2	Construct a cube and rectangular box from two-dimensional patterns and use these patterns to compute the surface area for these objects.	3	
MG 1.3	Understand the concept of volume and use the appropriate units in common measuring systems (i.e., cubic centimeters [cm^3], cubic meters [m^3], cubic inches [$in.^3$], cubic yards [$yd.^3$]) to compute the volume of rectangular solids.	3	
SDAP 1.4	Identify ordered pairs of data from a graph and interpret the meaning of the data in terms of the situation depicted by the graph.	2	
SDAP 1.5	Know how to write ordered pairs correctly; for example, (x,y)	3	
	Total	30	1

Fifth Grade Quarterly Concept Organizer

QUARTER 4

Data Analysis
Data can be interpreted from organized visual representations.

Data is collected, sorted and/or classified, and analyzed visually and numerically depending upon the problem situation.

- Understand and explain the concepts of mean, median, and mode.
- Compute and compare mean, median, and mode to show that they may differ.
- Use graphic organizers, including histograms and circle graphs, and explain which type of graph(s) is appropriate for various data sets.
- Determine the best choice of visual representations based on the type of data.
- Use fractions and percentages to compare data sets of different sizes.

Geometric Figures
Two- and three-dimensional objects with or without curved surfaces can be describes, classified, and analyzed by their attributes.

Two- and three-dimensional objects are measured and described both around and within.

- Use appropriate tools to measure, identify, and draw angles, perpendicular and parallel lines, rectangles, and triangles.

CA MATH STANDARDS	SDAP 1.1	SDAP 1.2	SDAP 1.3	MG 2.1
KEY STANDARDS				
CONCEPT LESSON				

LOS ANGELES UNIFIED SCHOOL DISTRICT
Fifth Grade: Quarter Four
Quarterly Instructional Roadmap

Data Analysis
Commonly used statistical measures describe data.

Standards:

SDAP 1.1 Know the concepts of mean, median, and mode; compute and compare simple examples to show that they may differ.
SDAP 1.2 Organize and display single-variable data in appropriate graphs and representations (e.g., histogram, circle graphs) and explain which types of graphs are appropriate for various data sets.
SDAP 1.3 Use fractions and percentages to compare data sets of different sizes.

Concepts	Standards	Scott Foresman – Addison Wesley Resources	Additional Resources
Data is collected, sorted, and/or classified, and analyzed visually and numerically depending upon the problem situation.	SDAP 1.1 SDAP 1.2 SDAP 1.3	**Topic 19: Graphs and Data** • Lessons 19-1 – 19-6, 19-8, 19-9 ***(Lesson 19-7: Grade 6 standard)*** .	*About Teaching Mathematics* (Burns), pp. 76 – 78 *Math Matters Grades K – 6: Understanding the Math You Teach* (Chapin & Johnson), 197 – 203, 211 – 213

Measurement and Geometry
Two- and three-dimensional objects with or without curved surfaces can be describes, classified, and analyzed by their attributes.

Standards:

MG 2.1 Measure, identify, and draw angles, perpendicular and parallel lines, rectangles, and triangles by using appropriate tools (e.g., straightedge, ruler, compass, protractor, drawing software).

Concepts	Standards	Scott Foresman – Addison Wesley Resources	Additional Resources
Two- and three-dimensional objects are measured and described both around and within.	MG 2.1	**Topic 20: Constructions** • Lessons 20.1 – 20.3	

Legend:
Key Standard

Sample Assessment Items - Grade 5

The purpose of these sample assessment items is to provide teachers with examples of questions that address the assessed standards. Although the assessment items will not be identical to these samples, the test format, level of rigor, and type of questions will be similar. Not all assessed standards are represented by this selection. The intent is to neither create a pretest nor an additional assessment for teacher use.

MULTIPLE CHOICE QUESTIONS

Sample Item #1

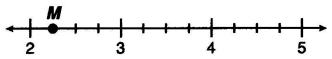
Strand: Number Sense

Standard Set: 1.0 Students compute with very large and very small numbers, positive integers, decimals, and fractions and understand the relationship between decimals, fractions, and percents. They understand the relative magnitudes of numbers:

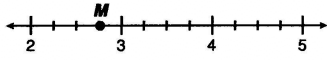
***Standard:** 1.5 Identify and represent on a number line decimals, fractions, mixed numbers and positive and negative integers.

On which number line below is point *M* located at 2.75? (*Answer: B*)

A

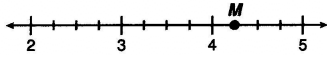


B



C

D



Sample Item #2

Strand: Number Sense

Standard Set: 1.0 Students compute with very large and very small numbers, positive integers, decimals, and fractions and understand the relationship between decimals, fractions, and percents. They understand the relative magnitudes of numbers:

***Standard:** 1.2 Interpret percents as a part of a hundred; find decimal and percent equivalents for common fractions and explain why they represent the same value; compute a given percent of a whole number.

Leanne wants to buy a pair of shoes that cost $45. If the shoes go on sale for 30% off the regular price, how much less will the shoes cost? (*Answer: A*)

A $13.50
B $15.00
C $30.00
D $75.00

Sample Item #3

Strand: Number Sense

Standard Set: 2.0 Students perform calculations and solve problems involving addition, subtraction, and simple multiplication and division of fractions and decimals:

***Standard:** 2.1 Add, subtract, multiply, and divide with decimals.

The table below shows the length of petals for some California poppies.

Poppies' Petals

Type of Poppy	Length of Petal (centimeters)
Island poppy	0.9
Kernville poppy	4
San Benito poppy	1.67
Tejon poppy	3.8

How much longer is the Kernville poppy petal than the San Benito poppy petal? (*Answer: B*)

A 1.63 centimeters **B** 2.33 centimeters **C** 3.43 centimeters **D** 5.67 centimeters

Sample Item #4

Strand: Statistics, Data Analysis, and Probability

Standard Set: 1.0 Students display, analyze, compare, and interpret different data sets, including data sets of different sizes:

Standard: 1.2 Organize and display single-variable data in appropriate graphs and representations (e.g., histogram, circle graphs) and explain which types of graphs are appropriate for various data sets.

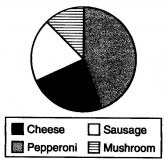
Hannah conducted a survey of her classmates to find out their favorite type of pizza. The table below shows the results of her survey.

Favorite Pizza Survey

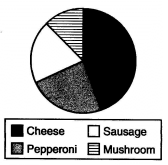
Favorite Type of Pizza	Number of Students
Cheese	11
Pepperoni	6
Sausage	5
Mushroom	3

Which of the following circle graphs represents her survey? (*Answer: C*)

A

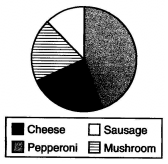


C



B

D



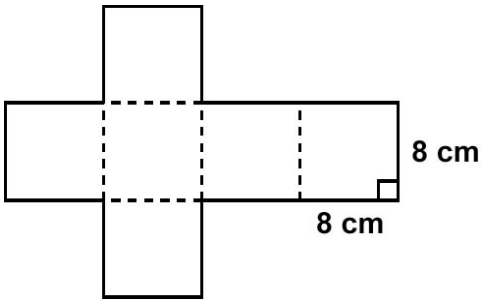
Sample Item #5

Strand: Measurement and Geometry

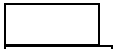
Standard Set: 1.0 Students understand and compute the volumes and areas of simple objects:

***Standard:** 1.2 Construct a cube and rectangular box from two-dimensional patterns and use these patterns to compute the surface area for these objects.

Rachel wants to create a cube from construction paper. She cuts out a pattern in the shape shown below.



What is the surface area of the cube? (*Answer: C)*

A 

B

C

D

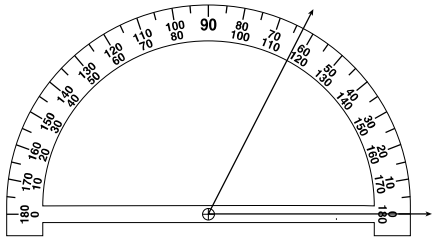
Sample Item #6

Strand: Measurement and Geometry

Standard Set: 2.0 Students identify, describe, and classify the properties of, and the relationships between, plane and solid geometric figures:

***Standard:** 2.1 Measure, identify, and draw angles, perpendicular and parallel lines, rectangles, and triangles by using appropriate tools (e.g., straightedge, ruler, compass, protractor, drawing software).

What is the measurement of the angle below? (*Answer: A*)



A 63°
B 77°
C 117°
D 123°

Sample Item #7

Strand: Algebra and Functions

Standard Set: 1.0 Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results:

***Standard:** 1.2 Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution.

Jerome and Nadia are planting trees. Nadia (*N*) has planted 4 more trees than Jerome. Which expression shows the number of trees Jerome has planted? (*Answer: D)*

A 4 x *N*
B *N* ÷ 4
C N + 4
D N - 4

Sample Item #8

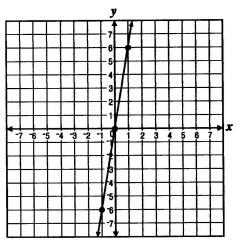
Strand: Algebra and Functions

Standard Set: 1.0 Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results:

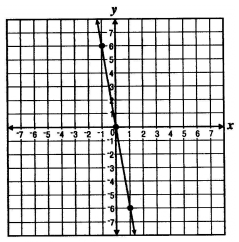
***Standard:** 1.5 Solve problems involving linear functions with integer values; write the equation; and graph the resulting ordered pairs of integers on a grid.

Which graph shows ☐ **(*Answer: A)***

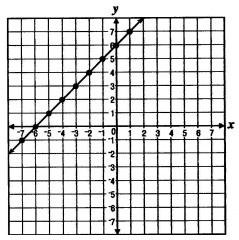
A



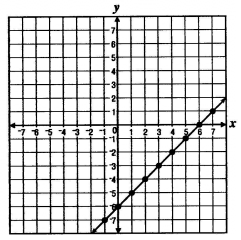
C



B



D



CONSTRUCTED RESPONSE

Strand: Number Sense

Standard Set: 2.0 Students perform calculations and solve problems involving addition, subtraction, and simple multiplication and division of fractions and decimals:

***Standard:** 2.2 Demonstrate proficiency with division, including division with positive decimals and long division with multi-digit divisors.

A soccer team is getting new uniforms. Each player of a soccer team will need a pair of shorts, a shirt, and a pair of socks. The table below shows the prices of the items per package, as well as the number of items in each package.

Uniform Prices

Item	Number in Package	Price per Package
Shorts	10	$115
Shirts	15	$180
Pairs of socks	12	$30

- **What is the cost for each pair of shorts, each shirt, and each pair of socks?**
- **What will be the total cost of a uniform for each player? Show all your work.**
- **Use words and numbers to explain how you got your answer. You may also use pictures.**

Rubric:

4-point response: The response indicates an advanced proficiency of division, including division with positive decimals and long division with multi-digit divisors.

- Calculates the cost for each item; $11.50 for the shorts, $12.00 for a shirt, and $2.50 for socks.
- States the total cost of a uniform for each player; $26.00.
- Shows all supporting work.
- Clearly explains the process of solving the problem. For example, the student may state that to find the cost of each item, divide the number in package into the price per package. Then take each item cost and add to find the cost of the uniform for each player.

3-point response: The response indicates proficiency of division, including division with positive decimals and long division with multi-digit divisors.

- Calculates the cost for some of the items; $11.50 for the shorts, $12.00 for a shirt, and $2.50 for socks.
- States a total cost of a uniform for each player, but the cost is inaccurate; $26.00.
- Shows most supporting work.
- Explains the process of solving the problem, but is missing the explanation for how to find the cost of each item or how to find the cost of the uniform for each player. For example, the student may restate the cost of each item and the cost of the uniform for each player.

2-point response: The response indicates partial proficiency of division, including division with positive decimals and long division with multi-digit divisors.

- Calculates the cost for some of the items with the calculated costs being incorrect; $11.50 for the shorts, $12.00 for a shirt, and $2.50 for socks.
- States a total cost of a uniform for each player, but the cost is inaccurate; $26.00.
- Shows some supporting work.
- Explains the process of solving the problem, but the explanation is incomplete, inaccurate, and/or missing information.

1-point response: The response indicates little or no proficiency of division, including division with positive decimals and long division with multi-digit divisors.

- Attempts to calculate some of the costs for each item; $11.50 for the shorts, $12.00 for a shirt, and $2.50 for socks.
- States an inaccurate cost of a uniform for each player or does not state a total cost for the uniform for each person; $26.00.
- Shows no supporting work.
- Explanation is inaccurate or missing.
- Does not complete the problem.