## Los Angeles Unified School District Office of Curriculum, Instruction, and School Support 2013-2014 Elementary Curriculum Maps Grade 4

## Introduction to the Document:

Welcome to the Los Angeles Unified School District's Elementary Mathematics CCSS Curriculum Map for Grade 4. The Map is intended to be a one-stop tool for teachers, administrators, parents, and other school support personnel. It blends and organizes Common Core State Standards in Mathematics, enVisionMATH Topics which address those standards, additional resources and Instructional Blocks into one easy-to-read resource. The Map is a living document—it is neither set in stone for all time nor is it perfect. Teachers and other users are encouraged to provide on-going feedback as to its accuracy, usability, and content.

## Organization of the Document:

This Curriculum Map for Mathematics has been organized in several ways to provide flexibility to teachers in planning instruction. Teachers and other users are encouraged to review the various versions and to choose the one that best fits their instructional planning needs.

Under the section Organized by Standards, the Mathematical Content and Practice standards are listed as they are found in the Common Core State Standards. In this section, teachers and other users will be able to see at a glance the mathematics domains, clusters, and standards for the grade level, and in which textbook topics (chapters) the standards can be found.

Under the section Organized by Instructional Block, the standards are listed in the developmental sequence outlined in the CA enVision MATH series. More complex standards are parsed out over multiple Instructional Blocks to allow students time to develop their understanding of the concept and the essential skills they will need in order to be successful.

## Symbols and Footnotes:

Additional key information has been embedded into this map to assist teachers and others in instructional decision-making.

## General Calendar for Instruction and Assessment:

The four Instructional Blocks (IB) and their periodic assessments reflect the standards or portions of the standards as indicated in the Organized by Instructional Block portion of the map. The map is designed to ensure full instruction and assessment of the grade level standards by the end of the school year.

## Using the Mathematics Curriculum Map:

The map can be thought of as a menu. It cannot be expected that one would do every lesson and activity from the instructional resources provided. To try to teach every lesson or use every activity would be like ordering everything on a menu for a single meal. It is not a logical option. Nor is it possible given the number of instructional days and the quantity of resources. And, like a menu, teachers select, based on instructional data, which lessons best fit the needs of their students – sometimes students need more time with a concept and at other times, less.

Look at the "Organized by Instructional Block" chart. From there, teachers would map out how much time they feel is needed to teach the concepts within the block based on the data of their students' needs. For example, some classes may need more time devoted to Number and Operations in Base Ten concepts, while another class at the same grade level may need more focused time on Operations and Algebraic Thinking within an Instructional Block.

Then look at the "Organized by Standards" chart. Match the standard to the recommended Resources in enVision and the Additional Resources materials.

The starting point for instructional planning is the standards. The textbook resources are tools for teachers in helping to teach the standards. Like going to a restaurant specializing in customer service, there may be times one wishes to order "off-the-menu". There are hundreds of resources available, both publisher- and teacher-

created, that may be used to best teach a concept or skill. Collaborative planning, both within and among grade levels, is strongly encouraged in order to design effective instructional programs for students.

## A Guide to the Headings:

**Big Ideas** are based on the most current research in mathematics education and are included in each cluster to highlight the key learning across the grades to support coherence. **Enduring Understandings** are important understandings that have lasting value, linking lessons and units to the Big Ideas.

The Domains are the larger groups of related standards and clusters.

The **Clusters** are groups of related standards.

The Standards for Mathematical Content define what students should know and be able to do.

The **Standards for Mathematical Practice** describe the varieties of expertise that mathematics educators at all levels should seek to develop in their students. They are the *habits of mind* to be developed, along with the content, in effective mathematics instruction. In any math task, all eight standards may be present, but some practice standards are more naturally paired with some content standards, and those matches are called out here.

The **Resources** may be teacher-guided, whole class activities or activities engaged in by students independently of the teacher, and can take place in small groups, pairs, or individually.

The Formative Assessments are intended to assist the teacher in providing data to guide instruction.

The **Domain Legend** explains the key that sorts the clusters into Major ( $\blacktriangle$ ), and Supporting or Additional (s/a), as denoted by the authors of the CCSS, and used by the testing services Smarter Balanced and PARCC. The

standards will be assessed with 70% of the assessment on the major clusters, 20% on the supporting clusters, and 10% on the additional clusters. There may be a temptation to minimize instruction of the additional clusters, but it is important to teach all the standards, as this may be the only grade level where the standard is taught.

Additional Support contains:

- Language Objectives and Supports to assist with English Learners and Standard English Learners, and which include elements from the English Language Development Framework
- Essential Questions which engage the students with interacting with the Big Ideas
- Key Vocabulary

**Literature Connections** highlight read-alouds and student-read books which connect to the domain. The books published by WorldScapes Readers are part of the enVision MATH classroom library.

**Daily Routines** call out the classroom practices within the particular Domain. They may last through the whole year, or only through that Instructional Block or Domain. Some Daily Routines are explicitly taught in *The First Ten Days of School*, available on the math website.

- Number Talks help students engage in mental math, more information is available at: http://www.insidemathematics.org/index.php/classroom-video-visits/number-talks
- Number Strings is a set of related math problems, more information is available at: <u>http://numberstrings.com/about/</u>
- Daily Oral Language and Cognitively Guided Instruction (DOL and CGI) is a way for students to understand the language of the math problem by finding and correcting errors in the writing of the problem, before solving the math problem. CGI problems are constructed to guide students' learning processes, rather than telling students how to solve problems. A video module is available at: <u>http://math.lausd.net/elementary/professional-development</u> Scroll to: EL Strategies for Math: DOL/CGI Module

Differentiation (III) falls into three categories:

- Front Loading: strategies to make the content more accessible to all students, including EL, SEL and students with special needs.
- Intervention: alternative methods of teaching the standards, in which all students can have a second opportunity to connect to the learning, based on their own learning style
- Enrichment: activities to extend the content for all learners, as all learners can have their thinking advanced, and to support the needs of GATE students. "Enrichment" for gifted or high ability students should not be interpreted as "extra work" or simply acceleration of pacing or content. Effective differentiation begins with a pre-assessment of academic readiness (enVision MATH provides many opportunities for assessment), interest and learning style, which allows the teacher to make informed choices about modifying the core curriculum to meet the individual needs of students. Differentiation for gifted students includes: depth, complexity acceleration, and novelty. Specific instructional strategies may include the prompts of depth and complexity, curriculum compacting, tiered lessons, project-based learning and independent study. GATE students should be challenged.

## Additional Documents:

An Appendix to the Curriculum Maps includes:

• First Ten Days of School for Grade 4 to introduce classroom management and new learning opportunities, including problem-solving strategies and daily routines.

## **Critical Areas:**

In Grade 4, instructional time should focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

- Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.
- Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., 15/9 = 5/3), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.
- Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

Special Thanks: The CCSS-aligned Curriculum Maps were developed under the auspices of Gerardo Loera, Executive Director of the Office of Curriculum, Instruction and School Support, and Dr. Susan Tandberg, Director of the Office of Curriculum, Instruction and School Support. There are many individuals who participated in the creation of this document, including reviewing and field-testing. We wish to thank everyone, especially: Mark Duncan, Charity Weber, Daniel Kim, Dina Williams, Lisa Ward, Jose Dorado, Leo Angulo, Evelyn Samos, Shirley Guzman, Dr. Philip Ogbuehi, Caroline Piangerelli, Judy Carrillo, Karima Fuentes, Deborah Atwell, Norma Cantu, Brian Olona, Joseph Espinosa, Cari Chi, Henrietta Fai, Charles Cho and Beverly Nichols.



#### draft 3.20.14 Key: A Major Clusters; s/a: Supporting Clusters - Additional Clusters









## Elementary Mathematics Grades 3-5 Timeline 2013-14 CCSS Curriculum Map by enVision MATH **Topic** (to be used in connection with the Curriculum Map by Common Core **Standard**)

	Ser	Semester 2	
Gr	IB 1: 8/13-10/18/2013	IB 2: 10/21 – 12/20/2013	IB 3: 1/13 – 6/5/2014
3	1: Numeration	7: Multiplication facts	14: Multiply greater numbers
	2: Rounding	8: Multiplication facts	15: Divide by 1-digit
	3: Add whole numbers	9: Division concepts	16: Measurement
	4: Subtract whole numbers	10: Division facts	17: Metric measurement
	5: Solids and shapes	11: Patterns and relationships	18: Perimeter, area, volume
	6: Multiplication concepts	12: Fraction concepts	19: Decimals and money
		13: Add/subtract fractions	<del>20: Dat<mark>a and Prob</mark>ability (</del> use
			transition Graphing lessons)
4	1: Numeration	7: Divide by 1-digit	13: Solving equations
	2: Addition/subtraction	8: Geometry	14: Integers
	3: Multiplication/division	9: Fraction concepts	15 <mark>: Meas</mark> urement
	4: Multiply by 1-digit	10: Add/subtract fractions	16: Data and graphs
	5: Variables and expressions	11: Fraction/decimal concepts	17: Length and coordinates
	6: Multiply by 2-digit	12: Operations with decimals	18: Formulas and equations
			19: Congruence/symmetry
			<del>20: Probability</del>
5	1: Numeration	8: Shapes	13: Length, perimeter, area
	2: Addition/subtraction	9: Factors and multiples	14: Solids
	3: Multiplication	10: Fractions, mixed numbers	15: Integers
	4: Division	11: Add/subtract fractions	16: Solving equations
	5: Variable and expressions	12: Operations with fractions	<del>17: Percent</del>
	6: Multiplying decimals		18: Equations and graphs
	7: Dividing decimals		<del>19: Graphs and data</del> (use Graphs: Line
			Plots transition lessons)
			<del>20: Constructions</del>

## DOMAIN: Operations and Algebraic Thinking

#### CLUSTER: Use the four operations with whole numbers to solve problems.<sup>▲</sup>

**Big Idea:** There are multiple interpretations of addition, subtraction, multiplication, and division of rational numbers, and each operation is related to other operations. **Enduring Understandings:** Some real-world problems involving joining or separating equal groups or comparison can be solved using multiplication. Repeated addition and arrays involve joining equal groups are two ways to think about multiplication. Multiplication and division have an inverse relationship that can be used to find division facts; every division fact has a related multiplication fact. Some real-world problems involving joining or separating equal groups are two ways to think about multiplication and division facts; every division fact has a related multiplication fact. Some real-world problems involving joining or separating equal groups or comparisons can be solved using division. Sharing and repeated-subtraction involve separating equal groups and are two ways to think about division.

**Big Idea:** For a given sent of numbers, there are relationships that are always true called prop<mark>erties, and these are the rules that govern arithmetic and algebra. **Enduring Understandings:** Two numbers can be multiplied in any order. The product of any number and 0 is zero. The product of any number and 1 is that number. Any number (except 0) divided by itself is equal to 1. Any number divided by 1 is that number. Zero divided by any number is zero. Zero cannot be a divisor.</mark>

**Big Idea:** Mathematical situations and structure can be translated and represented abstractly using variable, expressions, and equations. **Enduring Understanding:** Information in a problem can often be shown using a picture or diagram and used to understand and solve the problem. Some problems can be solved by writing and completing a number sentence or equation.

**Big Idea:** Any number, measure, numerical expression, algebraic expression, or equation can be represented in an infinite number of ways with the same value. **Enduring Understanding:** Representing numbers and numerical expression in equivalent forms can make some calculations easy to do mentally.

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.0A.1</b> Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that $35$ is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP6 Attend to precision. MP6 Attend to precision. MP8 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>3-1 Meanings of Multiplication</li> <li>3-3 Multiplication Properties</li> <li>3-7 Relating Multiplication and Division</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>pp. CC1-2</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.OA.1 Task 1.doc, Donut Shop</li> <li>4.OA.1 Task 2.doc, Three Times as Much http://3-5cctask.ncdpi.wikispaces.net/4.OA.1-4.OA.3</li> </ul> </li> </ul>	enVisionMATH CA • Quick Checks 3-1, 3-3, 3-7 Transitioning to California's Common Core State Standards = – Teacher Resource Masters • Topic 3 Test Master

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STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.0A.2</b> Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>3-1 Meanings of Multiplication</li> <li>3-8 Special Quotients</li> <li>3-9 Using Multiplication Facts to Find Division Facts</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition = <ul> <li>3-11A Draw a Picture and Write an Equation</li> </ul> </li> <li>enVisionMATH Common Core Standards Workbook <ul> <li>pp. CC3-4</li> </ul> </li> <li>lilustrative Mathematics <ul> <li>Comparing Money Raised</li> <li>http://www.illustrativemathematics.org/illustrations/263</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.OA.2 Task 1.doc, Selling Candy</li> <li>http://3-5cctask.ncdpi.wikispaces.net/4.OA.1-4.OA.3</li> </ul> </li> </ul>	<ul> <li>enVisionMATH CA <ul> <li>Quick Checks 3-1, 3-8, 3-9</li> </ul> </li> <li>Transitioning to California's Common Core State <ul> <li>Standards - Teacher</li> <li>Resource Masters</li> <li>Quick Check 3-11A</li> <li>Topic 3 Test</li> <li>Master</li> </ul> </li> </ul>

Organized by Standards

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STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.OA.3</b> Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>2-3 Using Mental Math to Add and Subtract</li> <li>3-4 3, 4, 6, 7, and 8 as Factors</li> <li>3-6 Meanings of Division</li> <li>4-8 Problem Solving: Reasonableness</li> <li>6-7 Problem Solving: Two-Question Problems</li> <li>7-2 Estimating Quotients</li> <li>7-11 Problem-Solving: Multiple Step Problems</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>pp. CC5-6</li> </ul> </li> <li>About Teaching Mathematics, 2<sup>nd</sup> Ed. (Burns, 2000) <ul> <li>Multiplication and Division Through Real-World Problems, pp. 216-217</li> </ul> </li> <li>Illustrative Mathematics <ul> <li>Carnival Tickets</li> <li>http://www.illustrativemathematics.org/illustrations/1289</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.0A.3 Task 1.doc, Remainder</li> <li>4.0A.3 Task 4.doc, Enlarging the Yard</li> <li>http://3-Sectask.ncdpi.wikispaces.net/4.OA.1-4.OA.3</li> </ul> </li> </ul>	enVisionMATH CA • Quick Checks 2-3, 3-4, 3-6, 4-8, 6-7, 7- 2, 7-11 Transitioning to California's Common Core State Standards = - Teacher Resource Masters • Topic 2, 3, 4, 6, 7 Test Masters (select questions) NC Department of Public Instruction • 4.OA.3 Task 2.doc, How Many Teams? http://3- 5cctask.ncdpi.wiki spaces.net/4.OA. 1-4.OA.3

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## CLUSTER: Gain familiarity with factors and multiples. s/a

Big Idea: Numbers can be used for different purposes, and numbers can be classified and represented in different ways.

Enduring Understandings: Every counting number is divisible by 1 and itself, and some counting numbers are also divisible by other numbers. Some counting numbers have exactly two factors; others have more than two. The product of any nonzero number and any other nonzero number is divisible by each number and is called a multiple of each number.

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.0A.4</b> Find all factor pairs for a whole number in the range 1 – 100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1 – 100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1 - 100 is prime or composite.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP 7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>7-9 Factors</li> <li>7-10 Prime and Composite Numbers</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>pp. CC7-8</li> </ul> </li> <li>Illustrative Mathematics <ul> <li>Identifying Multiples</li> <li>http://www.illustrativemathematics.org/illustrations/959</li> <li>Multiples of 3, 6, and 7</li> <li>http://www.illustrativemathematics.org/illustrations/1484</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.OA.4 Task 1.doc, A Ride on the Bus</li> <li>4.OA.4 Task 1.doc, Arranging Chairs</li> <li>http://3-5cctask.ncdpi.wikispaces.net/4.OA.4</li> </ul> </li> </ul>	enVisionMATH CA • Quick Checks 7-9, 7-10 Transitioning to California's Common Core State Standards - Teacher Resource Masters • Topic 7 Test Master NC Department of Public Instruction • 4.OA.4 Task 3.doc, Tiling the Patio <u>http://3-</u> <u>5cctask.ncdpi.wiki</u> <u>spaces.net/4.OA.</u> <u>4</u>

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## CLUSTER: Generate and analyze patterns. s/a

**Big Idea:** Relationships can be described and generalizations made for mathematical situations that have numbers or objects that repeat in predictable ways. For some relationships, mathematical expressions and equations can be used to describe how members of one set are related to members of a second set. **Enduring Understandings:** There are patterns in the products for multiplication facts with factors of 2, 5, and 9. Some patterns consist of shapes or numbers arranged in a unit that repeats. Some numerical sequences have rules that tell how to generate more numbers in the sequence. Some real-world quantities have a mathematical relationship; the value of one quantity can be found if you know the value of the other quantity. Patterns can be used to identify some relationships.

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.0A.5</b> Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1 generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>3-2 Patterns for Facts</li> <li>3-5 Problem Solving: Look for a Pattern</li> <li>18-6 Problem Solving: Make a Table</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition = <ul> <li>3-3A Number Sequences</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>pp. CC9-10</li> </ul> </li> <li>Illustrative Mathematics <ul> <li>Double Plus One</li> <li>http://www.illustrativemathematics.org/illustrations/487</li> <li>Multiples of Nine</li> <li>http://www.illustrativemathematics.org/illustrations/1481</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.OA.5 Task 1.doc, Table Dilemma</li> <li>4.OA.5 Task 2.doc, Arranging Tables</li> <li>http://3-Scctask.ncdpi.wikispaces.net/4.OA.5</li> </ul> </li> </ul>	enVisionMATH CA • Quick Checks 3-2, 3-5, 18-6 Transitioning to California's Common Core State Standards - Teacher Resource Masters • Quick Check 3-3A • Topic 3, Topic 18, Test Master NC Department of Public Instruction • 4.OA.5 Task 3.doc, Lawn Mowing Business http://3- 5cctask.ncdpi.wiki spaces.net/4.OA. 5

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**Domain Legend** 

- ▲ Major Cluster: Areas of intensive focus, where students need fluent understanding and application of the core concepts (approximately 70%)
- s Supporting Cluster: Rethinking & linking; some material is being covered, but in a way that applies core understandings (approximately 20%)
- a Additional Cluster: Expose students to other subjects, may not connect explicitly to the major work of the grade (approximately 10%)
- □ Online resource located at **PearsonSuccessNet.com**, click **Other Resources**

## **ADDITIONAL SUPPORT**

	ESSENTIAL QUESTIONS		LANGUAGE OBJECTIVES AND SUPPORTS	KEY VOCABULARY
1.	How can all of the factors of a number be found?	1.	Students will orally articulate how to use multiplication to find all the factors of a number by using noun phrases. (Teachers may have student visually represent targeted mathematical vocabulary to add to the math word wall to be used as a reference throughout the unit.)	Array Associative Property of Addition Breaking apart Commutative Property of Multiplication Compensation
2.	How can unknown multiplication relationships be found by breaking them into known facts?	2.	Students will orally justify to peers how unknown multiplication relationships can be found by stating their argument using a variety of verb phrases. (Teachers may allow students to create a visual representation, illustrating the process in finding unknown multiplication facts.)	Addition Composite number Counting on Distributive Property Fact family
3.	How can arrays be used to understand 2-digit multiplication?	3.	Students will evaluate other peer's claims about arrays by using elaborate sentences with correlative conjunctions (not only, but also, either). (Throughout the unit, teachers may model through think alouds how to evaluate a person's claim and formulate an evaluative statement.)	Identity Property of Addition Identity Property of Multiplication Inverse operations Multiple Prime number
4.	What happens when you multiply two numbers and switch the order of the factors? What happens when you multiply by 0? If you multiply by 1?	4.	Students will explain in writing how switching factors affects the product by using indicative verbs in declarative sentences. (Teachers may allow students time to orally rehearse their answer with a partner before engaging in writing.)	Product Repeating pattern Zero Property of Multiplication

#### DAILY ROUTINES

Head Problems

Daily Oral Language and CGI Problems

• Number Talks

#### LITERATURE CONNECTIONS

• It's a Big Country by WorldScape Readers

• All Roads Lead to Rome by WorldScape Readers

## DIFFERENTIATION

FRONT LOADING	ENRICHMENT	INTERVENTION
<ul> <li>enVisionMATH CA</li> <li>Universal Access</li> <li>Topic 2, EL, p. 22G</li> <li>Topic 3, EL, At-Risk, pp. 54G-H</li> <li>Topic 8, EL, Special Education, At-Risk, pp. 164G-H</li> <li>The Language of Math</li> <li>Topic 3, pp. 54I-54J</li> <li>Topic 10, EL, Special Education, p. 202G-H</li> <li>Topic 14, EL, Special Education, p. 292G</li> <li>Review What You Know, Home-School Connection, Vocabulary</li> <li>Topic 3, Review What You Know, Home-School Connection, My New Math Words, pp. 54-55</li> </ul>	<ul> <li>enVisionMATH CA <ul> <li>Universal Access</li> <li>Topic 2, Advanced Students, p. 54H</li> </ul> </li> <li>Illustrative Mathematics <ul> <li>The Locker Game</li> <li>http://www.illustrativemathematics.org/illustrations/938</li> </ul> </li> </ul>	<ul> <li>enVisionMATH CA Math Diagnosis and Intervention System: Booklet F, Grades 4-6</li> <li>Geometric Growth Patterns, pp. 105-106</li> <li>Expressions with Addition and Subtraction, pp. 107- 108</li> <li>Find a Rule, pp. 111-112</li> <li>Patterns and Equations, pp. 113-114</li> </ul>

## DOMAIN: Number and Operations in Base Ten

CLUSTER: Generalize place value understanding for multi-digit whole numbers. A Grade 4 expectations are limited to numbers less than or equal to 1,000,000.

**Big Idea:** The base-ten numeration system is a scheme for recording numbers using digits 0-9, groups of ten, and place value. **Enduring Understandings:** Our number system is based on groups of ten. Whenever we get 10 in one place value, we move to the next greater place value. In a multi-digit whole number, a digit in one place represents ten times what it would represent in the place immediately to its right.

**Big Idea:** Numbers, expressions, measures, and objects can be compared and related to other numbers, expressions, measures, and objects in different ways. **Enduring Understandings:** Place value can be used to compare and order numbers.

Big Idea: Numbers can be approximated by numbers that are close.

Enduring Understandings: Rounding whole numbers is a process for finding the multiple of 10, 100, and so on closest to a given number.

STANDARDS FOR STANDARDS MATHEMATICAL FOR MATHEMATICAL CONTENT PRACTICE		RESOURCES	FORMATIVE ASSESSMENT
<b>4.NBT.1</b> Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that 700 ÷70 = 10 by applying concepts of place value and division.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP5 Use to and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>1-1 Thousands</li> <li>1-5 Problem Solving: Make an Organized List</li> <li>4-1 Multiplying by Multiples of 10 and 100</li> <li>6-1 Using Mental Math to Multiply 2-Digit Numbers</li> <li>7-1 Using Mental Math to Divide</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>pp. CC11-12</li> </ul> </li> <li>About Teaching Mathematics, 2<sup>nd</sup> Ed. (Burns, 2000) <ul> <li>Multiplying by 10 and Powers of 10, p. 213</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.NBT.1 Task 1.doc, Coin Collection</li> <li>4.NBT.1 Task 2.doc, Adding Zeros</li> <li>4.NBT.1 Task 3.doc, Packaging Soup Cans</li> <li>4.NBT.1 Task 4.doc, Value of the Bills http://3-5cctask.ncdpi.wikispaces.net/4.NBT.1-4.NBT.3</li> </ul> </li> <li>Engage NY <ul> <li>Module 1, Topic A: Place Value of Multi-Digit Whole Numbers http://www.engageny.org/sites/default/files/resource/attachments/g4-m1-full-module.pdf</li> </ul> </li> </ul>	enVisionMATH CA • Quick Checks 1- 5, 4-1, 6-1, 7-1

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STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NBT.2</b> Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, < symbols to record the results of comparisons.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP8 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>1-1 Thousands</li> <li>1-3 Comparing and Ordering Whole Numbers</li> <li>1-4 Understanding Zeros in Place Value</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>pp. CC13-14</li> </ul> </li> <li>50 Problem Solving Lessons, (Burns, 2000) <ul> <li>The Place Value Game, pp. 65-67</li> </ul> </li> <li>Illustrative Mathematics <ul> <li>Ordering 4-Digit Numbers</li> <li>http://www.illustrativemathematics.org/illustrations/459</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.NBT.2 Task 2.doc, Juice Pouches</li> <li>4.NBT.2 Task 3.doc, Arranging Students</li> <li>http://3-5cctask.ncdpi.wikispaces.net/4.NBT.1-4.NBT.3</li> </ul> </li> <li>Engage NY <ul> <li>Module 1, Topic B: Comparing Multi-Digit Whole Numbers</li> <li>http://www.engageny.org/sites/default/files/resource/attachments/g4-m1-full-module.pdf</li> </ul> </li> </ul>	<ul> <li>enVisionMATH CA</li> <li>Quick Checks 1-1, 1-3, 1-4</li> <li>Topic 1 Performance Assessment, p. 19B</li> </ul>

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STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NBT.3</b> Use place value understanding to round multi-digit whole numbers to any place.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP8 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>2-1 Understanding Rounding</li> <li>2-2 Rounding Whole Numbers</li> <li>2-4 Estimating Sums and Differences of Whole Numbers</li> <li>4-3 Using Rounding to Estimate</li> <li>6-2 Estimating Products</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>pp. CC15-16</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.NBT.3 Task 1.doc, Open Number Line</li> <li>4.NBT.3 Task 3.doc, Planning a Pizza Party http://3-5cctask.ncdpi.wikispaces.net/4.NBT.1-4.NBT.3</li> </ul> </li> <li>Engage NY <ul> <li>Module 1, Topic C: Rounding Multi-Digit Whole Numbers http://www.engageny.org/sites/default/files/resource/attachments/g4-m1-full-module.pdf</li> </ul> </li> </ul>	enVisionMATH CA • Quick Checks 2-1, 2-2, 2-4, 4-3, 6-2 Engage NY • Module 1, Mid- Module Assessment Task (4.NBT.1-3) http://www.enga geny.org/sites/def ault/files/resource /attachments/g4- m1-full- module.pdf

## CLUSTER: Use place value understanding and properties of operations to perform multi-digit arithmetic.

**Big Idea:** There is more than one algorithm for each of the operations with rational numbers. Some strategies for basic facts, and most algorithms for operations with rational numbers, both mental math and paper and pencil, use equivalence to transform calculations into simpler ones.

**Enduring Understandings:** There is more than one way to do a mental calculation. The standard addition and subtraction algorithms for multi-digit numbers break the calculation into simpler calculations using place value, starting with the ones, then the tens, and so on. The standard algorithm for multiplying three-digit by one-digit numbers is just an extension of the hundreds place of the algorithm for multiplying two-digit by one-digit numbers. The standard division algorithm breaks the calculation into simpler calculations using basic facts, place value, the relationship between multiplication and division, and estimation.

**Big Idea:** Any number, measure, numerical expression, algebraic expression, or equation can be represented in an infinite number of ways that have the same value.

Enduring Understandings: Representing numbers and numerical expressions in equivalent forms can make some calculations easy to do mentally. Different numerical expressions can have the same value. Or, the value of one expression can be less than or greater than the value of the other expression.

**Big Idea:** Relationships can be described and generalizations made for mathematical situations that have numbers or objects that repeat in predictable ways. For some relationships, mathematical expressions and equations can be used to describe how members of one set are related to members or a second set. **Enduring Understandings:** Basic facts and place value patterns can be used to find products when one factor is 10 or 100. Basic facts and place-value patterns can be used to divide multiples of 10 and 100 by one-digit numbers.

**Big Idea:** Numbers can be approximated by numbers that are close. Numerical calculations can be approximated by replacing numbers with other numbers that are close and easy to compute with mentally.

**Enduring Understandings:** Rounding is one way to estimate products. There is more than one way to estimate a sum or difference. Mentally multiplying by different powers of ten will help you arrive at an estimate for a quotient of a multi-digit division problem. The relationship between multiplication, division, and estimation can help determine the place value of the largest digit in a quotient.

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
ract multi-digit whole numbers using the	and persevere in solving them. uantitatively. :nts and critique the reasoning of others. : ategically. f structure. ularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>2-6 Adding Whole Numbers</li> <li>2-7 Subtracting Whole Numbers</li> <li>2-8 Subtracting Across Zeros</li> <li>2-9 Problem Solving: Draw a Picture and Write an Equation</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>pp. CC17-18</li> </ul> </li> <li>Illustrative Mathematics <ul> <li>To Regroup or Not to Regroup <a href="http://www.illustrativemathematics.org/illustrations/1189">http://www.illustrativemathematics.org/illustrations/1189</a></li> </ul> </li> <li>Math Matters Grades K-6: Understanding the Math You Teach (Chapin &amp; Johnson, 2000) <ul> <li>Analyzing Students' Thinking, Addition, pp. 31-32 (Select addends that form sums within 1000.)</li> <li>Analyzing Students' Thinking, Subtraction, pp. 32-34</li> </ul> </li> </ul>	enVisionMATH CA • Quick Checks 2-6, 2-7, 2-8, 2-9 • Topic 2 Free – Response Test Master Transitioning to California's Common Core State Standards = – Teacher Resource Masters • Transition Topic 2 Test Master Engage NY • Module 1, End of Module Assessment Task http://www.enga
<b>4.NBT.4</b> Fluently add and sut standard algorithm.	MP1 Make sense of problem MP2 Reason abstractly and MP3 Construct viable argum MP4 Model with mathematic MP5 Use appropriate tools s MP6 Attend to precision. MP7 Look for and make use MP8 Look for and express re	<ul> <li>NC Department of Public Instruction         <ul> <li>4.NBT.4 Task 1.doc, Filling the Auditorium</li> <li>4.NBT.4 Task 2.doc, How Much Liquid? http://3-5cctask.ncdpi.wikispaces.net/4.NBT.4-4.NBT.6</li> </ul> </li> <li>Engage NY         <ul> <li>Module 1, Topic D: Multi-Digit Whole Number Addition</li> <li>Module 1, Topic E: Multi-Digit Whole Number Subtraction</li> <li>Module 1, Topic F: Addition and Subtraction Word Problems http://www.engageny.org/sites/default/files/resource/attachments/g4-m1-full-module.pdf</li> </ul> </li> </ul>	<u>ault/files/resource</u> / <u>attachments/g4-</u> <u>m1-full-</u> <u>module.pdf</u>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NBT.5</b> Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP8 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>4-1 Multiplying by Multiples of 10 and 100</li> <li>4-2 Using Mental Math to Multiply</li> <li>4-3 Using Rounding to Estimate</li> <li>4-4 Using An Expanded Algorithm</li> <li>4-5 Multiplying 2-Digit by 1-Digit Numbers</li> <li>4-6 Multiplying 3-Digit by 1-Digit Numbers</li> <li>4-7 Multiplying Greater Numbers by 1-Digit Numbers</li> <li>4-8 Problem Solving - Reasonableness</li> <li>6-3 Arrays and Expanded Algorithms</li> <li>6-4 Multiplying 2-Digit Numbers by Multiples of Ten</li> <li>6-5 Multiplying 2-Digit by 2-Digit Numbers</li> <li>6-4 Multiplying 2-Digit by 2-Digit Numbers</li> <li>6-7 Problem Solving - Two-Question Problems</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>pp. CC19-20</li> </ul> </li> <li>About Teaching Mathematics, 2<sup>nd</sup> Ed. (Burns, 2000)</li> <li>Using the Distributive Property, pp. 214-215</li> <li>Hit the Target, pp. 217-218, 221</li> <li>The Largest Product, p. 219</li> <li>Factor Fiddling, p. 221</li> </ul> <li>NC Department of Public Instruction <ul> <li>4.NBL5 Task 1.doc, Multiplication Strategies</li> <li>4.NBL5 Task 3.doc, College Basketball Attendance http://3-5cctask.ncdpi.wikispaces.net/4.NBT.4-4.NBT.5</li> </ul></li>	enVisionMATH CA • Quick Checks 4-1, 4-2, 4-3, 4-4, 4-5, 4- 6, 4-7, 4-8, 6-3, 6-4, 6-5, 6-7 Transitioning to California's Common Core State Standards - Teacher Resource Masters • Transition Topic 4 Test Master

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STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NBT.6</b> Find whole number quotients and remainders with up to four-digit dividends and one- digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP8 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>7-1 Using Mental Math to Divide</li> <li>7-2 Estimating Quotients</li> <li>7-3 Dividing with Remainders</li> <li>7-5 Dividing 2-Digit by 1-Digit Numbers</li> <li>7-6 Dividing 3-Digit by 1-Digit Numbers</li> <li>7-7 Deciding Where to Start Dividing</li> <li>7-8 Zeros in the Quotient</li> <li>7-11 Problem Solving - Multiple-Step Problems</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition  <ul> <li>3-11A</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks</li> <li>pp. CC21-22, CC61-62</li> </ul> <li>About Teaching Mathematics, 2<sup>nd</sup> Ed. (Burns, 2000) <ul> <li>Leftovers from 100, pp. 218-219 (modify to larger numbers)</li> <li>Remainders of Zero, p. 220</li> </ul> </li> <li>Inside Mathematics <ul> <li>Grade 4 MARS Tasks: The Baker</li> <li>http://www.insidemathematics.org/index.php/number-and-operations-inbase-ten-nbt</li> </ul> </li> <li>Math Matters Grades K-6: Understanding the Math You Teach (Chapin &amp; Johnson, 2000) <ul> <li>Analyzing Students' Thinking, Division, pp. 37-39</li> <li>Interpreting Remainders, pp. 68-69</li> </ul> </li> <li>MC Department of Public Instruction <ul> <li>4.NBT.6 Task 1.doc, Dividing by Multiples of Ten</li> <li>4.NBT.6 Task 2.doc, Packaging Cupcakes</li> <li>4.NBT.6 Task 3.doc, Dividing Resources http://3-5cctask.ncdpi.wikispaces.net/4.NBT.4-4.NBT.6</li> </ul> </li>	enVisionMATH CA • Quick Checks 7-1, 7-2, 7-3, 7-5, 7-6, 7- 7, 7-8, 7-11 enVisionMATH Transitioning to California's Common Core State Standards - Teacher Edition  = • Quick Check 3- 11A About Teaching Mathematics, 2 <sup>nd</sup> Ed. (Burns, 2000) • Assessing Understanding of Multiplication and division with Large Numbers, p. 222

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#### **Domain Legend**

- Major Cluster: Areas of intensive focus, where students need fluent understanding and application of the core concepts (approximately 70%)
- s Supporting Cluster: Rethinking & linking; some material is being covered, but in a way that applies core understandings (approximately 20%)
- a Additional Cluster: Expose students to other subjects, may not connect explicitly to the major work of the grade (approximately 10%)
- □ Online resource located at **PearsonSuccessNet.com**, click **Other Resources**

Grade 4 Curriculum Map 3.11.14

## **ADDITIONAL SUPPORT**

	ESSENTIAL QUESTIONS	LANGUAGE OBJECTIVES AND SUPPORTS	KEY VOCABULARY
1.	How are large numbers read and written?	<ol> <li>Students will orally read and write numbers less than or equal to 1,000,000 using place value vocabulary. (Teacher may provide opportunities for pair-share and place value charts for support.)</li> </ol>	Associative Property of Addition Breaking apart Commutative Property of Addition
2.	How can whole numbers be compared and ordered?	2. Students will orally support their knowledge of comparing and ordering whole numbers by using comparatives and superlatives. (Teachers may construct open-ended questions that promote critical thinking and classroom discourse.)	Compare Compatible numbers Compensation Counting on Decreasing order
3.	How can sums and differences of whole numbers be estimated?	3. Students will describe how they estimated the sums and differences of whole numbers by using academic vocabulary. (Teacher may refer students to math word wall for support.)	Digits Dividend Divisor Expanded form Factor
4.	What are standard procedures for adding and subtracting whole numbers?	<ol> <li>Students will explain orally and in writing their strategies for adding and subtracting whole numbers using transitional phrases, (ex: first, then, and finally). (Teacher may provide sentence frames for support.)</li> </ol>	Identity Property of Addition Increasing order Inverse operations Multiple Partial products
5.	How can mental math and estimation be used to multiply?	5. Students will orally support their thinking during mental math by using modal verbs (could, may, might). Teachers may construct open-ended questions that promote critical thinking and classroom discourse.)	Product Quotient Regroup Remainder Standard form
6.	What is a standard procedure for multiplying multi-digit numbers?	6. Students will sequentially explain how to multiply multi- digit numbers, using targeted mathematical language and complex sentences. (Teacher may refer students to math word wall for support.)	Word form
7.	What are the different meanings of division?	<ul> <li>Students will orally share with their group different models of division utilizing academic vocabulary.</li> <li>(Teacher circulates the classroom, recasting the student output.)</li> </ul>	

	ESSENTIAL QUESTIONS	LANGUAGE OBJECTIVES AND SUPPORTS	KEY VOCABULARY
8.	How can mental math and estimation be used to divide?	8. Students will ask clarifying questions of their peers as to how they used mental math and estimation to divide, using present and past tense verbs. (Teachers may provide a variety of grouping structures to allow for various opportunities for language use.)	
9.	What is a standard procedure for dividing multi-digit numbers?	<ol> <li>Students will listen to a partner's explanation of the strategies of multiplying in an efficient manner and ask clarifying questions to ascertain the reasonableness of the product using present and past tense verbs. (Teacher will circulate, recasting student responses.)</li> </ol>	

#### **DAILY ROUTINES**

- Head Problems
- Number Talks

Daily Oral Language with CGI problems

#### LITERATURE CONNECTIONS

- All Roads Lead to Rome by WorldScapes Readers
- First in Space by WorldScapes Readers

- Wild, Wet and Windy by WorldScape Readers
- All Tied Up by WorldScape Readers

## DIFFERENTIATION

FRONT LOADING	ENRICHMENT	INTERVENTION
enVisionMATH	enVisionMATH CA	enVisionMATH CA
Ihe Language of Math	Differentiated Instruction	Math Diagnosis and Intervention System:
– Topic T pp. 2G-2H	- Iopic I, Advanced, p.2F	Booklet F, Grades 4-6
– Topic 2, pp. 22I-22J	– Topic 2, Advancea, p. 22H	Numbers Haltway Between and Rounding, pp.
- Iopic 4, pp. 881-88J	Topic 4, Advanced, p. 88H	63-64
- TOPIC 6, pp. 1341-134J	Topic 6, Advanced, p. 134H	Place Value Patiens, pp. 67-68
– TOPIC 7, pp. 156K-156L	Topic 7, Advancea, p. 156J	<ul> <li>Place value inrough mousands, pp. 89-70</li> <li>Rounding Numbers Through Thousands, pp. 71-72</li> </ul>
<ul> <li>Review What You Know, Home-School</li> </ul>	Step 4 Enrichment	<ul> <li>Comparing and Ordering Numbers through</li> </ul>
Connection, Vocabulary	– Topic 1, pp. 7B, 13B, 15B, 17B	Thousands, pp. 73-74
– Topic 1, p. 2	– Topic 2, pp. 25B, 27B, 33B, 39B, 41B, 43B,	
– Topic 2, p. 22	– Topic 4, pp. 91B, 93B, 95B, 99B, 103B, 105B,	Math Diagnosis and Intervention System: Booklet G,
– Topic 4 p. 88	107B, 111B,	Grades 4-6
– Topic 6, p. 134	– Topic 6, pp. 137B, 139B, 143B, 145B, 147B,	<ul> <li>Estimating Sums, pp. 91-92</li> </ul>
– Topic 7, p. 156	151B	<ul> <li>Estimating Differences, pp. 93-94</li> </ul>
	<ul> <li>Topic 7, pp. 1598, 1618, 1638, 1678, 1718,</li> </ul>	<ul> <li>Adding Greater Numbers, pp. 115-116</li> </ul>
Universal Access	173B, 175B, 176A, 185B	Subtracting Four Digit Numbers, pp. 111-112
<ul> <li>Topic 1, Special Education, p. 2E</li> </ul>		Subtracting Greater Numbers, pp. 117-118
<ul> <li>Topic 2, Special Education, p. 22G</li> </ul>		Mental Math: Multiplication Numbers, pp. 163-164
- Topic 4, EL, Special Education, At-Risk, p. 88G		Multiplication and Arrays, pp. 1/1-1/2
- Iopic 6, EL, Special Education, At-Risk,		Breaking Apart Numbers to Multiply, pp. 1/3-1/4
pp.134G-134H		Multiplying two-Digit numbers, pp. 175-176
- TOPIC 7, EL, Special Education, At-Risk, pp.		Multiplying Inree-Digit Numbers, pp. 177-178
1901-190J		<ul> <li>Multiplying One-Digit and Four-Digit Numbers, pp. 181-182</li> </ul>
		Mental Math: Multiplying by Multiples of 10, pp.
		209-210
		Estimating Products, pp. 211-212
		<ul> <li>Using Arrays to Multiply Two-Digit Factors, pp. 213- 214</li> </ul>
		Multiplying Two-Digit Numbers by Multiples of 10,
		pp. 215-216
		Multiplying by Two-Digit Numbers, pp. 217-218
		Mental Math: Division Patterns, pp. 165-166
		Estimating Quotients, pp. 169-170
		Dividing with Objects, pp. 161-162     Dividing True Divid Number and 105-107
		Dividing Iwo-Digit Numbers, pp. 185-186
		Dividing Inree-Digit Numbers, pp. 187-188
		• Zeros in me Quoneni, pp. 167-170

Math Diagnosis and Intervention System: Booklet J,
Grades 4-6
Make an Organized List, pp. 49-50
Draw a Picture and Write a Number Sentence,
pp. 53-54
Two-Question Problems, pp. 41-42
Multiple-Step Problems, pp. 45-46

## DOMAIN: Number and Operations – Fractions

**CLUSTER: Extend understanding of fraction equivalence and ordering.** (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)

Big Idea: The set of real numbers is infinite and ordered. Whole numbers, integers, and fractions are real numbers. Each real number can be associated with a unique point on the number line.

**Enduring Understandings:** A fraction describes the division of a whole (region, set, segment) into equal parts. The bottom number in a fraction tells how many equal parts the whole is divided into. The top number tells how many equal parts are indicated. A fraction is relative to the size of the whole. Finding a unit-fractional part of a whole is the same as dividing the whole by the denominator of the fraction. Points between whole numbers on a number line can be labeled with fractions or mixed numbers. The denominator of the fraction can be determined by counting the number of equal parts between two consecutive whole numbers.

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NF.1</b> Explain why a fraction $a/b$ is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	<ul> <li>MP1 Make sense of problems and persevere in solving them.</li> <li>MP2 Reason abstractly and quantitatively.</li> <li>MP3 Construct viable arguments and critique the reasoning of others.</li> <li>MP4 Model with mathematics.</li> <li>MP5 Use appropriate tools strategically.</li> <li>MP7 Look for and make use of structure.</li> <li>MP8 Look for and express regularity in repeated reasoning.</li> </ul>	<ul> <li>enVisionMATH CA <ul> <li>9-3 Equivalent Fractions</li> <li>9-4 Fractions in Simplest Form</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition ■ <ul> <li>9-4A Number Lines and Equivalent Fractions (use transition student edition, pp. 18-19)</li> </ul> </li> <li>Illustrative Mathematics <ul> <li>Locating Fractions Less than One on the Number Line http://www.illustrativemathematics.org/illustrations/168</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.NF.1 Task 1.doc, Equivalent Pizzas</li> <li>4.NF.1 Task 2.doc, Comparing Ropes</li> <li>4.NF.1 Task 3.doc, Trading Blocks</li> <li>4.NF.1 Task 5.doc, Fraction Rectangles</li> <li>4.NF.1 Task 5.doc, Fraction Rectangles</li> <li>4.NF.1 Task 8.docSplitting to Make Equivalent Fractions http://3-5cctask.ncdpi.wikispaces.net/4.NF.1-4.NF.2</li> </ul> </li> </ul>	<ul> <li>enVisionMATH CA <ul> <li>Quick Checks 9-3, 9-4</li> <li>Performance Assessment, Topic 9 p. 247B</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards - Teacher Edition • Quick Check 9-4A</li> </ul>

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STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NF.2</b> Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, <, and justlify the conclusions, e.g., by using a visual fraction model.	and persevere in solving them. uantitatively. ints and critique the reasoning of others. integically. if structure. ularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>9-3 Equivalent Fractions</li> <li>9-4 Fractions in Simplest Form</li> <li>9-6 Comparing Fractions</li> <li>9-7 Ordering Fractions</li> <li>9-8 Problem Solving: Writing to Explain</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition  <ul> <li>9-4A Number Lines and Equivalent Fractions (use transition student edition, pp. 18-19)</li> </ul> </li> <li>About Teaching Mathematics, 2<sup>nd</sup> Ed. (Burns, 2000) <ul> <li>The Fraction Kit: Fraction Sentences, p. 228</li> <li>Using Graphs to Build Understanding of Fractions, p. 229</li> <li>Closest to 0, 1/2, or 1?, p. 232</li> </ul> </li> </ul>	enVisionMATH CA • Quick Checks 9-3, 9- 4, 9-6, 9-7 • Performance Assessment, Topic 9 p. 247B enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition II • Quick Check 9- 4A
	MP1 Make sense of problems MP2 Reason abstractly and q MP3 Construct viable argume MP4 Model with mathematics MP5 Use appropriate tools str MP6 Attend to precision. MP8 Look for and make use a MP8 Look for and express reg	<ul> <li>Fractions Closest to 1/2, p. 233</li> <li>NC Department of Public Instruction <ul> <li>4.NF.2 Task 1.doc, The Whole Matter</li> <li>4.NF.2 Task 2.doc, Enough Soda</li> <li>4.NF.2 Task 3.doc, Which is Bigger</li> <li>4.NF.2 Task 4.doc, Pattern Blocks</li> <li>4.NF.2 Task 5.doc, Who's on the Bus?</li> <li>4.NF.2 Task 6.doc, Who has More Gum? http://3-5cctask.ncdpi.wikispaces.net/4.NF.1-4.NF.2</li> </ul> </li> </ul>	

## Los Angeles Unified School District • Grade 4

# CLUSTER: Build fractions from unit fractions by applying and extending previous understandings of operations or whole numbers. **A**

**Big Idea:** There is more than one algorithm for each of the operations with rational numbers. Most algorithms for operations with rational numbers, both mental math and paper and pencil, use equivalence to transform calculations into simpler ones.

Enduring Understandings: Repeated subtraction situations can be solved using a division algorithm different from the standard algorithm.

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<ul> <li>4.NF.3 Understand a fraction a/b with a &gt; 1 as a sum of fractions 1/b.</li> <li>4.NF.3a Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</li> </ul>	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>10-1 Adding and Subtracting Fractions with Like Denominators</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.NF.3 Task 1.doc, Sharing Cake</li> <li>4.NF.3 Task 2.doc, Candy Bucket</li> <li>4.NF.3 Task 4.doc, Pattern Blocks and Unit Fractions</li> <li>4.NF.3 Task 6.doc, How Much Punch is Left?</li> <li>http://3-5cctask.ncdpi.wikispaces.net/4.NF.3-4.NF.4</li> </ul> </li> </ul>	<ul> <li>enVisionMATH CA</li> <li>Quick Check 10-1</li> <li>Performance Assessment, Topic 10, p. 265B</li> </ul>

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STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NF.3b</b> Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. <i>Examples:</i> $3/8 = 1/8 + 1/8$ ; $3/8 = 1/8 + 1/8$ ; $3/8 = 1/8 + 1/8$ ; $3/8 = 1/8 + 1/8$ ; $2/8$ ; $2/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$ .	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP8 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition = <ul> <li>10-1A Decomposing and Composing Fractions (use transition student edition, pp. 20-21)</li> </ul> </li> <li>enVisionMATH Common Core Standards Workbook <ul> <li>pp. CC3-4</li> </ul> </li> <li>About Teaching Mathematics, 2<sup>nd</sup> Ed. (Burns, 2000) <ul> <li>Build the Yellow Hexagon, p.235</li> <li>Building Rectangles, p. 234</li> <li>Fraction Riddles, p. 234</li> <li>Wipeout, p. 236</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.NF.3 Task 1.doc, Sharing Cake</li> <li>4.NF.3 Task 5.doc, Dividing Up the Land</li> <li>4.NF.3 Task 6.doc, How Much Punch is Left? <ul> <li>http://3-5cctask.ncdpi.wikispaces.net/4.NF.3-4.NF.4</li> </ul> </li> </ul></li></ul>	enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition • Quick Check 10- 1A

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STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NF.3c</b> Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP8 Attend to precision. MP8 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH Transitioning to California's Common Core State Standards - Teacher Edition</li></ul>	enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition 🖻 • Quick Check 10-3A, 10-3B, 10-4A • Performance Assessment, Topic 10, p. 265B

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STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NF.3d</b> Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>10-1 Adding and Subtracting Fractions with Like Denominators</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition <ul> <li>10-1A Decomposing and Composing Fractions (use transition student edition, pp. 20-21)</li> </ul> </li> </ul>	<ul> <li>enVisionMATH CA <ul> <li>Quick Checks 10-1</li> <li>Performance Assessment, Topic 10, p. 265B</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition  <ul> <li>Quick Check 10- 1A</li> </ul> </li> </ul>

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STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NF.4</b> Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. <b>4.NF.4a</b> Understand a fraction $a/b$ as a multiple of $1/b$ . For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$ , recording the conclusion by the equation $5/4 = 5 \times (1/4)$ .	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP8 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition ₽</li> <li>10-48 Fractions as Multiples of Unit Fractions: Using Models (use transition student edition, pp. 30-31)</li> <li>NC Department of Public Instruction <ul> <li>4.NF.4 Task 1.doc, Pasta Party</li> <li>4.NF.4 Task 2.doc, Drawing a Model</li> <li>4.NF.4 Task 4.doc, Going the Distance</li> <li>4.NF.4 Task 5.doc, Serving Ice Cream <a href="http://3-5cctask.ncdpi.wikispaces.net/4.NF.3-4.NF.4">http://3-5cctask.ncdpi.wikispaces.net/4.NF.3-4.NF.4</a></li> </ul> </li> </ul>	enVisionMATH Transitioning to California's Common Core State Standards - Teacher Edition • Quick Check 10-4B NC Department of Public Instruction • 4.NF.4 Task 3.doc, Chris's Cookies http://3- 5cctask.ncdpi.wikisp aces.net/4.NF.3- 4.NF.4

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NF.4b</b> Understand a multiple of $a/b$ as a multiple of $1/b$ , and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$ , recognizing this product as $6/5$ . (In general, $n \times (a/b) = (n \times a)/b$ .)	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP3 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition =</li> <li>10-4C Multiplying a Fraction by a Whole Number: Using Models (use transition student edition, pp. 32-33)</li> <li>10-4D Multiplying a Fraction by a Whole Number: Using Symbols (use transition student edition, pp. 34-35)</li> </ul>	enVisionMATH Transitioning to California's Common Core State Standards - Teacher Edition • Quick Checks 10-4C, 10-4D

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STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NF.4c</b> Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH Transitioning to California's Common Core State Standards - Teacher Edition =</li> <li>10-4C Multiplying a Fraction by a Whole Number: Using Models (use transition student edition, pp. 32-33)</li> <li>10-4D Multiplying a Fraction by a Whole Number: Using Symbols (use transition student edition, pp. 34-35)</li> </ul>	enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition 💷 • Quick Checks 10-4C, 10-4D

## Los Angeles Unified School District • Grade 4

## CLUSTER: Understand decimal notation for fractions, and compare decimal fractions. **A**

**Big Idea:** Numbers can be used for different purposes, and numbers can be classified and represented in different ways. **Enduring Understandings:** Every counting number is divisible by 1 and itself, and some counting numbers are also divisible by other numbers. Some counting numbers have exactly two factors; others have more than two. The product of any nonzero number and any other nonzero number is divisible by each number and is called a multiple of each number.

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NF.5</b> Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>11-3 Fractions and Decimals</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition ■ <ul> <li>11-5A Fractions and Decimals on the Number Line (use transition student edition, pp. 38-41)</li> <li>11-5B Equivalent Fractions and Decimals (use transition student edition, pp. 42-45)</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.NF.5 Task 1.doc, Karen's Garden</li> <li>4.NF.5 Task 2.doc, Filling the Jar</li> <li>4.NF.5 Task 3.doc, Children's Shirts http://3-5cctask.ncdpi.wikispaces.net/4.NF.5-4.NF.7</li> </ul> </li> </ul>	enVisionMATH CA • Quick Checks 11-3 enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition I • Quick Checks 11- 5A, 11-5B

## Los Angeles Unified School District • Grade 4

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NF.6</b> Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP8 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>11-3 Fractions and Decimals</li> <li>11-4 Fractions and Decimals on the Number Line</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition = <ul> <li>11-5A Fractions and Decimals on the Number Line (use transition student edition, pp. 38-41)</li> <li>11-5B Equivalent Fractions and Decimals (use transition student edition, pp. 42-45)</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.NF.6 Task 1.doc, Where Am I Now? How Much Farther?</li> <li>4.NF.6 Task 2.doc, Is the Tire Full Yet? http://3-5cctask.ncdpi.wikispaces.net/4.NF.5-4.NF.7</li> </ul> </li> </ul>	<ul> <li>enVisionMATH CA</li> <li>Quick Checks 11-3, 11-4</li> <li>Performance Assessment, Topic 11, p. 287B</li> <li>enVisionMATH Transitioning to California's Common Core State Standards - Teacher Edition</li></ul>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.NF.7</b> Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, <, and justify the conclusions, e.g., by using a visual model.	<ul> <li>MP1 Make sense of problems and persevere in solving them.</li> <li>MP2 Reason abstractly and quantitatively.</li> <li>MP3 Construct viable arguments and critique the reasoning of others.</li> <li>MP4 Model with mathematics.</li> <li>MP5 Use appropriate tools strategically.</li> <li>MP7 Look for and make use of structure.</li> <li>MP8 Look for and express regularity in repeated reasoning.</li> </ul>	<ul> <li>enVisionMATH CA <ul> <li>11-1 Decimal Place Value</li> <li>11-2 Comparing and Ordering Decimals</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition  <ul> <li>11-3A Using Money to Understand Decimals (use transition student edition, pp. 36-37)</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.NF.7 Task 1.doc, Who Jumped Farther? http://3-5cctask.ncdpi.wikispaces.net/4.NF.5-4.NF.7</li> </ul> </li> </ul>	enVisionMATH CA • Quick Checks 11-1, 11-2 enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition • Quick Check 11-3A NC Department of Public Instruction • 4.NF.7 Task 2.doc, Making Punch http://3- 5cctask.ncdpi.wikis paces.net/4.NF.5- 4.NF.7

#### Domain Legend

- Major Cluster: Areas of intensive focus, where students need fluent understanding and application of the core concepts (approximately 70%)
- s **Supporting Cluster:** Rethinking & linking; some material is being covered, but in a way that applies core understandings (approximately 20%)
- a Additional Cluster: Expose students to other subjects, may not connect explicitly to the major work of the grade (approximately 10%)
- Online resource located at PearsonSuccessNet.com, click Other Resources

## **ADDITIONAL SUPPORT**

	ESSENTIAL QUESTIONS		LANGUAGE OBJECTIVES AND SUPPORTS	KEY VOCABULARY
1.	How can the same fractional amount be named in different ways?	1.	Students will explain orally and in writing their strategies for naming fractions in different ways using transitional phrases, (ex: first, then, and finally). (Teacher may provide sentence frames for support.)	Benchmark Fractions Compare Composite Number Denominator
2.	How can fractions be compared and ordered?	2.	Students will sequentially explain different ways to compare fractions using targeted mathematical language and complex sentences. (Teacher may refer students to math word wall for support.)	Equal to Equivalent Fractions Fraction Greater than
3.	What does it mean to add and subtract fractions and mixed numbers with like denominators?	3.	Students will orally discuss the strategies they use to add and subtract fractions and mixed numbers with like denominators utilizing appropriate mathematical vocabulary and past-tense citation verbs: determined, concluded. (Teacher circulates the classroom, recasting the student output.)	Less than Numerator Order Prime Number Remainder
4.	What is the standard procedure for adding and subtracting fractions and mixed numbers with like denominators?	4.	Students will ask clarifying questions of their peers as to how they used the standard procedure for adding and subtracting fractions and mixed numbers with like denominators using present and past tense verbs. (Teachers may provide a variety of grouping structures to allow for various opportunities for language use.)	
5.	How are fractions and decimals related?	5.	Students will listen to a partner's explanation of modeling the relationship between fractions and decimals and ask clarifying questions using present and past tense verbs. (Teacher will circulate, recasting student responses.)	
6.	How can decimals be compared and ordered?	6.	Students will orally read, compare and order decimals, explaining their strategy to a partner, using place value and comparative vocabulary. <b>(Teacher may provide</b> <b>place value charts and manipulatives for support.)</b>	

#### DAILY ROUTINES

#### Head Problems

• Look for articles in which decimals are used. Choose several to present to the class. In your presentation, explain the meaning of decimals. About Teaching Mathematics (Burns, 2000), p. 242

• Students play the Place Value game (including a decimal). They will need a partner or small group and a die. The goal of the game is to make the largest number possible. About Teaching Mathematics (Burns, 2000), p. 244

LITERATURE CONNECTIONS

• All Roads Lead to Rome by WorldScape Readers

• All Tied Up by WorldScape Readers

## DIFFERENTIATION

FRONT LOADING	ENRICHMENT	INTERVENTION
<ul> <li>enVisionMATH CA</li> <li>Universal Access</li> <li>Topic 9, EL, p. 222G</li> <li>Topic 10, EL, Special Education, p. 250E</li> <li>Topic 11, Special Education, At-Risk, pp. 268G-H</li> <li>The Language of Math</li> <li>Topic 9, Vocabulary Activities, p. 222I</li> <li>Topic 10, Vocabulary Activities, p. 250G</li> <li>Topic 11, Vocabulary Activities, p. 268I</li> </ul>	enVisionMATH CA • Universal Access – Topic 9, Advanced, p. 222H – Topic 11 Advanced, p. 268H	<ul> <li>enVisionMATH CA</li> <li>Math Diagnosis and Intervention System: Booklet H, Grades 4-6</li> <li>Fractions and Length, pp. 91-92</li> <li>Fractions on the Number Line, pp. 93-94</li> <li>Using Models to Compare Fractions, pp. 95-96</li> <li>Using Models to Find Equivalent Fractions, pp. 97- 98</li> <li>Comparing Fractions on the Number Line, pp. 99- 100</li> <li>Comparing Fractions, pp. 101-102</li> <li>Fractions and Decimals, pp. 103-104</li> <li>Decimals on the Number Line, pp. 129-130</li> <li>Using Models to Compare Fractions and Decimals, pp. 151-152</li> <li>Adding Fractions with Like Denominators, pp. 155-156</li> <li>Subtracting Fractions with Like Denominators, pp. 157-158</li> <li>Adding and Subtracting Fractions with Like Denominators, pp. 159-160</li> <li>Adding and Subtracting Fractions on a Number Line, pp. 161-162</li> <li>Multiplying Fractions by Whole Numbers, pp. 173- 174</li> </ul>

## DOMAIN: Measurement and Data

## CLUSTER: Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. s/a

Big Idea: Some attributes of objects are measurable and can be quantified using unit amounts.

**Enduring Understandings:** Length can be estimated and measured in different systems (customary, metric) and using different units in each system that are related to each other. Capacity is a measure of the amount of liquid a container can hold. Capacity can be measured in different systems (customary, metric) and using different units in each system that are related to each other. The weight of an object is a measure of how heavy an object is. Mass is a measure of the quantity of matter in an object. Weight and mass are different measures. Time can be expressed using different units that are related to each other.

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL <b>PRACTICE</b>	RESOURCES	FORMATIVE ASSESSMENT
<b>4.MD.1</b> Know relative sizes of measurement units within one system of units including km, m, cm; kg. g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example: know that 1 ft is 12 times as long a 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36)	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	enVisionMATH CA         15-1 Customary Measures         15-2 Metric Measures         enVisionMATH Transitioning to California's Common Core State Standards – Teacher         Edition □         15-2A Changing Customary Units         15-3A Changing Metric Units         15-3B Units of Time (use transition student edition, pages 54-55)         enVisionMATH Common Core Standards Practice Workbooks         CC47-48         Engage New York, Module 2: Unit Conversions and Problem Solving with Metric Measurement, Topic A         http://www.engageny.org/sites/default/files/resource/attachments/math-g4-m2-full-module.pdf         Illustrative Mathematics         Who is the Tallest?         http://www.illustrativemathematics.org/jillustrations/1508         Inside Mathematics         Movin 'n Groovin, Level B         http://www.insidemathematics.org/problems-of-the-month/pommovinngroovin.pdf         Once Upon a Time, Level B         http://www.insidemathematics.org/problems-of-the-month/pommovinngroovin.pdf	<ul> <li>enVisionMATH CA <ul> <li>Quick Checks 15-1, 15-2</li> </ul> </li> <li>Transitioning to California's Common Core State <ul> <li>Standards = - Teacher</li> <li>Resource Masters</li> <li>Transition Topic 15 <ul> <li>Test Master</li> <li>Quick Checks 15-2A, 15-3B</li> </ul> </li> <li>NC Department of Public <ul> <li>Instruction</li> <li>4.MD.1 Task 1.doc</li> <li>4.MD.1 Task 2.doc</li> <li>http://3-5cctask.ncdpi.wikis</li> <li>paces.net/4.MD.1-4.MD.3</li> </ul> </li> </ul></li></ul>

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STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.MD.2</b> Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurement given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>15-8 Problem Solving: Solve a Simpler Problem and Make a Table</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition = <ul> <li>11-3A Using Money to Understand Decimals (use transition student edition, pp. 36-7)</li> <li>15-3B Units of Time (use transition student edition, pp. 54-55)</li> <li>15-3C Solving Measurement Problems (use transition student edition, pp. 56-7)</li> </ul> </li> <li>enVisionMATH Common Core Standards Workbook <ul> <li>CC49-50</li> </ul> </li> <li>Engage New York, Module 2: Unit Conversions and Problem Solving with Metric Measurement, Topic B <ul> <li>MD Module</li> <li>http://www.engageny.org/sites/default/files/resource/attachments/math-g4-m2-full-module.pdf</li> </ul> </li> <li>Illustrative Mathematics <ul> <li>Margie Buys Apples</li> <li>http://www.illustrativemathematics.org/illustrations/873</li> </ul> </li> </ul>	<ul> <li>enVisionMATH CA <ul> <li>Quick Check 15-8</li> </ul> </li> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition ■ <ul> <li>Quick Check 11-3A, 15-3B, 15-3C</li> </ul> </li> <li>Engage New York <ul> <li>Grade 4</li> <li>Mathematics, end of module assessment http://www.engag eny.org/resource/g rade-4-mathematics-module-2</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.MD.2 Task 1.doc</li> <li>4.MD.2 Task 2.doc http://3-Scctask.ncdpi.wikis paces.net/4.MD.1-4.MD.3</li> </ul> </li> </ul>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.MD.3</b> Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>15-3 Perimeter</li> <li>15-4 Area of Squares and Rectangles</li> <li>15-5 Area of Iregular Shapes</li> <li>15-6 Same Perimeter, Different Area</li> <li>15-7 Same Area, Different Perimeter</li> <li>18-1 Formulas and Equations</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>CC51-52</li> </ul> </li> <li>About Teaching Mathematics, 2<sup>nd</sup> Ed. (Burns, 2000)</li> <li>The Perimeter Stays the Same, p. 54</li> </ul> <li>Inside Mathematics <ul> <li>Fair Play</li> <li>http://www.insidemathematics.org/common-core-math-tasks/4th-grade/4-2009%20Fair%20Play.pdf</li> <li>Surrounded and Covered, Level C</li> <li>http://www.insidemathematics.org/problems-of-the-month/pom-surroundedandcovered.pdf</li> </ul> </li> <li>Math Matters (Chapin and Johnson, 2000) <ul> <li>Do Figures with the Same Area Have the Same Perimeter? p. 192</li> <li>Area Relationships, Part 1, pp. 189-190</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.MD.3 Task 2.doc, Putting Down Carpet</li> <li>4.MD.3 Task 3.doc, Fencing Yards</li> <li>http://3-5cctask.ncdpi.wikispaces.net/4.MD.1-4.MD.3</li> </ul> </li>	enVisionMATH CA • Quick Checks 15- 3, 15-4, 15-5, 15-6, 15-7, 18-1 Transitioning to California's Common Core State Standards = - Teacher Resource Masters • Transition Topic 15 Test Master

## CLUSTER: Represent and interpret data. s/a

**Big Idea:** Some questions can be answered by collecting and analyzing data, and the question to be answered determines the data that needs to be collected and how best to collect it. Data can be represented visually using tables, charts, and graphs. The type of data determines the best choice of visual representation. **Enduring Understandings:** Line plots can be used to organize and represent data generated by measuring lengths, and the line plot can be used to answer certain questions about the data.

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.MD.4</b> Make a line plot to display a data set of measurements in fractions of a unit $(1/2, 1/4, 1/8)$ . Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and the shortest specimens in an insect collection.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition ■ <ul> <li>15-3D Solving Problems Involving Line Plots (use transition student edition, pp. 58-9)</li> <li>enVisionMATH Common Core Standards Practice Workbooks</li> <li>CC53-54</li> </ul> </li> <li>Illustrative Mathematics <ul> <li>Button Diameters http://www.illustrativemathematics.org/illustrations/1039</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.MD.4 Task 1.doc, Reading Survey</li> <li>4.MD.4 Task 2.doc, How High Did It Bounce?</li> <li>4.MD.4 Task 3.doc, Measuring Strings http://3-Soctask.ncdpi.wikispaces.net/4.MD.4</li> </ul> </li> </ul>	enVisionMATH CA • Quick Checks 15- 3D Transitioning to California's Common Core State Standards - Teacher Resource Masters • Transition Topic 15 Test Master

## CLUSTER: Geometric measurement: understand concepts of angle and measure angles. <sup>s/a</sup>

Big Idea: Some attributes of objects are measurable and can be quantified using unit amounts.

Enduring Understandings: The measure of an angle depends upon the fraction of the circle cut off by its rays. The unit for measuring the size of the opening of an angle is 1 degree. Angle measure can be added or subtracted.

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<ul> <li>4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:</li> <li>4.MD.5a An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.</li> </ul>	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition = <ul> <li>8-3B Understanding Angles and Unit Angles (use transition student edition, pp. 10-11)</li> <li>8-3C Measuring with Unit Angles (use transition student edition, pp. 12-13)</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>CC55-56</li> </ul> </li> <li>Engage NY <ul> <li>Module 4: Angle Measure and Plane Figures, Topics B &amp; C http://www.engageny.org/resource/grade-4-mathematics-module-4</li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.MD.5 Task 2.doc, Intersecting Roads http://3-5cctask.ncdpi.wikispaces.net/4.MD.5-4.MD.7</li> </ul> </li> </ul>	enVisionMATH CA • Quick Checks 8- 3B, 8-3C enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition ■ • Quick Checks 8- 3B, 8-3C

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.MD.5b</b> An angle that turns through <i>n</i> one-degree angles is said to have an angle measure of <i>n</i> degrees.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH Transitioning to California's Common Core State Standards - Teacher Edition =</li> <li>8-3C Measuring with Unit Angles (use transition student edition, pp. 12-13)</li> <li>8-3D Measuring Angles (use transition student edition, pp. 14-15)</li> <li>enVisionMATH Common Core Standards Practice Workbooks</li> <li>CC55-56</li> <li>Engage NY</li> <li>Module 4: Angle Measure and Plane Figures, Topics B &amp;C http://www.engageny.org/resource/grade-4-mathematics-module-4</li> </ul>	<ul> <li>enVisionMATH CA <ul> <li>Quick Checks 8- 3C, 8-3D</li> </ul> </li> <li>Transitioning to California's Common Core State</li> <li>Standards □ - Teacher</li> <li>Resource Masters <ul> <li>Quick Check 8- 3C, 8-3D</li> <li>Transition Topic 8 Test Master</li> </ul> </li> </ul>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.MD.6</b> Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	<ul> <li>MP1 Make sense of problems and persevere in solving them.</li> <li>MP2 Reason abstractly and quantitatively.</li> <li>MP3 Construct viable arguments and critique the reasoning of others.</li> <li>MP4 Model with mathematics.</li> <li>MP5 Use appropriate tools strategically.</li> <li>MP7 Look for and make use of structure.</li> <li>MP8 Look for and express regularity in repeated reasoning.</li> </ul>	<ul> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition ■</li> <li>8-3D Measuring Angles (use student transition edition, pp. 14-5)</li> <li>enVisionMATH Common Core Standards Practice Workbooks</li> <li>CC57-58</li> <li>Engage NY</li> <li>Module 4: Angle Measure and Plane Figures http://www.engageny.org/resource/grade-4-mathematics-module-4</li> <li>NC Department of Public Instruction</li> <li>4.MD.5 Task 2.doc, Intersecting Roads</li> <li>4.MD.6 Task 2.doc, Making Shapes http://3-5cctask.ncdpi.wikispaces.net/4.MD.5-4.MD.7</li> </ul>	Transitioning to California's Common Core State Standards - Teacher Resource Masters • Quick Check 8-3D • Transition Topic 8 Test Master

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.MD.7</b> Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	<ul> <li>MP1 Make sense of problems and persevere in solving them.</li> <li>MP2 Reason abstractly and quantitatively.</li> <li>MP3 Construct viable arguments and critique the reasoning of others.</li> <li>MP4 Model with mathematics.</li> <li>MP5 Use appropriate tools strategically.</li> <li>MP7 Look for and make use of structure.</li> <li>MP8 Look for and express regularity in repeated reasoning.</li> </ul>	<ul> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition ■ <ul> <li>8-3E Adding and Subtracting Angle Measures (use transition student edition, pp. 16-17)</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>CC59-60</li> </ul> </li> <li>Illustrative Mathematics <ul> <li>Finding an Unknown Angle <a href="http://www.illustrativemathematics.org/illustrations/1168">http://www.illustrativemathematics.org/illustrations/1168</a></li> </ul> </li> <li>Engage NY <ul> <li>Module 4: Angle Measure and Plane Figures <a href="http://www.engageny.org/resource/grade-4-mathematics-module-4">http://www.engageny.org/resource/grade-4-mathematics-module-4</a></li> </ul> </li> <li>NC Department of Public Instruction <ul> <li>4.MD.7 Task 1.doc, Adding Up Angles</li> <li>4.MD.7 Task 2.doc, How Can We Split Angles? <a href="http://3-5cctask.ncdpi.wikispaces.net/4.MD.5-4.MD.7">http://3-5cctask.ncdpi.wikispaces.net/4.MD.5-4.MD.7</a></li> </ul></li></ul>	Transitioning to California's Common Core State Standards  - Teacher Resource Masters • Quick Checks 8- 3E • Transition Topic 8 Test Master

Domain Legend

**Major Cluster:** Areas of intensive focus, where students need fluent understanding and application of the core concepts (approximately 70%)

- s **Supporting Cluster:** Rethinking & linking; some material is being covered, but in a way that applies core understandings (approximately 20%)
- a Additional Cluster: Expose students to other subjects, may not connect explicitly to the major work of the grade (approximately 10%)
- Online resource located at PearsonSuccessNet.com, click Other Resources

## **ADDITIONAL SUPPORT**

ESSENTIAL QUESTIONS	LANGUAGE OBJECTIVES AND SUPPORTS	KEY VOCABULARY
<ol> <li>How do I change one customary unit to another, one metric unit to another?</li> </ol>	<ol> <li>Students will explain the patterns in converting from one customary unit of length to another, and one metric unit to another, by using subordinate conjunctions (when you change, whenever). (Teacher provides manipulatives and tools to support the exploration.)</li> </ol>	AreaMetricCentimeterMilliliter (mL)(cm)MillimeterConversion(mm)ConvertMinuteCupOperations
2. How do I compare units of time?	2. Students orally explain using targeted mathematical language and complex sentences how they read and compare time in different units. (Teacher may refer students to math word wall for support.)	Customary Ounce (oz) Decimals Perimeter Decimeter Pint
3. How can I draw an angle and how are angles measured?	<ol> <li>Students orally explain their work in cooperative groups to draw and measure a range of angles.</li> <li>Students will ask clarifying questions of their peers as to how they represented measurement data using present and past tense verbs. (Teachers may provide a variety of grouping structures to allow for various opportunities for language use.)</li> </ol>	DistancePound (ib)FractionsProtractorGram (g)Relative sizeHourSecondInchStraightedgeKilogram (kg)TonKilometer (km)
4. How can I add and subtract to find unknown angle measures?	<ol> <li>Students will restate a partner's response to how they chose to find unknown angle measures using addition and subtraction by using paraphrasing expressions. (Teachers may employ the talk moves during student discussions, allowing for wait time, restating, and recasting.)</li> </ol>	Length Line plot Liquid volume Liter (L) Mass
5. How are decimals related to money?	5. Students discuss the connection of the base ten system with money by using subordinate conjunctions (when you change, whenever). (Teacher provides manipulatives and tools to support the exploration.)	Measure Meter(m)
6. How can I make line plots to organize and represent data I have collected?	6. Students will sequentially explain how to make a lie plot using targeted mathematical language and complex sentences. (Teacher may refer students to math word wall for support.)	

#### DAILY ROUTINES

- Linking body measures to units is one way of internalizing the units. Measure out the distance of at least ten meters. How many paces fit in a meter? Estimate and then pace out distances at school. How far is it from the classroom door to the auditorium? The cafeteria? The playground? Math Matters, (Chapin, Johnson, 2000), p. 184
- Many classroom routines involve collecting data and making graphs, e.g., In what month is your birthday?. Highlight the line plot during this domain. Ask students questions, and record the data on a line plot for discussion. *Math Matters*, (Chapin, Johnson, 2000), pp. 203-4

#### LITERATURE CONNECTIONS

• It's a Big Country by WorldScapes Readers

Building Blocks by WorldScapes Readers

## DIFFERENTIATION

FRONT LOADING	ENRICHMENT	INTERVENTION
enVisionMATH CA	enVisionMATH CA	Math Diagnosis and Intervention System: Booklet I,
Universal Access	Universal Access	Grades 4-6
<ul> <li>Topic 15, EL, Special Education, At-Risk, pp.</li> </ul>	<ul> <li>Topic 15, Advanced, p. 348H</li> </ul>	<ul> <li>Acute, Right and Obtuse Angles, pp. 97-98</li> </ul>
348G-H		<ul> <li>Measuring and Classifying Angles, pp. 123-124</li> </ul>
	Inside Mathematics	<ul> <li>Measuring Length to ½ and ¼ Inch, pp. 131-132</li> </ul>
<ul> <li>The Language of Math</li> </ul>	Surrounded and Covered, Level D	<ul> <li>Using Customary Units of Length, pp. 133-134</li> </ul>
– Topic 15, pp. 348I-J	http://www.insidemathematics.org/problems-	Using Metric Units of Length, pp. 135-136
	of-the-month/pom-	<ul> <li>Using Customary Units of Capacity, pp. 137-138</li> </ul>
	<u>surroundedandcovered.pdf</u>	<ul> <li>Using Metric Units of Capacity, pp. 139-140</li> </ul>
		Using Customary Units of Weight, pp. 141-142
	NC Department of Public Instruction	Using Metric Units of Mass, pp. 143-144
	<ul> <li>4.MD.3 Task 4.doc</li> </ul>	• Time to the Quarter Hour, pp. 145-146
	http://3-	Ielling lime, pp. 14/-148
	5cctask.ncdpi.wikispaces.net/4.MD.1-4.MD.3	• Units of lime, pp. 149-150
		• Elapsed Time, pp. 151-152
	About leaching Mathematics, 2 <sup>nd</sup> Ed. (Burns, 2000)	Converting Customary Units: Length, pp. 155-156
	Pick's Theorem, p. 98	Converting Customary Units: Capacity, pp. 157-
		Converting Customary Units: Weight, pp. 159-160
		Converting Metric Units, pp. 161-162
		• Perimeter, pp. 1/5-1/6
		Finding Area on a Gria, pp. 177-178
		More Perimeter, pp. 1/9-180     Areas of Postangles and Saugras pp. 181-182
		Areas of Rectangles and Squares, pp. 181-182     Destangles with Same Area (Derimeter and 105
		Kectangles with same Area/Perimeter, pp. 185-
		100

## DOMAIN: Geometry

## CLUSTER: Draw and identify lines and angles, and classify shapes by properties of their lines and angles. s/a

Big Idea: Two-dimensional objects can be described, classified, and analyzed by their attributes.

**Enduring Understandings:** Point, line, and plane are the core attributes of space objects, and real-world situations can be used to think about these attributes. Line segments and rays are sets of points that describe parts of lines, shapes and solids. Angles are formed by two intersecting lines or by rays with a common endpoint and are classified by size. Two-dimensional or plane shapes have many properties that make them different from one another. Polygons can be described and classified by their sides and angles. Some shapes can be reflected across one or more lines passing through the shape so the shape folds onto itself exactly.

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.G.1</b> Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH Transitioning to California's Common Core State Standards – Teacher Edition =</li> <li>8-2A Points, Lines, and Planes</li> <li>8-3A Line Segments, Rays, and Angles</li> <li>enVisionMATH Common Core Standards Practice Workbooks</li> <li>pg. CC61-62</li> <li>50 Problem Solving Lessons (Burns, 1996)</li> <li>The Largest Square Problem, p. 105</li> <li>About Teaching Mathematics, 2<sup>nd</sup> Ed. (Burns, 2000)</li> <li>Explorations Using the Geoboard, p. 95 (#1-6)</li> <li>Common Core Georgia Performance Standards</li> <li>Angle Sort http://ccgpsmathematicsk-5.wikispaces.com/file/detail/Angle%20Sort.docx</li> <li>Illustrative Mathematics</li> <li>The Geometry of Letters http://www.illustrativemathematics.org/illustrations/1263</li> <li>Math Matters K-6: Understanding the Math You Teach (Chapin &amp; Johnson, 2000)</li> <li>Points of Intersection, pp.149-151</li> </ul>	Transitioning to California's Common Core State Standards  - Teacher Resource Masters • Quick Checks 8- 2A, 8-3A

## Los Angeles Unified School District • Grade 4

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.G.2</b> Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP8 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>8-3 Polygons</li> <li>8-4 Triangles</li> <li>8-5 Quadrilaterals</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>pg. CC63-64</li> </ul> </li> <li>About Teaching Mathematics, 2<sup>nd</sup> Ed. (Burns, 2000) <ul> <li>Explorations Using the Geoboard, p. 95</li> </ul> </li> <li>Common Core Georgia Performance Standards <ul> <li>Angle Sort</li> <li>http://ccgpsmathematicsk-5.wikispaces.com/file/detail/Angle%20Sort.docx</li> </ul> </li> <li>Illustrative Mathematics <ul> <li>Are These Right?</li> <li>http://www.illustrativemathematics.org/illustrations/1273</li> </ul> </li> <li>Math Matters K-6: Understanding the Math You Teach (Chapin &amp; Johnson, 2000)</li> <li>Properties of Quadrilaterals, p. 156-159</li> </ul>	<ul> <li>enVisionMATH CA</li> <li>Quick Checks 8-3, 8-4, 8-5</li> <li>Performance Assessment 8</li> </ul>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	FORMATIVE ASSESSMENT
<b>4.C.3</b> Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP5 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.	<ul> <li>enVisionMATH CA <ul> <li>19-2 Line Symmetry</li> </ul> </li> <li>enVisionMATH Common Core Standards Practice Workbooks <ul> <li>pg. CC65-66</li> </ul> </li> <li>Common Core Georgia Performance Standards <ul> <li>Angle Sort</li> <li>http://ccgpsmathematicsk-5.wikispaces.com/file/detail/Angle%20Sort.docx</li> </ul> </li> <li>Illustrative Mathematics <ul> <li>Lines of Symmetry for Triangles</li> <li>http://www.illustrativemathematics.org/illustrations/1058</li> <li>Lines of Symmetry for Quadrilaterals</li> <li>http://www.illustrativemathematics.org/illustrations/1059</li> <li>Lines of Symmetry for Circles</li> <li>http://www.illustrativemathematics.org/illustrations/1060</li> <li>Finding Lines of Symmetry</li> <li>http://www.illustrativemathematics.org/illustrations/1676</li> </ul> </li> <li>Inside Mathematics <ul> <li>Symmetrical Patterns</li> <li>http://www.insidemathematics.org/common-core-math-tasks/4th-grade/4-2004%20Symmetrical%20Patterns.pdf</li> <li>Problem of the Month: The Shape of Things (Level B)</li> <li>http://www.insidemathematics.org/problems-of-the-month/pom-theshapeofthings.pdf</li> </ul> </li> <li>Math Matters K-6: Understanding the Math You Teach (Chapin &amp; Johnson, 2000)</li> <li>Alphabet Symmetry, p.166</li> </ul>	enVisionMATH CA • Quick Check 19-2 • Topic 19 Test Master (questions 7-13)

## Los Angeles Unified School District • Grade 4

**Domain Legend** 

- A Major Cluster: Areas of intensive focus, where students need fluent understanding and application of the core concepts (approximately 70%)
- s Supporting Cluster: Rethinking & linking; some material is being covered, but in a way that applies core understandings (approximately 20%)
- a Additional Cluster: Expose students to other subjects, may not connect explicitly to the major work of the grade (approximately 10%)
- Online resource located at PearsonSuccessNet.com, click Other Resources

## **ADDITIONAL SUPPORT**

<ol> <li>How can lines, angles, and shapes be described, analyzed, and classified?</li> <li>Students will orally explain using transitional phrases and domain specific vocabulary the steps in describing, analyzing and classifying lines, angles and shapes. (Teacher may provide sentence stems to support explanation.)</li> <li>How can I draw an angle?</li> <li>Students will explain how to draw an angle by using subordinate conjunctions (when you change, whenever). (Teacher provides manipulatives and tools to support the exploration.)</li> <li>Students will orally explain how they classified triangles by using conjunctions (because) and auxiliary verbs (may, might, should, could, would). (Teacher encourages multiple representations.)</li> <li>Students will define lines of symmetry by using complex sentences to support the symmetry by using complex sentences. (Creacher provides manipulatives and tools to support the explorations.)</li> <li>Students will orally explain how they classified triangles (may, might, should, could, would). (Teacher encourages multiple representations.)</li> <li>Students will define lines of symmetry by using complex sentences, comparatives, and superfairives. (Teacher provides manipulatives and time for exploration.)</li> <li>Students will restate a partner's response to how they created a symmetrical figures?</li> <li>Students will restate a partner's response to how they created a symmetrical figure by using paraphrasing expressions. (Teachers may employ the talk moves during student discussions, allowing for wait time, restating, and recasting.)</li> </ol>	ESSENTIAL QUESTIONS	LANGUAGE SUPPORTS AND OBJECTIVES	LANGUAGE OBJECTIVES
<ul> <li>2. How can I draw an angle?</li> <li>2. Students will explain how to draw an angle by using subordinate conjunctions (when you change, whenever). (Teacher provides manipulatives and tools to support the exploration.)</li> <li>3. How can I classify triangles?</li> <li>4. What is a line of symmetry?</li> <li>5. How can I create symmetrical figures?</li> <li>5. How can I create symmetrical figures?</li> <li>2. Students will explain how to draw an angle by using conjunctions (when you change, whenever). (Teacher provides manipulatives and tools to support the exploration.)</li> <li>5. How can I create symmetrical figures?</li> <li>6. Students will restate a partner's response to how they created a symmetrical figure by using paraphrasing expressions. (Teachers may employ the talk moves during student discussions, allowing for wait time, restating, and recasting.)</li> </ul>	<ol> <li>How can lines, angles, and shapes be described, analyzed, and classified?</li> </ol>	<ol> <li>Students will orally explain using transitional phrases and domain specific vocabulary the steps in describing, analyzing and classifying lines, angles and shapes. (Teacher may provide sentence stems to support explanation.)</li> </ol>	Acute angle Polygon Angle Quadrilateral Equilateral Ray Hexagon Rectangle
<ul> <li>3. How can I classify triangles?</li> <li>4. What is a line of symmetry?</li> <li>5. How can I create symmetrical figures?</li> <li>6. Students will orally explain how they classified triangles by using conjunctions (because) and auxiliary verbs (may, might, should, could, would). (Teacher encourages multiple representations.)</li> <li>4. What is a line of symmetry?</li> <li>5. How can I create symmetrical figures?</li> <li>6. Students will restate a partner's response to how they created a symmetrical figure by using paraphrasing expressions. (Teachers may employ the talk moves during student discussions, allowing for wait time, restating, and recasting.)</li> </ul>	2. How can I draw an angle?	2. Students will explain how to draw an angle by using subordinate conjunctions (when you change, whenever). (Teacher provides manipulatives and tools to support the exploration.)	Intersecting lines Rhombus Isosceles Right angle Line Right triangle Line of Scalene symmetry Side
<ul> <li>4. What is a line of symmetry?</li> <li>5. How can I create symmetrical figures?</li> <li>4. Students will define lines of symmetry by using complex sentences, comparatives, and superlatives. (Teacher provides manipulatives and time for exploration.)</li> <li>5. How can I create symmetrical figures?</li> <li>5. Students will restate a partner's response to how they created a symmetrical figure by using paraphrasing expressions. (Teachers may employ the talk moves during student discussions, allowing for wait time, restating, and recasting.)</li> </ul>	3. How can I classify triangles?	3. Students will orally explain how they classified triangles by using conjunctions (because) and auxiliary verbs (may, might, should, could, would). (Teacher encourages multiple representations.)	Line segment Square Obtuse angle Straight Octagon angle Parallel Symmetric
<ul> <li>5. How can I create symmetrical figures?</li> <li>5. Students will restate a partner's response to how they created a symmetrical figure by using paraphrasing expressions. (Teachers may employ the talk moves during student discussions, allowing for wait time, restating, and recasting.)</li> </ul>	4. What is a line of symmetry?	<ul> <li>Students will define lines of symmetry by using complex sentences, comparatives, and superlatives. (Teacher provides manipulatives and time for exploration.)</li> </ul>	Pentagon Triangle Perpendicular Vertex Plane Point
	5. How can I create symmetrical figures?	5. Students will restate a partner's response to how they created a symmetrical figure by using paraphrasing expressions. (Teachers may employ the talk moves during student discussions, allowing for wait time, restating, and recasting.)	

DAILY ROUTINES				
<ul> <li>Many new vocabulary words are introduced in this topic. Give students repeated oral language practice to ensure that the terms are understood, such as card games. "I have, Who has?" Geometry Card Activity. http://ftp.aea1.k12.ia.us/math/DiscourseMathClass.pdf</li> </ul>	<ul> <li>Spatial sense is the recognition and interpretation of two- and three- dimensional figures in space, and has two components, special visualization and spatial orientation. Looking at artwork is one way to improve this sense. The artist M.C. Escher is known for tessellations, repeating a single pattern. Consider using artwork in the classroom as an opportunity for discussion of the geometric figures and how they are related. Math Matters K-6: Understanding the Math You Teach (Chapin &amp; Johnson, 2000), pp. 161-3</li> </ul>			
LITERATURE CONNECTIONS				
<ul><li>Grandfather Tang's Story by Ann Tompert</li><li>The Greedy Triangle by Marilyn Burns</li></ul>	Dazzling Designs by WorldScapes Readers			

## DIFFERENTIATION

FRONT LOADING	ENRICHMENT	INTERVENTION
<ul> <li>enVisionMATH CA</li> <li>Universal Access</li> <li>Topic 19, Special Education, pp. 436E</li> <li>Topic 8, EL, Special Education, At-Risk, pp. 192G-H</li> <li>The Language of Math</li> <li>Topic 8, pp. 192I-J</li> </ul>	enVisionMATH CA • Universal Access – Topic 8, Advanced Students, p. 192H	enVisionMATH CA Math Diagnosis and Intervention System: Booklet I, Grades 4-6 • Lines and Line Segments, pp. 95-96 • Quadrilaterals, pp. 103-104 • Line of Symmetry, pp. 107-108