

**Los Angeles Unified School District  
Office of Curriculum, Instruction, and School Support  
2016-2017 Elementary Curriculum Maps  
Second Grade**

**Introduction to the Document:**

Welcome to the Los Angeles Unified School District's Elementary Mathematics CCSS Curriculum Map for Second Grade. The Map is intended to be a one-stop tool for teachers, administrators, parents, and other school support personnel. It blends Common Core State Standards in Mathematics, textbook Topics that 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 *Curriculum Maps and Graphic Organizers by Domain*, 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 chapters the standards can be found.

Under the section *Scope and Sequence* in the Alignment Document, the standards are listed in the developmental sequence outlined in the various textbook series.

**Symbols and Footnotes:**

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

**General Calendar for Instruction and Assessment:**

Working with your grade level at your school site, your goal is to ensure full instruction and assessment of the grade level standards by the end of the school year.

**Using the Mathematics Curriculum Map:**

The guide 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 *Scope and Sequence* listings. 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 developing addition concepts, while another class at the same grade level may need more focused time on Operations and Algebraic Thinking.

Then look at the *Curriculum Maps and Graphic Organizers by Domain*. Match the standards and the recommended Resources.

Look at the assessment options. Discuss with your grade level and administration at your school site what assessments you will use, following the guidance of Reference Guide REF-6507.

The starting point for instructional planning is the standards. The textbook resources are just the first tools for teachers in helping to build mathematical understanding. 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 Column Headings:**

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** are meant to be teacher-guided, whole class activities or are independent of the teacher, and can take place in small groups, pairs, or individually.

The **Assessments** are intended to assist the teacher in providing data to guide instruction. Assessments are considered to be formative throughout the year, if remediation is provided.

The **Domain Legend** explains the key that sorts the clusters into Major (▲), and Supporting or Additional (s/a), as used by the testing services Smarter Balanced and PARCC. The standards will be assessed with 75% of the assessment on the major clusters and 25% on the supporting and 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** to assist with English Learners and Standard English Learners
- **Enduring Understandings** which are the Big Ideas in Mathematics
- **Essential Questions** which engage the students with interacting with the Big Ideas
- **Key Vocabulary**

**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.

**Differentiation** (📖) falls into three categories:

- **Front Loading:** strategies to make the content more accessible to all students, including EL, SEL and students with special needs.
- **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.
- **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.

**Additional Documents:**

- **Mathematics Framework for California Public Schools** provides guidance for implementing the standards, including instructional strategies, technology for instruction and criteria for evaluating instructional materials. It can be found at: <http://www.cde.ca.gov/ci/ma/cf/draft2mathfwchapters.asp>
- **Progressions Document for the Common Core State Standards** from the University of Arizona describes the progressions of a topic across grade levels. It can be found at: <http://ime.math.arizona.edu/progressions/>
- **Table 1 of the Common Core State Standards for Mathematics** gives specific examples of the common addition and subtraction situations, which may be helpful for kindergarten. It can be found on page 88 of the Glossary: [http://www.corestandards.org/wp-content/uploads/Math\\_Standards.pdf](http://www.corestandards.org/wp-content/uploads/Math_Standards.pdf)

An **Appendix** to the Curriculum Maps includes:

- **First Ten Days of School** to introduce classroom management and new learning opportunities, including

the speaking and listening standards

### **Grade 2 Critical Areas:**

In Grade 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

1. Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).
2. Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.
3. Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.
4. Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

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**DOMAIN: Operations and Algebraic Thinking****CLUSTER: Represent and solve problems involving addition and subtraction.▲**

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.OA.1</b> Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.</p>	<p><b>MP1</b> Make sense of problems and persevere in solving them.  <b>MP2</b> Reason abstractly and quantitatively.  <b>MP3</b> Construct viable arguments and critique the reasoning of others.  <b>MP4</b> Model with mathematics.  <b>MP5</b> Use appropriate tools strategically.  <b>MP6</b> Attend to precision.  <b>MP7</b> Look for and make use of structure.  <b>MP8</b> Look for and express regularity in repeated reasoning.</p>	<p><b>A Collection of Math Lessons, Grades 3-6</b> (Burns, 1987)</p> <ul style="list-style-type: none"> <li>The 0-99 Chart, pp. 57-69 (holistic)</li> </ul> <p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns, 2000)</p> <ul style="list-style-type: none"> <li>Estimate and Measure, p. 189</li> <li>In 1 Minute, p. 189</li> </ul> <p><b>LAUSD Concept Lesson: Student Store</b> (also 2.NBT.7)  <a href="http://tinyurl.com/Grade2StudentStore">http://tinyurl.com/Grade2StudentStore</a></p> <p><b>LAUSD CCSS-Aligned Task Project: Jordan Saves Money</b>  <a href="http://achieve.lausd.net/cms/lib08/CA0100043/Centricity/Domain/244/JordanSavesMoney03.01.16.pdf">http://achieve.lausd.net/cms/lib08/CA0100043/Centricity/Domain/244/JordanSavesMoney03.01.16.pdf</a></p> <p><b>Lessons in Algebraic Thinking, Grades K-2</b> (Burns, 2002)</p> <ul style="list-style-type: none"> <li>Pattern Block Fish, p. 79</li> </ul> <p><b>Math Matters</b> (Chapin, 2000)</p> <ul style="list-style-type: none"> <li>Activity, p. 44</li> </ul> <p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2oa1">https://www.engageny.org/ccls-math/2oa1</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>1-6 – Problem Solving Strategy: Write a Number Sentence</li> <li>1-13 – Two-Step Word Problems</li> <li>3-1 – Take Apart Tens to Add</li> <li>3-7 – Problem Solving Strategy: Make a Model</li> <li>4-2 – Take Apart Tens to Subtract</li> <li>4-8 – Problem Solving Strategy: Write a Number Sentence</li> <li>4-9 – Two-Step Word Problems</li> <li><i>How Many Seed?, Real-World Problem Solving Readers Teacher Guide</i>, p. 8</li> <li><i>Our Grandma’s Life, Real-World Problem Solving Readers Teacher Guide</i>, p. 13</li> </ul>	<p><b>My Math Assessment Masters</b></p> <ul style="list-style-type: none"> <li>Ch. 1, pp. 7-32</li> <li>Ch. 3, pp. 59-83</li> <li>Ch. 4, pp. 84-108</li> </ul> <p><b>My Math Think Smart for the SBAC</b></p> <ul style="list-style-type: none"> <li>Chapter 1 Test, p. 53</li> <li>Chapter 3 Test, p. 65</li> <li>Chapter 4 Test, p. 71</li> <li>Chapter 1 Performance Task, p. 125</li> <li>Chapter 3 Performance Task, p. 129</li> <li>Chapter 4 Performance Task, p. 131</li> </ul> <p><b>My Math eAssessment</b></p>

**CLUSTER: Add and subtract within 20.▲**

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.OA.2</b> Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  MP2 Reason abstractly and quantitatively.  MP3 Construct viable arguments and critique the reasoning of others.  MP4 Model with mathematics.  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>  MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>Lessons for Algebraic Thinking, Grades K-2</b> (Burns,2002)</p> <ul style="list-style-type: none"> <li>• Two Handfuls, pp. 151-156</li> <li>• Graphing Sums, p. 213</li> </ul> <p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2oa2">https://www.engageny.org/ccls-math/2oa2</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>• 1-1 – Addition Properties</li> <li>• 1-2 – Count On to Add</li> <li>• 1-3 – Doubles and Near Doubles</li> <li>• 1-4 – Make a 10</li> <li>• 1-5 – Add Three Numbers</li> <li>• 1-7 – Count Back to Subtract</li> <li>• 1-8 – Subtract All and Subtract Zero</li> <li>• 1-9 – Use Doubles to Subtract</li> <li>• 1-10 – Relate Addition and Subtraction</li> <li>• 1-11 – Missing Addends</li> <li>• 1-12 – Fact Families</li> </ul>	<p><b>My Math</b> Assessment Masters</p> <ul style="list-style-type: none"> <li>• Ch. 1, pp. 7-32</li> </ul> <p><b>My Math</b> Think Smart for the SBAC</p> <ul style="list-style-type: none"> <li>• Chapter 1 Test, p. 53</li> <li>• Chapter 1 Performance Task, p. 125</li> </ul> <p><b>My Math</b> eAssessment</p>



**CLUSTER: Work with equal groups of objects to gain foundations for multiplication. ^**

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.OA.3</b> Determine whether a group of objects (up to 20) has an odd or even number of members. e.g., by pairing objects or counting them by 2's; write an equation to express an even number as a sum of two equal addends.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  <b>MP2 Reason abstractly and quantitatively.</b>            MP3 Construct viable arguments and critique the reasoning of others.            MP4 Model with mathematics.            MP5 Use appropriate tools strategically.  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>            MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2oa3">https://www.engageny.org/ccls-math/2oa3</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>• 2-6 – Even and Odd Numbers</li> <li>• 2-7 – Sums of Equal Numbers</li> </ul>	<p><b>My Math Assessment Masters</b></p> <ul style="list-style-type: none"> <li>• Ch. 2, pp.33-57</li> </ul> <p><b>My Math Think Smart for the SBAC</b></p> <ul style="list-style-type: none"> <li>• Chapter 2 Test, p. 59</li> <li>• Chapter 2 Performance Task, p. 127</li> </ul> <p><b>My Math eAssessment</b></p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.OA.4</b> Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>            MP2 Reason abstractly and quantitatively.            MP3 Construct viable arguments and critique the reasoning of others.            MP4 Model with mathematics.            MP5 Use appropriate tools strategically.  <b>MP6 Attend to precision.</b>            MP7 Look for and make use of structure.  <b>MP8 Look for and express regularity in repeated reasoning.</b></p>	<p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2oa4">https://www.engageny.org/ccls-math/2oa4</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>• 2-4 – Repeated Addition</li> <li>• 2-5 – Repeated Addition with Arrays</li> <li>• <i>Kitchen Math, Real-World Problem Solving Readers Teacher Guide</i>, p. 9</li> </ul>	<p><b>My Math Assessment Masters</b></p> <ul style="list-style-type: none"> <li>• Ch. 2, pp.33-57</li> </ul> <p><b>My Math Think Smart for the SBAC</b></p> <ul style="list-style-type: none"> <li>• Chapter 2 Test, p. 59</li> <li>• Chapter 2 Performance Task, p. 127</li> </ul> <p><b>My Math eAssessment</b></p>

#### Domain Legend

▲ **Major Cluster:** Areas of intensive focus, where students need fluent understanding and application of the core concepts (approximately 75%)

s/a **Supporting Cluster:** Rethinking & linking; some material is being covered, but in a way that applies core understandings (s/a approximately 25%)

**Additional Cluster:** Expose students to other subjects, may not connect explicitly to the major work of the grade

## ADDITIONAL SUPPORT

LANGUAGE OBJECTIVES	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS	KEY VOCABULARY	
<p>Read addition and subtraction expressions fluently.</p> <p>Explain the strategies and/or computational estimates used to solve addition and subtraction problems within 100.</p> <p>Describe the relationship/structure between multiplication and division.</p> <p>Explain the strategy to determine the unknown number in a multiplication and division expression/equation (part-part-whole; part-total situations).</p> <p>Identify, understand, and apply mathematical vocabulary to addition, subtraction, multiplication, and division problems (sum, difference, quotient, product, divisor, etc.).</p> <p>Identify, understand, and apply synonyms for mathematical vocabulary (plus, add, sum; subtract, difference, minus; etc.)</p>	<ul style="list-style-type: none"> <li>Parts of a whole is one interpretation of addition.</li> <li>Joining parts to make a whole is one interpretation of addition. Addition number sentences can be used to show joining parts of a whole.</li> <li>Separating parts from a whole and comparison are two interpretations of subtraction. Subtraction number sentences can be used to show separating parts from a whole or comparison subtraction situations.</li> <li>Addition and subtraction have an inverse relationship. Every subtraction fact has a related addition fact.</li> <li>Addition facts involving 9 can be changed to an equivalent fact with 10. Addition facts involving 8 can be changed to an equivalent fact with 10.</li> <li>Some subtraction facts can be found by subtracting from the minuend (the larger number) an amount to get to 10 and then subtracting the amount that remains.</li> <li>Some numbers can be divided into two equal parts (even numbers) and some cannot (odd numbers).</li> <li>Repeated addition involves joining equal groups.</li> <li>An array involves joining equal groups and is one way to think about repeated addition.</li> </ul>	<ul style="list-style-type: none"> <li>What are the varieties of ways to show addition and subtraction?</li> <li>How can strategies be used to find addition and subtraction facts?</li> <li>What is the relationship between arrays and repeated addition?</li> </ul>	<p>add addend addition array difference sentence compare count back count on digit difference doubles equal groups equals (=) equal to even expanded form fact family fewer greater than hundreds join less than minus (-) missing addend</p>	<p>more near doubles number sentence odd ones part place value plus (+) regroup related related facts repeated addition separate skip count subtract subtraction sentence subtrahend sum tens thousand whole</p>

### DAILY ROUTINES

- Problem Solving Notebook

### LITERATURE CONNECTIONS

- *Adding Animals* by Colin Hawkins
- *A Fair Bear Share* by Stuart J. Murphy
- *Alexander, Who Used to Be Rich Last Sunday* by Judith Viorst
- *Counting is for the Birds* by Frank Mazzola Jr.
- *Domino Addition* by Lynette Long
- *Double the Ducks* by Stuart J. Murphy
- *Even Steven and Odd Todd* by Kathryn Cristaldi
- *How Much is that Guinea Pig in the Window?* By Joanne Rocklin
- *Mall Mania* by Stuart J. Murphy
- *Missing Mittens* by Stuart J. Murphy
- *100<sup>th</sup> Day Worries* by Margery Cuyler
- *Rooster's Off to See the World*, Eric Carle
- *Safari Park* by Stuart J. Murphy
- *Sea Sums* by Joy N. Hulme
- *Ten Sly Piranhas* by William Wise
- *The Action of Subtraction* by Brian P. Cleary
- *The Berenstain Bears and the Missing Dinosaur Bone* by Stan and Jan Berenstain
- *The Good Neighbors' Cheese Feast; A Cheesy Mouse Tale of Subtraction with Regrouping* by Mark Ramsay
- *The Grapes of Math* by Greg Tang
- *Too Many Kangaroo Things to Do* by Stuart J. Murphy

### DIFFERENTIATION

FRONT LOADING <sup>1</sup>	ENRICHMENT <sup>2</sup>	INTERVENTION <sup>3</sup>
<p><b>My Math</b>  <b>Each chapter includes:</b> (at beginning of chapter)</p> <ul style="list-style-type: none"> <li>• My Math Words</li> <li>• My Vocabulary Cards</li> <li>• My Foldables</li> </ul> <p><b>Each lesson includes:</b> (at beginning of lesson)</p> <ul style="list-style-type: none"> <li>• ELL Instructional Strategy</li> </ul>	<p><b>My Math</b>  <b>Each lesson includes:</b></p> <ul style="list-style-type: none"> <li>• a beyond level extend hands-on activity under differentiated instruction (found after Practice &amp; Apply)</li> </ul>	<p><b>My Math</b>  <b>Each lesson includes:</b></p> <ul style="list-style-type: none"> <li>• an approaching level Tier 2: strategic intervention hands-on activity (found after Practice &amp; Apply)</li> </ul> <p><b>Each formative assessment includes:</b></p> <ul style="list-style-type: none"> <li>• Tier 2 Strategic Intervention, Ch. 1, p. 48</li> </ul>

## Key:

- <sup>1</sup>: Front Loading refers to materials that can be used before the lesson begins to prepare students for success, which may be helpful for English learners, students with disabilities or low achieving students.
- <sup>2</sup>: Enrichment refers to materials that can be used with students who are ready to have their thinking extended, which may be helpful for gifted and talented and high achieving students, or any students who are ready for more depth and complexity.
- <sup>3</sup>: Intervention refers to materials that can be used after the lessons with students who are needing additional positive experiences with the mathematics, low achieving students who would benefit from another approach, or students who have gaps in their knowledge.

For more information on Differentiation, please refer to: The California Framework, Universal Access section:

<http://www.cde.ca.gov/ci/ma/cf/documents/mathfwuniversalaccess.pdf#search=Universal%20Access&view=FitH&pagemode=none>

**DOMAIN: Number and Operations Base Ten****CLUSTER: Understand place value.▲**

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.NBT.1</b> Understand that the three digits of a three-digit number represent amounts of hundreds, tens and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:</p> <p>a. 100 can be thought of as a bundle of ten tens – called a “hundred.”</p> <p>b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b></p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p><b>MP6 Attend to precision.</b></p> <p><b>MP7 Look for and make use of structure.</b></p> <p><b>MP8 Look for and express regularity in repeated reasoning.</b></p>	<p><b>50 Problem Solving Lessons</b></p> <ul style="list-style-type: none"> <li>Counting Feet, pp. 41-42</li> <li>How Many Pockets, pp. 17-18</li> <li>Roll for \$1.00, pp. 57-59</li> <li>The Rubber Band Ball, pp. 61-62</li> <li>How Many Days of School, pp. 63-64</li> <li>The Place Value Game, pp. 65-67</li> </ul> <p><b>A Collection of Math Lessons from Grades 1 through 3</b> (Burns &amp; Tank, 1988)</p> <ul style="list-style-type: none"> <li>Chapter 16: The Place Value Game, pp. 167-172 (use 3-digit numbers)</li> <li>Activities with Base 10 Blocks, pp. 83-95</li> </ul> <p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns, 2000)</p> <ul style="list-style-type: none"> <li>Place Value, pp. 173-182</li> <li>101 and Out, p. 192</li> </ul> <p><b>Developing Number Concepts, Book 3</b> (Richardson, 1999)</p> <ul style="list-style-type: none"> <li>Rearrange-It: Arranging Loose Counters into Tens and Ones, pp. 68-69</li> <li>Rearrange-It: Breaking Up Trains into Tens and Ones, p. 70</li> <li>Rearrange-It: Finding all the Ways, pp. 70-71</li> <li>Rearrange-it: How Many Cubes, p.72</li> <li>Rearrange-It: Breaking Up Tens, p.73</li> <li>Build it Fast, p. 73</li> <li>Give and Take with Tens and Ones, p. 74</li> <li>Think About the Symbols, p.75</li> <li>Lot of Lines, pp. 78-80</li> <li>Paper Shapes, pp. 80-81</li> <li>Yarn, pp. 83-84</li> <li>Yarn Shapes, p. 85</li> <li>Containers, pp. 86-87</li> <li>Cover It Up, p. 88</li> </ul> <p>(continued on next page)</p>	<p><b>Kentucky Department of Education, Formative Assessment Lesson: What is the Value of Place?</b></p> <p><a href="http://education.ky.gov/curriculum/conpro/Math/Pages/ElemFormAssesLessons.aspx">http://education.ky.gov/curriculum/conpro/Math/Pages/ElemFormAssesLessons.aspx</a></p> <p><b>My Math Assessment Masters</b></p> <ul style="list-style-type: none"> <li>Ch. 5, pp. 110-134</li> </ul> <p><b>My Math Think Smart for the SBAC</b></p> <ul style="list-style-type: none"> <li>Chapter 5 Test, p. 77</li> <li>Chapter 5 Performance Task, p. 133</li> </ul> <p><b>My Math eAssessment</b></p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.NBT.1</b> Understand that the three digits of a three-digit number represent amounts of hundreds, tens and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:</p> <ul style="list-style-type: none"> <li>a. 100 can be thought of as a bundle of ten tens – called a “hundred.”</li> <li>b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).</li> </ul>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  <b>MP2 Reason abstractly and quantitatively.</b>  <b>MP3 Construct viable arguments and critique the reasoning of others.</b>  <b>MP4 Model with mathematics.</b>  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>  <b>MP8 Look for and express regularity in repeated reasoning.</b></p>	<p>(continued from previous page)</p> <p><b>Developing Number Concepts, Book 3</b> (Richardson, 1999)</p> <ul style="list-style-type: none"> <li>• Building Stacks, pp. 96-97</li> <li>• Race to 100, p. 98</li> <li>• Race to Zero, p. 98</li> </ul> <p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2nbt1">https://www.engageny.org/ccls-math/2nbt1</a></p> <p><b>Illustrative Mathematics</b></p> <ul style="list-style-type: none"> <li>• Boxes and Cartons of Pencils  <a href="https://www.illustrativemathematics.org/illustrations/192">https://www.illustrativemathematics.org/illustrations/192</a></li> <li>• Bundling and Unbundling  <a href="http://www.illustrativemathematics.org/illustrations/144">http://www.illustrativemathematics.org/illustrations/144</a></li> <li>• Counting Stamps  <a href="http://www.illustrativemathematics.org/illustrations/574">http://www.illustrativemathematics.org/illustrations/574</a></li> <li>• Making 124  <a href="http://www.illustrativemathematics.org/illustrations/96">http://www.illustrativemathematics.org/illustrations/96</a></li> <li>• Party Favors  <a href="http://www.illustrativemathematics.org/illustrations/157">http://www.illustrativemathematics.org/illustrations/157</a></li> <li>• Ten \$10s Make \$100  <a href="http://www.illustrativemathematics.org/illustrations/71">http://www.illustrativemathematics.org/illustrations/71</a></li> <li>• Three Composing/Decomposing Problems  <a href="http://www.illustrativemathematics.org/illustrations/156">http://www.illustrativemathematics.org/illustrations/156</a></li> </ul> <p><b>Math Matters Grades K-6: Understanding the Math You Teach</b> (Chapin &amp; Johnson, 2006)</p> <ul style="list-style-type: none"> <li>• Our Place Value Numeration System, pp. 17-18</li> <li>• Analyzing a Different Numeration System, pp. 18-19</li> </ul> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>• 5-1 – Hundreds</li> <li>• 5-2 – Hundreds, Tens and Ones</li> <li>• 5-4 – Problem Solving Strategy: Use Logical Reasoning</li> </ul>	

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.NBT.2</b> Count within 1000, skip-count by 2s, 5s, 10s, and 100's. <b>CA</b></p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  MP2 Reason abstractly and quantitatively.  MP3 Construct viable arguments and critique the reasoning of others.  MP4 Model with mathematics.  MP5 Use appropriate tools strategically.  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>  MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>A Collection of Math Lessons, Grades 3-6</b> (Burns, 1987)</p> <ul style="list-style-type: none"> <li>• Explorations with Raisins, pp. 11-19</li> </ul> <p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns, 2000)</p> <ul style="list-style-type: none"> <li>• Digit Game, p. 176</li> <li>• Patterns on the 0-99 Chart, p. 176</li> <li>• Whole Class: Investigation with Raisins, p. 129</li> </ul> <p><b>Developing Number Concepts, Book 3</b> (Richardson, 1999)</p> <ul style="list-style-type: none"> <li>• Patterns in Base Ten, pp. 9-13</li> <li>• Looking for Patterns on the 0-99 Chart, pp. 52-56</li> <li>• Naming Patterns with Colors, pp. 38-39</li> <li>• Looking for Patterns on the 0-99 Chart, pp. 52-53</li> <li>• The 0-99 Chart Puzzles, p. 54</li> <li>• Searching for Patterns Station, pp. 55-56</li> </ul> <p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/cccls-math/2nbt2">https://www.engageny.org/cccls-math/2nbt2</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>• 2-1 – Skip Count On a Hundred Chart</li> <li>• 2-2 – Skip Count by 2s, 5s, and 10s</li> <li>• 2-3 – Problem Solving Strategy: Find a Pattern</li> <li>• 5-6 – Count by 5s, 10s, and 100s</li> <li>• <i>Geese on the Go, Real-World Problem Solving Readers Teacher Guide</i>, p. 6</li> </ul>	<p><b>My Math</b> Assessment Masters</p> <ul style="list-style-type: none"> <li>• Ch. 2, pp.33-57</li> <li>• Ch. 5, pp. 110-134</li> </ul> <p><b>My Math</b> Think Smart for the SBAC</p> <ul style="list-style-type: none"> <li>• Chapter 2 Test, p. 59</li> <li>• Chapter 5 Test, p. 77</li> <li>• Chapter 2 Performance Task, p. 127</li> <li>• Chapter 5 Performance Task, p. 133</li> </ul> <p><b>My Math</b> eAssessment</p>



STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.NBT.3</b> Read and write numbers to 1000 using base-ten numerals, number names, and expanded form</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  MP2 Reason abstractly and quantitatively.  MP3 Construct viable arguments and critique the reasoning of others.  MP4 Model with mathematics.  MP5 Use appropriate tools strategically.  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>  MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>50 Problem-Solving Lessons</b>, (Burns, 1996)</p> <ul style="list-style-type: none"> <li>The Place Value Game, pp. 65-67 (to hundreds place)</li> </ul> <p><b>Developing Number Concepts, Book 3</b> (Richardson, 1999)</p> <ul style="list-style-type: none"> <li>Tens and Ones, pp. 68-77</li> </ul> <p>engage<sup>ny</sup>  <a href="https://www.engageny.org/ccls-math/2nbt3">https://www.engageny.org/ccls-math/2nbt3</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>5-3 – Place Value to 1,000</li> <li>5-5 – Read and Write Numbers to 1,000</li> <li><i>Moving Along, Real-World Problem Solving Readers Teacher Guide</i>, p. 12</li> </ul>	<p><b>My Math</b> Assessment Masters</p> <ul style="list-style-type: none"> <li>Ch. 5, pp. 110-134</li> </ul> <p><b>My Math</b> Think Smart for the SBAC</p> <ul style="list-style-type: none"> <li>Chapter 5 Test, p. 77</li> <li>Chapter 5 Performance Task, p. 133</li> </ul> <p><b>My Math</b> eAssessment</p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>1.NBT.4</b> Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.</p>	<p><b>MP1</b> Make sense of problems and persevere in solving them.  <b>MP2</b> Reason abstractly and quantitatively.  <b>MP3</b> Construct viable arguments and critique the reasoning of others.  <b>MP4</b> Model with mathematics.  <b>MP5</b> Use appropriate tools strategically.  <b>MP6</b> Attend to precision.  <b>MP7</b> Look for and make use of structure.  <b>MP8</b> Look for and express regularity in repeated reasoning.</p>	<p><b>Developing Number Concepts, Book 3</b> (Richardson, 1999)</p> <ul style="list-style-type: none"> <li>• Adding and Subtracting two-Digit Numbers, pp. 104-108.</li> <li>• Addition and Subtraction of Two-Digit Numbers, pp. 109-115</li> <li>• Story Problems, p. 115</li> <li>• Partner Add-It, pp. 118-119</li> <li>• Partner Take-Away, p. 120</li> <li>• Roll and Add, pp. 121-122</li> <li>• Roll and Subtract, p. 123</li> <li>• Add 'Em Up: Lots of Lines, p. 124</li> <li>• Add 'Em Up: Paper Shapes, p. 125</li> <li>• Solving Story Problems, p. 131</li> </ul> <p>engage<sup>ny</sup>  <a href="https://www.engageny.org/ccls-math/2nbt4">https://www.engageny.org/ccls-math/2nbt4</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>• 5-7 – Compare Numbers to 1,000</li> <li>• <i>Fossils Over Time, Real-World Problem Solving Readers Teacher Guide</i>, p. 5</li> </ul>	<p><b>My Math</b> Assessment Masters</p> <ul style="list-style-type: none"> <li>• Ch. 5, pp. 110-134</li> </ul> <p><b>My Math</b> Think Smart for the SBAC</p> <ul style="list-style-type: none"> <li>• Chapter 5 Test, p. 77</li> <li>• Chapter 5 Performance Task, p. 133</li> </ul> <p><b>My Math</b> eAssessment</p>

**CLUSTER: Use place value understanding and properties of operations to add and subtract.▲**

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.NBT.5</b> Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  <b>MP2 Reason abstractly and quantitatively.</b>  <b>MP3 Construct viable arguments and critique the reasoning of others.</b>  <b>MP4 Model with mathematics.</b>  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>  <b>MP8 Look for and express regularity in repeated reasoning.</b></p>	<p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns, 2000)</p> <ul style="list-style-type: none"> <li>• Decision Making, p. 106 (use two-digit numbers)</li> <li>• Partner Add-It, p. 118</li> <li>• Partner Take-Away, p. 120</li> <li>• Roll and Add, p. 121</li> <li>• Roll and Subtract, p. 123</li> <li>• Add 'Em Up,: Lots of Lines, p. 124</li> <li>• Add 'Em Up; Paper Shapes, p. 125</li> <li>• Add 'Em Up: Yarn, p. 127</li> <li>• Add 'Em Up: Yarn Shapes, p. 128</li> <li>• Add 'Em Up: Containers, p. 129</li> <li>• Add 'Em Up: Cover It Up, p. 130</li> <li>• Solving Story Problems, p. 131</li> <li>• Change from a \$1.00 Bill, p. 131</li> <li>• Arrow Arithmetic, p. 135</li> <li>• Relating Arithmetic to Real Life, pp. 158-160</li> <li>• The Name Graphs, p. 134</li> <li>• The Game of Pig, p. 187</li> <li>• Last Names, p. 187</li> <li>• Shaking Hands, p. 188</li> <li>• Billy Goes Shopping, p. 190</li> <li>• Fill the Cube, Version 2, p. 190</li> <li>• Cross Out Singles, p. 191</li> <li>• In and Out, p. 192</li> </ul> <p><b>Developing Number Concepts, Book 3</b> (Richardson, 1999)</p> <ul style="list-style-type: none"> <li>• Addition and Subtraction of Two-Digit Numbers, p. 109</li> <li>• Story Problems, p. 116</li> <li>• Figure It Out, p. 116</li> </ul> <p>engage<sup>ny</sup>  <a href="https://www.engageny.org/ccls-math/2nbt5">https://www.engageny.org/ccls-math/2nbt5</a></p> <p>(continued on next page)</p>	<p><b>My Math Assessment Masters</b></p> <ul style="list-style-type: none"> <li>• Ch. 3, pp. 59-83</li> <li>• Ch. 4, pp. 84-108</li> </ul> <p><b>My Math Think Smart for the SBAC</b></p> <ul style="list-style-type: none"> <li>• Chapter 3 Test, p. 65</li> <li>• Chapter 4 Test, p. 71</li> <li>• Chapter 3 Performance Task, p. 129</li> <li>• Chapter 4 Performance Task, p. 131</li> </ul> <p><b>My Math eAssessment</b></p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.NBT.5</b> Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>            MP2 Reason abstractly and quantitatively.            MP3 Construct viable arguments and critique the reasoning of others.            MP4 Model with mathematics.            MP5 Use appropriate tools strategically.  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>  <b>MP8 Look for and express regularity in repeated reasoning.</b></p>	<p>(continued from previous page)</p> <p><b>LAUSD CCSS-Aligned Task Project: Jordan Saves Money</b>  <a href="http://achieve.lausd.net/cms/lib08/CA01000043/Centricity/Domain/244/JordanSavesMoney03.01.16.pdf">http://achieve.lausd.net/cms/lib08/CA01000043/Centricity/Domain/244/JordanSavesMoney03.01.16.pdf</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>• 3-2 – Regroup Ones as Tens</li> <li>• 3-3 – Add to a Two-Digit Number</li> <li>• 3-4 – Add Two-Digit Numbers</li> <li>• 3-5 – Rewrite Two-Digit Addition</li> <li>• 3-6 – Add Three and Four Two-Digit Numbers</li> <li>• 4-1 – Two-Digit Fact Families</li> <li>• 4-3 – Regroup a Ten as Ones</li> <li>• 4-4 – Subtract From a Two-Digit Number</li> <li>• 4-5 – Subtract Two-Digit Numbers</li> <li>• 4-6 – Rewrite Two-Digit Subtraction</li> <li>• 4-7 – Check Subtraction</li> <li>• <i>Baseball's Hero, Real-World Problem Solving Readers Teacher Guide, p. 4</i></li> </ul>	<p><b>My Math</b> eAssessment</p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.NBT.6</b> Add up to four two-digit numbers using strategies based on place value and properties of operations.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>                      MP2 Reason abstractly and quantitatively.                      MP3 Construct viable arguments and critique the reasoning of others.                      MP4 Model with mathematics.                      MP5 Use appropriate tools strategically.  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>  <b>MP8 Look for and express regularity in repeated reasoning.</b></p>	<p><b>50 Problem Solving Lessons</b> (Burns, 1996)</p> <ul style="list-style-type: none"> <li>• Sharing 50 Cents, pp. 49-51</li> <li>• How Much Ribbon? pp. 85-87</li> </ul> <p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns)</p> <ul style="list-style-type: none"> <li>• Addition and Table Explorations, p. 132</li> <li>• How Many Sums, p. 131</li> </ul> <p>engage<sup>ny</sup>  <a href="https://www.engageny.org/ccls-math/2nbt6">https://www.engageny.org/ccls-math/2nbt6</a></p>	<p><b>My Math</b> eAssessment</p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.NBT.7</b> Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.</p> <p><b>7.1 Use estimation strategies to make reasonable estimates in problem solving. CA</b></p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  MP2 Reason abstractly and quantitatively.  MP3 Construct viable arguments and critique the reasoning of others.  <b>MP4 Model with mathematics.</b>  MP5 Use appropriate tools strategically.  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>  <b>MP8 Look for and express regularity in repeated reasoning.</b></p>	<p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2nbt7">https://www.engageny.org/ccls-math/2nbt7</a></p> <p><b>Illustrative Mathematics</b></p> <ul style="list-style-type: none"> <li>How Many Days Until Summer Vacation?  <a href="http://www.illustrativemathematics.org/illustrations/1063">http://www.illustrativemathematics.org/illustrations/1063</a></li> </ul> <p><b>LAUSD Concept Lesson: Student Store</b>  <a href="http://tinyurl.com/Grade2StudentStore">http://tinyurl.com/Grade2StudentStore</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>6-1 – Make a Hundred to Add</li> <li>6-2 – Add Hundreds</li> <li>6-4 – Regroup Ones to Add</li> <li>6-5 – Regroup Tens to Add</li> <li>6-6 – Add Three-Digit Numbers</li> <li>6-7 – Rewrite Three-Digit Additions</li> <li>6-8 – Problem Solving Strategy: Guess, Check, and Revise</li> <li>7-1 – Take Apart Hundreds to Subtract</li> <li>7-2 – Subtract Hundreds</li> <li>7-4 – Regroup Tens</li> <li>7-5 – Regroup Hundreds</li> <li>7-6 – Subtract Three-Digit Numbers</li> <li>7-7 – Rewrite Three-Digit Subtraction</li> <li>7-8 – Problem-Solving Strategy: Write a Number Sentence</li> <li>7-9 – Subtract Across Zeros</li> <li><i>Lady Liberty, Real-World Problem Solving Readers Teacher Guide</i>, p. 10</li> </ul>	<p><b>My Math Assessment Masters</b></p> <ul style="list-style-type: none"> <li>Ch. 6, pp. 135-159</li> <li>Ch. 7, pp. 160-184</li> </ul> <p><b>My Math Think Smart for the SBAC</b></p> <ul style="list-style-type: none"> <li>Chapter 6 Test, p. 83</li> <li>Chapter 7 Test, p. 89</li> <li>Chapter 6 Performance Task, p. 135</li> <li>Chapter 7 Performance Task, p. 137</li> </ul> <p><b>My Math eAssessment</b></p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.NBT.8</b> Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>                      MP2 Reason abstractly and quantitatively.                      MP3 Construct viable arguments and critique the reasoning of others.                      MP4 Model with mathematics.                      MP5 Use appropriate tools strategically.  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>                      MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns)</p> <ul style="list-style-type: none"> <li>Patterns in the 0-99 Chart, pp. 176-177</li> <li>Coloring 0 – 99 Patterns, p. 181</li> </ul> <p><b>Illustrative Mathematics</b></p> <ul style="list-style-type: none"> <li>One, Ten and One Hundred More and Less  <a href="http://www.illustrativemathematics.org/illustrations/94">http://www.illustrativemathematics.org/illustrations/94</a></li> </ul> <p><b>engage<sup>ny</sup></b></p> <p><a href="https://www.engageny.org/ccls-math/2nbt8">https://www.engageny.org/ccls-math/2nbt8</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>6-3 – Mentally Add 10 or 100</li> <li>7-3 – Mentally Subtract 10 to 100</li> </ul>	<p><b>My Math</b> Assessment Masters</p> <ul style="list-style-type: none"> <li>Ch. 6, pp. 135-159</li> <li>Ch. 7, pp. 160-184</li> </ul> <p><b>My Math</b> Think Smart for the SBAC</p> <ul style="list-style-type: none"> <li>Chapter 6 Test, p. 83</li> <li>Chapter 7 Test, p. 89</li> <li>Chapter 6 Performance Task, p. 135</li> <li>Chapter 7 Performance Task, p. 137</li> </ul> <p><b>My Math</b> eAssessment</p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.NBT.9</b> Explain why addition and subtraction strategies work, using place value and the properties of operations. (Explanations may be supported by drawings or objects.)</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>                      MP2 Reason abstractly and quantitatively.  <b>MP3 Construct viable arguments and critique the reasoning of others.</b>                      MP4 Model with mathematics.  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>  <b>MP8 Look for and express regularity in repeated reasoning.</b></p>	<p>engage<sup>ny</sup>  <a href="https://www.engageny.org/ccls-math/2nbt9">https://www.engageny.org/ccls-math/2nbt9</a></p>	<p><i>My Math</i> eAssessment</p>

**Domain Legend**

- ▲ **Major Cluster:** Areas of intensive focus, where students need fluent understanding and application of the core concepts (approximately 75%)
- s/a **Supporting Cluster:** Rethinking & linking; some material is being covered, but in a way that applies core understandings (s/a approximately 25%)
- Additional Cluster:** Expose students to other subjects, may not connect explicitly to the major work of the grade
- CA California Additions to the content standards appear in **bold**.



### ADDITIONAL SUPPORT

LANGUAGE OBJECTIVES	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS	KEY VOCABULARY																																																										
<ul style="list-style-type: none"> <li>• The student will answer word problems with complete sentence answers.</li> <li>• The student will explain to a partner, using academic vocabulary, how the problem was solved using pictures, words, numbers, or manipulatives.</li> <li>• The student will use academic language appropriately.</li> <li>• The student will explain both how to best solve an expression with three addends and why it works, using academic vocabulary.</li> <li>• The student will listen carefully and ask clarifying questions to make sense of other's mathematical thinking during math talks.</li> <li>• The student will identify which strategy would be best to use for particular facts and explain, using academic vocabulary, why a model was used.</li> <li>• The student will read mathematical expressions fluently, including inequalities.</li> </ul>	<ul style="list-style-type: none"> <li>• Addition and subtraction sentences can be used to represent various word problem situations.</li> <li>• Diagrams, such as part-part-whole and number bonds, can be used to connect the addition and subtraction situation to the equation.</li> <li>• Flexible methods for computation involve taking apart and combining numbers in a variety of ways.</li> <li>• Addition and subtraction are connected. Addition names the whole in terms of the parts, and subtraction names missing part.</li> <li>• The equal sign does not mean "the answer comes next," "makes," or "results in". Rather, the equal sign always means, "is the same as."</li> <li>• Number relationships provide the foundation for strategies that help students remember basic facts.</li> </ul>	<ul style="list-style-type: none"> <li>• How can we represent this word problem with pictures, numbers, and words to help us understand how to solve it?</li> <li>• How can we match a diagram with an equation/number sentence?</li> <li>• What would be an efficient way to add these three numbers?</li> <li>• How can we rewrite this equation/number sentence to make it easier to solve using the strategies we have learned?</li> <li>• What might be another way to solve this equation?</li> <li>• Given one part of a whole number, how do we find the other part?</li> <li>• Which number is the whole/total in this equation?</li> <li>• How can we find all of the addends for a given number from 1 to 20?</li> <li>• What is the meaning of the equal sign?</li> <li>• How does the left side of this expression/number sentence compare to the right side?</li> </ul>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">about</td> <td style="padding: 2px;">nine</td> </tr> <tr> <td style="padding: 2px;">array</td> <td style="padding: 2px;">nineteen</td> </tr> <tr> <td style="padding: 2px;">backward</td> <td style="padding: 2px;">none</td> </tr> <tr> <td style="padding: 2px;">column</td> <td style="padding: 2px;">number</td> </tr> <tr> <td style="padding: 2px;">compare</td> <td style="padding: 2px;">number line</td> </tr> <tr> <td style="padding: 2px;">count</td> <td style="padding: 2px;">odd</td> </tr> <tr> <td style="padding: 2px;">count by 10s</td> <td style="padding: 2px;">ones</td> </tr> <tr> <td style="padding: 2px;">difference</td> <td style="padding: 2px;">order</td> </tr> <tr> <td style="padding: 2px;">digit</td> <td style="padding: 2px;">regroup</td> </tr> <tr> <td style="padding: 2px;">eight</td> <td style="padding: 2px;">repeated</td> </tr> <tr> <td style="padding: 2px;">eighteen</td> <td style="padding: 2px;">addition</td> </tr> <tr> <td style="padding: 2px;">eleven</td> <td style="padding: 2px;">row</td> </tr> <tr> <td style="padding: 2px;">equal groups</td> <td style="padding: 2px;">same</td> </tr> <tr> <td style="padding: 2px;">equal to</td> <td style="padding: 2px;">seven</td> </tr> <tr> <td style="padding: 2px;">even</td> <td style="padding: 2px;">seventeen</td> </tr> <tr> <td style="padding: 2px;">expanded form</td> <td style="padding: 2px;">six</td> </tr> <tr> <td style="padding: 2px;">fewer than</td> <td style="padding: 2px;">sixteen</td> </tr> <tr> <td style="padding: 2px;">fifteen</td> <td style="padding: 2px;">skip count</td> </tr> <tr> <td style="padding: 2px;">five</td> <td style="padding: 2px;">subtract</td> </tr> <tr> <td style="padding: 2px;">forward</td> <td style="padding: 2px;">sum</td> </tr> <tr> <td style="padding: 2px;">four</td> <td style="padding: 2px;">tens</td> </tr> <tr> <td style="padding: 2px;">fourteen</td> <td style="padding: 2px;">thirteen</td> </tr> <tr> <td style="padding: 2px;">greater</td> <td style="padding: 2px;">three</td> </tr> <tr> <td style="padding: 2px;">greater than</td> <td style="padding: 2px;">twelve</td> </tr> <tr> <td style="padding: 2px;">growing pattern</td> <td style="padding: 2px;">twenty</td> </tr> <tr> <td style="padding: 2px;">hundred chart</td> <td style="padding: 2px;">two</td> </tr> <tr> <td style="padding: 2px;">hundreds</td> <td style="padding: 2px;">zero</td> </tr> <tr> <td style="padding: 2px;">less</td> <td></td> </tr> <tr> <td style="padding: 2px;">more than</td> <td></td> </tr> </table>	about	nine	array	nineteen	backward	none	column	number	compare	number line	count	odd	count by 10s	ones	difference	order	digit	regroup	eight	repeated	eighteen	addition	eleven	row	equal groups	same	equal to	seven	even	seventeen	expanded form	six	fewer than	sixteen	fifteen	skip count	five	subtract	forward	sum	four	tens	fourteen	thirteen	greater	three	greater than	twelve	growing pattern	twenty	hundred chart	two	hundreds	zero	less		more than	
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### DAILY ROUTINES

- Create a Number of the Day equation to match the date. Students create as many equations as possible to match the number of the day, with the goal of showing balanced equations, with multiple addends on both sides of the equal sign.
- “Guess My Number” game, using the 100s chart or a number line as a support, to reinforce number relationships.
- Problem Solving Notebook

### LITERATURE CONNECTIONS

- *A Fair Bear Share* by Stuart J. Murphy
- *Alexander, Who Used to Be Rich Last Sunday* by Judith Viorst
- *Animal Giants* by Sara Louise Kras
- *Coyotes All Around* by Stuart J. Murphy
- *Earth Day-Hooray* by Stuart J. Murphy
- *Elevator Magic* by Stuart J. Murphy
- *512 Ants on Sullivan Street* by Carol A. Losi
- *Fun With Roman Numerals* by David Adler
- *From One to One Hundred* by Teri Sloat
- *How Many Feet in the Bed?* by Dianne Johnston Hamn
- *How Many Seeds in a Pumpkin?* By Margaret McNamara
- *Just Enough Carrots* by Stuart J. Murphy
- *Leaping Lizards* by Stuart J. Murphy
- *Little Bear's New Year's Party* by Janice Brustlein
- *Math Fables* by Greg Tang
- *Math Mini Mysteries: You and the Statue* by Sandra Markle
- *Two Ways to Count to Ten* by Ruby Dee
- *Under the Picnic Tree* by Rozanne Lanczak Williams
- *What Comes in 2's, 3's, and 4's* by Suzanne Aker
- *Monster Musical Chairs* by Stuart J. Murphy
- *One Duck Stuck* by Phyllis Root
- *One Hundred Angry Ants* by Elinor J. Pinczes
- *Out for the Count: A Counting Adventure* by Kathryn Cave
- *Panda Math: Learning About Subtraction From Hua Mei and Mei Sheng* by Ann Whitehead Nagda
- *Roman Numerals I to MM* by Arthur Geisert
- *Sea Sums* by Joy N. Hulme
- *Shark Swimathon* by Stuart J. Murphy
- *Spunky Monkeys on Parade* by Stuart J. Murphy
- *The Best Vacation Ever* by Stuart J. Murphy
- *The Case of the Missing Birthday Party* by Joanne Rocklin
- *The Good Neighbors Store an Award; A Cheesy Mouse Tale of Addition with Regrouping* by Mark Ramsay
- *The King's Commissioners* by Aileen Friedman
- *The 329<sup>th</sup> Friend* by Marjorie W. Sharmat
- *Ten Black Dots* by Donald Crews

DIFFERENTIATION 

FRONT LOADING <sup>1</sup>	ENRICHMENT <sup>2</sup>	INTERVENTION <sup>3</sup>
<p><b>My Math</b>  <b>Each chapter includes:</b> (at beginning of chapter)</p> <ul style="list-style-type: none"> <li>• My Math Words</li> <li>• My Vocabulary Cards</li> <li>• My Foldables</li> </ul> <p><b>Each lesson includes:</b> (at beginning of lesson)</p> <ul style="list-style-type: none"> <li>• ELL Instructional Strategy</li> </ul>	<p><b>My Math</b>  <b>Each lesson includes:</b></p> <ul style="list-style-type: none"> <li>• a beyond level extend hands-on activity under differentiated instruction (found after Practice &amp; Apply)</li> </ul>	<p><b>My Math</b>  <b>Each lesson includes:</b></p> <ul style="list-style-type: none"> <li>• an approaching level Tier 2: strategic intervention hands-on activity (found after Practice &amp; Apply)</li> </ul> <p><b>Each formative assessment includes:</b></p> <ul style="list-style-type: none"> <li>• Tier 2 Strategic Intervention, Ch. 2, p. 126A</li> <li>• Tier 2 Strategic Intervention, Ch. 3, p. 184A</li> <li>• Tier 2 Strategic Intervention, Ch. 4, p. 248A</li> <li>• Tier 2 Strategic Intervention, Ch. 5, p. 314A</li> <li>• Tier 2 Strategic Intervention, Ch. 6, p. 370A</li> <li>• Tier 2 Strategic Intervention, Ch. 7, p. 432A</li> </ul>

Key:

<sup>1</sup>: Front Loading refers to materials that can be used before the lesson begins to prepare students for success, which may be helpful for English learners, students with disabilities or low achieving students.

<sup>2</sup>: Enrichment refers to materials that can be used with students who are ready to have their thinking extended, which may be helpful for gifted and talented and high achieving students, or any students who are ready for more depth and complexity.

<sup>3</sup>: Intervention refers to materials that can be used after the lessons with students who are needing additional positive experiences with the mathematics, low achieving students who would benefit from another approach, or students who have gaps in their knowledge.

For more information on Differentiation, please refer to: The California Framework, Universal Access section:

<http://www.cde.ca.gov/ci/ma/cf/documents/mathfwuniversalaccess.pdf#search=Universal%20Access&view=FitH&pagemode=none>

**DOMAIN: Measurement and Data**

**CLUSTER: Measure and estimate lengths in standard units. ^**

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.MD.1</b> Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>                      MP2 Reason abstractly and quantitatively.  <b>MP3 Construct viable arguments and critique the reasoning of others.</b>                      MP4 Model with mathematics.  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>                      MP7 Look for and make use of structure.                      MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns, 2000)</p> <ul style="list-style-type: none"> <li>• Relating to Body Measures, p. 51</li> <li>• Making a Metric Ruler, p. 52</li> <li>• Round Things, p. 56</li> </ul> <p><b>Developing Number Concepts, Book 3</b> (Richardson, 1999)</p> <ul style="list-style-type: none"> <li>• Measuring Things in a Room, Level 1: Determining a Quantity, pp. 89-90</li> <li>• Measuring Myself, pp. 91-92</li> </ul> <p>engage<sup>ny</sup>  <a href="https://www.engageny.org/ccls-math/2md1">https://www.engageny.org/ccls-math/2md1</a></p> <p><b>Math Matters, Grades K-6</b> (Chapin and Johnson, 2000)</p> <ul style="list-style-type: none"> <li>• Explaining Centimeters, Meters, and Kilometers, pp. 183-5</li> </ul> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>• 11-3 – Select and Use Customary Tools</li> <li>• 11-8 – Select and Use Metric Tool</li> </ul>	<p><b>My Math Assessment Masters</b></p> <ul style="list-style-type: none"> <li>• Ch. 11, pp. 262-287</li> </ul> <p><b>My Math Think Smart for the SBAC</b></p> <ul style="list-style-type: none"> <li>• Chapter 11 Test, p. 113</li> <li>• Chapter 11 Performance Task, p. 145</li> </ul> <p><b>My Math eAssessment</b></p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.MD.2</b> Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  <b>MP2 Reason abstractly and quantitatively.</b>  <b>MP3 Construct viable arguments and critique the reasoning of others.</b>  <b>MP4 Model with mathematics.</b>  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>  <b>MP8 Look for and express regularity in repeated reasoning.</b></p>	<p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns, 2000)</p> <ul style="list-style-type: none"> <li>Introducing the Metric System, pp. 50-52</li> <li>Ratio with Cuisenaire Rods, p. 56</li> <li>Your Height in Money, p. 55</li> <li>Foot Cut-out, p. 53</li> </ul> <p><b>Developing Number Concepts, Book 3</b> (Richardson, 1999)</p> <ul style="list-style-type: none"> <li>Making Trails, pp. 94-95 (using different units)</li> </ul> <p>engage<sup>ny</sup>  <a href="https://www.engageny.org/ccls-math/2md2">https://www.engageny.org/ccls-math/2md2</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>11-5 – Relate Inches, Feet and Yards</li> <li>11-10 – Relate Centimeters and Meters</li> </ul>	<p><b>My Math Assessment Masters</b></p> <ul style="list-style-type: none"> <li>Ch. 11, pp. 262-287</li> </ul> <p><b>My Math Think Smart for the SBAC</b></p> <ul style="list-style-type: none"> <li>Chapter 11 Test, p. 113</li> <li>Chapter 11 Performance Task, p. 145</li> </ul> <p><b>My Math eAssessment</b></p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.MD.3</b> Estimate lengths using units of inches, feet, centimeters, and meters.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  <b>MP2</b> Reason abstractly and quantitatively.  <b>MP3</b> Construct viable arguments and critique the reasoning of others.  <b>MP4</b> Model with mathematics.  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>  <b>MP8</b> Look for and express regularity in repeated reasoning.</p>	<p><b>50 Problem-Solving Lessons</b> (Burns, 1996)</p> <ul style="list-style-type: none"> <li>• Measurement Problem, pp. 129-131</li> <li>• How Much Ribbon, pp. 85-87</li> </ul> <p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns, 2000)</p> <ul style="list-style-type: none"> <li>• Practicing Measuring, p. 52</li> <li>• Book Measuring, p. 54</li> </ul> <p><b>Developing Number Concepts, Book 3</b> (Richardson, 1999)</p> <ul style="list-style-type: none"> <li>• Yarn, pp. 83-84, (estimate first, then measure)</li> </ul> <p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2md3">https://www.engageny.org/ccls-math/2md3</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>• 11-1 – Inches</li> <li>• 11-2 – Feet and Yards</li> <li>• 11-7 – Centimeters and Meters</li> </ul>	<p><b>My Math Assessment Masters</b></p> <ul style="list-style-type: none"> <li>• Ch. 11, pp. 262-287</li> </ul> <p><b>My Math Think Smart for the SBAC</b></p> <ul style="list-style-type: none"> <li>• Chapter 11 Test, p. 113</li> <li>• Chapter 11 Performance Task, p. 145</li> </ul> <p><b>My Math eAssessment</b></p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.MD.4</b> Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  <b>MP2 Reason abstractly and quantitatively.</b>            MP3 Construct viable arguments and critique the reasoning of others.            MP4 Model with mathematics.  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>            MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns, 2000)</p> <ul style="list-style-type: none"> <li>• Body Ratio, pp. 48-50</li> <li>• Book Measuring, p. 54</li> <li>• Foot Cut-out, p. 53</li> </ul> <p><b>Developing Number Concepts, Book 3</b> (Richardson, 1999)</p> <ul style="list-style-type: none"> <li>• Comparing Myself, p. 93</li> <li>• Measuring Things in the Room, Level 3: How Many More, pp. 89-90</li> <li>• Measuring Myself, Level 2: Comparing Quantities, pp. 91-92</li> <li>• Lots of Lines, Level 2: Comparing Quantities, Level 3: How Many More or Less, pp. 78-79</li> </ul> <p>engage<sup>ny</sup>  <a href="https://www.engageny.org/ccls-math/2md4">https://www.engageny.org/ccls-math/2md4</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>• 11-4 – Compare Customary Lengths</li> <li>• 11-9 – Compare Metric Lengths</li> <li>• <i>Animals Big and Small, Real-World Problem Solving Readers Teacher Guide</i>, p. 3</li> </ul>	<p><b>My Math Assessment Masters</b></p> <ul style="list-style-type: none"> <li>• Ch. 11, pp. 262-287</li> </ul> <p><b>My Math Think Smart for the SBAC</b></p> <ul style="list-style-type: none"> <li>• Chapter 11 Test, p. 113</li> <li>• Chapter 11 Performance Task, p. 145</li> </ul> <p><b>My Math eAssessment</b></p>

**CLUSTER: Relate addition and subtraction to length. ^**

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.MD.5</b> Use addition and subtraction within 100 to solve word problems, involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>                      MP2 Reason abstractly and quantitatively.                      MP3 Construct viable arguments and critique the reasoning of others.  <b>MP4 Model with mathematics.</b>                      MP5 Use appropriate tools strategically.  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>                      MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2md5">https://www.engageny.org/ccls-math/2md5</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>• 11-6 – Problem Solving Strategy: Use Logical Reasoning</li> <li>• <i>Tracking Snow, Real-World Problem Solving Readers Teacher Guide</i>, p. 15</li> </ul>	<p><b>My Math</b> Assessment Masters</p> <ul style="list-style-type: none"> <li>• Ch. 11, pp. 262-287</li> </ul> <p><b>My Math</b> Think Smart for the SBAC</p> <ul style="list-style-type: none"> <li>• Chapter 11 Test, p. 113</li> <li>• Chapter 11 Performance Task, p. 145</li> </ul> <p><b>My Math</b> eAssessment</p>



STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.MD.6</b> Represent whole numbers as lengths, from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, and represent whole-number sums and differences within 100 on a number line diagram.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>            MP2 Reason abstractly and quantitatively.            MP3 Construct viable arguments and critique the reasoning of others.            MP4 Model with mathematics.  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>            MP7 Look for and make use of structure.            MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2md6">https://www.engageny.org/ccls-math/2md6</a></p> <p><b>Illustrative Mathematics</b></p> <ul style="list-style-type: none"> <li>Frog and Toad on the Number Line  <a href="http://www.illustrativemathematics.org/illustrations/1081">http://www.illustrativemathematics.org/illustrations/1081</a></li> </ul> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>11-11 – Measure on a Number Line</li> </ul>	<p><b>My Math Assessment Masters</b></p> <ul style="list-style-type: none"> <li>Ch. 11, pp. 262-287</li> </ul> <p><b>My Math Think Smart for the SBAC</b></p> <ul style="list-style-type: none"> <li>Chapter 11 Test, p. 113</li> <li>Chapter 11 Performance Task, p. 145</li> </ul> <p><b>My Math eAssessment</b></p>

CLUSTER: Work with time and money. *s/a*

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.MD.7</b> Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m. <b>Know relationships of time (e.g., minutes in an hour, days in a month, weeks in a year).</b> CA</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  <b>MP2 Reason abstractly and quantitatively.</b>            MP3 Construct viable arguments and critique the reasoning of others.            MP4 Model with mathematics.  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>            MP8 Look for and express regularity in repeated reasoning.</p>	<p>engage<sup>ny</sup>  <a href="https://www.engageny.org/ccls-math/2md7">https://www.engageny.org/ccls-math/2md7</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>• 10-1 – Time to the Hour</li> <li>• 10-2 – Time to the Half Hour</li> <li>• 10-3 – Problem Solving Strategy: Find a Pattern</li> <li>• 10-4 – Time to the Quarter Hour</li> <li>• 10-5 – Time to Five-Minute Intervals</li> <li>• 10-6 – A.M. and P.M.</li> <li>• <i>A Mountain of Presidents, Real-World Problem Solving Readers Teacher Guide</i>, p. 2</li> </ul>	<p><b>My Math</b> Assessment Masters</p> <ul style="list-style-type: none"> <li>• Ch. 10, pp. 237-261</li> </ul> <p><b>My Math</b> Think Smart for the SBAC</p> <ul style="list-style-type: none"> <li>• Chapter 10 Test, p. 107</li> <li>• Chapter 10 Performance Task, p. 143</li> </ul> <p><b>My Math</b> eAssessment</p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.MD.8</b> Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and cents symbols appropriately. Example: if you have 2 dimes and 3 pennies, how many cents do you have?</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  <b>MP2 Reason abstractly and quantitatively.</b>  <b>MP3 Construct viable arguments and critique the reasoning of others.</b>  <b>MP4 Model with mathematics.</b>  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>                      MP7 Look for and make use of structure.                      MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>50 Problem-Solving Lessons</b> (Burns, 1996)</p> <ul style="list-style-type: none"> <li>Roll for \$1.00, pp. 57-59</li> </ul> <p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns, 2000)</p> <ul style="list-style-type: none"> <li>Your Height n Money, p. 55</li> </ul> <p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2md8">https://www.engageny.org/ccls-math/2md8</a></p> <p><b>Illustrative Mathematics</b></p> <ul style="list-style-type: none"> <li>Delayed Gratification  <a href="http://www.illustrativemathematics.org/illustrations/1304">http://www.illustrativemathematics.org/illustrations/1304</a></li> <li>Susan's Choice  <a href="http://www.illustrativemathematics.org/illustrations/1285">http://www.illustrativemathematics.org/illustrations/1285</a></li> <li>Saving Money 1  <a href="http://www.illustrativemathematics.org/illustrations/1292">http://www.illustrativemathematics.org/illustrations/1292</a></li> <li>Visiting the Arcade  <a href="http://www.illustrativemathematics.org/illustrations/1296">http://www.illustrativemathematics.org/illustrations/1296</a></li> <li>Jamir's Penny Jar  <a href="http://www.illustrativemathematics.org/illustrations/1071">http://www.illustrativemathematics.org/illustrations/1071</a></li> </ul> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>8-1 – Pennies, Nickels, and Dimes</li> <li>8-2 – Quarters</li> <li>8-3 – Count Coins</li> <li>8-4 – Problem Solving Strategy: Act It Out</li> <li>8-5 – Dollars</li> <li><i>The Green Cafe, Real-World Problem Solving Readers Teacher Guide</i>, p. 14</li> </ul>	<p><b>My Math</b> Assessment Masters</p> <ul style="list-style-type: none"> <li>Ch. 8, pp. 186-210</li> </ul> <p><b>My Math</b> Think Smart for the SBAC</p> <ul style="list-style-type: none"> <li>Chapter 8 Test, p. 95</li> <li>Chapter 8 Performance Task, p. 139</li> </ul> <p><b>My Math</b> eAssessment</p>

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

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.MD.9</b> Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  <b>MP2 Reason abstractly and quantitatively.</b>  <b>MP3 Construct viable arguments and critique the reasoning of others.</b>                      MP4 Model with mathematics.  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>                      MP7 Look for and make use of structure.                      MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>50 Problem-Solving Lessons</b> (Burns, 1996)</p> <ul style="list-style-type: none"> <li>Planting Bulbs, pp. 19-20</li> </ul> <p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2md9">https://www.engageny.org/ccls-math/2md9</a></p> <p><b>Illustrative Mathematics</b></p> <ul style="list-style-type: none"> <li>Growing Bean Plants  <a href="http://www.illustrativemathematics.org/illustrations/493">http://www.illustrativemathematics.org/illustrations/493</a></li> <li>Hand Span Measures  <a href="http://www.illustrativemathematics.org/illustrations/485">http://www.illustrativemathematics.org/illustrations/485</a></li> <li>The Longest Walk  <a href="http://www.illustrativemathematics.org/illustrations/486">http://www.illustrativemathematics.org/illustrations/486</a></li> </ul> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>9-7 – Make Line Plots</li> <li>9-8 – Analyze Line Plots</li> <li>11-12 – Measurement Data</li> </ul>	<p><b>My Math</b> Assessment Masters</p> <ul style="list-style-type: none"> <li>Ch. 9, pp. 212-236</li> </ul> <p><b>My Math</b> Think Smart for the SBAC</p> <ul style="list-style-type: none"> <li>Chapter 9 Test, p. 101</li> <li>Chapter 11 Test, p. 113</li> <li>Chapter 9 Performance Task, p. 141</li> <li>Chapter 11 Performance Task, p. 145</li> </ul> <p><b>My Math</b> eAssessment</p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.MD.10</b> Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  <b>MP2 Reason abstractly and quantitatively.</b>            MP3 Construct viable arguments and critique the reasoning of others.  <b>MP4 Model with mathematics.</b>  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>            MP7 Look for and make use of structure.            MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>50 Problem-Solving Lessons</b> (Burns, 1996)</p> <ul style="list-style-type: none"> <li>Hands and Beans, pp. 37-39</li> </ul> <p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2md10">https://www.engageny.org/ccls-math/2md10</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>9-2 – Make Picture Graphs</li> <li>9-3 – Analyze Picture Graphs</li> <li>9-4 – Make Bar Graphs</li> <li>9-5 – Analyze Bar Graphs</li> <li>9-6 – Problem Solving Strategy: Make a Table</li> <li><i>A Magnet's Strength, Real-World Problem Solving Readers Teacher Guide</i>, p. 1</li> <li><i>Life Cycles, Real-World Problem Solving Readers Teacher Guide</i>, p. 11</li> </ul>	<p><b>My Math Assessment Masters</b></p> <ul style="list-style-type: none"> <li>Ch. 9, pp. 212-236</li> </ul> <p><b>My Math Think Smart for the SBAC</b></p> <ul style="list-style-type: none"> <li>Chapter 9 Test, p. 101</li> <li>Chapter 9 Performance Task, p. 141</li> </ul> <p><b>My Math eAssessment</b></p>

### Domain Legend

▲ **Major Cluster:** Areas of intensive focus, where students need fluent understanding and application of the core concepts (approximately 75%)

s/a **Supporting Cluster:** Rethinking & linking; some material is being covered, but in a way that applies core understandings (s/a approximately 25%)

**Additional Cluster:** Expose students to other subjects, may not connect explicitly to the major work of the grade

CA California Additions to the content standards appear in **bold**.

## ADDITIONAL SUPPORT

LANGUAGE OBJECTIVES	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS	KEY VOCABULARY
<p>Explain estimation of length with and without appropriate tools in non-standard and standard units.</p> <p>Create, use and explain an open number line, represent whole number units with equally spaced points within 100.</p> <p>Create a measurement project of real life objects, using descriptive mathematical language in terms of standard units, appropriate tools used, initial estimation/final measurement, and difference in length.</p> <p>Tell and show time to the nearest five-minutes increments on an analog clock.</p> <p>Explain the relationship of time between hours, days, months, and year orally and/or in written format with conversion tables/charts.</p> <p>Verbally and physically exchange within and between various coin and bill denominations.</p> <p>Use bar and line graphs, and data points to ask and answer questions.</p>	<ul style="list-style-type: none"> <li>The length of some objects is measurable.</li> <li>The length of any object can be used as a measurement unit for length, but a standard unit, such as an inch or centimeter, is always the same length.</li> <li>Measurement is a process of comparing a unit to the object being measured. The length of any object can be used as a measurement unit for length.</li> <li>Some problems can be solved by using objects to act out the actions in the problem.</li> <li>The length of two objects can be compared by subtracting to find the difference.</li> <li>Measurements in the same unit, like inches, can be added or subtracted in the same way as adding and subtracting whole numbers.</li> <li>Sums can be represented as lengths on a number line diagram of addition.</li> <li>Differences can be represented as lengths on a number line diagram of subtraction.</li> <li>Time can be given to the nearest five minutes. Time can be expressed using different units that are related to each other. A.M. and P.M. are used to designate certain time periods.</li> <li>Time can be expressed before or after the hour.</li> </ul>	<ul style="list-style-type: none"> <li>How can you measure the length of an object using non-standard units?</li> <li>How does the size of the measuring tool affect the length of what is being measured?</li> <li>How are standard units used to measure length?</li> <li>How do you estimate the length of an object and measure it to the nearest unit?</li> <li>How can you use objects to measure lengths that are not straight?</li> <li>How can the hands on a clock be arranged to show time?</li> <li>What are the different ways to tell time before and after the hour?</li> <li>What units of time can be used to describe different things?</li> <li>How can you find the value of a group of coins and bills?</li> <li>How can you compare the values of two sets of coins?</li> <li>How can you show a certain amount with different coins?</li> <li>How can you use a bar graph to organize information and</li> </ul>	<p>A.M. analog clock bar graph cents (¢) centimeter (cm) coins data decimal point digital clock dime dollar dollar bill dollar coin dollar sign \$ estimate foot (ft.) greatest value half-dollar half hour half past height hour hour hand inch (in.) key least value length line plot longer</p> <p>meter (m) measure measuring stick measuring tape meter meter stick minute minute hand nearest centimeter nearest inch nickel number line penny P.M. pictograph picture graph quarter hour quarter past quarter to second shorter standard units survey symbol tally mark unit width yard (yd.) yard stick</p>

LANGUAGE OBJECTIVES	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS	KEY VOCABULARY
	<ul style="list-style-type: none"> <li>• Specific coins and bills each have a unique value. The size of a coin does not indicate its value.</li> <li>• Money amount can usually be counted in different ways. When counting money it is usually easier to start with the coin or bill with the greatest value.</li> <li>• The same amount of money can often be represented using different combinations of coins and bills.</li> <li>• The process for adding money, written using cent notation, is the same as adding whole numbers.</li> <li>• The process for subtracting money, written using cent notation, is the same as subtracting whole numbers.</li> <li>• The lengths of objects can be organized in different ways. A line plot can be used as a visual representation of the relative lengths of objects.</li> <li>• Data can be organized in different ways.</li> <li>• Each kind of graph is most appropriate for certain kinds of data. Pictographs and bar graphs make it easy to organize data.</li> <li>• Some problems can be solved by using a graph.</li> </ul>	<p>compare data?</p> <ul style="list-style-type: none"> <li>• What are the ways that you can show information using a variety of graphs?</li> <li>• How can you solve a problem by using a graph?</li> </ul>	

### DAILY ROUTINES

- Refer to the classroom clock for daily activities.
- Show a number of the day and use coins to post a variety of representations of that number.
- Problem Solving Notebook
- Collect data on classroom favorites, and post on a pocket chart, using cards with student names to build line plots and bar graphs.
- Class daily schedule

### LITERATURE CONNECTIONS

- *Game Time* by Stuart J. Murphy
- *The Clock Struck One: A Time-Telling Tale* by Trudy Harris, Carrie Hartman
- *Beanstalk- The Measure of a Giant* by Ann McCallum
- *Measuring Penny* by Loreen Leedy
- *Bunny Money* by Rosemary Wells
- *Five Minute Peace* by Jill Murphy
- *Cluck O'Clock* by Kes Gray
- *10 for Dinner* by Jo Ellen Bogart
- *Tiger Math: Learning to Graph from a Baby Tiger* by Ann Whitehead Nagda and Cindy Bickel
- *It's About Time* by Stuart J. Murphy
- *Time To...* by Bruce McMillan
- *Millions to Measure* by David M. Schwartz
- *Inchworm and a Half* by Elinor J. Pinczes
- *Inch by Inch* by Leo Lionni
- *The Grouch Ladybug* by Eric Carle
- *Telling Time: How to Tell Time on Digital and Analog Clocks* by Jules Older
- *Pigs on a Blanket* by Amy Axelrod and Sharon McGinley-Nally
- *Pigs will be Pigs* by Amy Axelrod and Sharon McGinley-Nally
- *Length (Math Counts)* by Henry Arthur Pluckrose
- *What Time is it, Mr. Crocodile?* By Doug Cushman
- *Lemonade for Sale* by Stuart J. Murphy
- *The Great Graph Contest* by Loreen Leedy
- *Bart's Amazing Charts* by Diane Ochiltree
- *What Time Is It A Book of Math Riddles* by Sheila Keenan
- *Morning, Noon, and Night* by Jean Craighead George
- *How Tall, How Short, How Far Away* by David A. Adler
- *Polly's Pen Pal* by Stuart J. Murphy



DIFFERENTIATION 

FRONT LOADING <sup>1</sup>	ENRICHMENT <sup>2</sup>	INTERVENTION <sup>3</sup>
<p><b>My Math</b>  <b>Each chapter includes:</b> (at beginning of chapter)</p> <ul style="list-style-type: none"> <li>• My Math Words</li> <li>• My Vocabulary Cards</li> <li>• My Foldables</li> </ul> <p><b>Each lesson includes:</b> (at beginning of lesson)</p> <ul style="list-style-type: none"> <li>• ELL Instructional Strategies</li> </ul>	<p><b>My Math</b>  <b>Each lesson includes:</b></p> <ul style="list-style-type: none"> <li>• a beyond level extend hands-on activity under differentiated instruction (found after Practice &amp; Apply)</li> </ul>	<p><b>My Math</b>  <b>Each lesson includes:</b></p> <ul style="list-style-type: none"> <li>• an approaching level Tier 2: strategic intervention hands-on activity (found after Practice &amp; Apply)</li> </ul> <p><b>Each formative assessment includes:</b></p> <ul style="list-style-type: none"> <li>• Tier 2 Strategic Intervention, Ch. 9, p. 548A</li> <li>• Tier 2 Strategic Intervention, Ch. 10, p. 612A</li> <li>• Tier 2 Strategic Intervention, Ch. 11, p. 664A</li> <li>• Tier 2 Strategic Intervention, Ch. 11, p. 684A</li> </ul>

Key:

<sup>1</sup>: Front Loading refers to materials that can be used before the lesson begins to prepare students for success, which may be helpful for English learners, students with disabilities or low achieving students.

<sup>2</sup>: Enrichment refers to materials that can be used with students who are ready to have their thinking extended, which may be helpful for gifted and talented and high achieving students, or any students who are ready for more depth and complexity.

<sup>3</sup>: Intervention refers to materials that can be used after the lessons with students who are needing additional positive experiences with the mathematics, low achieving students who would benefit from another approach, or students who have gaps in their knowledge.

For more information on Differentiation, please refer to: The California Framework, Universal Access section:

<http://www.cde.ca.gov/ci/ma/cf/documents/mathfwuniversalaccess.pdf#search=Universal%20Access&view=FitH&pagemode=none>

**DOMAIN: Geometry****CLUSTER: Reason with shapes and their attributes. s/a**

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.G.1</b> Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b> MP2 Reason abstractly and quantitatively. <b>MP3 Construct viable arguments and critique the reasoning of others.</b> <b>MP4 Model with mathematics.</b> MP5 Use appropriate tools strategically. <b>MP6 Attend to precision.</b> <b>MP7 Look for and make use of structure.</b> MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>50 Problem Solving Lessons</b> (Burns, 1996)</p> <ul style="list-style-type: none"> <li>Lessons with Geoboards, pp. 33-35</li> </ul> <p><b>A Collection of Math Lessons from Grades 1 through 3</b> (Burns &amp; Tank, 1988)</p> <ul style="list-style-type: none"> <li>Chapter 9: The Four Triangle Problem, pp. 99-105</li> <li>Chapter 11: Box Sorting, pp. 117-128</li> </ul> <p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns, 2000)</p> <ul style="list-style-type: none"> <li>Introductory Explorations with Patterns Blocks, p. 90</li> <li>Four Triangle Problem, p. 122</li> </ul> <p><b>engage<sup>ny</sup></b> <a href="https://www.engageny.org/ccls-math/2g1">https://www.engageny.org/ccls-math/2g1</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>12-1 – Two-Dimensional Shapes</li> <li>12-2 – Sides and Angles</li> <li>12-3 – Problem Solving Strategy: Draw a Diagram</li> <li>12-4 – Three-Dimensional Shapes</li> <li>12-5 – Faces, Edges, and Vertices</li> <li>12-6 – Relate Shapes and Solids</li> <li><i>Homes of All Shapes, Real-World Problem Solving Readers Teacher Guide</i>, p. 7</li> </ul>	<p><b>My Math</b> Assessment Masters</p> <ul style="list-style-type: none"> <li>Ch. 12, pp. 289-313</li> </ul> <p><b>My Math</b> Think Smart for the SBAC</p> <ul style="list-style-type: none"> <li>Chapter 12 Test, p. 119</li> <li>Chapter 12 Performance Task, p. 147</li> </ul> <p><b>My Math</b> eAssessment</p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.G.2</b> Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>  <b>MP2 Reason abstractly and quantitatively.</b>  <b>MP3 Construct viable arguments and critique the reasoning of others.</b>  <b>MP4 Model with mathematics.</b>  <b>MP5 Use appropriate tools strategically.</b>  <b>MP6 Attend to precision.</b>  <b>MP7 Look for and make use of structure.</b>  <b>MP8 Look for and express regularity in repeated reasoning.</b></p>	<p><b>About Teaching Mathematics, 2<sup>nd</sup> Ed.</b> (Burns, 2000)</p> <ul style="list-style-type: none"> <li>Candy Boxes, p. 197</li> </ul> <p><b>Developing Number Concepts, Book 3</b> (Richardson, 1999)</p> <ul style="list-style-type: none"> <li>How Many Rows, p. 164</li> <li>Counting Boards - Multiplication, p. 165</li> </ul> <p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2g2">https://www.engageny.org/ccls-math/2g2</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>12-8 - Area</li> </ul>	<p><b>My Math</b> Assessment Masters</p> <ul style="list-style-type: none"> <li>Ch. 12, pp. 289-313</li> </ul> <p><b>My Math</b> Think Smart for the SBAC</p> <ul style="list-style-type: none"> <li>Chapter 12 Test, p. 119</li> <li>Chapter 12 Performance Task, p. 147</li> </ul> <p><b>My Math</b> eAssessment</p>

STANDARDS FOR MATHEMATICAL CONTENT	STANDARDS FOR MATHEMATICAL PRACTICE	RESOURCES	ASSESSMENTS
<p><b>2.G.3</b> Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words <i>halves</i>, <i>thirds</i>, <i>half of</i>, <i>a third of</i>, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.</p>	<p><b>MP1 Make sense of problems and persevere in solving them.</b>                      MP2 Reason abstractly and quantitatively.                      MP3 Construct viable arguments and critique the reasoning of others.                      MP4 Model with mathematics.                      MP5 Use appropriate tools strategically.  <b>MP6 Attend to precision.</b>                      MP7 Look for and make use of structure.                      MP8 Look for and express regularity in repeated reasoning.</p>	<p><b>50 Problem-Solving Lessons Grades 1-6</b> (Burns, 1996)</p> <ul style="list-style-type: none"> <li>Sharing an Apple, pp. 43-45 (<i>Adaptation: Share one apple with two, three or four students</i>)</li> <li>Exploring Halves, pp. 53-54</li> <li>Dividing Cakes, pp. 55-56</li> <li>Cutting Cake, pp. 97-98</li> </ul> <p><b>engage<sup>ny</sup></b>  <a href="https://www.engageny.org/ccls-math/2g3">https://www.engageny.org/ccls-math/2g3</a></p> <p><b>My Math</b></p> <ul style="list-style-type: none"> <li>12-7 – Halves, Thirds and Fourth</li> </ul>	<p><b>My Math</b> Assessment Masters</p> <ul style="list-style-type: none"> <li>Ch. 12, pp. 289-313</li> </ul> <p><b>My Math</b> Think Smart for the SBAC</p> <ul style="list-style-type: none"> <li>Chapter 12 Test, p. 119</li> <li>Chapter 12 Performance Task, p. 147</li> </ul> <p><b>My Math</b> eAssessment</p>

**Domain Legend**

- ▲ **Major Cluster:** Areas of intensive focus, where students need fluent understanding and application of the core concepts (approximately 75%)
- s/a **Supporting Cluster:** Rethinking & linking; some material is being covered, but in a way that applies core understandings (s/a approximately 25%)
- Additional Cluster:** Expose students to other subjects, may not connect explicitly to the major work of the grade

## ADDITIONAL SUPPORT

LANGUAGE OBJECTIVES	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS	KEY VOCABULARY
<p>Draw and explain shapes with a specified set of attributes.</p> <p>Identify with automaticity - triangles, quadrilaterals, pentagons, hexagons, and cubes, and explain their attributes.</p> <p>Identify real life structures associated with shapes and their attributes.</p> <p>Create and present a shapes project using drawings and pictures of real life structures.</p> <p>Create a Venn diagram/Thinking Map comparing and describing various shapes and their attributes.</p> <p>Partition shapes into equal shares/groups and explain shares/groups using mathematical/academic language (halves, thirds, etc.)</p>	<ul style="list-style-type: none"> <li>• Solid figures have length, width and height. Many can be described, classified and analyzed by their faces or flat surfaces, edges and vertices. Many everyday objects look like standard geometric solids.</li> <li>• A shape can be identified by the number of its sides, vertices and angles.</li> <li>• Some shapes can be combined to make new shapes.</li> <li>• Some shapes can be decomposed into other shapes.</li> <li>• Rectangles can be partitioned into equal squares.</li> <li>• A region can be divided into equal-sized parts in different ways. Equal-sized parts of a region have the same area but not necessarily the same shape.</li> </ul>	<ul style="list-style-type: none"> <li>• How can shapes be taken apart and put back together?</li> <li>• How can a shape be divided into equal pieces?</li> <li>• How can shapes be described?</li> <li>• How is a square a rectangle?</li> <li>• How are attributes used to classify three-dimensional figures?</li> <li>• What plane shapes from the flat surfaces of solid figures?</li> <li>• How can new shapes be made by combining other shapes?</li> <li>• How do we name parts of a whole that have been equally divided?</li> </ul>	<p>angle circle columns cone cube cylinder edge equal face flat surface fourths halves hexagon parallelogram partition pentagon plane shape</p> <p>polygon pyramid quadrilateral rows rectangle rectangular prism side solid figure sphere square thirds three-dimensional shapes trapezoid triangle two-dimensional shapes unequal vertex (vertices)</p>

**DAILY ROUTINES**

- Students cut rectangle from grid paper and share how they found the number of squares inside it.
- Students build arrays with color tiles and share how they found the total number of tiles.
- Students draw shapes on the board based on attributes written on index cards.
- Student lists attributes and the class guesses the shape.
- Students reach into a bag and try to guess the concealed shape by describing attributes to the class.
- Students look at real-world objects, or pictures of objects, and describe the shape attributes to the class.
- Problem Solving Notebook

**LITERATURE CONNECTIONS**

- *The Greedy Triangle* by Marilyn Burns
- *The Village of Round and Square Houses* by Ann Grifalconi
- *Shape Up!* by David A. Adler
- *Gator Pie* by Louise Mathews
- *Spaghetti and Meatballs for All!* by Marilyn Burns
- *Captain Invincible and the Space Shapes* by Stuart Murphy
- *Grandfather tang's Story* by Ann Tompert
- *Cubes, Cones, Cylinders, & Spheres* by Tana Hoban
- *Twizzlers Pull & Peel Math From Simple Shapes to Geometry* by Jerry Pollotta

DIFFERENTIATION 

FRONT LOADING <sup>1</sup>	ENRICHMENT <sup>2</sup>	INTERVENTION <sup>3</sup>
<p><b>My Math</b>  <b>Each chapter includes:</b> (at beginning of chapter)</p> <ul style="list-style-type: none"> <li>• My Math Words</li> <li>• My Vocabulary Cards</li> <li>• My Foldables</li> </ul> <p><b>Each lesson includes:</b> (at beginning of lesson)</p> <ul style="list-style-type: none"> <li>• ELL Instructional Strategy</li> </ul>	<p><b>My Math</b>  <b>Each lesson includes:</b></p> <ul style="list-style-type: none"> <li>• a beyond level extend hands-on activity under differentiated instruction (found after Practice &amp; Apply)</li> </ul>	<p><b>My Math</b>  <b>Each lesson includes:</b></p> <ul style="list-style-type: none"> <li>• an approaching level Tier 2: strategic intervention hands-on activity (found after Practice &amp; Apply)</li> </ul> <p><b>Each formative assessment includes:</b></p> <ul style="list-style-type: none"> <li>• Tier 2 Strategic Intervention, Ch. 12, p. 758A</li> </ul>

Key:

<sup>1</sup>: Front Loading refers to materials that can be used before the lesson begins to prepare students for success, which may be helpful for English learners, students with disabilities or low achieving students.

<sup>2</sup>: Enrichment refers to materials that can be used with students who are ready to have their thinking extended, which may be helpful for gifted and talented and high achieving students, or any students who are ready for more depth and complexity.

<sup>3</sup>: Intervention refers to materials that can be used after the lessons with students who are needing additional positive experiences with the mathematics, low achieving students who would benefit from another approach, or students who have gaps in their knowledge.

For more information on Differentiation, please refer to: The California Framework, Universal Access section:

<http://www.cde.ca.gov/ci/ma/cf/documents/mathfwuniversalaccess.pdf#search=Universal%20Access&view=FitH&pagemode=none>

## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

The purpose of the First 10 Days is to establish math routines and expectations that will prepare students for the Common Core classroom. This resource provides lessons that allow students to develop number sense concepts within the structure of the CCSS Math Practices. Time is needed to establish these mathematical practices. This document includes classroom routines, expectations, and math tools that encourage the Standards for Mathematical Practice. Included in this document are the following:

- Daily Problem-Solving **(Day 1- Day 10)**
- Listening and Speaking Expectations **(Day 1-10)**
- Mathematician's Turn \* **(Day 1-Day 10)**
- Talk Moves for Mathematical Discussions **(Day 1-Day 10)**
- Non-Verbal Signals **(Day 2-Day 10)**
- Number Talks \* **(Day 2-Day 10)**
- Expectations for Partner Games, Small Groups & Rotations, and Independent Work Time **(Day 3-Day 10)**

\* In this document, the *Mathematician's Turn* and *Number Talks* develop the routine of classroom conversations. Authors/researchers, Fosnot and Dolk (2002), state that the purpose of the class conversation is to support and direct the development of mathematicians in the classroom learning community, rather than fixing mistakes in the children's work. This conversation enables the teacher to focus the students on reasoning about a few big mathematical ideas derived from the mathematical thinking present in students' solutions. It focuses whole class discussion on two or three, strategically selected, student solutions in order to develop every student's mathematical learning.

The goals of the classroom conversations are to provide opportunities for students to (Smith, 2011):

- Share ideas and clarify misunderstandings
- Develop convincing arguments regarding why and how things work
- Develop a language for expressing mathematical ideas
- Learn to see things from other people's perspective



## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

<p><b>Day 1 Objectives:</b> Set the stage for problem-solving, including introducing: problem-solving notebook, choosing manipulatives, listening and speaking expectations, Mathematician's Turn and a math talk move.</p>	
<p><b><u>Introduce Problem-Solving:</u></b></p> <ul style="list-style-type: none"> <li>• Present this problem to students: "11 green apples and 8 red apples are on the table. How many apples are on the table?"</li> <li>• Allow the children to discuss how many apples are on the table.</li> <li>• Say: "Let's think about what we have to do to solve this problem. Let's share out."</li> </ul> <p>Together as a classroom, create a <u>Problem-Solving Chart</u> before distributing the problem-solving notebook and manipulatives. Discuss and write expectations and behaviors for problem-solving on the chart (here are some possible suggestions):</p> <ul style="list-style-type: none"> <li>• Have a positive attitude (I can do this!)</li> <li>• Keep trying and don't give up!</li> <li>• Use good problem-solving strategies</li> <li>• Work together, but do your own thinking</li> <li>• Explain your thinking</li> <li>• Safe Environment (what does that look like, sound like, feel like?)</li> </ul>	<p>To establish expectations for behaviors in a problem solving math classroom.</p> <p><u>Materials:</u>            *Chart paper            *Markers</p>
<p><b><u>Introduce Problem-Solving Notebook:</u></b></p> <ul style="list-style-type: none"> <li>• Give each student a problem-solving notebook.</li> <li>• Have manipulatives readily available to use for counting (base ten blocks, snap cubes, pattern blocks, color tiles, animal counters, etc.) For classroom management purposes you may want manipulatives in bins in an assigned area of your classroom. Discuss appropriate manipulatives use with your students.</li> <li>• Decide how to record the problem in the problem-solving notebook before solving it. Ideas include: copying the question on stickers, copying the question on half-sheets and gluing, students write question. Allow students time to draw and write their responses to the math problem in their problem-solving notebook</li> <li>• Students will share their responses in Mathematician's Turn (see next page.)</li> </ul>	<p>To set expectations for drawing/writing in the problem solving math notebook</p> <p>To establish appropriate manipulatives use and to allow students to strategically choose them for problem solving.</p> <p><u>Materials:</u>            *Problem Solving Notebook            * Manipulatives</p>

## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

Day 1	<p><b><u>Introduce the Speaking and Listening Expectations:</u></b></p> <ul style="list-style-type: none"> <li>• Talk with the students about the actions of a good listener. Say: "What does a good listener do?" (A good listener listens with the intent to understand. They look at the person talking and visualize or picture in their head what the speaker said.)</li> </ul> <p><b><u>Talk Moves for Teacher Background Only:</u></b>  <b><i>In order to orchestrate productive discussions in the classroom, teachers need a set of moves that will help them lead whole-class discussions in which students share their thinking with one another in respectful and academically productive ways. Although there are many moves that teachers can use to lead productive classroom discussions, this document will only focus on five: (1) revoicing (2) asking students to restate someone else's reasoning, (3) asking students to apply their own reasoning to someone else's reasoning, (4) prompting students for further participation, and (5) using wait time.</i></b></p> <p><b><u>Talk Move #1: Revoicing</u></b>          Model revoicing (Teacher repeats all or part of exactly what a student has said, as students share during Mathematician's Turn; the teacher can also prompt a student to revoice.)</p> <ul style="list-style-type: none"> <li>○ "What I heard you say was...."</li> <li>○ "You're saying..."</li> </ul> <p><b><u>Mathematician's Turn-For Teacher Background Only</u></b>  <b><i>Classroom conversations support learning from each other. Students share their strategies, and listen to the strategies of others. They reinforce their own skills by explaining how they solved a problem and they learn new ways of problem solving by listening to other students explain their thinking. They can safely work through mistakes and misconceptions by talking with their peers. At the beginning of the year, this sharing may take place in a big circle or with students at their seats and one student sharing at the document camera just so everyone can see each other and their student work. The idea is to build a community of learners, where the thoughts of students are shared and honored.</i></b></p> <p><b><u>Introduce the Mathematician's Turn:</u></b>          The purpose of the Mathematician's Turn is to provide a public forum where students will share, discuss, and provide feedback to one another. Students will share their solutions from the problem about apples. Strategically select 2-3 students with different solutions (i.e. a drawing, an equation, or using manipulatives). Have students share their solutions one at a time while the other students listen.</p>	<p>To set expectations for shared thinking when engaged in academic conversations around mathematics</p> <p><u>Materials:</u></p> <ul style="list-style-type: none"> <li>* Problem Solving Notebook</li> <li>* Manipulatives</li> <li>* <u>Optional Classroom Discussions</u>, by Chapin and O'Connor, for reference</li> </ul> <p>Revoicing:          Student contributions are often difficult to hear and sometimes difficult to understand. Yet, all students need to have access to what a student has said if they are expected to think about and comment on it. For this reason, repeating part or all of a student's response is often a worthwhile move for teachers.</p>
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## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

<b>Day 2 Objectives:</b> To continue with problem-solving and setting up listening and speaking expectations, practice the Mathematician's Turn, introduce non-verbal signals and Number Talks		
<b>Day 2</b>	<p><b><u>Problem Solving:</u></b></p> <ul style="list-style-type: none"> <li>• Review the behaviors/expectations from the <u>Problem-Solving Chart</u> (from Day 1.)</li> <li>• Present and discuss today's math problem: "There are 18 apples on the table. 9 are red and the rest are green. How many apples are green?"</li> <li>• Allow children time to draw and write their responses to the problem in their problem-solving notebook.</li> <li>• The focus should be on "How can you show your answer?"</li> <li>• Have manipulatives available for counting and encourage students to use them to solve the problem.</li> <li>• (Students can share during Mathematician's Turn.)</li> </ul> <p><b><u>Listening and Speaking Expectations:</u></b> Make a poster (chart paper) of a <u>Good Listener and Not a Good Listener</u>. Use student suggestions.</p> <p><b><u>Mathematician's Turn:</u></b></p> <ul style="list-style-type: none"> <li>• During Mathematician's Turn, ask the students how they found their answer. It's important to point out the variety of solutions, especially students that used multiple methods.</li> <li>• Ask students which manipulatives they used and how they used them to solve the problem.</li> <li>• Model Talk Move #1: Revoicing</li> </ul> <p><b><u>Introduce Non-Verbal Signals:</u></b> Establish non-verbal signals that will support productive math discussions. These signals also support effective classroom management. Teach students the following signals:</p> <ul style="list-style-type: none"> <li>• Agree: Thumbs up held away from body</li> <li>• Disagree: " Safe" sign in baseball: palms flat and down, in a crossing motion in front of the chest</li> <li>• I don't know: hand over head, palm flat and facing floor, moves back and forth</li> <li>• Thinking: fist in front of chest</li> <li>• I have an answer: thumbs up in front of chest</li> <li>• I have another way of getting the answer: finger up in front of chest (can show additional finger for each way)</li> </ul>	<p>To continue to set expectations for writing in the problem solving math notebook.</p> <p>To set expectations for shared thinking when engaged in academic conversations around mathematics</p> <p>To encourage students to learn to share and discuss during math.</p> <p>To set expectations for classroom management during mathematics discussions</p> <p><b><u>Materials:</u></b> * Chart Paper * Markers * Problem-Solving Chart * Problem Solving Notebook</p>

## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

Day 2	<p><b>Number Talks-for Teacher Background only:</b>  <i>A Number Talk is a short, ongoing daily routine that provides students with meaningful practice with computation. Classroom conversations and discussions around purposefully crafted computation problems are at the very core of number talks. These are opportunities for the class to come together to share their mathematical thinking and develop efficient, flexible, and accurate computation strategies that build upon the key foundational ideas of mathematics such as composition and decomposition of numbers, our system of tens, and the application of properties. Mental computation is a key component of number talks because it encourages students to build on number relationships to solve problems instead of only relying on memorized procedures.</i></p> <p><b>Introduce Number Talks:</b>          Tell the students that we are going to be doing a Number Talk. They are to be thinking in their heads, and trying to figure out the number, or the answer to a problem. Tell them that they should be ready to share how they figured out the number. All number talks follow a basic six-step format.</p> <ol style="list-style-type: none"> <li>1. <b>Teacher presents the problem:</b> Problems are presented in many different ways: a word problem, ten frames, dot cards, models. You can show problems on a document camera or write on the board. Present today's problem on the board:          "How many legs on 5 horses and 2 roosters?"</li> <li>2. <b>Students figure out the answer.</b> Give time to figure out the answer. To make sure the students have the time they need, ask them to give a "thumbs-up in front of chest" when they have determined their answer.</li> <li>3. <b>Students share their answers. Teacher:</b> "At the count of three, whisper your answer."</li> <li>4. <b>Students share their thinking.</b> Have students think-pair-share before they share out their thinking. Have three or four students explain their thinking to the class.</li> <li>5. <b>The class agrees on the "real" answer for the problem.</b> The answer that the class together determined is the right answer is presented as one would the results of an experiment. The answer a student comes up with initially is considered a conjecture. Models and explanations may help students see where their thinking went wrong, identify a step they left out, or clarify a point of confusion.</li> <li>6. <b>The steps are repeated for additional problems.</b></li> </ol> <p>Thank the students for their participation in the Number Talk.</p>	<p>A number talk is a powerful tool for helping students develop computational fluency and number sense because the expectation is that they will use number relationships and the structures of numbers to add, subtract, multiply, and divide.</p> <p>Number Talks allow students to make connections and find relationships and patterns.</p> <p>Number Talks also allow students to use the language of mathematics.</p> <p>The conversation is the focus of the Number Talks, and the teacher takes on the role of facilitator.</p> <p>The teacher is not the ultimate authority in Number Talks. Students are clarifying their thinking with each other.</p>
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## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

<b>Day 3 Objectives:</b> To introduce partner math games, continue with daily problem-solving, review listening and speaking expectations, review non-verbal signals, practice Mathematician's Turn, and do a Number Talk		
<b>Day 3</b>	<p><b>Introduce a Partner Math Game:</b> Show how to play a math game and model appropriate vs. inappropriate use of the math tools involved. Begin a class chart titled "Math Game Expectations" to record responsibilities and expectations for partner math games.</p> <ul style="list-style-type: none"> <li>○ What will the games look like?</li> <li>○ What will the game sound like?</li> <li>○ Where will the games take place?</li> <li>○ What will be the role of each partner during the game?</li> <li>○ What are the expectations for clean up?</li> </ul> <p>Possible math games:</p> <ul style="list-style-type: none"> <li>• Center games</li> <li>• Exploration with manipulatives</li> <li>• Additional resources materials from the Curriculum Map</li> </ul> <p>After game is played for about 5 minutes, stop and facilitate a class self-assessment of expectations. What went well? What do we need to work on? What were the tools used during the game? What tools were appropriate to use and/or not appropriate to use? Game play should continue after self-assessment in order for pairs to work toward meeting classroom expectations.</p> <p><b>Problem-Solving:</b> Review <u>Problem-Solving Chart</u> for behaviors/expectations. Present and discuss today's math problem: "Grandma has 24 flowers. How many can she put in her red vase and how many in her blue vase?"</p> <ul style="list-style-type: none"> <li>• Allow children time to draw and write their responses to the problem in their problem-solving notebook.</li> <li>• The focus should be on "How can you show your answer?"</li> <li>• Have manipulatives available for counting and encourage students to use them to solve the problem.</li> </ul> <p>This is an open-ended problem with multiple solutions. Ask students to show different ways to make the target number. Students might use visual representations, equations, models, etc. (Students share responses during Mathematician's Turn.)</p>	<p>To begin to establish expectations for independent games and activities.</p> <p><u>Materials:</u> * Math Games * Manipulatives * Chart Paper</p> <p>Possible norms for charting: *Be Your Own Problem-Solver *Ask 3 Before Me *Use a 6-inch Voice *Take Turns *Clean Up *Make Wise Choices</p> <p>To continue drawing and writing about math using precise vocabulary and establish shared expectations for math problem-solving notebooks.</p> <p><u>Materials:</u> *Problem-Solving Chart *Problem-Solving Notebook *Manipulatives</p>

## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

<b>Day 3</b>	<p><b><u>Listening and Speaking Expectations:</u></b> Review the <u>Good Listener and Not a Good Listener</u> poster from Day 2.</p> <p><b><u>Introduce Talk Move #2: Restate</u></b> Model asking students to restate someone else's reasoning. Instead of revoicing a student's idea in the exact same words, you can ask another student to restate in his or her own words, what the first student has just said.</p> <p><b><u>Review Non-Verbal Signals:</u></b></p> <p><b><u>Mathematician's Turn:</u></b> <i>(Model Talk Move #2 &amp; Non-Verbal Signals)</i></p> <ul style="list-style-type: none"> <li>• During Mathematician's Turn, ask the students how they found their answer to the problem about flowers. Encourage them to explain their thinking process and reasoning. Ask several students to share their solutions. Remember to strategically select a variety of problem solving methods.</li> </ul> <p><b><u>Number Talk:</u></b> <i>(Model Talk Move #2 &amp; Non-verbal Signals)</i> Follow the same 6 steps as outlined in Day 2 (Math Talks). Write today's problem on the board: "<math>15 + 13 = \underline{\quad}</math>." <b>Teacher:</b> Think about how to solve this problem. Put your fist on your chest like this (show). When you have one way of getting the answer, put up your thumb, like this (model). When you have a second way of getting the answer, put up a finger, like this (model). I'll ask you to tell me the answer when most people are ready. Now I'm giving you think time.</p> <p>Addition strategies based on place value for <math>15 + 13 = \underline{\quad}</math> may include:</p> <ul style="list-style-type: none"> <li>* Adding by place value: <math>10 + 10 = 20</math> and <math>5 + 3 = 8</math> and <math>20 + 8 = 28</math></li> <li>* Incremental adding (by tens and ones); <math>15 + 10 = 25 + 3 = 28</math></li> <li>* Composing and decomposing (making a "friendly" number): (decompose the 13 to <math>5 + 8</math>) <math>15 + 5 = 20</math>, <math>20 + 8 = 28</math></li> </ul>	<p>Restating: A student's restating of another student's contribution marks the contribution as being especially important and worth emphasizing. It signals to the author that his or her idea is being taken seriously.</p> <p>To continue to understand the concept and encourage the use of Number Talks.</p> <p>Number Talks can take many forms. During a Number Talk, the teacher writes a problem on the board, horizontally, and gives the students time to solve the problem mentally. The focus is "How did you get your answer?"</p> <p>Mistakes play a part in developing math thinking, as they call for questioning and discussion. Help the students realize that mistakes are important for our learning, and celebrate the opportunities!</p> <p>Materials: *Listener/Not a Good Listener poster</p>
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## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

<p><b>Day 4 Objectives:</b> To practice a new partner math game, review listening and speaking expectations, introduce a new talk move, review non-verbal signals, continue with daily problem solving, Mathematician's Turn, Number Talk.</p>		
<p><b>Day 4</b></p>	<p><b>Practice New Partner Math Game:</b>            Revisit the math game from Day 3. Remind students about the game procedures and expectations. Review "Math Game Expectations Chart" on expectations for partner math games.</p> <ul style="list-style-type: none"> <li>• Debrief "what is going well" vs. "what needs to be better" in relation to math games expectations. What were the tools used during the game? What tools were appropriate to use and/or not appropriate to use?</li> </ul> <p><b>Problem-Solving:</b> <i>(Model Talk Move #2 &amp; Non-Verbal Signals)</i>            Tell the students: "Today we are going to introduce a tool to help us with problem-solving. It's called a <b>bar diagram</b> (aka, part, part, whole mat in K-2) This is a tool we can use throughout the school year. One of our jobs as mathematicians is to build a toolbox of tools, or strategies, that we can use to help ourselves. When we share our tools or strategies that we use for problem-solving, we help each other understand math. And that's one of the most important things about math, that it makes sense! And that it's fun!"  <i>(Bar diagrams help students understand relationships between the quantities in the problem, and this helps students choose a correct operation to solve the problem. You can find more information on Bar Diagrams in the Program Overview of enVision MATH.)</i></p> <ul style="list-style-type: none"> <li>• Present and discuss today's math problem: "Carina collected 14 ladybugs in her backyard. The next day, she collected 12 more. How many ladybugs does she have now?"</li> <li>• Ask the students, "How might we use this bar diagram to help us solve this problem?"</li> <li>• Discuss strategies and then have the students solve the problem in their problem-solving notebooks. (Students discuss solutions during Mathematician's Turn.)</li> </ul> <p><b>Review Listening and Speaking Expectations</b></p> <p><b>Review Non-Verbal Signals:</b></p> <p><b>Mathematician's Turn:</b> <i>(Model Talk Move #2 &amp; Non-Verbal Signals)</i></p> <ul style="list-style-type: none"> <li>• During Mathematician's Turn, ask the students how they found their answer to the ladybug problem. Encourage them to explain their thinking process and reasoning. Ask several students to share their solutions. Reminder to strategically select a variety of problem solving methods.</li> </ul>	<p>To establish expectations for independent games and activities.</p> <p>To establish the concept of a tool box for problem-solving throughout the year</p> <p>Difficulty getting started?            Ask questions: What is the problem asking us to find out? What do you know? Without giving away the answer, how are you thinking about solving the problem?</p> <p><u>Materials:</u>            * Math Game Expectations Chart            * Problem-Solving Notebook            * Bar Diagram</p>

## Grade 2: The First 10 Days Launching Mathematics in the Common Core Classroom

<b>Day 4</b>	<p><b>Number Talk:</b> (<i>Model Talk Move #2 &amp; Non-Verbal Signals</i>) Follow the same 6 steps as outlined in Day 2 (Number Talk). Introduce today's problem on board: "25 - 11 = _____"</p> <p>Subtraction strategies based on place value for 25 - 11 may include:</p> <ul style="list-style-type: none"> <li>• Adding up (from smaller number to larger number): 11 + 9 = 20, 20 + 5 = 25.</li> <li>• Incremental subtracting: 25 - 5 = 20, 20 - 5 = 15, 15 - 4 = 11</li> <li>• Subtracting by place value: 25 - 10 = 15, 15 - 4 = 11</li> </ul> <p>Remind the students that they should be ready to share their strategies with the class. Model Non-Verbal Signals. Give think time.</p> <p>When most students indicate that they are ready through their hand signal, then call on four or five students to share their sum and record them on the board.</p> <p>Ask for students to share their strategies and justifications with the class. Encourage the class to use hand signals to agree/disagree, and explain why. Thank the children for participating.</p>	<p>To continue to understand the concept and encourage the use of Number Talks.</p>
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## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

**Day 5 Objectives:** Introduce small groups, review non-verbal signals, review listening and speaking expectations, continue problem-solving, Mathematician's Turn, Number Talk.

<b>Day 5</b>	<p><b>Introduce Small Group and Independent Work Time:</b>  <i>(It's important to set up expectations for small group rotations and independent work time. There will be times when the teacher will need to work with a small group of students to meet their needs. It's important that the other students know how to work independently and in small groups. They will also need to know how to rotate from location to location or activity to activity.)</i> Break the class into 3-4 heterogenous groups. Assign groups to their own location within the classroom. Provide instructions on behavior expectations, rotation procedures, and clean up signal. Give each group a bin with one type of manipulative and allow groups to explore the items for 5 minutes. At the end of the time, signal for clean up time. Create a sticker chart and reward groups who clean up quickly and quietly. Have students rotate to each station so that each group will have an opportunity to explore each type of manipulative.</p> <p>Establish clear expectations for small group activity rotations:</p> <ul style="list-style-type: none"> <li>• When will we rotate and what is the signal?</li> <li>• How do I know what to do first, then next?</li> <li>• Where will activities be located and who will get them?</li> <li>• What is the expectation for clean up between activities?</li> </ul> <p><b>Problem-Solving:</b>  Present and discuss today's math problem.  "Max had 17 baseball cards. His Mom gave him some more. Now he has 30 baseball cards. How many baseball cards did his Mom give him?" Tell students that they will once again practice using a tool from their toolbox of tools/strategies for math. They will use a bar diagram. Draw a bar diagram on the board and ask students to problem solve using the bar diagram. (Students can discuss solutions during Mathematician's Turn.)"</p>	<p>To establish expectations for small groups and independent work time</p> <p><u>Materials:</u>  *Bins  *Manipulatives  *Optional sticker chart</p> <p>Continue to establish the concept of a tool box for problem-solving throughout the year.</p> <p><u>Materials:</u>  *Problem-Solving Notebook</p>
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Grade 2: The First 10 Days  
Launching Mathematics in the Common Core Classroom

<b>Day 5</b>	<p><b><u>Review Listening and Speaking Expectations</u></b></p> <p><b><u>Introduce Talk Move #3: Applying reasoning...</u></b> Introduce the Math Talk move of “applying reasoning to someone else’s reasoning.” Ask a child if they agree or disagree with someone and why. You can also encourage students to add on to what someone else has just said. Reminder to praise student math talk and applaud volunteers. (Model this talk move during Mathematician’s Turn or Number Talk.)</p> <p><b><u>Review Non-Verbal Signals:</u></b> Have students practice these signals during problem-solving or number talk.</p> <p><b><u>Mathematician’s Turn:</u></b> (Model Talk Move #3 and use Non-Verbal Signals)</p> <ul style="list-style-type: none"><li>• During Mathematician’s Turn, ask the students how they found their answer to the problem. Encourage them to explain their thinking process and reasoning. Ask several students to share their solutions. Reminder to strategically select a variety of problem solving methods.</li></ul> <p><b><u>Number Talk:</u></b> (Model Talk Move #3 and use Non-Verbal Signals) Follow the same 6 steps as outlined in Day 2 (Number Talk). Introduce today’s problem: Place blocks on a part/part whole mat and ask the students to think of an addition number sentence that goes with the concrete representation on the mat. Record the addition number sentence. Next, turn the mat completely around, and have students discuss a number sentence again. Repeat for several different examples to observe that turning around the blocks does not change the sum. (Commutative Property)</p>	<p>This Talk Move gives another student the opportunity to restate, in his/her own words, what the first student just said. A student’s restating of another student’s contribution marks the contribution as being especially important and worth emphasizing</p> <p>To continue to encourage the use of Number Talks.</p>
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## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

<p><b>Day 6 Objectives:</b> To continue establishing small group rotation and independent work time expectations, review listening and speaking expectations (optional), review non-verbal signals (optional), continue with problem-solving, Mathematician's Turn, Number Talk.</p>		
<p><b>Day 6</b></p>	<p><b>Continue with Small Group and Independent Work Time:</b>            Extend the time at each station (5-10 minutes). While all other groups will continue with the manipulative exploration, one group will play the partner game previously introduced. Continue to monitor and set expectations for stopping, cleaning up, and rotating. Select a team captain responsible for bringing the bins to and from the designated area. Continue to praise those groups following agreed upon procedures.</p> <p><b>Review Listening and Speaking Expectations</b> <i>(optional)</i></p> <p><b>Review Non-Verbal Signals:</b> <i>(optional)</i></p> <p><b>Problem-Solving:</b>            Revisit the <u>Problem-Solving Chart</u> to review expectations for problem-solving.            Tell the students: "Today we are going to introduce a tool to help us with problem-solving. It's called a <b>ten frame</b>. This is a tool that will be part of our toolbox so that we can use it to help us understand math. Show a double ten frame on the document camera and use counters to represent the numbers.</p> <p>Present and discuss today's math problem.            Rosa has 9 blue pens. She also has 8 red pens. How many pens does she have in all?. Ask students: "How might we use these ten frames to help us solve this math problem?" Discuss strategies and then have the students solve the problem in their problem-solving notebook. (Students can discuss solutions during Mathematician's Turn.)</p>	<p>To continue to establish expectations for small groups and independent work time</p> <p><u>Materials:</u>            *Bins            *Manipulatives</p> <p>Continue to establish the concept of a tool box for problem-solving throughout the year.</p> <p>Ten Frames combines the development of spatial abilities with the development of number relationships. It encourages children to move beyond counting.</p>

## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

<b>Day 6</b>	<p><b>Mathematician's Turn:</b> <i>(Model Talk Move #3 and use Non-Verbal Signals)</i> Share some of the entries in their problem-solving notebooks, celebrate efforts and establish pride in written work. Allow students to practice Talk Moves #1, #2, and #3.</p> <p><b>Number Talk:</b> <i>(Model Talk Move #3 and use Non-Verbal Signals)</i> Follow the same 6 steps as outlined in Day 2 (Number Talk).</p> <p>Introduce today's problem on the board: "<math>28 - 9 = \underline{\quad}</math>"</p> <p>Ask students to make sense of student strategies. For example, ask, "Why did Jose take away ten instead of nine? Why did he add one at the end?"</p> <p>Encourage students to explain other students' strategies, for example, ask, "Why did Jenny break the number nine apart into six and three? Why did she select those numbers?"</p> <p>If there are a limited number of participants, after a quiet think time suggest, "Turn to one other person and share your answer and how you thought about it."</p> <p>Then prompt, "Let's list our solution strategies. Who thought the same way/differently? Who has the same answer, but a different way to explain it?"</p>	<p>To express their opinions, critique the reasoning of others, agree/disagree, etc.</p> <p><u>Materials:</u></p> <ul style="list-style-type: none"> <li>*Problem-solving chart</li> <li>* Problem-solving notebook</li> <li>* Ten Frame</li> <li>* Counters</li> </ul>
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## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

<p><b>Day 7 Objectives:</b> To continue small group rotation and independent work time expectations, review listening and speaking expectations/non verbal signals (optional), introduce a talk move, continue with problem-solving, Mathematician's Turn, Number Talk.</p>		
<p><b>Day 7</b></p>	<p><b><u>Introduce New Partner Game or Small Group Activity:</u></b>            As a whole group, revisit "Math Game Expectations Chart" for game expectations. Introduce a new game and review the games rules. Model the new game/activity and have all the students play. Inform students that the new game will be added to the group rotation. Break the class into groups and have the students play today's games plus the previously taught games/activities. Have them play 5-10 minutes and then rotate to a different game/activity.</p> <p style="text-align: center;">Game ideas can come from the textbook materials, the additional resources in the curriculum maps, and from your own bank of materials.</p> <p><b><u>Review Listening and Speaking Expectations</u></b> <i>(optional)</i></p> <p><b><u>Introduce Talk Move #4: Prompting students for further participation</u></b>            After students have shared some initial ideas, more students can be asked to join in—prompt students for further participation. Examples:</p> <ul style="list-style-type: none"> <li>• "Does anyone have any other thoughts or comments on what we've been talking about?"</li> <li>• "Does anyone want to add to that?"</li> </ul> <p><b><u>Review Non-Verbal Signals:</u></b> <i>(optional)</i></p>	<p>To continue building independence and appropriate communication with partners.</p> <p>Prompting a wider range of students to weigh in adds more ideas to the discussion.</p>

## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

<b>Day 7</b>	<p><b>Problem Solving Notebook:</b> Present and discuss today's math problem: "Christina has 26 dolls. She gave 10 away. How many does she have now? " Show the problem using <b>ten frames</b> and counters. Tell students they will once again use the ten frame to solve the problem. Ask students: "How might we use these ten frames to help us solve this math problem?" Discuss strategies and then have the students solve the problem in their problem-solving notebook. (Students can share solutions during Mathematician's Turn.)</p> <p><b>Mathematician's Turn:</b> (Model Talk Move #4 and use Non-Verbal Signals) Share some of the entries in their problem-solving notebooks, celebrate efforts, and establish pride in written work. Encourage them to explain their thinking process and reasoning. Allow students to practice Talk Moves #1, #2, #3 and #4.</p> <p><b>Number Talk:</b> (Model Talk Move #4 and use Non-Verbal Signals) Follow the same 6 steps as outlined in Day 2 (Number Talk).  Introduce today's problem: "<math>2 + 16 + 8 = \underline{\quad}</math>"  Have students share their solutions. Example: A student might share: "I decided to add the 8 and 2 first (<math>8 + 2 = 10</math>) and then add 16 to get my answer (<math>10 + 16 = 26</math>.)" (Associative Property)</p>	<p>To practice drawing and writing about math.</p> <p>To express their opinions, critique the reasoning of others, agree/disagree, etc.</p> <p><u>Materials:</u> *Problem-solving notebook * Ten Frame * Counters</p>
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## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

**Day 8 Objectives:** To continue establishing small group rotation/independent work time expectations, review listening and speaking expectations, non-verbal signals (optional), continue with problem-solving, Mathematician's Turn, Number Talk.

<b>Day 8</b>	<p><b><u>Introduce New Partner Game or Small Group Activity:</u></b> As a whole group, revisit the “Math Game Expectations Chart” to review expectations. Introduce a new game and review the games rules. Model the new game/activity and have all the students play. Inform students that the new game will be added to the group rotation. Break the class into groups and have the students play today’s games plus the previously taught games/activities. Have them play 5-10 minutes and then rotate to a different game/activity.</p> <p><b><u>Review Listening and Speaking Expectations</u></b> <i>(optional)</i></p> <p><b><u>Review Non-Verbal Signals:</u></b> <i>(optional)</i></p> <p><b><u>Problem-Solving:</u></b> Revisit the <u>Problem-Solving Chart</u> to review expectations for problem-solving.</p> <p>Present and discuss today’s math problem: “Julie went to the market and bought 19 peaches. Her friend Lynda went with her to the market and bought 14 peaches. How many more peaches does Julie have than Lynda?”</p> <ul style="list-style-type: none"> <li>• Allow students to discuss how they might solve the math problem.</li> <li>• If “Turn and Talk” or “Think-Pair-Share” is used, ask students what it looks like and model the procedures if necessary.</li> <li>• Have students solve the problem in their problem-solving notebook.</li> <li>• Have manipulatives readily available for students to use.</li> <li>• (Students can share solutions during Mathematician’s Turn.)</li> </ul>	<p>To continue to establish expectations for small groups and independent work time</p> <p><u>Materials:</u> * Math game/activity * Problem-solving chart * Manipulatives</p>
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## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

<b>Day 8</b>	<p><b>Mathematician's Turn:</b> (Model Talk Move #4 and use Non-Verbal Signals)</p> <ul style="list-style-type: none"> <li>• Select a few students to share their solutions to the problem about peaches.</li> <li>• Sharing student is prompted to ask if there are any questions or comments.</li> <li>• Encourage them to explain their thinking process and reasoning.</li> <li>• At the conclusion of each student's turn, the class applauds and the process continues with the next student.</li> <li>• Allow students to practice Talk Moves #1, #2, #3 and #4.</li> </ul> <p><b>Number Talk:</b> (Model Talk Move #4 and use Non-Verbal Signals)          Follow the same 6 steps as outlined in Day 2 (Number Talk).          Tell the students: Today we are going to introduce a tool to help us during our number talk. It's called a <b><u>hundred chart</u></b>. This is a tool that will be part of our toolbox so that we can use it to help us understand math.          Show a hundred chart on the document camera.</p> <p>Introduce today's problem: "I'm thinking of a number that is one more than 52 and one less than 54. What is the number?"</p> <p>Have students discuss their strategies and solutions. Students can use hundred chart on the document camera to help them solve. Select a student to share his/her solution. Repeat with a different problem.</p>	<p>To set expectations for shared thinking and to respond to classmates in a reasonable manner</p> <p><u>Materials:</u></p> <ul style="list-style-type: none"> <li>* Problem Solving Notebook</li> <li>* Hundred Chart</li> </ul> <p>A student who is unconvinced of an answer should be encouraged to keep thinking, and keep trying to understand. If it doesn't make sense yet, keep thinking, "What can I do to help myself?"</p>
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## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

**Day 9 Objectives:** To continue establishing small group rotation and independent work time expectations, introduce a talk move, continue with problem-solving, Mathematician's Turn, Number Talk.

<b>Day 9</b>	<p><b><u>Introduce New Partner Game or Small Group Activity:</u></b> As a whole group, revisit the "Math Game Expectations Chart" to review expectations. Introduce a new game and review the game rules. Model the new game/activity and have all the students play. The new game will be added to the group rotation. Break the class into groups, have the students play today's games plus the previously taught games/activities. Have them play 5-10 minutes and then rotate.</p> <p><b><u>Introduce Talk Move #5: Wait Time</u></b> Give students time to compose their responses. A teacher may tap his/her leg for ten seconds between posing a problem, and calling on a student to respond. Or point your finger at your temple, showing that you're thinking and hold it for ten seconds.</p> <p><b><u>Problem Solving:</u></b> Present and discuss today's math problem. Have students model a real-life mathematical situation with an equation. Students can use manipulatives and/or math drawings to explain the equation.</p> <ul style="list-style-type: none"> <li>• Have students create a story problem for the equation</li> </ul> $21 + \square = 30.$ <p>For example, "There were 21 gumballs in the machine. Tom poured in some more gumballs. There are 30 gumballs in the machine now. How many did Tom pour in?" Have students share their real-life mathematical situation with a partner. Students can then write their equation and solution in their problem-solving notebook.</p> <p><b><u>Mathematician's Turn:</u></b> (Model Talk Move #5 and use Non-Verbal Signals)</p> <ul style="list-style-type: none"> <li>• Have students share their responses to the problem.</li> <li>• Ask students how they solved the problem.</li> <li>• Share explanation, thinking process and reasoning.</li> <li>• Allow students to practice Talk Moves</li> </ul> <p><b><u>Number Talk:</u></b> (Model Talk Move #5 and use Non-Verbal Signals) Follow the same 6 steps as outlined in Day 2 (Number Talk). Present a Head Problem, an oral, multi-step problem that is not written on the board (write it on a post-it beforehand).</p> <ul style="list-style-type: none"> <li>• Head Problem: Start with the number 20; add the number of sides in a square; subtract 2. What is the number?</li> </ul> <p>Ask students to tell you each step along with the answer to the corresponding step. Once finished, you can repeat with a different head problem.</p>	<p>To establish shared meaning and set expectations for class discussion and questioning.</p> <p>Wait time signals the value of deliberative thinking, recognizes that deep thinking takes time, and creates a normative environment that respects and rewards both taking time to respond oneself and being patient as others take the time to formulate their thoughts.</p> <p>More students are able and willing to join in if time is provided for them to create something that they feel comfortable about sharing.</p> <p><b><u>Materials:</u></b> * Problem-Solving Notebook * Manipulatives</p>
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## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

**Day 10 Objectives:** To continue establishing small group rotation and independent work time expectations, review listening and speaking expectations, non-verbal signals (optional), continue with problem-solving, Mathematician's Turn, Number Talk.

<b>Day 10</b>	<p><b><u>Introduce a Partner Math Game or Small Group Activity:</u></b> As a whole group, revisit the "Math Game Expectations Chart" to review expectations. Introduce a new game and review the games rules. Model the new game/activity and have all the students play. Inform students that the new game will be added to the group rotation. Break the class into groups and have the students play today's games plus the previously taught games/activities. Have them play 5-10 minutes and then rotate to a different game/activity.</p> <p><b><u>Review Listening and Speaking Expectations</u></b> <i>(optional)</i></p> <p><b><u>Review Non-Verbal Signals:</u></b> <i>(optional)</i></p> <p><b><u>Problem-Solving:</u></b> Revisit the <u>Problem-Solving Chart</u> to review expectations for problem-solving. Tell the students: "Today we are going to introduce a tool to help us with problem-solving. It's called a <b>number line</b>. This is a tool that will be part of our toolbox so that we can use it to help us understand math. Show a number line on the document camera.</p> <p>Present and discuss today's math problem.</p> <ul style="list-style-type: none"> <li>• "All 20 students in Sandy's classroom went to the carnival. 8 of them are boys. How many girls are in the classroom?"</li> </ul> <p>Ask students: "How might we use the number line to help us solve this math problem?" Discuss strategies and then have the students solve the problem in their problem-solving notebook. (Have students share their solutions during "Mathematician's Turn.")</p>	<p>Now that the class has experienced different games/activities and rotations, they should be able to work independently while the teacher works with a small group.</p> <p>Now that the class has experienced problem solving daily, they should be able to do this daily. Make sure students have opportunities to use the tools presented, such as bar diagrams, ten frames, hundreds chart, and number lines.</p> <p><b><u>Materials:</u></b> * Problem-solving chart * Problem-solving notebook * Number Line</p>
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## Grade 2: The First 10 Days

### Launching Mathematics in the Common Core Classroom

<b>Day 10</b>	<p><b>Mathematician's Turn:</b> (Model Talk Move #5 and use Non-Verbal Signals)</p> <ul style="list-style-type: none"> <li>• Have students share their responses to the problem about students (above).</li> <li>• Ask students how they solved the problem.</li> <li>• Encourage them to explain their thinking process and reasoning.</li> <li>• Allow students to practice Talk Moves #1, #2, #3 and #4.</li> </ul> <p><b>Number Talk:</b> (Model Talk Move #5 and use Non-Verbal Signals) Follow the same 6 steps as outlined in Day 2 (Number Talk).</p> <p>Present a Head Problem, an oral, multi-step problem that is not written on the board. (Remember to write it on a post-it to remember the steps.)</p> <ul style="list-style-type: none"> <li>• Head Problem: Start with the largest number on the clock; subtract the number of legs in an elephant; add the number of months in a year.</li> </ul> <p>Ask students to tell you each step along with the answer to the corresponding step. Once finished, you can repeat with a different head problem.</p>	<p>Now that the class has experienced discussing mathematics the last two weeks, they should be ready to do this whenever there is problem-solving.</p> <p>Now that the class has experienced a variety of Number Talks, they will be able to do them at a rate of 3-4 times a week.</p>
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#### CONGRATULATIONS!

You have worked hard to establish the following important routines and expectations with your students during the first ten days of school:

- Daily Problem-Solving
- Listening and Speaking Expectations
- Mathematician's Turn
- Talk Moves for Mathematical Discussions
- Non-Verbal Signals
- Number Talks
- Expectations for Partner Games, Small Groups & Rotations, and Independent Work Time

By establishing and continuing to build these routines, your classroom is now a place where the Standards for Mathematical Practice can grow and thrive!

#### References:

Chapin, Suzanne. 2003. Classroom Discussions: Using Math Talk to Help Students Learn. Sausalito, California: Math Solutions.

Parrish, Sherry. 2010. Number Talks: Helping Children Build Mental Math and Computation Strategies. Sausalito, California: Math Solutions.

Van de Walle, John, & Lovin, LouAnn. 2006. Teaching Student Centered Mathematics K-3. Boston, Massachusetts: Pearson Education.

Buschman, Larry. 2006. Share and Compare: A Teacher's Story About Helping Children Become Problem Solvers in Mathematics. Reston, Virginia: NCTM.

Smith, Peg. 2011. Orchestrating Productive Discussions of Cognitively Challenging Tasks. University of Pittsburg.

## Appendix

**Number Talks** are short, daily classroom conversations around purposefully crafted computation problems that are solved mentally. Sample Number Talk problems can be found from a variety of sources.

Resources:

Inside Mathematics:

<http://www.insidemathematics.org/index.php/classroom-video-visits/number-talks>

Math Perspectives:

[http://www.mathperspectives.com/num\\_talks.html](http://www.mathperspectives.com/num_talks.html)

Math Solutions:

[http://www.mathsolutions.com/documents/numbertalks\\_sparrish.pdf](http://www.mathsolutions.com/documents/numbertalks_sparrish.pdf)

Number Strings:

<http://numberstrings.com/>

### **Three Phase Problem-Solving:**

Sample Problems/Tasks may be selected from the resources on the curriculum maps.

# Three-Phase Structure for Problem Solving

## BEFORE (5 minutes)

### Role of the Teacher

- Activate prior knowledge
- Review vocabulary
- Pose the problem
- Ensure that students understand the task

### Student Questions

- What am I trying to find?
  - I am trying to find...
- What do I know?
  - I know that...

## DURING (20 MINUTES)

### Role of the Teacher

- Let students independently work in pairs or groups
- Observe and facilitate as students work
- Ask questions to focus, assess, and advance student thinking
- Decide which solutions will be selected for sharing

### Student Checklist

- I solved the problem in more than one way.
- I explained my solution to my partner.
- I asked my partner questions so that I understand his/her solution.
- I made my solution or answer to the problem clear so that others will understand it.

## AFTER (15 minutes)

### Role of the Teacher

- Have two to three students share their thinking and work with the whole group
- Orders selected solutions to help generate mathematically productive discussion
- Asks specific questions so that students will:
  - Develop understanding of the concept
  - Add on to and question the solutions shared
  - Make connections between the solutions presented
  - Identify patterns
  - Find generalized characteristics within the problem
- Listen actively without evaluation
- Summarize the main idea and identify next steps, future problems

### Student Questions

- What questions do you have for the mathematician?
  - I'm wondering... Why did you... How did you...
- Who can restate how \_\_\_\_ solved the problem?
  - First... Next... Then...
- What is the same about the solutions shared? What is different?
  - One similarity is... Both solutions... One difference between the solutions is...

## 5 Talk Moves

### Increasing Rigor in Classroom Discussion

1. **Revoicing** – Paraphrasing some or all of what the student has said and asking them to verify if your statement was correct. Can be done by teacher-listener or student-listener.

*“So you’re saying...”*

This talk move helps bring clarity to the student’s response for both the speaker and the listener.

2. **Restating** – Asking students to restate someone else’s reasoning.

*“Can you repeat what Philip just said in your own words?”*

This move validates the speaker, helps the listeners follow the speaker’s reasoning, and gives English learners and those who need more thinking time a chance to process the information.

3. **Applying Own Reasoning** – Asking students to apply their own reasoning to someone else’s statement.

*“Do you agree or disagree with that statement? Why?”*

Explaining thinking is critical to mathematical learning. This move also highlights the speaker’s thought processes.

4. **Prompting for Participation** – Inviting students to join the discussion.

*“Would someone like to add on?”*

This move can be used alone to invite students into the conversation or in conjunction with the other moves to keep the discussion active.

5. **Wait Time** – Allowing for a few moments of silence after a student has been asked a question.

*“Take your time....we’ll wait”*

At least 10 seconds is a good amount of time to be given between asking a question and choosing a student to respond. The same amount of time is also necessary to give the chosen student time to organize their response after being called upon. This gives English learners and those who need

more time a chance to think the question through and contribute to the discussion. More points of view are added to the discussion.

## Number Talks Innovation Configuration Map

Number Talks Item	Level 1	Level 2	Level 3	Level 4
<b>Teacher Presents the Problem</b> (~3 minutes)	<b>The teacher:</b> <ul style="list-style-type: none"> <li>• presents a problem with dot cards (K-1) or computation problems.</li> <li>• provides wait time for the majority of students to access the problem.</li> <li>• prompts the students to use a “thumbs-up” as the signal that they have an answer.</li> </ul>	<b>The teacher:</b> <ul style="list-style-type: none"> <li>• All criteria in the previous level, PLUS...</li> <li>• selects a problem/dot card designed to elicit a particular approach.</li> <li>• notices the types of mental computation strategies students use especially those that are inefficient, i.e., use of fingers or writing the problem on the floor.</li> <li>• anticipates how students will respond by thinking through possible strategies for each problem beforehand.</li> <li>• asks students to think on their own and to estimate before they compute.</li> <li>• removes pencil and paper from students access.</li> </ul>	<b>The teacher:</b> <ul style="list-style-type: none"> <li>• All criteria in the previous level, PLUS...</li> <li>• selects a well-crafted series of problems/dot cards that align with the teacher’s purpose.</li> <li>• notices the types of mental computation strategies students use and provides further instruction with alternative strategies at another time.</li> <li>• <b>periodically</b> encourages students to keep thinking about the number of <i>additional</i> strategies that will work and indicate the number of strategies on their fingers.</li> <li>• uses a real-life context to help students access the math.</li> </ul>	<b>The teacher:</b> <ul style="list-style-type: none"> <li>• All criteria in the previous level, PLUS...</li> <li>• increases the rigor of the problems over time.</li> <li>• <b>consistently</b> has students think of more than one strategy that will work and indicate the number of strategies on their fingers.</li> <li>• provides targeted small group instruction to those students needing additional instruction/practice.</li> </ul>
<b>Teacher Records Answers</b> (~1 minute)	<b>The teacher:</b> <ul style="list-style-type: none"> <li>• records all answers to be considered.</li> </ul>	<b>The teacher:</b> <ul style="list-style-type: none"> <li>• All criteria in the previous level, PLUS...</li> <li>• records all answers to be considered without giving any verbal or physical expressions of agreement.</li> <li>• has students share answers.</li> </ul>	<b>The teacher:</b> <ul style="list-style-type: none"> <li>• All criteria in the previous level, PLUS...</li> <li>• periodically uses overt methods such as number cards (K/1) or whiteboards etc. to elicit the answers of all students.</li> <li>• has students discuss which answers are reasonable and which answers could be ruled out</li> </ul>	<b>The teacher:</b> <ul style="list-style-type: none"> <li>• All criteria in the previous level, PLUS...</li> <li>• keeps records such as checklists, anecdotal notes of students’ answers and/or participation.</li> <li>• strategically chooses when students will use overt methods to reveal answers</li> <li>• discusses reasonableness of answers based on logic and number sense.</li> </ul>



## Number Talks Innovation Configuration Map

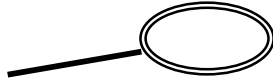
Number Talks Item	Level 1	Level 2	Level 3	Level 4
<b>Teacher Records Student Thinking</b> (~8 minutes)	<b>The teacher:</b> <ul style="list-style-type: none"> <li>provides opportunities for several students to share their strategies.</li> <li>records student thinking.</li> <li>resources are displayed such as ten frames, hundreds charts and number lines.</li> </ul>	<b>The teacher:</b> <ul style="list-style-type: none"> <li>All criteria in the previous level, PLUS...</li> <li>occasionally uses Talk Moves to help students explain their thinking and/or orient their thinking to others with little student engagement or discussion.</li> <li>records student thinking in a mathematically correct manner by using proper notation.</li> <li>displays sentence and question starters to help students frame their questions and comments.</li> <li>periodically references resources that are displayed such as ten frames, hundreds charts, number lines and strategy posters.</li> <li>regularly provides opportunities for students to orally practice using displayed sentence/question starters to help frame their questions and comments.</li> </ul>	<b>The teacher:</b> <ul style="list-style-type: none"> <li>All criteria in the previous level, PLUS...</li> <li>regularly uses Talk Moves</li> <li>records student thinking using numbers as well as pictures, open number lines, area models, etc. as appropriate.</li> <li>regularly references tools that are displayed such as ten frames, hundreds charts, number lines and class created strategy posters.</li> </ul>	<b>The teacher:</b> <ul style="list-style-type: none"> <li>All criteria in the previous level, PLUS...</li> <li>invites students to explain thinking to the class by drawing pictures, open number lines and area models when appropriate.</li> <li>strategically uses a variety of Talk Moves to further classroom discussion and understanding of the mathematics.</li> <li>strategically references tools that are displayed such as ten frames, hundreds charts, number lines and class created strategy posters and asks students to reference those tools during their explanation.</li> </ul>
<b>Further Discussion</b> (~3 minutes)	<b>The teacher:</b> <ul style="list-style-type: none"> <li>may or may not provide opportunities for further discussion.</li> <li>limits the number talks to 10 to fifteen minutes.</li> </ul>	<b>The teacher:</b> <ul style="list-style-type: none"> <li>provides opportunities for further discussion.</li> <li>leads a discussion that identifies the correct answer.</li> <li>calls out new strategies used.</li> </ul>	<b>The teacher:</b> <ul style="list-style-type: none"> <li>All criteria in the previous level, PLUS...</li> <li>leads a discussion on the most efficient strategy rather than asking for the correct answer to a problem.</li> </ul>	<b>The teacher:</b> <ul style="list-style-type: none"> <li>All criteria in the previous level, PLUS...</li> <li>using Talk Moves, facilitates class discussion in which students explain which strategy they believe is most efficient and why.</li> <li>asks students if other problems presented during the session can be solved using the new strategy and if it would be the most efficient for that particular problem.</li> </ul>

### Materials/Resources

- Number Talks; *Helping Children Build Mental Math and Computation Strategies Grades K-5*, Sherry Parrish - available at all school sites in the principal's office
- Dot Cards and Problem Set packets were distributed in K - 1 math content training in 2013-2014 and are posted on the math intranet – instructional tools – Elementary – Number Talks
- Rekenreks will be introduced in Grade 1 during the 2014-2015 school years. Rekenreks are composed of two rows of stringed beads, each with 5 beads of one color and 5 beads of another color. They are used to help students build fluency with numbers 0 – 20, and compute using number relationships.

# Math Constructive Conversation Skills Poster

## Clarify Problem and Ideas for Solving It



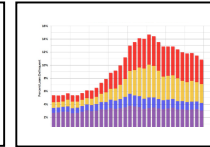
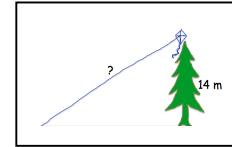
### Prompt starters:

What are we trying to do?  
 What is the problem asking?  
 How does the problem begin?  
 What happens in the problem?  
 What do we need to know?  
 How can we break this down?  
 What type of problem is this?  
 What patterns do we notice?  
 What's a possible plan for solving it?  
 What is your estimate for the answer?  
 Why are you doing that?  
 Where did that number come from?

### Response starters:

In order to \_\_\_\_, we need to ...  
 In other words,  
 More specifically, it is ... because...  
 Let's see, it is similar to the problem about ... that we did because...  
 It is important to \_\_\_\_ because  
 Let's stay focused on ....  
 Let's get back to the idea of...  
 In future problems like this one we need to remember to...

## Generate & Try Multiple Methods & Representations



$$\int_0^{\infty} \sum_{l=0}^{\infty} \frac{A_l(x)}{2\pi}$$

### Prompt starters:

How else can we show this?  
 How can we draw or graph this?  
 What symbols can we use?  
 How can we explain this to others?  
 How can we write what we are thinking/doing?  
 How can we translate this into symbols?  
 Let's back up and try a different way.  
 Which method is most useful? Why?

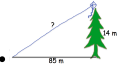

### Response starters:

Maybe we can use...  
 Another way to show this is...  
 In math symbols we could write...  
 We can draw it like this because it says...  
 Let's try to... and see what happens.

## Build Math Solutions, Ideas, & Understandings

## Explain & Support Reasoning



“rules” e.g.  verify 

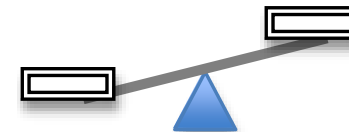
### Prompt starters:

Can you explain why you...?  
 What does that mean?  
 What are you doing?  
 What math rule are you using?  
 Can you give an example?  
 How does the sample problem help us?  
 What are examples of this problem from real life?  
 Can you clarify where you...?  
 How did you get this answer?

### Response starters:

If we \_\_\_\_, then we need to \_\_\_\_ because...  
 A key mathematical principle is making sure that you...  
 In real life this is similar to when you want to...  
 An example from my life is  
 One case that illustrates this is...  
 In math, we always need to...  
 Let me show you what I mean.  
 We can't do that because it...

## Negotiate Ideas



### Prompt starters:

How can we add to the idea of...  
 What do you think about this strategy for solving it?  
 What else could support this idea?  
 Do you agree?  
 What contradicts this? What are other points of view?  
 What did we learn from doing this problem? How will it help in life?  
 Let's create a similar problem.

### Response starters:

That reminds me of...  
 I want to add on to your idea of...  
 That idea connects to...  
 I see it a different way,  
 On the other hand, ...  
 That makes me think of...  
 We can agree that...