Introduction to the Document:
Welcome to the Los Angeles Unified School District’s Elementary Mathematics CCSS Curriculum Map for Third 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](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/](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 problem-solving strategies and daily routines.

**Critical Areas:**

In Grade 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes.

• Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

• Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the paint in a larger bucket, but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

• Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by
finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.

- Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

Special Thanks: The CCSS-aligned Curriculum Maps were updated under the auspices of Dr. Frances Gipson, Chief Academic Officer, and Katie McGrath, Director of Elementary Instruction. There are many individuals who participated in the creation of this document, including reviewing and field-testing. We wish to thank everyone, especially: Gerardo Loera, Susan Tandberg, Mark Duncan, Charity Weber, Charles Cho, Barbara Goodwin, Norma Cantu, Karen Grigsby, Jose Dorado, Laura Acosta, Carina Tsuneta, Daniel Kim, Dr. Jared Dupree, Dina Williams, Michael Blount, Beverly Nichols, Caroline Piangerelli, Shirley Guzman, Dr. Philip Ogbuehi, Ricardo Romero, Erin Cuenca, Christie Caric, Anna Arredondo-Kim, Dena Teach-Saumers, Lara Cohen, Barbara Avilez, Diana Inouye, Rachel Sawyer, Evelyn Samos, Sherrie Dunbridge-Ryan, Michelle Staine, Steve Allen, Monica Esparza, Lisa Melton, Lisa Saldivar, and Lisa Ward.
## DOMAIN: Operations and Algebraic Thinking

### Cluster: Represent and solve problems involving multiplication and division.

**Big Idea:** There are multiple interpretations of addition, subtraction, multiplication, and division of rational numbers, and each operation is related to other operations.

**Enduring Understandings:** Repeated addition and arrays involving joining equal groups are both ways to think about multiplication. Some real-world problems involving joining or separating equal groups or comparison can be solved using division. Sharing and repeated-subtraction both involve separating equal groups and are two ways to think about division. Any division problem can be thought of as a multiplication fact with a missing factor.

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

**Enduring Understandings:** Basic multiplication facts with 3, 4, 6, 7, or 8 as factors, can be found by breaking apart the unknown fact into known facts. Patterns and known facts can be used to find unknown multiplication facts.

**Big Ideas:** Mathematical situations and structures can be translated and represented abstractly using variables, expressions, and equations in an infinite number of ways that have the same value.

**Enduring Understandings:** An equation shows a balance between what is on the right side and what is on the left side of the equal sign.

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</table>
| 3.OA.1 Interprete... | 3.OA.1 Make sense of problems and persevere in solving them. | **About Teaching Mathematics, 2nd Ed.** (Burns, 2000)  
  - Multiplication, pp. 194-195  
  - Circles and Stars, pp. 196-197  
  - Candy Boxes, pp. 197-198  
  - Patterns in Multiples, p. 198 | **My Math** Assessment Masters  
  - Ch. 4, pp. 83-103  
  - Ch. 8, pp. 183-204 |
| 3.OA.1 Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 x 7. | 3.OA.1 Reason abstractly and quantitatively.  
  - MP1 Make sense of problems and persevere in solving them.  
  - MP2 Reason abstractly and quantitatively.  
  - MP3 Construct viable arguments and critique the reasoning of others.  
  - MP4 Model with mathematics.  
  - MP5 Use appropriate tools strategically.  
  - MP6 Attend to precision.  
  - MP7 Look for and express regularity in repeated reasoning.  
  - MP8 Look for and express regularity in repeated reasoning. | [https://www.engageny.org/ccls-math/3oa1](https://www.engageny.org/ccls-math/3oa1)  
  [http://3-5cctask.ncdpi.wikispaces.net/3.OA.1-3.OA.4](http://3-5cctask.ncdpi.wikispaces.net/3.OA.1-3.OA.4)  
  [https://www.engageny.org/ccls-math/3oa1](https://www.engageny.org/ccls-math/3oa1)  
  [https://www.engageny.org/ccls-math/3oa1](https://www.engageny.org/ccls-math/3oa1)  
  [https://www.engageny.org/ccls-math/3oa1](https://www.engageny.org/ccls-math/3oa1)  
  [https://www.engageny.org/ccls-math/3oa1](https://www.engageny.org/ccls-math/3oa1) | **My Math** Think Smart for the SBAC  
  - Chapter 4 Test, p. 71  
  - Chapter 8 Test, p. 95  
  - Chapter 4 Performance Tasks, p. 143  
  - Chapter 8 Performance Tasks, p. 151  
  - **My Math** eAssessment |

**My Math** Assessment Masters  
- Ch. 4, pp. 83-103  
- Ch. 8, pp. 183-204

**My Math** Think Smart for the SBAC  
- Chapter 4 Test, p. 71  
- Chapter 8 Test, p. 95  
- Chapter 4 Performance Tasks, p. 143  
- Chapter 8 Performance Tasks, p. 151

**My Math** eAssessment
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</table>
| 3.OA.2 Interpret whole-number quotients of whole numbers, e.g., interpret 56 divided by 8 as a number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 divided by 8. | **About Teaching Mathematics, 2nd Ed.** (Burns, 2000)  
- Division, pp. 204-209  
- The Doorbell Rang, pp. 205-206  
- Division Grouping Problems, pp. 206-207  
- Leftovers, pp. 208-209  

engageNY  
https://www.engageny.org/ccls-math/3oa2  

Illustrative Mathematics  
- Fish Tanks  
http://www.illustrativemathematics.org/illustrations/1531  
- Markers in Boxes  
http://www.illustrativemathematics.org/illustrations/1540  

NC Department of Public Instruction  
- 3.OA.2 Task 1.doc, Bike Race  
- 3.OA.2 Task 2.doc, Sherrin’s Breakfast  
- 3.OA.2 Task 3.doc, Ray’s Hamster Run  
http://3-5cctask.ncdpi.wikispaces.net/3.OA.1-3.OA.4  

My Math  
- 5-1 Model Division  
- 5-2 Division as Equal Sharing  
- 5-3 Relate Division and Subtraction  
- 7-8 Divide with 0 and 1  
- 8-9 Divide by 11 and 12 | **My Math Assessment Masters**  
- Ch. 5, pp. 133-153  
- Ch. 7, pp. 158-178  
- Ch. 8, pp. 183-204  

**My Math Think Smart for the SBAC**  
- Chapter 5 Test, p. 77  
- Chapter 7 Test, p. 89  
- Chapter 8 Test, p. 95  
- Chapter 5 Performance Tasks, p. 145  
- Chapter 7 Performance Tasks, p. 149  
- Chapter 8 Performance Tasks, p. 151  

**My Math eAssessment** |
### STANDARDS FOR MATHEMATICAL CONTENT
- **3.OA.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

### RESOURCES

- **engageNY**
  - [https://www.engageny.org/ccls-math/3oa3](https://www.engageny.org/ccls-math/3oa3)

- **Illustrative Mathematics**
  - Two Interpretation of Division
    - [http://www.illustrativemathematics.org/illustrations/344](http://www.illustrativemathematics.org/illustrations/344)
  - Analyzing Word Problems Involving Multiplication
    - [http://www.illustrativemathematics.org/illustrations/365](http://www.illustrativemathematics.org/illustrations/365)
  - Gifts from Grandma, Variation 1
    - [http://www.illustrativemathematics.org/illustrations/262](http://www.illustrativemathematics.org/illustrations/262)

- **LAUSD Fellows CCSS-aligned Task**
  - Chorus Line-up
    - [http://achieve.lausd.net/cms/lib08/CA01000043/Centricity/Domain/244/Esparza%20CCSS%20Aligned%20Task%20Edited%201.27.15_Post.pdf](http://achieve.lausd.net/cms/lib08/CA01000043/Centricity/Domain/244/Esparza%20CCSS%20Aligned%20Task%20Edited%201.27.15_Post.pdf)

- **NC Department of Public Instruction**
  - 3.OA.3 Task 1.doc
  - 3.OA.3 Task 2.doc
  - 3.OA.3 Task 3.doc
    - [http://3-5cctask.ncdpi.wikispaces.net/3.OA.1-3.OA.4](http://3-5cctask.ncdpi.wikispaces.net/3.OA.1-3.OA.4)

- **My Math**
  - Assessment Masters
    - Ch. 4, pp. 83-103
    - Ch. 6, pp. 133-153
    - Ch. 7, pp. 158-178
    - Ch. 8, pp. 183-204
  - Think Smart for the SBAC
    - Chapter 4 Test, p. 71
    - Chapter 6 Test, p. 83
    - Chapter 7 Test, p. 89
    - Chapter 8 Test, p. 95
    - Chapter 4 Performance Tasks, p. 143
    - Chapter 6 Performance Tasks, p. 147
    - Chapter 7 Performance Tasks, p. 149
    - Chapter 8 Performance Tasks, p. 151

- **My Math eAssessment**

### STANDARDS FOR MATHEMATICAL PRACTICE
- **MP1** Make sense of problems and persevere in solving them.
- **MP2** Reason abstractly and quantitatively.
- **MP3** Construct viable arguments and critique the reasoning of others.
- **MP4** Model with mathematics.
- **MP5** Use appropriate tools strategically.
- **MP6** Attend to precision.
- **MP 7** Look for and make use of structure.
- **MP8** Look for and express regularity in repeated reasoning.

### ASSESSMENTS

**My Math**
- Assessment Masters
  - Ch. 4, pp. 83-103
  - Ch. 6, pp. 133-153
  - Ch. 7, pp. 158-178
  - Ch. 8, pp. 183-204

**My Math**
- Think Smart for the SBAC
  - Chapter 4 Test, p. 71
  - Chapter 6 Test, p. 83
  - Chapter 7 Test, p. 89
  - Chapter 8 Test, p. 95
  - Chapter 4 Performance Tasks, p. 143
  - Chapter 6 Performance Tasks, p. 147
  - Chapter 7 Performance Tasks, p. 149
  - Chapter 8 Performance Tasks, p. 151

**My Math**
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<td>3.OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = □ ÷ 3, 6 × 6 = □.</td>
<td>MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.</td>
<td>engage ny <a href="https://www.engageny.org/ccls-math/3oa4">https://www.engageny.org/ccls-math/3oa4</a> NC Department of Public Instruction  • 3.OA.4 Task 1.doc, Chairs for a Party  • 3.OA.4 Task 2.doc, Glue for the Tables  • 3.OA.4 Task 3.doc, Making Cards  • 3.OA.4 Task 4.doc, Crackers for All <a href="http://3-5cctask.ncdpi.wikispaces.net/3.OA.1-3.OA.4">http://3-5cctask.ncdpi.wikispaces.net/3.OA.1-3.OA.4</a> My Math  • 6-3 Divide by 2  • 7-2 Divide by 3</td>
<td>My Math Assessment Masters  • Ch. 6, pp. 133-153  • Ch. 7, pp. 158-178 My Math Think Smart for the SBAC  • Chapter 6 Test, p. 83  • Chapter 7 Test, p. 89  • Chapter 6 Performance Tasks, p. 147  • Chapter 7 Performance Tasks, p. 149 My Math eAssessment</td>
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</table>
CLUSTER: Understand properties of multiplication and the relationship between multiplication and division.

**Big Idea:** For a given set of numbers there are relationships that are always true, called properties, and these are the rules that govern arithmetic and algebra.

**Enduring Understandings:** Two numbers can be multiplied in any order and the product remains the same. The Distributive Property can be used to break a large array into two smaller arrays. Three or more numbers can be grouped and multiplied in any order.

**Big Idea:** There are multiple interpretations of addition, subtraction, multiplication, and division of rational numbers, and each operation is related to other operations.

**Enduring Understanding:** Any division problem can be thought of as a multiplication fact with a missing factor. Then, an answer can be found using a multiplication table.

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| 3.OA.5 Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) Examples: If 6 x 4 = 24 is known, then 4 x 6 = 24 is also known. (Commutative property of multiplication.) 3 x 5 x 2 can be found by 3 x 5 = 15; then 15 x 2 = 30. (Associative property of multiplication.) Knowing that 8 x 5 = 40 and 8 x 2 = 16, one can find 8 x 7 as 8 x (5 + 2) = (8 x 5 + 8 x 2) = (40 + 16) = 56 (Distributive Property). | MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP 7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning. | engageNY | My Math Assessment Masters  
- Ch. 9, pp. 209-229 |
| NC Department of Public Instruction  
- 3.OA.5 Task 1.doc, Patterns on the Multiplication Chart  
- 3.OA.5 Task 2.doc, Prove It!  
http://3-5cctask.ncdpi.wikispaces.net/3.OA.5-3.OA.6 | | My Math  
- Chapter 9 Test, p. 101  
- Chapter 9 Performance Tasks, p. 153 |
<p>| My Math eAssessment | | | |</p>
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</table>
| 3.OA.6. Understand division as an unknown-factor problem. For example, find 32 divided by 8 by finding the number that makes 32 when multiplied by 8. | MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning. | engage<sup>ny</sup> [https://www.engageny.org/ccls-math/3oa6](https://www.engageny.org/ccls-math/3oa6) | NC Department of Public Instruction  
- 3.OA.6 Task 1.doc, Sharing Pencils  
CLUSTER: Multiply and divide within 100.

**Big Idea:** There are multiple interpretations of addition, subtraction, multiplication, and division of rational numbers, and each operation is related to other operations.

**Enduring Understanding:** The inverse relationship between multiplication and division can be used to find division facts; every division fact has a related multiplication fact.

**Big Idea:** For a given set of numbers there are relationships that are always true, called properties, and these are the rules that govern arithmetic and algebra.

**Enduring Understanding:** Any number (except 0) divided by itself is equal to 1. Any number divided by 1 is that number. Zero divided by any number (except 0) is zero. Zero cannot be a divisor.

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**3.OA.7** Fluently multiply and divide using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 divided by 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

**MP1** Make sense of problems and persevere in solving them.

**MP2** Reason abstractly and quantitatively.

**MP3** Construct viable arguments and critique the reasoning of others.

**MP4** Model with mathematics.

**MP5** Use appropriate tools strategically.

**MP6** Attend to precision.

**MP 7** Look for and make use of structure.

**MP8** Look for and express regularity in repeated reasoning.

**engageNY**

https://www.engageny.org/ccls-math/3oa7

**NC Department of Public Instruction**

- 3.OA.7 Task 2.doc: Planting Tomatoes
  http://3-5cctask.ncdpi.wikispaces.net/3.OA.7

**NCTM Illuminations**

- Number Line Journeys
  http://illuminations.nctm.org/Lesson.aspx?id=2602

**My Math**

- 5-4 Relate Division and Multiplication
- 5-5 Inverse Operations
- 5-6 Problem-Solving Investigation: Use Models
- 6-5 Divide by 5
- 6-9 Divide by 10
- 8-3 Divide by 6 and 7

**Kentucky Department of Education**

- Formative Assessment Lesson: Multiplication
  http://education.ky.gov/curriculum/compass/Math/Pages/ElemFormAssessLessons.aspx

**My Math** Assessment Masters

- Ch. 5, pp. 108-128
- Ch. 6, pp. 133-153
- Ch. 8, pp. 183-204

**My Math** Think Smart for the SBAC

- Chapter 5 Test, p. 77
- Chapter 6 Test, p. 83
- Chapter 8 Test, p. 95
- Chapter 5 Performance Tasks, p. 145
- Chapter 6 Performance Tasks, p. 147
- Chapter 8 Performance Tasks, p. 151

**My Math** eAssessment
**CLUSTER:** Solve problems involving the four operations, and identify and explain patterns in arithmetic.

**Big Idea:** Mathematics content and practices can be applied to solve problems.

**Enduring Understandings:** Sometimes the answer to one problem/question is needed to find the answer to another problem/question. Some problems can be solved by first finding and solving a sub-problem(s) and then using that answer(s) to solve the original problem.

**Big Idea:** Relationships can be described and generalized made for mathematical situations that have numbers or objects that repeat in predictable ways. For some relationships, mathematical expressions and equations can be used to describe how members of one set are related to members of a second set. 

**Enduring Understandings:** There are patterns in the products for multiplications facts with a factor of 0, a factor of 1, a factor of 2, a factor of 5, and a factor of 9. Patterns can be used to find products involving factors of 10.

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| 3.OA.8 Solve two-step word problems using the four operations. | Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (limited to whole numbers, perform operations in conventional order without parentheses) | **Research** | My Math Assessment Masters  
- Ch. 9, pp. 209-229 | My Math Think Smart for the SBAC  
- Chapter 9 Test, p. 101  
- Chapter 9 Performance Tasks, p. 153 |
| MP1 Make sense of problems and persevere in solving them. | Reason abstractly and quantitatively. | **EngageNY**  
https://www.engageny.org/ccls-math/3oa8 | My Math eAssessment |
| MP2 Reason abstractly and quantitatively. | Construct viable arguments and critique the reasoning of others. | **Illustrative Mathematics**  
- The Stamp Collection  
http://www.illustrativemathematics.org/illustrations/13  
- The Class Trip  
http://www.illustrativemathematics.org/illustrations/1301 | |
| MP3 Model with mathematics. | Use appropriate tools strategically. | **My Math**  
- 3.OA.8 Task 1.doc, Earning Money  
- 3.OA.8 Task 2.doc, Packs of Juice Boxes  
- 3.OA.8 Task 3.doc, Trip to the Amusement Park  
- 3.OA.8 Task 4.doc, Soccer Uniform  
http://3-5cctask.ncdpi.wikispaces.net/3.OA.8-3.OA.9 | |
| MP4 Model with mathematics. | Use tools strategically. | **NC Department of Public Instruction**  
- 3.OA.8 Task 1.doc, Earning Money  
- 3.OA.8 Task 2.doc, Packs of Juice Boxes  
- 3.OA.8 Task 3.doc, Trip to the Amusement Park  
- 3.OA.8 Task 4.doc, Soccer Uniform  
http://3-5cctask.ncdpi.wikispaces.net/3.OA.8-3.OA.9 | |
| MP5 Use appropriate tools strategically. | Make use of structure. | **LAUSD CCSS-Aligned Math Task Project** (also 3.OA.6, 3.OA.7)  
- Apples or Oranges  
| MP6 Attend to precision. | Look for and express regularity in repeated reasoning. | **My Math**  
- 9-6 Evaluate Expressions  
- 9-7 Write Equations  
- 9-8 Solve Two-Step Word Problems  
- 9-9 Problem-Solving Investigation: Use Logical Reasoning | |
### Standards for Mathematical Content

- **3.OA.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.

### Standards for Mathematical Practice

- **MP1** Make sense of problems and persevere in solving them.
- **MP2** Reason abstractly and quantitatively.
- **MP3** Construct viable arguments and critique the reasoning of others.
- **MP4** Model with mathematics.
- **MP5** Use appropriate tools strategically.
- **MP6** Attend to precision.
- **MP7** Look for and make use of structure.
- **MP8** Look for and express regularity in repeated reasoning.

### Resources

- **engageNY**
  - [https://www.engageny.org/ccls-math/3oa9](https://www.engageny.org/ccls-math/3oa9)
- **Illustrative Mathematics**
  - Addition Patterns: [http://www.illustrativemathematics.org/illustrations/953](http://www.illustrativemathematics.org/illustrations/953)
  - Patterns in the Multiplication Table: [http://www.illustrativemathematics.org/illustrations/956](http://www.illustrativemathematics.org/illustrations/956)
- **NC Department of Public Instruction**
  - 3.OA.9 Task 1.doc, Patterns in a Table
- **My Math**
  - Patterns in the Multiplication Table: [6-1](http://www.ode.state.or.us/wma/teachlearn/commoncore/mat.03.er.3.000oa.b.235_v1.pdf)
  - Multiply by 5: [6-4](http://www.ode.state.or.us/wma/teachlearn/commoncore/mat.07.er.3.000oa.b.227_v1.pdf)
  - Problem-Solving Investigation: Look for a Pattern: [6-6](http://www.ode.state.or.us/wma/teachlearn/commoncore/mat.07.er.3.000oa.b.227_v1.pdf)
  - Multiply by 10: [6-7](http://www.ode.state.or.us/wma/teachlearn/commoncore/mat.07.er.3.000oa.b.227_v1.pdf)
  - Multiply by 0 and 1: [7-7](http://www.ode.state.or.us/wma/teachlearn/commoncore/mat.07.er.3.000oa.b.227_v1.pdf)
  - Multiply by 7: [8-2](http://www.ode.state.or.us/wma/teachlearn/commoncore/mat.07.er.3.000oa.b.227_v1.pdf)
  - Multiply by 8: [8-4](http://www.ode.state.or.us/wma/teachlearn/commoncore/mat.07.er.3.000oa.b.227_v1.pdf)
  - Multiply by 9: [8-5](http://www.ode.state.or.us/wma/teachlearn/commoncore/mat.07.er.3.000oa.b.227_v1.pdf)

### Assessments

- **SBAC Sample Summative Item**
  - [3.OA.9 (ER)](http://www.ode.state.or.us/wma/teachlearn/commoncore/mat.03.er.3.000oa.b.235_v1.pdf)
- **My Math**
  - Assessment Masters
    - Ch. 6, pp. 133-153
    - Ch. 7, pp. 158-178
    - Ch. 8, pp. 183-204
  - Think Smart for the SBAC
    - Chapter 6 Test, p. 83
    - Chapter 7 Test, p. 89
    - Chapter 8 Test, p. 95
    - Chapter 6 Performance Tasks, p. 147
    - Chapter 7 Performance Tasks, p. 149
    - Chapter 8 Performance Tasks, p. 151
  - eAssessment
## ESSENTIAL QUESTIONS

1. What are different meanings of multiplication?

2. How are addition and multiplication related?

3. What patterns can be used to find certain multiplication facts?

4. How can unknown multiplication facts be found using known facts?

5. What are different meanings of division?

6. How is division related to other operations?

## LANGUAGE OBJECTIVES AND SUPPORTS

1. Students will restate the different meanings of multiplication using paraphrasing expression (e.g. so what you are saying is; if I understand you correctly.) *(Teacher may provide sentence frames to support students with using paraphrasing expressions.)*

2. Students will explain how addition and multiplication are related using correct subject-verb agreement. *(Teacher may provide sentence frames to assist students in beginning sentences.)*

3. Students will explain the patterns that can be used to find certain multiplication facts using modal verbs (can, could, may, might). *(Teachers may construct open-ended questions that promote critical thinking and classroom discourse.)*

4. Students will describe ways to use known facts to find unknown multiplication facts using complete sentences. *(Teacher may provide sentence frames to assist students in beginning sentences.)*

5. Students will elaborate on the different meanings of division using targeted vocabulary. *(Teacher may provide opportunities for pair-share and reporting what the partner just said.)*

6. Students will describe how division is related to other operations using by using pronouns (we, you, I) and prepositional phrases (by, to,....) in complex sentences. *(Teacher may provide sentence frames to support description.)*

## KEY VOCABULARY

- Array
- Associative Property of Multiplication
- Combination
- Commutative Property of Multiplication
- Distributive Property
- Divide
- Dividend
- Division
- Division sentence
- Divisor
- Equal groups
- Equation
- Evaluate
- Fact Family
- Factors
- Identity Property of Multiplication
- Inverse operation
- Multiples
- Multiplication
- Multiplication sentence
- Multiply
- Partial products
- Product
- Quotient
- Related facts
### ESSENTIAL QUESTIONS

7. How can an unknown division fact be found by thinking of a related multiplication fact?

### LANGUAGE OBJECTIVES AND SUPPORTS

7. Students will explain how an unknown division fact can be found by thinking of a related multiplication fact using complete sentences. **Teacher may construct open-ended questions that promote critical thinking and classroom discourse.**

### KEY VOCABULARY

- Repeated subtraction
- Tree diagram
- Twice
- Variable
- Zero Property of Multiplication

### DAILY/WEEKLY ROUTINES

- Daily Oral Language and CGI
  
  [http://achieve.lausd.net/Page/7028](http://achieve.lausd.net/Page/7028)


### LITERATURE CONNECTIONS

- Mac & Cheese, Pleeeze by Eleanor Ma
- One Hundred Hungry Ants by Elinor J. Princzes
- Annie and the Old One by Miska Miles
- Teddys Bear Math by Barbara Barbieri
- Moove Over!: A Book About Counting by Twos by Karen Magnuson Bell
- Minnie’s Diner by Dayle Ann Dodds
- Ox-Cart Man by Donald Hall
- How Many Days to America? by Eve Bunting
- Each Orange Had 8 Slices by Paul Giganti, Jr.
- Math Appeal by Greg Tang
- The Rajah’s Rice: A Mathematical Folktales from India by David Barry
- The Grapes of Math by Greg Tang
- Mailing May by Michael O. Tunnell
- Millions of Cats by Wanda Gag
- Six-Dinner Sid by Inga Moore
- The Lion’s Share by Matthew McElligott
- The Hundred Penny Box by Sharon Bell
- Eight Hands Round: A Patchwork Alphabet by Ann Whitford
- Grandfather’s Journey by Allen Say
- Fly Away Home by Eve Bunting
- Too Many Kangaroo Things to Do! by Stuart J. Murphy
- Miss Rumphius by Barbara Cooney
- The Great Divide: A Mathematical Marathon by Dayle Ann Dodds
- Owl Moon by Jan Yolen
- Eight Hands Round: A Patchwork Alphabet by Ann Whitford Paul
- Pigs Will Be Pigs: Fun with Math and Money by Amy Axelrod
- A Remainder of One by Elinor J. Pinczes
- The Math Curse by Jon Scieszka
- Peppe the Lamplighter by Elisa Bartone
### Grade 3 Curriculum Map

**Los Angeles Unified School District • Grade 3**

**2016-2017**

#### DIFFERENTIATION

<table>
<thead>
<tr>
<th>FRONT LOADING(^1)</th>
<th>ENRICHMENT(^2)</th>
<th>INTERVENTION(^3)</th>
</tr>
</thead>
</table>
| **My Math**<br>Each chapter includes: (at beginning of chapter)  
  - My Math Words  
  - My Vocabulary Cards  
  - My Foldables | **My Math**<br>Each lesson includes:  
  - a beyond level hands-on activity under differentiated instruction (found after Practice & Apply) | **My Math**<br>Each lesson includes:  
  - an approaching level hands-on activity (found after Practice & Apply)  
  - Tier 2 Strategic Intervention, Ch. 4, p. 218A  
  - Tier 2 Strategic Intervention, Ch. 5, p. 264A  
  - Tier 2 Strategic Intervention, Ch. 6, p. 326A  
  - Tier 2 Strategic Intervention, Ch. 7, p. 396A  
  - Tier 2 Strategic Intervention, Ch. 8, p. 448A  
  - Tier 2 Strategic Intervention, Ch. 8, p. 468A  
  - Tier 2 Strategic Intervention, Ch. 9, p. 526A |
| **Each lesson includes: (at beginning of lesson)**  
  - ELL Instructional Strategy | | |

**Key:**

\(^1\) 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, standard English learners, students with disabilities or low achieving students.

\(^2\) 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.

\(^3\) 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:

DOMAIN: Number and Operations in Base Ten

CLUSTER: Use place value understanding and properties of operations to perform multi-digit arithmetic. (a range of algorithms may be used)

Big Idea: The base-ten numeration system is a scheme for recording numbers using digits 0-9, groups of ten, and place value.
Enduring Understanding: Our number system is based on groups of ten. Whenever we get 10 in one place value, we move to the next greater place value.

Big Idea: The set of real numbers is infinite and ordered. Whole numbers, integers, and fractions are real numbers. Each real number can be associated with a unique point on the number line.
Enduring Understandings: The distance between any two consecutive whole numbers on a given number line is the same. Equal distances on the number line must correspond to equal differences in the numbers. The scale on some graphs is a number line.

Big Idea: Numbers can be approximated by numbers that are close. Numerical calculations can be approximated by replacing numbers with other numbers that are close and easy to compute with mentally.
Enduring Understandings: The rounding process is based on knowing the number halfway between multiples of 10, 100, and so on. Rounding is a process for finding the multiple of 10, 100, etc. closest to a given number.

Big Idea: There are multiple interpretations of addition, subtraction, multiplication, and division of rational numbers, and each operation is related to other operations.
Enduring Understandings: Some real-world problems involving joining, separating, part-part-whole, or comparison can be solved using addition or subtraction. Fact families show addition and subtraction relationships.

Big Idea: For a given set of numbers there are relationships that are always true called properties, and these are the rules that govern arithmetic and algebra.
Enduring Understandings: Two numbers can be added in any order; the sum of any number and 0 is that number; and three or more numbers can be grouped and added in any order.

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

Big Idea: Any number measure, numerical expression, algebraic expression, or equation can be represented in an infinite number of ways that have equivalence.
Enduring Understandings: An equation shows a balance between what is on the right side and what is on the left side of the equal sign.
<table>
<thead>
<tr>
<th>STANDARDS FOR MATHEMATICAL CONTENT</th>
<th>STANDARDS FOR MATHEMATICAL PRACTICE</th>
<th>RESOURCES</th>
<th>ASSESSMENTS</th>
</tr>
</thead>
</table>
| 3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100. | MP1 Make sense of problems and persevere in solving them. | engageNY <https://www.engageny.org/ccls-math/3nbt1> | My Math Assessment Masters  
• Ch.1, pp. 7-27 |
|                                     | MP2 Reason abstractly and quantitatively. | Illustrative Mathematics  
• Rounding to 50 or 500 <http://www.illustrativemathematics.org/illustrations/745> | My Math Think Smart for the SBAC  
• Chapter 1 Test, p. 53  
• Chapter 1 Performance Tasks, p. 137 |
|                                    | MP3 Construct viable arguments and critique the reasoning of others. | Inside Mathematics  
• Grade 3 MARS Tasks: A Question of Numbers (also 3.NBT.2) <http://www.insidemathematics.org/index.php/number-and-operations-in-base-ten-nbt> | My Math eAssessment |
|                                    | MP4 Model with mathematics. | NC Department of Public Instruction  
• 3.NBT.1 Task 1.doc, Cafeteria Lunch Order  
• 3.NBT.1 Task 2.doc, Comparing Heights  
• 3.NBT.1 Task 3.doc, All About Rounding <http://3-5cctask.ncdpi.wikispaces.net/3.NBT.1-3.NBT.3> | |
|                                    | MP5 Use appropriate tools strategically. | My Math  
• 1-1 Place Value through Thousands  
• 1-2 Compare Numbers  
• 1-3 Order Numbers  
• 1-4 Round to the Nearest Ten  
• 1-5 Round to the Nearest Hundred  
• 1-6 Problem-Solving Investigation: Use the Four-Step Plan | |
<table>
<thead>
<tr>
<th>Standards for Mathematical Content</th>
<th>Standards for Mathematical Practice</th>
<th>Resources</th>
<th>Assessments</th>
</tr>
</thead>
</table>
| 3.NBT.2                           | Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. | **About Teaching Mathematics, 2nd Ed.** (Burns, 2000)  
  • Palindromes, pp. 127-128  
  • How Many Sums? p. 131  
  • Addition Table Explorations, p. 132  
  [engageny](https://www.engageny.org/ccls-math/3nbt2)  
  **Illustrative Mathematics**  
  • Classroom Supplies (prerequisite: Operations and Algebraic Thinking)  
  [http://www.illustrativemathematics.org/illustrations/1315](http://www.illustrativemathematics.org/illustrations/1315)  
  **Inside Mathematics**  
  • Grade 3 MARS Tasks: Adding Numbers  
  **Math Matters Grades K-6: Understanding the Math You Teach** (Chapin & Johnson, 2000)  
  • Analyzing Student’s Thinking, Addition, pp. 31-32 (Select addends that form sums within 1,000.)  
  • Analyzing Students’ Thinking, Subtraction, pp. 32-34  
  **NC Department of Public Instruction**  
  • 3.NBT.2 Task 1.doc, Compatible Numbers  
  • 3.NBT.2 Task 2.doc, Toys for Us  
  • 3.NBT.2 Task 3.doc, From 100 to 0  
  [http://3-5cctask.ncdpi.wikispaces.net/3.NBT.1-3.NBT.3](http://3-5cctask.ncdpi.wikispaces.net/3.NBT.1-3.NBT.3)  
  **My Math**  
  • 2-1 Addition Properties  
  • 2-4 Add Mentally  
  • 2-5 Estimate Sums  
  • 2-6 Use Models to Add  
  • 2-7 Add Three-Digit Numbers  
  • 2-8 Add Four-Digit Numbers  
  • 2-9 Problem-Solving Investigation: Reasonable Answers  
  • 3-1 Subtract Mentally  
  • 3-2 Estimate Differences  
  • 3-3 Problem-Solving Investigation: Estimate or Exact Answers  
  • 3-4 Subtract with Regrouping  
  • 3-5 Subtract Three-Digit Numbers  
  • 3-6 Subtract Four-Digit Numbers  
  • 3-7 Subtract Across Zeros |
| **My Math** Assessment Masters | • Ch.2, pp. 32-53  
  • Ch.3, pp. 58-78  
  **My Math** Think Smart for the SBAC | • Chapter 2 Test, p. 59  
  • Chapter 3 Test, p. 65  
  • Chapter 2 Performance Tasks, p. 139  
  • Chapter 3 Performance Tasks, p. 141  
  **My Math** eAssessment |
### Standards for Mathematical Content

| 3.NBT.3 | Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and properties of operations. |

### Standards for Mathematical Practice

| MP1 | Make sense of problems and persevere in solving them. |
| MP2 | Reason abstractly and quantitatively. |
| MP3 | Construct viable arguments and critique the reasoning of others. |
| MP4 | Model with mathematics. |
| MP5 | Use appropriate tools strategically. |
| MP6 | Attend to precision. |
| MP7 | Look for and make use of structure. |
| MP8 | Look for and express regularity in repeated reasoning. |

### Resources

- **engageNY**
  - [https://www.engageny.org/ccls-math/3nbt3](https://www.engageny.org/ccls-math/3nbt3)

- **Illustrative Mathematics**
  - How Many Colored Pencils
    - [http://www.illustrativemathematics.org/illustrations/1445](http://www.illustrativemathematics.org/illustrations/1445)

- **NC Department of Public Instruction**
  - 3.NBT.3 Task 1.doc, What’s the Best Deal?
  - 3.NBT.3 Task 2.doc, Helping Hugh
  - 3.NBT.3 Task 3.doc, Earn That Bike
    - [http://3-5cctask.ncdpi.wikispaces.net/3.NBT.1-3.NBT.3](http://3-5cctask.ncdpi.wikispaces.net/3.NBT.1-3.NBT.3)

- **My Math**
  - 6-8 Multiples of 10

### Assessments

- **My Math**
  - Assessment Masters
    - Ch.6, pp. 133-153

- **My Math**
  - Think Smart for the SBAC
    - Chapter 6 Test, p. 83
    - Chapter 6 Performance Tasks, p. 147

- **My Math**
  - eAssessment

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**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

<table>
<thead>
<tr>
<th>ESSENTIAL QUESTIONS</th>
<th>LANGUAGE OBJECTIVES AND SUPPORTS</th>
<th>KEY VOCABULARY</th>
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</thead>
<tbody>
<tr>
<td>1. How are numbers read and written?</td>
<td>1. Students will orally read and write numbers within 1,000 using place value vocabulary. <em>(Teacher may provide opportunities for pair-share and place value charts for support.)</em></td>
<td>Associative Property of Addition</td>
</tr>
<tr>
<td></td>
<td>2. Students will justify how numbers can be rounded utilizing benchmarks using superlatives. <em>(Teacher may provide number lines for support.)</em></td>
<td>Commutative Property of Addition</td>
</tr>
<tr>
<td>2. How can numbers be rounded?</td>
<td>3. Students will explain orally and in writing their strategies for adding and subtracting using transitional phrases, <em>(ex: first ____, then ____ , and finally ____).</em> <em>(Teacher may provide sentence frames for support.)</em></td>
<td>Digits</td>
</tr>
<tr>
<td>3. How can understanding place value help with adding and subtracting in an efficient manner?</td>
<td>4. Students will listen to a partner’s explanation of the strategies of multiplying in an efficient manner and ask clarifying questions to ascertain the reasonableness of the product using present and past tense verbs. <em>(Teacher will circulate, recasting student responses.)</em></td>
<td>Difference</td>
</tr>
<tr>
<td>4. How can understanding place value help with multiplying in an efficient manner?</td>
<td></td>
<td>Equation</td>
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<td>Estimate</td>
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<td>Expanded form</td>
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<td>Half-way</td>
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<td>Identity Property of Addition</td>
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<td>Inverse operation</td>
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<td></td>
<td>Sum</td>
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<td>Word form</td>
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</tbody>
</table>
DAILY/WEEKLY ROUTINES

- Matching Problems and Strategies: help students learn new problem solving strategies through weekly problem solving activities and then discuss their strategies, charting the strategies and naming them after students. For a list of problem strategies, for example in “separating from” problems, try counting down from, see Math Matters, Understanding the Math You Teach, (Chapin and Johnson, 2000), pp. 49-50
- Number Sense strategies eventually replace modeling and counting strategies as students do mental math. Mental math tasks that highlight part-whole relationships and that focus on doubling, tripling and numbers summing to ten are a good place to start, for example, “This is the 102nd day of school, take that number and double it....”. Math Matters, Understanding the Math You Teach, (Chapin and Johnson, 2000), pp. 50-51
- Math Journals, First 10 Days of School

LITERATURE CONNECTIONS

- Max Malone Makes a Million by Charlotte Herman
- Math-terpieces: The Art of Problem-Solving by Greg Tang
- Mission: Addition by Loreen Leedy
- Math Curse by Jon Scieszka
- Sharks Swimathon by Stuart J. Murphy
- Tightwad Tod by Daphne Skinner
- Lifetimes by David L. Rice
- Earth Day-Hooray by Stuart J. Murphy
- Coyotes All Around by Stuart J. Murphy
- Moira’s Birthday by Robert Munsch
- Pigs Will Be Pigs: Fun with Math and Money by Amy Axelrod
- A Million Fish...More or Less by Patricia C. McKissack
- Betchal by Stuart J. Murphy
- How Much is that Guinea Pig in the Window? by Joanne Rocklin
- The 12 Circus Rings by Seymour Chwast

DIFFERENTIATION

<table>
<thead>
<tr>
<th>FRONT LOADING¹</th>
<th>ENRICHMENT²</th>
<th>INTERVENTION³</th>
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<tbody>
<tr>
<td><strong>My Math</strong></td>
<td><strong>My Math</strong></td>
<td><strong>My Math</strong></td>
</tr>
<tr>
<td>Each chapter includes: (at beginning of chapter)</td>
<td>Each lesson includes:</td>
<td>Each lesson includes:</td>
</tr>
<tr>
<td>• My Math Words</td>
<td>a beyond level hands-on activity under differentiated instruction (found after Practice &amp; Apply)</td>
<td>an approaching level hands-on activity (found after Practice &amp; Apply)</td>
</tr>
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<td>• My Vocabulary Cards</td>
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<td></td>
</tr>
<tr>
<td>• My Foldables</td>
<td></td>
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</tr>
<tr>
<td>Each lesson includes: (at beginning of lesson)</td>
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<td></td>
</tr>
<tr>
<td>• ELL Instructional Strategy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Grade 3 Curriculum Map 3.11.16  
Number and Operations in Base Ten  
2016-2017
Key:
1 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, standard English learners, students with disabilities or low achieving students.
2 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.
3 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:
DOMAIN: Number and Operations – Fractions

CLUSTER: Develop understanding of fractions as numbers. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)

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

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

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

Enduring Understandings: Repeated subtraction situations can be solved using a division algorithm different from the standard algorithm. The sharing interpretation of division can be used to model the standard division algorithm. The standard division algorithm breaks the calculation into simpler calculations using basic facts, place value, the relationship between multiplication and division, and estimation.

<table>
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<tr>
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<th>ASSESSMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.NF.1 Understand a fraction 1/(b) as the quantity formed by 1 part when a whole is partitioned into (b) equal parts; understand a fraction (a/(b)) as the quantity formed by (a) parts of size 1/(b).</td>
<td>MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.</td>
<td>50 Problem Solving Lessons (Burns, 1996)  - Sharing an Apple, pp. 43-45  - Exploring Halves, pp. 53-54</td>
<td>My Math Assessment Masters  - Ch.10, pp. 234-254</td>
</tr>
<tr>
<td></td>
<td></td>
<td>About Teaching Mathematics, 2nd Ed. (Burns, 2000)  - The Fraction Kit, pp. 226-228, Cover Up, Uncover</td>
<td>My Math Think Smart for the SBAC  - Chapter 10 Test, p. 107  - Chapter 10 Performance Tasks, p. 155</td>
</tr>
<tr>
<td></td>
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<td>engage\textsuperscript{nr}  - Naming the Whole for a Fraction</td>
<td>My Math eAssessment</td>
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<tr>
<td></td>
<td></td>
<td>Illustrative Mathematics  - Exploring the Part-Whole Meaning of Fractions, pp. 77-79</td>
<td></td>
</tr>
<tr>
<td>STANDARDS FOR MATHEMATICAL CONTENT</td>
<td>STANDARDS FOR MATHEMATICAL PRACTICE</td>
<td>RESOURCES</td>
<td>ASSESSMENTS</td>
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</tbody>
</table>
| 3.NF.2 Understand a fraction as a number on the number line; represent a fraction 1/b as the endpoint of the part based at 0 located at 1/b on the number line. | MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning. | engageNY [https://www.engageny.org/ccls-math/3nf2](https://www.engageny.org/ccls-math/3nf2) | Kentucky Department of Education  
• Formative Assessment Lesson: Representing Fractions on a Number Line [http://education.ky.gov/curriculum/conpro/Math/Pages/ElemFormAssessLessons.aspx](http://education.ky.gov/curriculum/conpro/Math/Pages/ElemFormAssessLessons.aspx) |

NC Department of Public Instruction  
• 3.NF.2 Task 1.doc, Walking Along the Pond  
• 3.NF.2 Task 4.doc, Inventing a New Cereal Box  
[http://3-5cctask.ncdpi.wikispaces.net/3.NF.1-3.NF.2](http://3-5cctask.ncdpi.wikispaces.net/3.NF.1-3.NF.2)
<table>
<thead>
<tr>
<th>STANDARDS FOR MATHEMATICAL CONTENT</th>
<th>STANDARDS FOR MATHEMATICAL PRACTICE</th>
<th>RESOURCES</th>
<th>ASSESSMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.NF.2b</td>
<td>MP1, MP2, MP3, MP4, MP5, MP6, MP7, MP8</td>
<td>LAUSD Concept Lesson&lt;br&gt;• CCSS Granola Bars: Comparing Fractions&lt;br&gt;<a href="http://tinyurl.com/Grade3-granola-bars">http://tinyurl.com/Grade3-granola-bars</a></td>
<td>SBAC Sample Summative Item&lt;br&gt;• 3.NF.2 (ER)&lt;br&gt;<a href="http://www.ode.state.or.us/wma/teachlear/commoncore/mat.03.er.3.000nf.e.216_v1.pdf">http://www.ode.state.or.us/wma/teachlear/commoncore/mat.03.er.3.000nf.e.216_v1.pdf</a></td>
</tr>
<tr>
<td>Represent a fraction a/b on a number line diagram by marking off a length a/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.</td>
<td>Make sense of problems and persevere in solving them. Reason abstractly and quantitatively. Construct viable arguments and critique the reasoning of others. Model with mathematics. Use appropriate tools strategically. Attend to precision. Look for and make use of structure. Look for and express regularity in repeated reasoning.</td>
<td>My Math&lt;br&gt;• 10-5 Fractions on a Number Line</td>
<td>My Math Assessment Masters&lt;br&gt;• Ch.10, pp. 234-254</td>
</tr>
<tr>
<td>My Math</td>
<td></td>
<td>My Math Think Smart for the SBAC&lt;br&gt;• Chapter 10 Test, p. 107&lt;br&gt;• Chapter 10 Performance Tasks, p. 155</td>
<td>My Math eAssessment</td>
</tr>
<tr>
<td>My Math Assessment Masters</td>
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<td>My Math eAssessment</td>
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<tr>
<td>My Math</td>
<td></td>
<td>My Math eAssessment</td>
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<tr>
<td>My Math Assessment Masters</td>
<td></td>
<td>My Math eAssessment</td>
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</tbody>
</table>
**STANDARDS FOR MATHEMATICAL CONTENT**  
3.NF.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

<table>
<thead>
<tr>
<th>STANDARDS FOR MATHEMATICAL PRACTICE</th>
<th>RESOURCES</th>
<th>ASSESSMENTS</th>
</tr>
</thead>
</table>
| **MP1** Make sense of problems and persevere in solving them. | **50 Problem Solving Lessons** (Burns, 1996)  
  • Dividing Cakes, pp. 55-56 | **SBAC Sample Summative Item**  
  • Grade 3 OA (ER)  
  [http://www.ode.state.or.us/wma/teachlearn/commoncore/mat.03.er.3.000nf.b.229_v1.pdf](http://www.ode.state.or.us/wma/teachlearn/commoncore/mat.03.er.3.000nf.b.229_v1.pdf) |
| **MP2** Reason abstractly and quantitatively. | **About Teaching Mathematics, 2nd Ed.** (Burns, 2000)  
  • The Fraction Kit, pp. 226-228 (up to eighths)  
  Cover Up, Uncover | |
| **MP3** Construct viable arguments and critique the reasoning of others. | **engageNY**  
  [https://www.engageny.org/ccls-math/3nf3](https://www.engageny.org/ccls-math/3nf3) | |
| **MP4** Model with mathematics. | **Illustrative Mathematics**  
  • Jon and Charlie’s Run  
  [http://www.illustrativemathematics.org/illustrations/871](http://www.illustrativemathematics.org/illustrations/871) | |
| **MP5** Use appropriate tools strategically. | **NC Department of Public Instruction**  
  • 3.NF.3 Task 1.doc, Sharing a Pie  
  • 3.NF.3 Task 4.doc, Distances Swam  
  • 3.NF.3 Task 5.doc, Fractions on a Number Line  
  [http://3-5cctask.ncdpi.wikispaces.net/3.NF.1-3.NF.2](http://3-5cctask.ncdpi.wikispaces.net/3.NF.1-3.NF.2) | |
<table>
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<tr>
<th>STANDARDS FOR MATHEMATICAL CONTENT</th>
<th>STANDARDS FOR MATHEMATICAL PRACTICE</th>
<th>RESOURCES</th>
<th>ASSESSMENTS</th>
</tr>
</thead>
</table>
| 3.NF.3b Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$). Explain why the fractions are equivalent, e.g., by using a visual fraction model. | MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning. | About Teaching Mathematics, 2nd Ed. (Burns, 2000)  
- The Fraction Kit, pp. 226-228  
- Cover Up, Uncover  
- Build the Yellow Hexagon, p. 235  
- Wipeout, p. 236  
NC Department of Public Instruction  
- 3.NF.3 Task 4.doc, Distances Swam  
My Math  
- 10-6 Equivalent Fractions | My Math Assessment Masters  
- Ch.10, pp. 234-254  
My Math Think Smart for the SBAC  
- Chapter 10 Test, p. 107  
- Chapter 10 Performance Tasks, p. 155  
My Math eAssessment |
### Standards for Mathematical Content

| 3.NF.3c | Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram. |

### Standards for Mathematical Practice

| MP1 | Make sense of problems and persevere in solving them. |
| MP2 | Reason abstractly and quantitatively. |
| MP3 | Construct viable arguments and critique the reasoning of others. |
| MP4 | Model with mathematics. |
| MP5 | Use appropriate tools strategically. |
| MP6 | Attend to precision. |
| MP7 | Look for and make use of structure. |
| MP8 | Look for and express regularity in repeated reasoning. |

### Resources

- **NC Department of Public Instruction**
  - 3.NF.3 Task 2.doc, Fractions on a Number Line
  - 3.NF.2 Task 3.doc, Sharing Licorice
  - 3.NF.3 Task 4.doc, Distances Swam

- **My Math**
  - 10-7 Fractions as One Whole

### Assessments

- **My Math** Assessment Masters
  - Ch. 10, pp. 234-254

- **My Math** Think Smart for the SBAC
  - Chapter 10 Test, p. 107
  - Chapter 10 Performance Tasks, p. 155

- **My Math** eAssessment
<table>
<thead>
<tr>
<th>Standards for Mathematical Content</th>
<th>Standards for Mathematical Practice</th>
<th>Resources</th>
<th>Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.NF.3d Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols &lt;, =, &gt;, and justify the conclusions, e.g., by using a visual fraction model.</td>
<td>MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.</td>
<td>About Teaching Mathematics, 2nd Ed. (Burns, 2000)  • Put in Order, p. 231 (same numerator or same denominator up to eighths) LAUSD Concept Lesson  • CCSS Granola Bars: Comparing Fractions <a href="http://tinyurl.com/Grade3-granola-bars">http://tinyurl.com/Grade3-granola-bars</a> NC Department of Public Instruction  • 3.NF.3 Task 3.doc, Comparing Fractions  • 3.NF.3 Task 4.doc, Distances Swam  • 3.NF.3 Task 6.doc, Measuring Daily Rainfall <a href="http://3-5cctask.ncdpi.wikispaces.net/3.NF.1-3.NF.2">http://3-5cctask.ncdpi.wikispaces.net/3.NF.1-3.NF.2</a> My Math  • 10-8 Compare Fractions</td>
<td>My Math Assessment Masters  • Ch.10, pp. 234-254 My Math Think Smart for the SBAC  • Chapter 10 Test, p. 107  • Chapter 10 Performance Tasks, p. 155 My Math eAssessment</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>ESSENTIAL QUESTIONS</th>
<th>LANGUAGE OBJECTIVES AND SUPPORTS</th>
<th>KEY VOCABULARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What are different interpretations of a fraction?</td>
<td>1. Students will report a group consensus during problem solving with different representations of fractions, utilizing past-tense citation verbs: determined, concluded. <em>(Teacher circulates the classroom, recasting the student output.)</em></td>
<td>Denominator</td>
</tr>
<tr>
<td>2. What are different ways to compare fractions?</td>
<td>2. Students will sequentially explain different ways to compare fractions using targeted mathematical language and complex sentences. <em>(Teacher may refer students to math word wall for support.)</em></td>
<td>Eighths</td>
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<tr>
<td></td>
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<td>Equivalent fractions</td>
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<td>Fourths</td>
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<td>Fraction</td>
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<td>Halves</td>
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<td>Sixths</td>
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<td>Thirds</td>
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<td>Numerator</td>
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<tr>
<td></td>
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<td>Unit fraction</td>
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</tbody>
</table>

DAILY/WEEEKLY ROUTINES

• Head Problems

• Number Talks, First 10 Days of School

• Daily Oral Language and CGI problems
• Math Journals, First 10 Days of School

LITERATURE CONNECTIONS

• Fraction Action by Loreen Leedy
• One Hungry Cat by Joanne Rocklin
• Fraction Fun by David A. Adler
• Pizza Counting by Christina Dobson
• MATH-terpieces: The Art of Problem-Solving by Greg Tang
• If You Were a Fraction by Trisha Sppeed Shaskan
• Eating Fractions by Bruce MacMillan
• Whole-y Cowl! By Taryn Souders
• A Fraction’s Goal- Parts of a Whole By Brian P. Cleary
• Full House: An Invitation to Fractions by Dayle Ann Dobbs
• Apple Fractions by Jerry Pallotta
### DIFFERENTIATION

<table>
<thead>
<tr>
<th>FRONT LOADING¹</th>
<th>ENRICHMENT²</th>
<th>INTERVENTION³</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>My Math</strong>&lt;br&gt;Each chapter includes: (at beginning of chapter)&lt;br&gt;• My Math Words&lt;br&gt;• My Vocabulary Cards&lt;br&gt;• My Foldables</td>
<td><strong>My Math</strong>&lt;br&gt;Each lesson includes:&lt;br&gt;• a beyond level hands-on activity under differentiated instruction (found after Practice &amp; Apply)</td>
<td><strong>My Math</strong>&lt;br&gt;Each lesson includes:&lt;br&gt;• an approaching level hands-on activity&lt;br&gt;(found after Practice &amp; Apply)&lt;br&gt;Each formative assessment includes:&lt;br&gt;• Tier 2 Strategic Intervention, Ch. 10, p. 594A</td>
</tr>
<tr>
<td><strong>Each lesson includes: (at beginning of lesson)</strong>&lt;br&gt;• ELL Instructional Strategy</td>
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</tbody>
</table>

**Key:**

¹ **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, standard English learners, students with disabilities or low achieving students.

² **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.

³ **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.

## Domain: Measurement and Data

### Cluster: Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

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

**Enduring Understandings:**
- Time can be expressed using different units that are related to each other. The minute hand takes 5 minutes to move from one number to the next on a typical clock face. The minute hand takes 1 minute to move from one mark to the next on a typical clock face. The duration of an event can be measured if one knows the start and end times for the event. Capacity is a measure of the amount of liquid a container can hold. Mass is a measure of the quantity of matter in an object.

### Standards for Mathematical Content

<table>
<thead>
<tr>
<th>Standards for Mathematical Content</th>
<th>Standards for Mathematical Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes, e.g., by representing the problem on a number line diagram.</td>
<td>MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.</td>
</tr>
</tbody>
</table>

### Resources

- **Common Core Georgia Performance Standard Unit 6**
  - Let’s Talk About Time, pp. 13-16
  - Time to Get Clean, pp. 17-21
  - How Do I Spend My Day?, pp. 39-43
  - [https://www.georgiastandards.org/Georgia-Standards/Frameworks/3rd-Math-Unit-6.pdf](https://www.georgiastandards.org/Georgia-Standards/Frameworks/3rd-Math-Unit-6.pdf)
  - [engageNY](https://www.engageny.org/ccls-math/3md1)

### Assessments

- **My Math** Assessment Masters
  - Ch.11, pp. 259-279

- **My Math** Think Smart for the SBAC
  - Chapter 11 Test, p. 113
  - Chapter 11 Performance Tasks, p. 157

- **My Math** eAssessment

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Grade 3 Curriculum Map 3.11.16 Measurement and Data
<table>
<thead>
<tr>
<th>Standards for Mathematical Content</th>
<th>Standards for Mathematical Practice</th>
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<th>Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.MD.2</strong> Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.</td>
<td><strong>MP1</strong> Make sense of problems and persevere in solving them.  <strong>MP2</strong> Reason abstractly and quantitatively.  <strong>MP3</strong> Construct viable arguments and critique the reasoning of others.  <strong>MP4</strong> Model with mathematics.  <strong>MP5</strong> Use appropriate tools strategically.  <strong>MP6</strong> Attend to precision.  <strong>MP7</strong> Look for and make use of structure.  <strong>MP8</strong> Look for and express regularity in repeated reasoning.</td>
<td>Common Core Georgia Performance Standard Unit 6  - Making a Kilogram, pp. 58-61  - Worth the Weight, pp. 62-68  - Fill it Up! pp. 69-74  - More Punch Please! pp. 74-78  <a href="https://www.georgiastandards.org/Georgia-Standards/Frameworks/3rd-Math-Unit-6.pdf">https://www.georgiastandards.org/Georgia-Standards/Frameworks/3rd-Math-Unit-6.pdf</a>  <a href="https://www.engageny.org/ccls-math/3md2">engage</a>  <strong>My Math</strong> Assessment Masters  - Ch.11, pp. 259-279  <strong>My Math</strong> Think Smart for the SBAC  - Chapter 11 Test, p. 113  - Chapter 11 Performance Tasks, p. 157  <strong>My Math</strong> eAssessment</td>
<td><strong>My Math</strong> Assessment Masters  - Ch.11, pp. 259-279  <strong>My Math</strong> Think Smart for the SBAC  - Chapter 11 Test, p. 113  - Chapter 11 Performance Tasks, p. 157  <strong>My Math</strong> eAssessment</td>
</tr>
</tbody>
</table>
Big Idea: Some questions can be answered by collecting and analyzing data, and the question to be answered determines the data that needs to be collected and how best to collect it. Data can be represented visually using tables, charts and graphs. The type of data determines the best choice of visual representation.

Enduring Understandings: Each type of graph is most appropriate for certain kinds of data. Line plots can be used to organize and represent data generated by measuring lengths. Line plots allow data to be compared more easily than in a list or a table. The key for a pictograph determines the number of pictures needed to represent each number in a set of data. In a bar graph, the scale determines how long the bar needs to be to represent each number in a set of data.

<table>
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</table>
| 3.MD.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets. | About Teaching Mathematics, 2nd Ed. (Burns, 2000)  
• Graphing in the Classroom, p. 75 | Common Core Georgia Performance Standards Unit 6  
• Field Trip to the Zoo, pp. 97-104  
https://www.georgiastandards.org/Georgia-Standards/Frameworks/3rd-Math-Unit-6.pdf |
| MP1 Make sense of problems and persevere in solving them.  
MP2 Reason abstractly and quantitatively.  
MP3 Construct viable arguments and critique the reasoning of others.  
MP4 Model with mathematics.  
MP5 Use appropriate tools strategically.  
MP6 Attend to precision.  
MP7 Look for and make use of structure.  
MP8 Look for and express regularity in repeated reasoning. | Common Core Georgia Performance Standards Unit 6  
• How Do I Spend My Day? p. 41  
The Data Station, p. 80  
The Magic Number, p. 86  
It’s in the Data, p. 90  
https://www.georgiastandards.org/Georgia-Standards/Frameworks/3rd-Math-Unit-6.pdf  
engageNY  
https://www.engageny.org/ccls-math/3md3  
Illustrative Mathematics  
• Classroom Supplies  
http://www.illustrativemathematics.org/illustrations/1315 | My Math Assessment Masters  
• Ch.12, pp. 284-304  
My Math Think Smart for the SBAC  
• Chapter 12 Test, p. 119  
• Chapter 12 Performance Tasks, p. 159  
My Math eAssessment |

My Math  
• 12-1 Collect and Record Data  
• 12-2 Draw Scaled Picture Graphs  
• 12-3 Draw Scaled Bar Graphs  
• 12-4 Relate Bar Graphs to Scaled Picture Graphs
<table>
<thead>
<tr>
<th>STANDARDS FOR MATHEMATICAL CONTENT</th>
<th>STANDARDS FOR MATHEMATICAL PRACTICE</th>
<th>RESOURCES</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.</td>
<td><strong>MP1</strong> Make sense of problems and persevere in solving them.  <strong>MP2</strong> Reason abstractly and quantitatively.  <strong>MP3</strong> Construct viable arguments and critique the reasoning of others.  <strong>MP4</strong> Model with mathematics.  <strong>MP5</strong> Use appropriate tools strategically.  <strong>MP6</strong> Attend to precision.  <strong>MP7</strong> Look for and make use of structure.  <strong>MP8</strong> Look for and express regularity in repeated reasoning.</td>
<td><strong>Common Core Georgia Performance Standards Unit 6:</strong>  • The Data Station, p. 80  • It’s in the Data, p. 90 <a href="https://www.georgiastandards.org/Georgia-Standards/Frameworks/3rd-Math-Unit-6.pdf">https://www.georgiastandards.org/Georgia-Standards/Frameworks/3rd-Math-Unit-6.pdf</a>  <strong>engageNY</strong> <a href="https://www.engageny.org/ccls-math/3md4">https://www.engageny.org/ccls-math/3md4</a>  <strong>My Math</strong>  • 12-5 Draw and Analyze Line Plots  • 12-6 Measure to Halves and Fourths of an Inch  • 12-7 Collect and Display Measurement Data  • 12-8 Problem-Solving Investigation: Solve a Simpler Problem</td>
<td><strong>My Math</strong> Assessment Masters  • Ch.12, pp. 284-304  <strong>My Math</strong> Think Smart for the SBAC  • Chapter 12 Test, p. 119  • Chapter 12 Performance Tasks, p. 159  <strong>My Math</strong> eAssessment</td>
</tr>
</tbody>
</table>
CLUSTER: Geometric measurement: understand concepts of area and relate area to multiplication and addition.

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

**Enduring Understandings:** The amount of space inside a shape is its area, and the area can be estimated or found using square units. Square units can be used to create shapes with given areas. Standard measurement units are used for consistency in finding and communicating measurements. Formulas exist for finding the area of some polygons. The area of rectangles can be used to model the Distributive Property. The area of some irregular shapes can be found by breaking apart the original shape into other shapes for which the areas can be found. Equal-area parts of a figure can be used to model unit fractions. In a given measurement situation, the type of measuring tool and the measurement units it contains determine the appropriateness of the tool.

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</tr>
</thead>
<tbody>
<tr>
<td>3.MD.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.</td>
<td>MP1 Make sense of problems and persevere in solving them.</td>
<td>engageNY</td>
<td>My Math Assessment Masters</td>
</tr>
<tr>
<td>3.MD.5a A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.</td>
<td>MP2 Reason abstractly and quantitatively.</td>
<td><a href="http://www.engageny.org/ccls-math/3md5">http://www.engageny.org/ccls-math/3md5</a></td>
<td>Ch.13, pp. 309-330</td>
</tr>
<tr>
<td></td>
<td>MP3 Construct viable arguments and critique the reasoning of others.</td>
<td>My Math</td>
<td>My Math Think Smart for the SBAC</td>
</tr>
<tr>
<td></td>
<td>MP4 Model with mathematics.</td>
<td>• 13-4 Measure Area</td>
<td>• Chapter 13 Test, p. 125</td>
</tr>
<tr>
<td></td>
<td>MP5 Use appropriate tools strategically.</td>
<td></td>
<td>• Chapter 13 Performance Tasks, p. 161</td>
</tr>
<tr>
<td></td>
<td>MP6 Attend to precision.</td>
<td></td>
<td>My Math eAssessment</td>
</tr>
<tr>
<td>STANDARDS FOR MATHEMATICAL CONTENT</td>
<td>STANDARDS FOR MATHEMATICAL PRACTICE</td>
<td>RESOURCES</td>
<td>ASSESSMENTS</td>
</tr>
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</tr>
</tbody>
</table>
| Recognize area as an attribute of plane figures and understand concepts of area measurement. | Make sense of problems and persevere in solving them. | My Math  
- 13-3 Understand Area | My Math Assessment Masters  
- Ch.13, pp. 309-330 |
| A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units. | Reason abstractly and quantitatively. | My Math Think Smart for the SBAC  
- Chapter 13 Test, p. 125  
- Chapter 13 Performance Tasks, p. 161 | |
<p>| 3.MD.5 | Construct viable arguments and critique the reasoning of others. | My Math eAssessment | |
| b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units. | Model with mathematics. | | |</p>
<table>
<thead>
<tr>
<th>STANDARDS FOR MATHEMATICAL CONTENT</th>
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</tr>
</thead>
<tbody>
<tr>
<td>3.MD.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units.)</td>
<td>MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.</td>
<td>About Teaching Mathematics, 2nd Ed. (Burns, 2000)  - Shape Construction on the Geoboard, p. 97 engageNY <a href="https://www.engageny.org/ccls-math/3md6">https://www.engageny.org/ccls-math/3md6</a> Illustrative Mathematics  - Finding the Area of Polygons <a href="http://www.illustrativemathematics.org/illustrations/1515">http://www.illustrativemathematics.org/illustrations/1515</a>  - The Square Counting Shortcut <a href="http://www.illustrativemathematics.org/illustrations/516">http://www.illustrativemathematics.org/illustrations/516</a></td>
<td></td>
</tr>
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<tr>
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</tbody>
</table>
| 3.MD.7 Relate area to the operations of multiplication and addition. | MP1 Make sense of problems and persevere in solving them. | Illustrative Mathematics  
- Finding the Area of Polygons  
  [http://www.illustrativemathematics.org/illustrations/1515](http://www.illustrativemathematics.org/illustrations/1515)  
| engageNY  
  [https://www.engageny.org/ccls-math/3md7](https://www.engageny.org/ccls-math/3md7) | My Math  
- 13-5 Tile Rectangles to Find Area  
- 13-6 Area of Rectangles |

| 3.MD.7a Find the area of a rectangle with whole number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. | MP4 Model with mathematics. | Common Core Georgia Performance Standards  
Unit 6  
[Field Trip to the Zoo, pp. 97-104](https://www.georgiastandards.org/Georgia-Standards/Frameworks/3rd-Math-Unit-6.pdf) |

| My Math Assessment Masters  
- Ch.13, pp. 309-330  
My Math Think Smart for the SBAC  
- Chapter 13 Test, p. 125  
- Chapter 13 Performance Tasks, p. 161  
My Math eAssessment |
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<th>RESOURCES</th>
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</tr>
</thead>
</table>
| 3.MD.7b Multiply side lengths to find areas of rectangles. | My Math 13-8 Area of Composite Figures | Common Core Georgia Performance Standards Unit 6  
• Field Trip to the Zoo, pp. 97-104  
| MP1 Make sense of problems and persevere in solving them. | | My Math Assessment Masters  
• Ch.13, pp. 309-330 |
| MP2 Reason abstractly and quantitatively. | | My Math Think Smart for the SBAC  
• Chapter 13 Test, p. 125  
• Chapter 13 Performance Tasks, p. 161 |
<p>| MP3 Construct viable arguments and critique the reasoning of others. | | My Math eAssessment |</p>
<table>
<thead>
<tr>
<th>STANDARDS FOR MATHEMATICAL CONTENT</th>
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</tr>
</thead>
</table>
| 3.MD.7c Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a x b and a x c. Use area models to represent the distributive property in mathematical reasoning. | MP1 Make sense of problems and persevere in solving them.  
MP2 Reason abstractly and quantitatively.  
MP3 Construct viable arguments and critique the reasoning of others.  
MP4 Model with mathematics.  
MP5 Use appropriate tools strategically.  
MP6 Attend to precision.  
MP7 Look for and make use of structure.  
MP8 Look for and express regularity in repeated reasoning. | My Math  
• 13-7 Area and the Distributive Property | Common Core Georgia Performance Standards Unit 6  
• Field Trip to the Zoo, pp. 97-104  
https://www.georgiastandards.org/GeorgiaStandards/Frameworks/3rd-Math-Unit-6.pdf  
My Math Assessment Masters  
• Ch.13, pp. 309-330  
My Math Think Smart for the SBAC  
• Chapter 13 Test, p. 125  
• Chapter 13 Performance Tasks, p. 161  
My Math eAssessment |
### Standards for Mathematical Content

#### 3.MD.7d
Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems.

### Standards for Mathematical Practice

- **MP1** Make sense of problems and persevere in solving them.
- **MP2** Reason abstractly and quantitatively.
- **MP3** Construct viable arguments and critique the reasoning of others.
- **MP4** Model with mathematics.
- **MP5** Use appropriate tools strategically.
- **MP6** Attend to precision.
- **MP7** Look for and make use of structure.
- **MP8** Look for and express regularity in repeated reasoning.

### Resources

Common Core Georgia Performance Standards Unit 6
- Field Trip to the Zoo, pp. 97-104
  [https://www.georgiastandards.org/GeorgiaStandards/Frameworks/3rd-Math-Unit-6.pdf](https://www.georgiastandards.org/GeorgiaStandards/Frameworks/3rd-Math-Unit-6.pdf)
CLUSTER: Geometric measurement: recognize perimeter as an attribute of plane figures, and distinguish between linear and area measurements. s/a

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

**Enduring Understandings:** The distance around a figure is its perimeter. To find the perimeter of a polygon, add the lengths of the sides. Shapes can be made with a given perimeter. Different shapes can have the same perimeter. There are relationships between the perimeter and the area of a polygon.

<table>
<thead>
<tr>
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</tr>
</thead>
</table>
| 3.MD.8 Solve real-world and mathematical problems involving perimeter of polygons, including finding the perimeter given the side lengths, finding a unknown side length, and exhibiting rectangles with the same area and different perimeters. | MP1 Make sense of problems and persevere in solving them.  
MP2 Reason abstractly and quantitatively.  
MP3 Construct viable arguments and critique the reasoning of others.  
MP4 Model with mathematics.  
MP5 Use appropriate tools strategically.  
MP6 Attend to precision.  
MP7 Look for and make use of structure.  
MP8 Look for and express regularity in repeated reasoning. | About Teaching Mathematics, 2nd Ed. (Burns, 2000)  
• Foot Area and Perimeter, p. 53  
• Yarn Shapes, p. 58  
• Area and Perimeter, p. 87  
engageNY  
https://www.engageny.org/ccls-math/3md8 | Common Core Georgia Performance Standards  
Unit 6  
• Field Trip to the Zoo, pp. 97-104  
My Math Assessment Masters  
• Ch.13, pp. 309-330  
My Math Think Smart for the SBAC  
• Chapter 13 Test, p. 125  
• Chapter 13 Performance Tasks, p. 161  
My Math eAssessment |

**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

<table>
<thead>
<tr>
<th>ESSENTIAL QUESTIONS</th>
<th>LANGUAGE OBJECTIVES AND SUPPORTS</th>
<th>KEY VOCABULARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How can lengths of time be measured and found?</td>
<td>1. Students will orally explain how they read time to the half hour, quarter hour and minute using transitional phrases and domain specific vocabulary. <em>(Teacher may provide sentence stems to support explanation.)</em></td>
<td>Analog clock</td>
</tr>
<tr>
<td>2. What strategies can I use to help tell and write time to the nearest minute and measure time intervals in minutes?</td>
<td>2. Students will discuss their strategies in pairs as they work with elapsed time using pronouns (we, you, I) and prepositional phrases (by, to…) in complex sentences. <em>(Teacher may provide opportunities for pair-share and reporting what the partner just said.)</em></td>
<td>Area</td>
</tr>
<tr>
<td>3. How can I use what I know about number lines to help figure out how much time has passed between two events?</td>
<td>3. Students will orally explain their work in cooperative groups to measure a range of time intervals by using complex sentences, comparatives, and superlatives. <em>(Teacher provides manipulatives and time for exploration.)</em></td>
<td>Bar graph</td>
</tr>
<tr>
<td>4. What are the metric units for measuring capacity and mass?</td>
<td>4. Students will define the metric units of capacity and mass in small groups, using a variety of measuring tools by using subordinate conjunctions (when you change, whenever….). <em>(Teacher provides tools, circulates the classroom, recasting the student output.)</em></td>
<td>Capacity</td>
</tr>
<tr>
<td>5. How do we estimate and measure capacity and mass, and choose appropriate tools?</td>
<td>5. Students will discuss their choice of appropriate tools as they work in pairs to find the capacity of containers by using conjunctions (because) and auxiliary verbs (may, might, should, could, would). <em>(Teacher encourages multiple representations.)</em></td>
<td>Composite figures</td>
</tr>
<tr>
<td>6. How can data be represented, interpreted and analyzed?</td>
<td>6. Students will ask clarifying questions of their peers as to how they organized and represented data using present and past tense verbs. <em>(Teachers may provide a variety of grouping structures to allow for various opportunities for language use.)</em></td>
<td>Decompose</td>
</tr>
<tr>
<td>7. How do I make line plots to organize and represent the data collected?</td>
<td>7. Students will sequentially explain how to organize data and represent it in a line plot using targeted mathematical language and complex sentences. <em>(Teacher may refer students to math word wall for support.)</em></td>
<td>Data</td>
</tr>
<tr>
<td>8. How do I read graphs?</td>
<td>8. Students will compare and contrast using different graph representations of data using superlatives and</td>
<td>Digital clock</td>
</tr>
</tbody>
</table>

**ADDITIONAL SUPPORT**

**ESSENTIAL QUESTIONS**

1. How can lengths of time be measured and found?

2. What strategies can I use to help tell and write time to the nearest minute and measure time intervals in minutes?

3. How can I use what I know about number lines to help figure out how much time has passed between two events?

4. What are the metric units for measuring capacity and mass?

5. How do we estimate and measure capacity and mass, and choose appropriate tools?

6. How can data be represented, interpreted and analyzed?

7. How do I make line plots to organize and represent the data collected?

8. How do I read graphs?

**LANGUAGE OBJECTIVES AND SUPPORTS**

1. Students will orally explain how they read time to the half hour, quarter hour and minute using transitional phrases and domain specific vocabulary. *(Teacher may provide sentence stems to support explanation.)*

2. Students will discuss their strategies in pairs as they work with elapsed time using pronouns (we, you, I) and prepositional phrases (by, to…) in complex sentences. *(Teacher may provide opportunities for pair-share and reporting what the partner just said.)*

3. Students will orally explain their work in cooperative groups to measure a range of time intervals by using complex sentences, comparatives, and superlatives. *(Teacher provides manipulatives and time for exploration.)*

4. Students will define the metric units of capacity and mass in small groups, using a variety of measuring tools by using subordinate conjunctions (when you change, whenever….). *(Teacher provides tools, circulates the classroom, recasting the student output.)*

5. Students will discuss their choice of appropriate tools as they work in pairs to find the capacity of containers by using conjunctions (because) and auxiliary verbs (may, might, should, could, would). *(Teacher encourages multiple representations.)*

6. Students will ask clarifying questions of their peers as to how they organized and represented data using present and past tense verbs. *(Teachers may provide a variety of grouping structures to allow for various opportunities for language use.)*

7. Students will sequentially explain how to organize data and represent it in a line plot using targeted mathematical language and complex sentences. *(Teacher may refer students to math word wall for support.)*

8. Students will compare and contrast using different graph representations of data using superlatives and

**KEY VOCABULARY**

- Analog clock
- Analyze
- Area
- Bar graph
- Capacity
- Composite figures
- Decompose
- Data
- Digital clock
- Elapsed time
- Estimate
- Formula
- Frequency table
- Gap
- Gram (g)
- Half inch (1/2)
- Hour
- Interpret
- Key
- Kilogram (kg)
- Line plot
- Liquid volume
- Liter (l)
- Mass
- Measure
- Metric unit
- Milliliter (mL)
- Minute
- Nonstandard units
- Perimeter
- Pictograph
- Picture graph
- Quarter inch (1/4)
- Scale
<table>
<thead>
<tr>
<th>ESSENTIAL QUESTIONS</th>
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</thead>
<tbody>
<tr>
<td>9. How can I use a bar graph and a pictograph to display data?</td>
<td>justify why they choose a particular graph. (Teacher circulates the classroom, recasting the student output.)</td>
<td>Square unit</td>
</tr>
<tr>
<td>10. What does area mean?</td>
<td>9. Students will ask and answer questions as they collect data for their own surveys. Students discuss how to</td>
<td>Standard units</td>
</tr>
<tr>
<td></td>
<td>display the data. Students will restate a partner’s response to how they chose to display data in a survey by</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td>using paraphrasing expressions. (Teachers may employ the talk moves during student discussions, allowing for wait</td>
<td>Tally chart</td>
</tr>
<tr>
<td></td>
<td>time, restating, and recasting.)</td>
<td>Time</td>
</tr>
<tr>
<td></td>
<td>10. Students will discuss and model with multiple representations the meaning of area using sequential language,</td>
<td>Time interval</td>
</tr>
<tr>
<td></td>
<td>e.g., first, next. (Teacher may provide sentence stems as support.)</td>
<td>Unit</td>
</tr>
<tr>
<td>11. What are different ways to find the area of a shape?</td>
<td>11. Students will listen to a partner’s explanation of the strategies of finding area in an efficient manner and</td>
<td>Unit square</td>
</tr>
<tr>
<td></td>
<td>ask clarifying questions to ascertain the reasonableness of the area using present and past tense verbs. (Teacher</td>
<td>Volume</td>
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<td></td>
<td>will circulate, recasting student responses.)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>DAILY/WEEKLY ROUTINES</th>
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</thead>
<tbody>
<tr>
<td>• Linking body measures to units is one way of internalizing the units. Measure</td>
<td>• Many classroom routines involve collecting data and making graphs, e.g., In what</td>
<td></td>
</tr>
<tr>
<td>out the distance of at least ten meters, find the average number of paces to</td>
<td>month is your birthday?. Highlight the line plot during this domain. Ask students</td>
<td></td>
</tr>
<tr>
<td>mark the distance. How many paces fit in a meter? Estimate and then pace out</td>
<td>questions, and record the data on a line plot for discussion. For example: How much</td>
<td></td>
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<tr>
<td>distances at school. How far is it from the classroom door to the auditorium? The</td>
<td>time does the typical student spend riding the bus? Give the students a list of four</td>
<td></td>
</tr>
<tr>
<td>cafeteria? The playground? Math Matters, (Chapin, Johnson, 2000), p. 184</td>
<td>types of books, and have them tally their favorite type of book. Track the weather and</td>
<td></td>
</tr>
<tr>
<td>• Many classroom routines involve collecting data and making graphs, e.g., In what</td>
<td>record the days in categories. Math Matters, (Chapin, Johnson, 2000), pp. 203-4</td>
<td></td>
</tr>
<tr>
<td>month is your birthday?. Highlight the line plot during this domain. Ask students</td>
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<tr>
<td>questions, and record the data on a line plot for discussion. For example: How much</td>
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<td>time does the typical student spend riding the bus? Give the students a list of four</td>
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<td>types of books, and have them tally their favorite type of book. Track the weather and</td>
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<td>record the days in categories. Math Matters, (Chapin, Johnson, 2000), pp. 203-4</td>
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<tr>
<th>LITERATURE CONNECTIONS</th>
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<tbody>
<tr>
<td>• Bats Around the Clock by Kathy Appelt</td>
<td>• Math Counts: Capacity by Henry Pluckrose</td>
<td></td>
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<tr>
<td>• Just a Minute by Teddy Slater</td>
<td>• How Big Were the Dinosaurs by Bernard Most</td>
<td></td>
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<tr>
<td>• Room for Ripley by Stuart J. Murphy</td>
<td>• Gold Fever by Verla Kay</td>
<td></td>
</tr>
<tr>
<td>• How Do You Know What Time It Is? By Robert E. Wells</td>
<td>• The Grouchy Ladybug by Eric Carle</td>
<td></td>
</tr>
<tr>
<td>• Pigs Go to Market: Fun with Math and Shopping by Amy Axelrod</td>
<td>• The Best Vacation Every by Stuart J. Murphy</td>
<td></td>
</tr>
<tr>
<td>• The Great Graph Contest by Loreen Leedy</td>
<td>• Lemonade for Sale by Stuart J. Murphy</td>
<td></td>
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</tbody>
</table>

Grade 3 Curriculum Map 3.11.16  Measurement and Data
**My Math**

### FRONT LOADING

Each chapter includes:
- My Math Words
- My Vocabulary Cards
- My Foldables

Each lesson includes:
- ELL Instructional Strategy

### ENRICHMENT

Each chapter includes:
- a beyond level hands-on activity under differentiated instruction (found after Practice & Apply)

### INTERVENTION

Each chapter includes:
- an approaching level hands-on activity (found after Practice & Apply)

Each formative assessment includes:
- Tier 2 Strategic Intervention, Ch. 11, p. 658A
- Tier 2 Strategic Intervention, Ch. 12, p. 722A
- Tier 2 Strategic Intervention, Ch. 13, p. 778A
- Tier 2 Strategic Intervention, Ch. 13, p. 804A

**Key:**

1. 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, standard English learners, students with disabilities or low achieving students.

2. 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.

3. 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.

DOMIAN: Geometry

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

**Big Idea:** Two-dimensional shapes can be described, classified, and analyzed by their attributes. A shape’s location in space can be described quantitatively.

**Enduring Understandings:** Plane shapes have many properties that make them different from one another. Polygons can be put together or taken apart to make other polygons. Polygons can be described and classified by their sides and angles. A region can be divided into equal-sized parts in different ways, and equal-sized parts have the same area but not necessarily the same shape.

<table>
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</thead>
</table>
| 3.G.1 Explain the meaning of the term "area," how it is used to describe a shape, and how it is calculated. | **MP1 Make sense of problems and persevere in solving them.** | *50 Problem Solving Lessons* (Burns, 1996) | *My Math* Assessment Masters  
- Ch.14, pp. 335-355 |
| 3.G.2 Recognize that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of the subcategories. | **MP2 Reason abstractly and quantitatively.** | *About Teaching Mathematics, 2nd Ed.* (Burns, 2000) | *My Math* Think Smart for the SBAC  
- Chapter 14 Test, p. 131  
- Chapter 14 Performance Tasks, p. 163 |
| 3.G.3 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). | **MP3 Construct viable arguments and critique the reasoning of others.** | *Inside Mathematics*  
| 3.G.4 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. | **MP4 Model with mathematics.** | *Math Matters,* (Chapin and Johnson, 2000)  
- Quadrilaterals, p. 156-159 | |
| 3.G.5 Identify attributes common to a category of two-dimensional figures, and identify attributes that do not belong to any of the subcategories. | **MP5 Use appropriate tools strategically.** | **My Math**  
- 14-1 Angles  
- 14-2 Polygons  
- 14-3 Triangles  
- 14-4 Quadrilaterals  
- 14-5 Shared Attributes of Quadrilaterals  
- 14-6 Problem-Solving Investigation: Guess, Check, and Revise | |
<p>| 3.G.6 Identify examples of quadrilaterals that can be covered with unit squares of the same size without gaps or overlaps. | <strong>MP6 Attend to precision.</strong> | | |
| 3.G.7 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, 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. | <strong>MP7 Look for and make use of structure.</strong> | | |
| 3.G.8 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape drawn on grid paper into rectangles and count the number of unit squares in each rectangle to find the area. | <strong>MP8 Look for and express regularity in repeated reasoning.</strong> | | |</p>
<table>
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<th>RESOURCES</th>
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</thead>
</table>
| 3.G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and express the area of each part as \( \frac{1}{4} \) of the area of the shape. | MP1 Make sense of problems and persevere in solving them.  
MP2 Reason abstractly and quantitatively.  
MP3 Construct viable arguments and critique the reasoning of others.  
MP4 Model with mathematics.  
MP5 Use appropriate tools strategically.  
MP6 Attend to precision.  
MP7 Look for and make use of structure.  
MP8 Look for and express regularity in repeated reasoning. | About Teaching Mathematics, 2nd Ed. (Burns, 2000)  
- Sharing Brownies, p. 230  
engage  
https://www.engageny.org/ccls-math/3g2  
My Math  
- 14-7 Partition Shapes | My Math Assessment Masters  
- Ch.14, pp. 335-355  
My Math Think Smart for the SBAC  
- Chapter 14 Test, p. 131  
- Chapter 14 Performance Tasks, p. 163  
My Math eAssessment |

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▲ **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

<table>
<thead>
<tr>
<th>ESSENTIAL QUESTIONS</th>
<th>LANGUAGE OBJECTIVES AND SUPPORTS</th>
<th>KEY VOCABULARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How can two-dimensional shapes be described, analyzed, and classified?</td>
<td>1. Students will define two-dimensional shapes by using complex sentences, comparatives, and superlatives. <em>(Teacher provides manipulatives and time for exploration.)</em></td>
<td>2-dimensional 3-dimensional Acute angle Angle Area Attributes Closed figure Congruent Denominator Diagonal End point Fourths Fraction Halves Hexagon Numerator Obtuse angle Octagon Open figure Overlap Parallel Parallelogram Partition Pentagon Plane figure Polygon Properties Quadrilateral Ray Rectangle Rhombus/rhombi Right angle Side length Solid Square Thirds Tenths Trapezoid Triangle Unit fraction Vertex</td>
</tr>
<tr>
<td>2. What is a polygon?</td>
<td>2. Students will orally describe polygons by using conjunctions (because) and auxiliary verbs (may, might, should, could, would) <em>(Teacher encourages multiple representations.)</em></td>
<td></td>
</tr>
<tr>
<td>3. What are some ways to describe groups of polygons?</td>
<td>3. Students will ask clarifying questions of their peers as to how they organized and represented sorting a variety of groups of polygons using present and past tense verbs. <em>(Teachers may provide a variety of grouping structures to allow for various opportunities for language use.)</em></td>
<td></td>
</tr>
<tr>
<td>4. How can I describe quadrilaterals?</td>
<td>4. Students will restate a partner’s response to how they chose to describe quadrilaterals by using paraphrasing expressions. <em>(Teachers may employ the talk moves during student discussions, allowing for wait time, restating, and recasting.)</em></td>
<td></td>
</tr>
<tr>
<td>5. How can I divide a region into two equal parts?</td>
<td>5. Students will report a group consensus as to the variety of ways to divide a region into two equal parts utilizing past-tense citation verbs: determined, concluded. <em>(Teacher circulates the classroom, recasting the student output.)</em></td>
<td></td>
</tr>
<tr>
<td>6. How can I write a fraction to name part of a whole?</td>
<td>6. Students will sequentially explain how to write a fraction to name part of a whole by using targeted mathematical language and complex sentences. <em>(Teacher may refer students to math word wall for support.)</em></td>
<td></td>
</tr>
</tbody>
</table>
### DAILY/WEEKLY ROUTINES

- 
- 

### LITERATURE CONNECTIONS

<table>
<thead>
<tr>
<th>Grade 3 Curricular Connections</th>
<th>Grade 3 Curricular Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grandfather Tang’s Story by Ann Tompert</td>
<td>The Greedy Triangle by Marilyn Burns</td>
</tr>
<tr>
<td>Shape Up! Fun with Triangles and Other Polygons by David A. Adler</td>
<td>If You Were a Quadrilateral by Molly Blaisdell</td>
</tr>
<tr>
<td>Sigmung Square Finds His Family by Jennifer Taylor-Cox</td>
<td>Pigs To To Market: Fun with Math and Shopping by Amy Axelrod</td>
</tr>
<tr>
<td>Fraction Action by Loreen Leedy</td>
<td></td>
</tr>
</tbody>
</table>

### DIFFERENTIATION

<table>
<thead>
<tr>
<th>FRONT LOADING&lt;sup&gt;1&lt;/sup&gt;</th>
<th>ENRICHMENT&lt;sup&gt;2&lt;/sup&gt;</th>
<th>INTERVENTION&lt;sup&gt;3&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>My Math</strong>&lt;br&gt;Each chapter includes: (at beginning of chapter)&lt;br&gt;• My Math Words&lt;br&gt;• My Vocabulary Cards&lt;br&gt;• My Foldables</td>
<td><strong>My Math</strong>&lt;br&gt;Each lesson includes:&lt;br&gt;• a beyond level hands-on activity under differentiated instruction (found after Practice &amp; Apply)</td>
<td><strong>My Math</strong>&lt;br&gt;Each lesson includes:&lt;br&gt;• an approaching level hands-on activity (found after Practice &amp; Apply)&lt;br&gt;Each formative assessment includes:&lt;br&gt;• Tier 2 Strategic Intervention, Ch. 14, p. 858A</td>
</tr>
<tr>
<td>Each lesson includes: (at beginning of lesson)&lt;br&gt;• ELL Instructional Strategy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:**
1. 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, standard English learners, students with disabilities or low achieving students.
2. 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.
3. 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.

Grades 3-5: 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. As students transition into CCSS, time is needed to establish these mathematical practices. This document includes classroom routines, expectations, and math tools that encourage the Standards for Mathematical Practice. It also provides lessons that allow students to develop number sense concepts within the structure of the CCSS Math Practices. Included in this document are the following:

- Fluency: Number Talks *(Days 2-10)*
- Three Phase Problem-Solving Structure: Daily Task (Days 1-10)
- Non-Verbal Signals (Days 2-10)
- Listening and Speaking Expectations (Days 1-10)
- Talk Moves for Mathematical Discussions (Days 1-10)
- Expectations for Partner Games, Small Groups & Rotations and Independent Work Time

* In this document, the Three-Phase Problem-Solving Structure 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

"...the power of Number Talks comes from inspiring each child to think and make sense of the mathematics they are presented. They are never trying to figure out what the teacher wants. Rather they are totally engaged in their own sense making process...Number Talk is an opportunity for children to learn that they can figure things out for themselves in a way that makes sense to them...children can begin to apply what they are learning in lessons and try out ideas they may be pondering."
Source: “What is the distinction between a Lesson and a Number Talk,” by Kathy Richardson
Establishing the Daily Math Routine

**Number Talk. Problem-Solving. Independent Work Time.** Establishing a daily math routine that is flexible and can be adapted to a wide range of tasks is essential for efficient mathematics teaching. It is important for students to understand each phase of the daily routine and expectations for work and behavior.

The daily math routine begins with a **Number Talk** to help students develop and discuss strategies to build computational fluency and number sense, leading to accuracy, efficiency and flexibility. Accuracy is the ability to produce an accurate answer. Efficiency is the ability to choose an appropriate, expedient strategy for a specific computation problem. And flexibility is the ability to use number relationships with ease in computation.

The three-phase **Problem Solving** structure (Before, During, and After, see Appendix) outlined in this document can serve two purposes: it can be utilized for both direct instruction and an inquiry lesson model. The three phase Problem Solving structure supports the introduction of a new skill/concept or clarifies and practices an emerging skill, through a rigorous math task. Teaching mathematics with problem-based tasks is student centered rather than teacher centered. It begins with and builds on the ideas that children have available. It is a process that requires faith in children, a belief that all children can create meaningful ideas about mathematics.

In the **Before Phase**, the teacher sets up the task with the whole group and makes sure that the students understand the problem or task. The teacher also sets up expectations, such as requiring students to explain their thinking in more than one way, rather than simply giving an answer. Behind the scenes, the teacher has solved the task in a variety of ways to anticipate student misconceptions, and has scripted questions to clarify, assess and advance learning.

The **During Phase** is independent/partner/small group work time to solve the task. As students complete the tasks they can use various resources and manipulatives of their choosing. Students will benefit from completing tasks that are open ended or where there is more than one solution path. It is important to allow students to use a variety of strategies to complete the task. The teacher may monitor group work by asking questions and actively listening to what students say as they reveal how they think, what they know, and how they are approaching the task.

In the **After Phase**, also called “Share, Discuss and Analyze,” students debrief their work and learning collaboratively. Student work samples are strategically shared and the teacher facilitates a discussion that ties student learning to the big mathematical ideas. The teacher asks students preplanned questions that require students to extend their understanding of the concept. A useful routine in this phase begins with the teacher displaying a student work sample on the document reader while inviting the class to make sense of the work displayed. Students are provided a minute of private think time and then an additional two minutes to discuss with an elbow partner. The teacher may ask students to explain the strategies they believe the student used to solve the problem. The teacher may display a second sample.
and ask students to think about how this work sample is the same, yet different from the prior sample. Again one minute of private think time is provided followed by an additional 2 minutes of partner or small group talk. This routine addresses Math Practice Standard 3, “Construct viable arguments and critique the reasoning of others.”

Also important is the need to address misconceptions and errors that students may have about a skill or concept. The teacher may choose to display a work sample with a misconception or error without commenting on the validity of the response. Establishing a safe environment where all students learn from each other’s mistakes is a key component. Students are asked to examine the work sample. Students think individually and then discuss with a partner. As they ask questions of each other, misconceptions or errors are surfaced. Wrong answers can be very useful as students make their own determinations of what is incorrect, and collectively determine how to correct the work.

It is often difficult for students to put their thoughts into words, because this requires metacognition and vocabulary development. Understanding and communicating HOW a problem was solved is often challenging but enormously worthwhile. The use of multiple representations helps students communicate their thinking visually (MP4), quantitatively (MP2) and with precision (MP6). It is also helps incorporate various learning styles into the daily math routine.

On the first day this routine is discussed, outlined and charted for the students in a whole group discussion.

<table>
<thead>
<tr>
<th>Before: Set Up</th>
<th>During: Explore</th>
<th>After: Share, Discuss and Analyze</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole group</td>
<td>Students work individually, with partners or with small groups</td>
<td>Whole group</td>
</tr>
<tr>
<td>Teacher led (rigorous task selected, misconceptions noted, questions written)</td>
<td>Teacher works with small groups or facilitates a task</td>
<td>Student led / Teacher facilitated</td>
</tr>
<tr>
<td>Pose a question to explore a new concept or practice a skill</td>
<td>Students work on a math task or problem</td>
<td>Teacher strategically selects 3-4 solutions to be shared</td>
</tr>
<tr>
<td>Requires problem-solving</td>
<td></td>
<td>Students and teacher ask questions to make sense of other’s work</td>
</tr>
</tbody>
</table>
Independent Work Time is the third component of the daily math routine, providing opportunity for students to practice their emerging math skills while the teacher differentiates instruction in small groups. Establishing independent and group work norms is a critical component of a successful Independent Work Time. Different factors will contribute to how well a class can work together in groups. It can be beneficial to assign each group member a specific role (materials getter, recorder, parliamentarian, etc.). Assigning roles helps to hold all students accountable. Groups should be flexible and reorganized regularly in an effort to meet the changing needs of students as they develop.

The First 10 Days does not stop at the end of the ten days. Using the First 10 Days to establish these routines will create a Common Core Classroom to last all year long. The following is a day-by-day guide.
### Grades 3-5: The First 10 Days
Launching Mathematics in the Common Core Classroom

**Day 1 Objectives:** Set the stage for problem-solving, including introducing: problem-solving notebook, listening and speaking expectations, a math talk move, and the Share, Discuss and Analyze phase.

**Introduce Problem-Solving:**
- Present a problem to students from any source, for example:
  - Suppose you pick three number cards, 5, 7, 8. You use the cards to make the greatest 3-digit number. What number is it? Give an explanation of how you found your answer.
- Allow the children to discuss
- Say: “Let’s think about what we have to do to solve this problem. Let’s share out.”

Together as a classroom, create a Problem-Solving Chart 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):
- Have a positive attitude (I can do this!)
- Keep trying and don’t give up!
- Use good problem-solving strategies
- Work together, but do your own thinking
- Explain your thinking
- Safe environment (what does that look like, sound like, feel like?)

**Introduce Problem-Solving Notebook:**
- Give each student a problem-solving notebook.
- Have manipulatives readily available to use for counting (number lines, base ten blocks, snap cubes, pattern blocks, color tiles, 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.
- Decide how to record the problem in the problem-solving notebook before solving it. Ideas include: copying the question on mailing stickers that can be peeled off and placed in the notebook, 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.
- Students will share their responses in Share, Discuss and Analyze (see next page.)

<table>
<thead>
<tr>
<th>To establish expectations for behaviors in a problem solving math classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Materials:</strong></td>
</tr>
<tr>
<td><em>Chart paper</em></td>
</tr>
<tr>
<td><em>Markers</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>To set expectations for drawing/writing in the problem solving math notebook</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Materials:</strong></td>
</tr>
<tr>
<td><em>Problem Solving Notebook</em></td>
</tr>
<tr>
<td><em>Manipulatives</em></td>
</tr>
</tbody>
</table>

Los Angeles Unified  •  Grades 3-5: First 10 Days of School  •  Adapted from Carroll County, MD
Grades 3-5: The First 10 Days
Launching Mathematics in the Common Core Classroom

Day 1

**Introduce the Speaking and Listening Expectations:**
- 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.)

**Talk Moves for Teacher Background Only:**
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) revising (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.

**Talk Move #1: Revising**
Model revising (Teacher repeats all or part of exactly what a student has said, as students share; the teacher can also prompt a student to revise.)
- “What I heard you say was....”
- “You’re saying....”

**Share, Discuss and Analyze Teacher Background Only**
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. In Kindergarten through grade 2, this is called “Mathematician’s Turn” in the First 10 Days of School. The teacher will lead the sharing by strategically picking the work to be shared.

**Introduce the Share, Discuss and Analyze Phase:**
The purpose of the Share, Discuss and Analyze Phase 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. Strategically select 3-4 student samples 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, or anonymously share.

To set expectations for shared thinking when engaged in academic conversations around mathematics

Materials:
* Problem Solving Notebook
* Manipulatives
* Optional book, Classroom Discussions, by Chapin and O’Connor, for reference

Revising:
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.
**Day 2 Objectives:** To introduce Number Talks and non-verbal signals, continue setting up listening and speaking expectations, problem-solving and the Share, Discuss and Analyze phase.

<table>
<thead>
<tr>
<th><strong>Number Talks—For Teacher Background only:</strong></th>
<th><strong>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.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>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 base ten system, and the application of properties of operations.</td>
<td>Number Talks allow students to make connections and find relationships and patterns.</td>
</tr>
<tr>
<td><strong>Introduce Number Talks:</strong></td>
<td>The conversation is the focus of the Number Talks, and the teacher takes on the role of facilitator.</td>
</tr>
<tr>
<td>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 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.</td>
<td>The teacher is not the ultimate authority in Number Talks. Students are clarifying their thinking with each other.</td>
</tr>
</tbody>
</table>
| 1. **Teacher presents the problem:** Problems are presented in many different ways: a word problem, number lines, dot cards, models. You can show problems on a document camera or write on the board. Present today’s problems on the board: Insert problems, see Appendix for examples  
2. **Students figure out the answer.** 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.  
3. **Students share their answers. Teacher:** “At the count of three, whisper your answer.” Or some students share individually with the teacher recording the answers without judgment.  
4. **Students share their thinking.** Have students think-pair-share before they share out their thinking. Have three or four students explain their thinking to the class.  
5. **The class agrees on the “real” answer for the problem.** 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.  
6. **The steps are repeated for additional problems.** Thank the students for their participation in the Number Talk. | Mental computation is a key component of number talks, encouraging students to build on number relationships to solve problems instead of only relying on memorized procedures. |
### Grade 3-5: The First 10 Days
Launching Mathematics in the Common Core Classroom

#### Day 2

<table>
<thead>
<tr>
<th><strong>Introduce Non-Verbal Signals:</strong></th>
<th>To set expectations for classroom management during mathematics discussions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish non-verbal signals that will support productive math discussions. These signals also support effective classroom management. Teach students the following signals:</td>
<td><strong>Materials:</strong></td>
</tr>
<tr>
<td>• Agree: Thumbs up held away from body</td>
<td>* Chart Paper</td>
</tr>
<tr>
<td>• Disagree: “Safe” sign in baseball: palms flat and down, in a crossing motion in front of the chest</td>
<td>* Markers</td>
</tr>
<tr>
<td>• I don’t know: hand over head, palm flat and facing floor, moves back and forth</td>
<td>* Problem-Solving Chart</td>
</tr>
<tr>
<td>• Thinking: fist in front of chest</td>
<td>* Problem Solving Notebook</td>
</tr>
<tr>
<td>• I have an answer: thumbs up in front of chest</td>
<td></td>
</tr>
<tr>
<td>• I have another way of getting the answer: finger up in front of chest (can show additional finger for each way)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Listening and Speaking Expectations:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Make a poster (chart paper) of a Good Listener and Not a Good Listener. Use student suggestions.</td>
<td>To set expectations for shared thinking when engaged in academic conversations around mathematics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Problem Solving:</strong></th>
<th>To encourage students to learn to share and discuss during math</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Review the behaviors/expectations from the Problem-Solving Chart (from Day 1.)</td>
<td><strong>To continue to set expectations for writing in the problem solving math notebook</strong></td>
</tr>
<tr>
<td>• Present and discuss today’s math problem, selected from any resource</td>
<td></td>
</tr>
<tr>
<td>• Allow children time to draw and write their responses to the problem in their problem-solving notebook.</td>
<td></td>
</tr>
<tr>
<td>• The focus should be on “How can you show your answer?”</td>
<td></td>
</tr>
<tr>
<td>• Have manipulatives available and encourage students to use them to solve the problem.</td>
<td></td>
</tr>
<tr>
<td>• (Students can share during Share, Discuss and Analyze.)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Share, Discuss and Analyze Phase:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• During Share, Discuss and Analyze, ask the students how they found their answer. It’s important to point out the variety of solutions, especially students that used multiple methods.</td>
<td></td>
</tr>
<tr>
<td>• Ask students which manipulatives they used and how they used them to solve the problem.</td>
<td></td>
</tr>
<tr>
<td>• Model Talk Move #1: Revoicing</td>
<td></td>
</tr>
</tbody>
</table>

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**Day 3 Objectives:** Review non-verbal signals, listening and speaking expectations, and do a Number Talk. Introduce a new talk move, continue with daily problem-solving, practice sharing solutions and introduce partner math games.

<table>
<thead>
<tr>
<th>Review Non-Verbal Signals: (see Day 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Listening and Speaking Expectations:</strong></td>
</tr>
<tr>
<td>Review the Good Listener and Not a Good Listener poster from Day 2.</td>
</tr>
<tr>
<td><strong>Number Talk:</strong> (Model Talk Move #1, Revoicing, &amp; Non-verbal Signals)</td>
</tr>
<tr>
<td>Follow the same 6 steps as outlined in Day 2 (Math Talks). Write today’s problem on the board:</td>
</tr>
<tr>
<td><strong>Teacher:</strong> 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.</td>
</tr>
<tr>
<td>Based on the problem, a variety of strategies might be used, including:</td>
</tr>
<tr>
<td>* Adding by place value</td>
</tr>
<tr>
<td>* Incremental adding (by tens and ones)</td>
</tr>
<tr>
<td>* Composing and decomposing (making a “friendly” number)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Introduce Talk Move #2: Restating</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Problem-Solving:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review Problem-Solving Chart for behaviors/expectations. Present and discuss today’s math problem, selected from enVision MATH 1-3:</td>
</tr>
<tr>
<td><strong>Insert Problem</strong></td>
</tr>
<tr>
<td>• Allow students time to draw and write their responses to the problem in their problem-solving notebook.</td>
</tr>
<tr>
<td>• The focus should be on “How can you show your answer?”</td>
</tr>
<tr>
<td>• Have manipulatives available and encourage students to use them to solve the problem.</td>
</tr>
</tbody>
</table>

This is an open-ended problem with multiple solutions. Ask students to show different ways to solve the problem. Students might use visual representations, equations, models, etc. (Students share responses during Share, Discuss and Analyze.)

<table>
<thead>
<tr>
<th>Materials:</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Listener/Not a Good Listener poster</td>
</tr>
<tr>
<td>To continue to understand the concept and encourage the use of Number Talks</td>
</tr>
<tr>
<td>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?”</td>
</tr>
</tbody>
</table>

| 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. |

| To continue drawing and writing about math using precise vocabulary and establish shared expectations for math problem-solving notebooks |

Los Angeles Unified • Grades 3-5: First 10 Days of School • Adapted from Carroll County, MD
Grades 3-5: The First 10 Days
Launching Mathematics in the Common Core Classroom

**Share, Discuss and Analyze: (Model Talk Move #2, Restating, & Non-Verbal Signals)**
- During Share, Discuss and Analyze, 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. Remember to strategically select a variety of problem solving methods.

**Introduce a Partner Math Game:**
Show how to play a math game and model appropriate vs. inappropriate use of the math tools involved. Begin a class chart titled “Independent Work Time (IWT) Expectations” to record responsibilities and expectations for partner math games and work time.
  - What will the games look like?
  - What will the game sound like?
  - Where will the games take place?
  - What will be the role of each partner during the game?
  - What are the expectations for clean up?

Possible math games:
- Textbook center games
- Exploration with manipulatives
- Additional resources materials from the Curriculum Map

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.

**Materials:**
- *Problem-Solving Chart*
- *Problem-Solving Notebook*
- *Manipulatives*

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!

To begin to establish expectations for independent games and activities

**Materials:**
- *Math Games*
- *Manipulatives*
- *Chart Paper*

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*
### Day 4 Objectives
To review non-verbal signals, listening and speaking expectations, practice a Number Talk, introduce a new talk move, continue with daily problem solving and sharing solutions and a new partner math game.

<table>
<thead>
<tr>
<th>Number Talk: (Model Talk Move #2, Restating, &amp; Non-Verbal Signals)</th>
<th>To continue to understand the concept and encourage the use of Number Talks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follow the same 6 steps as outlined in Day 2 (Number Talk). Introduce today’s problems on board: <strong>Insert problem</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Based on the problem, a variety of strategies may include:  
  - Adding up (from smaller number to larger number  
  - Incremental subtracting  
  - Subtracting by place value, tens/ones: |
| Remind the students that they should be ready to share their strategies with the class. Model Non-Verbal Signals. Give think time. |
| When most students indicate that they are ready through their hand signal, then call on four or five students to share their sum. Teacher neutrally records responses on the board. |
| 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. |

<table>
<thead>
<tr>
<th>Problem-Solving: (Model Talk Move #2, Restating, &amp; Non-Verbal Signals)</th>
<th>To establish the concept of a tool box for problem-solving throughout the year</th>
</tr>
</thead>
</table>
| Tell the students: “Today we are going to introduce a tool to help us with problem-solving. It’s called a bar diagram. 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!” (Bar diagrams help students understand relationships between the quantities in the problem, and this helps students choose a correct operation to solve the problem. Present and discuss today’s math problem:  
  **Insert Problem that can be represented with a bar diagram** |
| Ask the students, “How might we use this bar diagram to help us solve this problem?” |
| Discuss strategies and then have the students solve the problem in their problem-solving notebooks. (Students discuss solutions during Share, Discuss and Analyze.) |

**Materials:**  
* Problem-Solving Notebook  
* Bar Diagram
**Day 4**

<table>
<thead>
<tr>
<th>Review Listening and Speaking Expectations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Share, Discuss and Analyze:</strong> <em>(Model Talk Move #2, Restating, &amp; Non-Verbal Signals)</em></td>
<td></td>
</tr>
<tr>
<td>During Share, Discuss and Analyze, 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.</td>
<td></td>
</tr>
</tbody>
</table>

| Practice New Partner Math Game: |  |
| Revisit the math game from Day 3. Remind students about the game procedures and expectations. Review “IWT Expectations Chart” on expectations for partner math games.  |  |
| • 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? |  |
| Add to the IWT Chart: |  |
| **Independent Work Time Expectations** |  |
| • Do not take the work to your teacher |  |
| • Do not interrupt the teacher if she is working with a small group |  |
| Explain to the class that during work time the teacher may be doing several different things: listening to the different groups discuss their math thinking, asking questions to prompt further work or explanation, meeting with small groups on a specific skill, or meeting with individual students. |  |

To establish expectations for independent games and activities

**Materials:**

* IWT Expectations Chart
* games
## Day 5 Objectives:
Review non-verbal signals, listening and speaking expectations, introduce a talk move, continue problem-solving and sharing solutions, and introduce small groups and independent work time.

### Review Non-Verbal Signals: (see Day 2)

#### Review Listening and Speaking Expectations

**Introduce Talk Move #3: Applying own reasoning…**
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 Share, Discuss and Analyze and Number Talk.)

#### Number Talk: (Model Talk Move #3, Applying own reasoning, and use Non-Verbal Signals)
Follow the same 6 steps as outlined in Day 2 (Number Talk). Introduce today’s problems:
* Insert problems

**Problem-Solving:**
Present and discuss today’s math problem.
* Insert a task with a bar model

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 Share, Discuss and Analyze.)

**Share Discuss and Analyze:** (Model Talk Move #3, Applying own reasoning and use Non-Verbal Signals)
- During Share Discuss and Analyze, 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.

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.

To continue to encourage the use of Number Talk.

Continue to establish the concept of a tool box for problem-solving throughout the year.

**Materials:**
*Problem-Solving Notebook*
Introduce Small Group and Independent Work Time:
(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.)

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. Have students rotate to each station so that each group will have an opportunity to explore each type of manipulative.

Establish clear expectations for small group activity rotations:
• When will we rotate and what is the signal?
• How do I know what to do first, then next?
• Where will activities be located and who will get them?
• What is the expectation for clean up between activities?

To establish expectations for small groups and independent work time

Materials:
* Bins
* Manipulatives
* Games
*IWT Expectation Chart
### Day 6 Objectives:
Review non-verbal signals (optional), review speaking and listening expectations (optional), continue a Number Talk, problem-solving and sharing solutions, and establishing small group rotation and independent work time expectations.

<table>
<thead>
<tr>
<th>Review Non-Verbal Signals: (see Day 2, optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review Listening and Speaking Expectations (optional)</td>
</tr>
<tr>
<td><strong>Number Talk:</strong> (Model Talk Move #3, Applying own reasoning, and use Non-Verbal Signals) Follow the same 6 steps as outlined in Day 2 (Number Talk).</td>
</tr>
<tr>
<td>Introduce today’s problem on the board:</td>
</tr>
<tr>
<td><strong>Insert Problem</strong></td>
</tr>
<tr>
<td>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?”) Encourage students to explain other students’ strategies, for example, ask, “Why did Jenny break the number apart? Why did she select those numbers?” 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.”)</td>
</tr>
<tr>
<td>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?”</td>
</tr>
<tr>
<td><strong>Problem-Solving:</strong> Revisit the Problem-Solving Chart to review expectations for problem-solving. Present and discuss today’s math problem. <strong>Insert Problem</strong> Discuss strategies and then have the students solve the problem in their problem-solving notebook. (Students can discuss solutions during Share, Discuss and Analyze.)</td>
</tr>
</tbody>
</table>

**Materials:**  
*Bins  
*Manipulatives

Continue to establish the concept of a tool box for problem-solving throughout the year.
<table>
<thead>
<tr>
<th>Day 6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Share, Discuss and Analyze:</strong> (Model Talk Move #3, Applying own reasoning, and use Non-Verbal Signals) 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, Revoicing, #2, Restating, and #3, Applying own reasoning.</td>
</tr>
<tr>
<td><strong>Continue with Small Group and Independent Work Time:</strong> 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.</td>
</tr>
</tbody>
</table>

<p>| |</p>
<table>
<thead>
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</thead>
<tbody>
<tr>
<td>To express their opinions, critique the reasoning of others, agree/disagree, etc.</td>
</tr>
<tr>
<td><strong>Materials:</strong></td>
</tr>
<tr>
<td><em>Problem-solving chart</em></td>
</tr>
<tr>
<td><em>Problem-solving notebook</em></td>
</tr>
<tr>
<td>To continue to establish expectations for small groups and independent work time</td>
</tr>
<tr>
<td><strong>Materials:</strong></td>
</tr>
<tr>
<td><em>Games</em></td>
</tr>
<tr>
<td><em>IWT Chart</em></td>
</tr>
</tbody>
</table>
### Day 7 Objectives:
Review listening and speaking expectations/non verbal signals (optional), introduce a talk move, continue Number Talks, problem-solving and sharing solutions, and introduce a new partner game or small group activity.

### Review Non-Verbal Signals: (see Day 2, optional)

### Review Listening and Speaking Expectations (optional)

**Introduce Talk Move #4: Prompting students for further participation**
After students have shared some initial ideas, more students can be asked to join in—prompt students for further participation. Examples:
- “Does anyone have any other thoughts or comments on what we’ve been talking about?”
- “Does anyone want to add to that?”

**Number Talk:** (Model Talk Move #4, Prompting students for further participation, and use Non-Verbal Signals)
Follow the same 6 steps as outlined in Day 2 (Number Talk).

Introduce today's problems:

- Insert Problem

Have students share their solutions.

**Problem Solving Notebook:**
Present and discuss today’s math problem:

- Insert Problem

Discuss strategies and then have the students solve the problem in their problem-solving notebook. (Students can share solutions during Share, Discuss and Analyze.)

**Share, Discuss and Analyze:** (Model Talk Move #4, Prompting students for further participation, 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, Revoicing, #2, Restating, #3, Applying own reasoning, and #4, Prompting students for further participation.

Materials:
*Problem-solving notebook*
### Day 7

**Introduce New Partner Game or Small Group Activity:**
As a whole group, revisit “IWT Expectations Chart” for expectations. Introduce a new game and review the game 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.

Game ideas can come from the textbook materials, the additional resources in the curriculum maps, and from your own bank of materials.

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**To continue building independence and appropriate communication with partners**
Grades 3-5: The First 10 Days
Launching Mathematics in the Common Core Classroom

**Day 8 Objectives:** To continue Number Talks, problem-solving, practicing talk moves, establishing small group rotation/independent work time expectations.

<table>
<thead>
<tr>
<th>Day 8</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review Non-Verbal Signals:</strong> (see Day 2, optional)</td>
<td></td>
</tr>
<tr>
<td><strong>Review Listening and Speaking Expectations (optional)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Number Talk:</strong> (Model Talk Move #4, Prompting for participation, and use Non-Verbal Signals)</td>
<td></td>
</tr>
<tr>
<td>Introduce today’s problem:</td>
<td></td>
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<tr>
<td>Insert Problem</td>
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<tr>
<td>Have students discuss their strategies and solutions.</td>
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</tr>
<tr>
<td><strong>Review Listening and Speaking Expectations (optional)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Review Non-Verbal Signals:</strong> (optional)</td>
<td></td>
</tr>
<tr>
<td><strong>Problem-Solving:</strong></td>
<td></td>
</tr>
<tr>
<td>Revisit the Problem-Solving Chart to review expectations for problem-solving.</td>
<td></td>
</tr>
<tr>
<td>Present and discuss today’s math problem:</td>
<td></td>
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<tr>
<td>Insert problem</td>
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</tr>
<tr>
<td>• Allow students to discuss how they might solve the math problem.</td>
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<tr>
<td>• If “Turn and Talk” or “Think-Pair-Share” is used, ask students what it looks like and model the procedures if necessary.</td>
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<tr>
<td>• Have students solve the problem in their problem-solving notebook.</td>
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</tr>
<tr>
<td>• Have manipulatives readily available for students to use.</td>
<td></td>
</tr>
<tr>
<td>• Students can share solutions during Share, Discuss and Analyze.</td>
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</tr>
</tbody>
</table>

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!

**Materials:**
* Math Game/Activity
* Problem-solving Chart
* Manipulatives
### Grades 3-5: The First 10 Days
#### Launching Mathematics in the Common Core Classroom

<table>
<thead>
<tr>
<th>Day 8</th>
<th><strong>Share, Discuss and Analyze:</strong> (Model Talk Move #4, Prompting for participation, and use Non-Verbal Signals)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Select a few students to share their solutions to the problem.</td>
</tr>
<tr>
<td></td>
<td>• Sharing student is prompted to ask the class if there are questions or comments.</td>
</tr>
<tr>
<td></td>
<td>• Encourage them to explain their thinking process and reasoning.</td>
</tr>
<tr>
<td></td>
<td>• Allow students to practice Talk Moves #1, Revoicing, #2, Restating, #3, Applying own reasoning, and #4, Prompting for participation.</td>
</tr>
<tr>
<td></td>
<td><strong>Introduce New Partner Game or Small Group Activity:</strong></td>
</tr>
<tr>
<td></td>
<td>As a whole group, revisit the “IWT 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.</td>
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</tbody>
</table>

|       | To set expectations for shared thinking and to respond to classmates in a reasonable manner |

|       | **Materials:**                                                                                     |
|       | * Problem Solving Notebook                                                                         |
|       | * Hundred Chart                                                                                   |

|       | To continue to establish expectations for small groups and independent work time                   |

|       | **Materials:**                                                                                     |
|       | * Math game/activity                                                                               |
|       | * IWT chart                                                                                        |
|       | * Manipulatives                                                                                   |

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<table>
<thead>
<tr>
<th>Day 9 Objectives: Introduce a new Talk Move, continue Number Talks, problem-solving and solution sharing, introduce a new partner game or small group activity.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduce Talk Move #5: Wait Time</strong></td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td><strong>Number Talk:</strong> (Model Talk Move #5, Wait time, and use Non-Verbal Signals)</td>
</tr>
<tr>
<td>Follow the same 6 steps as outlined in Day 2 (Number Talk).</td>
</tr>
<tr>
<td><strong>Insert Problem</strong></td>
</tr>
<tr>
<td>Debrief the Number Talk.</td>
</tr>
<tr>
<td><strong>Problem Solving:</strong></td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td><strong>Insert problem</strong></td>
</tr>
<tr>
<td>Have students share their real-life mathematical situation with a partner. Students can then write their equation and solution in their problem-solving notebook.</td>
</tr>
<tr>
<td><strong>Share, Discuss and Analyze:</strong> (Model Talk Move #5, Wait time, and use Non-Verbal Signals)</td>
</tr>
<tr>
<td>• Have students share their responses to the problem.</td>
</tr>
<tr>
<td>• Ask students how they solved the problem.</td>
</tr>
<tr>
<td>• Share explanation, thinking process and reasoning.</td>
</tr>
<tr>
<td>• Allow students to practice Talk Moves</td>
</tr>
<tr>
<td><strong>Introduce New Partner Game or Small Group Activity:</strong></td>
</tr>
<tr>
<td>As a whole group, revisit the &quot;IWT Expectations Chart&quot; 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.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>More students are able and willing to join in if time is provided for them to create something that they feel comfortable about sharing.</td>
</tr>
<tr>
<td><strong>Materials:</strong></td>
</tr>
<tr>
<td>* Problem-Solving Notebook</td>
</tr>
<tr>
<td>* Manipulatives</td>
</tr>
<tr>
<td>* Games</td>
</tr>
<tr>
<td>When the class is ready, the teacher begins working directly with small groups of students, pre-teaching, reteaching, and remediating.</td>
</tr>
</tbody>
</table>
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Launching Mathematics in the Common Core Classroom

**Day 10 Objectives:** To continue establishing expectations for the Common Core Math Classroom.

<table>
<thead>
<tr>
<th>Day 10</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number Talk:</strong> (Model Talk Move #5, Wait time, and use Non-Verbal Signals) Follow the same 6 steps as outlined in Day 2 (Number Talk). Introduce problems.</td>
<td></td>
</tr>
<tr>
<td><strong>Problem-Solving:</strong> Revisit the Problem-Solving Chart to review expectations for problem-solving. Present and discuss today’s math problem.</td>
<td></td>
</tr>
<tr>
<td><strong>Insert problem</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Discuss strategies and then have the students solve the problem in their problem-solving notebook.</strong> (Have students share their solutions during “Share, Discuss and Analyze.”)</td>
<td></td>
</tr>
<tr>
<td><strong>Share, Discuss and Analyze:</strong> (Model Talk Move #5, Wait time, and use Non-Verbal Signals)</td>
<td></td>
</tr>
<tr>
<td>- Have students share their responses to the problem about students (above).</td>
<td></td>
</tr>
<tr>
<td>- Ask students how they solved the problem.</td>
<td></td>
</tr>
<tr>
<td>- Encourage them to explain their thinking process and reasoning.</td>
<td></td>
</tr>
<tr>
<td>Allow students to practice Talk Moves #1, Revoicing, #2, Restating, #3, Applying own reasoning, and #4, Prompting for participation.</td>
<td></td>
</tr>
<tr>
<td><strong>Introduce a Partner Math Game or Small Group Activity:</strong> As a whole group, revisit the “IWT 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. 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.</td>
<td></td>
</tr>
</tbody>
</table>

**Materials:**
- Problem-solving chart
- Problem-solving notebook

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.
Grades 3-5: The First 10 Days
Launching Mathematics in the Common Core Classroom

CONGRATULATIONS!

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

- Number Talks
- Daily Problem-Solving
- Listening and Speaking Expectations
- Talk Moves for Mathematical Discussions
- Non-Verbal Signals
- 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 all year long!

References and Resources:


A community for number string design, http://numberstrings.com/

Teaching Channel videos:
- Talk Moves. https://www.teachingchannel.org/videos/developing-communication-skills
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:  

Math Perspectives:  

Math Solutions:  

Number Strings:  

**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)

<table>
<thead>
<tr>
<th><strong>Role of the Teacher</strong></th>
<th><strong>Student Questions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Activate prior knowledge</td>
<td>What am I trying to find?</td>
</tr>
<tr>
<td>Review vocabulary</td>
<td>I am trying to find…</td>
</tr>
<tr>
<td>Pose the problem</td>
<td>What do I know?</td>
</tr>
<tr>
<td>Ensure that students understand the task</td>
<td>I know that…</td>
</tr>
</tbody>
</table>

## DURING (20 MINUTES)

<table>
<thead>
<tr>
<th><strong>Role of the Teacher</strong></th>
<th><strong>Student Checklist</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Let students independently work in pairs or groups</td>
<td>I solved the problem in more than one way.</td>
</tr>
<tr>
<td>Observe and facilitate as students work</td>
<td>I explained my solution to my partner.</td>
</tr>
<tr>
<td>Ask questions to focus, assess, and advance student thinking</td>
<td>I asked my partner questions so that I understand his/her solution.</td>
</tr>
<tr>
<td>Decide which solutions will be selected for sharing</td>
<td>I made my solution or answer to the problem clear so that others will understand it.</td>
</tr>
</tbody>
</table>

## AFTER (15 minutes)

<table>
<thead>
<tr>
<th><strong>Role of the Teacher</strong></th>
<th><strong>Student Questions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Have two to three students share their thinking and work with the whole group</td>
<td>What questions do you have for the mathematician?</td>
</tr>
<tr>
<td>Orders selected solutions to help generate mathematically productive discussion</td>
<td>I’m wondering… Why did you… How did you…</td>
</tr>
<tr>
<td>Asks specific questions so that students will:</td>
<td>Who can restate how ____ solved the problem?</td>
</tr>
<tr>
<td>o Develop understanding of the concept</td>
<td>First… Next… Then…</td>
</tr>
<tr>
<td>o Add on to and question the solutions shared</td>
<td></td>
</tr>
<tr>
<td>o Make connections between the solutions presented</td>
<td>What is the same about the solutions shared? What is different?</td>
</tr>
<tr>
<td>o Identify patterns</td>
<td>o One similarity is… Both solutions… One difference between the solutions is…</td>
</tr>
<tr>
<td>o Find generalized characteristics within the problem</td>
<td></td>
</tr>
<tr>
<td>Listen actively without evaluation</td>
<td></td>
</tr>
<tr>
<td>Summarize the main idea and identify next steps, future problems</td>
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</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Number Talks Item</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
</table>
| **Teacher Presents the Problem** (~3 minutes) | The teacher:  
- presents a problem with dot cards (K-1) or computation problems.  
- provides wait time for the majority of students to access the problem.  
- prompts the students to use a “thumbs-up” as the signal that they have an answer. | The teacher:  
- All criteria in the previous level, PLUS...  
- selects a problem/dot card designed to elicit a particular approach.  
- 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.  
- anticipates how students will respond by thinking through possible strategies for each problem beforehand.  
- asks students to think on their own and to estimate before they compute.  
- removes pencil and paper from students access. | The teacher:  
- All criteria in the previous level, PLUS...  
- selects a well-crafted series of problems/dot cards that align with the teacher’s purpose.  
- notices the types of mental computation strategies students use and provides further instruction with alternative strategies at another time.  
- **periodically** encourages students to keep thinking about the number of additional strategies that will work and indicate the number of strategies on their fingers.  
- uses a real-life context to help students access the math. | The teacher:  
- All criteria in the previous level, PLUS...  
- increases the rigor of the problems over time.  
- **consistently** has students think of more than one strategy that will work and indicate the number of strategies on their fingers.  
- provides targeted small group instruction to those students needing additional instruction/practice. |
| **Teacher Records Answers** (~1 minute) | The teacher:  
- records all answers to be considered. | The teacher:  
- All criteria in the previous level, PLUS...  
- records all answers to be considered without giving any verbal or physical expressions of agreement.  
- has students share answers. | The teacher:  
- All criteria in the previous level, PLUS...  
- periodically uses overt methods such as number cards (K/1) or whiteboards etc. to elicit the answers of all students.  
- has students discuss which answers are reasonable and which answers could be ruled out | The teacher:  
- All criteria in the previous level, PLUS...  
- keeps records such as checklists, anecdotal notes of students’ answers and/or participation.  
- strategically chooses when students will use overt methods to reveal answers  
- discusses reasonableness of answers based on logic and number sense. |
### Number Talks Innovation Configuration Map

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<tr>
<td>Teacher:</td>
<td>• provides opportunities for several students to share their strategies.</td>
<td>• All criteria in the previous level, PLUS...</td>
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</tr>
<tr>
<td>Records Student Thinking (~8 minutes)</td>
<td>• records student thinking.</td>
<td>• occasionally uses Talk Moves to help students explain their thinking and/or orient their thinking to others with little student engagement or discussion.</td>
<td>• regularly uses Talk Moves</td>
<td>• invites students to explain thinking to the class by drawing pictures, open number lines and area models when appropriate.</td>
</tr>
<tr>
<td></td>
<td>• resources are displayed such as ten frames, hundreds charts and number lines.</td>
<td>• records student thinking in a mathematically correct manner by using proper notation.</td>
<td>• records student thinking using numbers as well as pictures, open number lines, area models, etc. as appropriate.</td>
<td>• strategically uses a variety of Talk Moves to further classroom discussion and understanding of the mathematics.</td>
</tr>
<tr>
<td></td>
<td>• displays sentence and question starters to help students frame their questions and comments.</td>
<td>• periodically references resources that are displayed such as ten frames, hundreds charts, number lines and strategy posters.</td>
<td>• regularly references tools that are displayed such as ten frames, hundreds charts, number lines and class created strategy posters.</td>
<td>• 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.</td>
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<tr>
<td></td>
<td>• regularly provides opportunities for students to orally practice using displayed sentence/question starters to help frame their questions and comments.</td>
<td>• 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.</td>
<td>• leads a discussion on the most efficient strategy rather than asking for the correct answer to a problem.</td>
<td>• using Talk Moves, facilitates class discussion in which students explain which strategy they believe is most efficient and why.</td>
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<td>• invites students to explain thinking to the class by drawing pictures, open number lines and area models when appropriate.</td>
<td>• 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.</td>
<td>• • 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.</td>
<td>• using Talk Moves, facilitates class discussion in which students explain which strategy they believe is most efficient and why.</td>
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<tr>
<td>Further Discussion (~3 minutes)</td>
<td>• may or may not provide opportunities for further discussion.</td>
<td>• leads a discussion that identifies the correct answer.</td>
<td>• leads a discussion on the most efficient strategy rather than asking for the correct answer to a problem.</td>
<td>• using Talk Moves, facilitates class discussion in which students explain which strategy they believe is most efficient and why.</td>
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<td>• limits the number talks to 10 to fifteen minutes.</td>
<td>• calls out new strategies used.</td>
<td>• 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.</td>
<td>• using Talk Moves, facilitates class discussion in which students explain which strategy they believe is most efficient and why.</td>
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**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**

*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.

**Explain & Support Reasoning**

*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…