The Common Core State Standards for Mathematics Grades 3–5

California Teachers Association
2011 Summer Institute
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Common Core State Standards for Mathematics Grades 3–5

Overview

- Standards for Mathematical Practice
  What and how?
- Standards for Mathematical Content
  What and how?
- Transition to the Common Core
- Common Core Resources
- Implications for Your Work
- Questions?
Mathematical Proficiency
as defined by the California Framework (2006)
Problem Solving

☆ **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. (3.OA.8)

☆ **Solve real world problems** involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. (5.NF.6)
Develop Conceptual Understandings

☆ **Understand** two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize that equivalencies are only valid when the two fractions refer to the same whole. (3.NF.3a)

☆ Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. (5NBT.7)
Emphasis on Fluency

☆ **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. (3.NBT.2)

☆ **Fluently** add and subtract multi-digit whole numbers using the standard algorithm. (4.NBT.4)
Common Core State Standards for Mathematics

Two Types of Standards:

- **Mathematical Practices**
  (recurring throughout the grades)

- **Mathematical Content**
  (different at each grade level)
Standards for Mathematical Practice

Describe ways students engage with the subject matter throughout the elementary, middle and high school years

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.
## Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Reasoning and explaining
Modeling and using tools
Seeing structure and generalizing
Overarching habits of mind of a productive mathematical thinker.

Standards for Mathematical Practice

Understanding expectations provide connections between the Mathematical Content Standards and the Mathematical Practices Standards

- **Understand** two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize that equivalencies are only valid when the two fractions refer to the same whole. (3.NF.3a)

- **Understand** addition and subtraction of fractions as joining and separating parts referring to the same whole. (4.NF.3a)
Standards for Mathematical Practice

“The Standards for Mathematical Practices describe... expertise that mathematics educators at all levels should seek to develop in their students.”

Activity: Read the Standards for Mathematical Practice (pp. 1–2) and then discuss with your neighbor:

- Which standards might be familiar or unfamiliar to teachers? Why?
- Do you currently develop similar mathematical expertise in your students? How?
- How might these standards impact your teaching?
CCSS: Overview

Grade 3 Overview

Operations and Algebraic Thinking
• Represent and solve problems involving multiplication and division.
• Understand properties of multiplication and the relationship between multiplication and division.
• Multiply and divide within 100.
• Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Number and Operations in Base Ten
• Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number and Operations—Fractions
• Develop understanding of fractions as numbers.

Measurement and Data
• Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
• Represent and interpret data.
• Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
• Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

Geometry
• Reason with shapes and their attributes.

Mathematical Practices
1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.
Standards for Mathematical Content
How the grade level standards are organized

Operations and Algebraic Thinking

Represent and solve problems involving multiplication and division.

1. Interpret products of whole numbers, e.g., interpret \(5 \times 7\) as the total number of objects in 5 groups of 7 objects each, or 7 groups of 5 objects each. For example, describe a context in which a total number of objects can be expressed as \(5 \times 7\).

2. Interpret whole-number quotients of whole numbers, e.g., interpret \(56 \div 8\) as the 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 56/8.

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.\(^1\)

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 \(8 \times ? = 48\), \(5 = [] \div 3\), \(6 \times 6 = ?\).

Understand properties of multiplication and the relationship between multiplication and division.

5. Apply properties of operations as strategies to multiply and divide.\(^2\) Examples: If \(6 \times 4 = 24\) is known, then \(4 \times 6 = 24\) is also known. (Commutative property of multiplication.) \(3 \times 5 \times 2\) can be found by \(3 \times 5 = 15\), then \(15 \times 2 = 30\), or by \(5 \times 2 = 10\), then \(3 \times 10 = 30\). (Associative property of multiplication.) Knowing that \(8 \times 5 = 40\) and \(8 \times 2 = 16\), one can find \(8 \times 7\) as \(8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56\). (Distributive property.)

6. Understand division as an unknown-factor problem. For example, find \(32 \div 8\) by finding the number that makes 32 when multiplied by 8.

Multiply and divide within 100.

7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that \(8 \times 5 = 40\), one knows \(40 \div 5 = 8\)) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
## CCSS Domains K–5

<table>
<thead>
<tr>
<th>Domain</th>
<th>K</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting and Cardinality (CC)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operations and Algebraic Thinking (OA)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Number and Operations in Base Ten (NBT)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Measurement and Data (MD)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Geometry (G)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Number and Operations – Fractions (NF)</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
### CCSS Domains 6–8

<table>
<thead>
<tr>
<th>Domain</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratios and Proportional Relationships (RP)</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>The Number System (NS)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Expressions and Equations (EE)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Geometry (G)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Statistics and Probability (SP)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Functions (F)</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
(3.OA.1) Interpret products of whole numbers, e.g., interpret $5 \times 7$ as the total number of objects in 5 groups of 7 objects each, or 7 groups of 5 objects each. For example, describe a context in which a total number of objects can be expressed as $5 \times 7$. 
California Additions

Look through the next few pages of your standards document (through page 23). Locate and read other examples of “California Additions” from grades 3–5.

Share with a neighbor how these additions might help to maintain the rigor of the 1997 California standards at these grades?
### CCSS Grades K–2
The Common Core State Standards focus on whole number arithmetic

<table>
<thead>
<tr>
<th>K</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Count to 100, write numbers (to 20)</strong></td>
<td><strong>Count, read and write numbers (to 120)</strong></td>
<td><strong>Count, read and write numbers (to 1,000)</strong></td>
</tr>
<tr>
<td>Place value to 19</td>
<td>Place value to 100</td>
<td>Place value to 1,000</td>
</tr>
<tr>
<td>Fluently add and subtract (within 5)</td>
<td>Fluently add and subtract (within 10)</td>
<td>Fluently add and subtract (within 100)</td>
</tr>
<tr>
<td>Represent addition and subtraction (within 10)</td>
<td>Add (within 100)</td>
<td>Add and subtract (within 1,000)</td>
</tr>
<tr>
<td></td>
<td>Subtract multiples of 10 (range 10-90)</td>
<td>Demonstrate multiplication and division</td>
</tr>
</tbody>
</table>
What Third Grade Students Should Know

- Understand place value (within 1000)
- Add and subtract (within 1000) and fluently add and subtract (within 100)
- Know from memory all sums of two one-digit numbers
- Demonstrate multiplication (as repeated addition) and division (as repeated subtraction)
- Measure lengths using tools
- Recognize shapes by various attributes and partition rectangles and circles
**CCSS Grades 3–5**

Focus on whole number arithmetic (addition, subtraction, multiplication and division), fractions, and decimals

<table>
<thead>
<tr>
<th>Examples of Topics</th>
<th>Gr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fluently add and subtract within 1000; multiply and divide within 100&lt;br&gt;• Introduce fractions as a number on a number line</td>
<td>3</td>
</tr>
<tr>
<td>• Fluently add and subtract multi-digit numbers (using the standard algorithms)&lt;br&gt;• Extend multiplication and division to four digit numbers&lt;br&gt;• Add and subtract fractions (with like denominators)&lt;br&gt;• Multiply a fraction by a whole number&lt;br&gt;• Introduce decimals</td>
<td>4</td>
</tr>
<tr>
<td>• Fluently multiply multi-digit numbers (using the standard algorithm)&lt;br&gt;• Add and subtract fractions (with unlike denominators); multiply fractions&lt;br&gt;• Divide unit fractions by whole numbers and whole numbers by unit fractions&lt;br&gt;• Add, subtract, multiply and divide decimals (to hundredths)</td>
<td>5</td>
</tr>
</tbody>
</table>
CCSS: Multiplication and Division

ACTIVITY

Read standards 3.OA and NBT and 4.OA and NBT (pp. 13–14 and 17).

Then discuss at your table:

- What strategies or models will students use to multiply and divide? How does this approach help students understand the content?
- What are some examples of connections with the Mathematical Practices Standards?
- How might these standards be familiar or unfamiliar to teachers?
CCSS: Multiplication and Division

Watch two videos on how to multiply and divide:

http://www.mathtv.com/videos_by_topic#
(Source: MathTV.com)

Then discuss at your table:
• Do you think these videos would help your students multiply and divide? Explain.
• How might you change the videos to include some strategies (such as place value understanding, the relationship between addition and subtraction, and properties of operations) to help students understand multiplication and division? Refer to standards 3.OA.5–7, 3.NBT.3 and 4.NBT.5–6.
How are the 1997 CA Standards and the Common Core State Standards similar or different?

**ACTIVITY**

- Read the selection of multiplication and division standards.
- At your table discuss how the CCSS might affect the way you teach?
## CCSS: Multiplication and Division

**Table 2. Common multiplication and division situations.**

<table>
<thead>
<tr>
<th>Equal Groups</th>
<th>Unknown Product</th>
<th>Group Size Unknown (&quot;How many in each group?&quot; Division)</th>
<th>Number of Groups Unknown (&quot;How many groups?&quot; Division)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$3 \times 6 = ?$</td>
<td>$3 \times ? = 18$, and $18 \div 3 = ?$</td>
<td>$? \times 6 = 18$, and $18 \div 6 = ?$</td>
</tr>
<tr>
<td><strong>Arrays, Area</strong></td>
<td>There are 3 bags with 6 plums in each bag. How many plums are there in all?</td>
<td>If 18 plums are shared equally into 3 bags, then how many plums will be in each bag?</td>
<td>If 18 plums are to be packed 6 to a bag, then how many bags are needed?</td>
</tr>
<tr>
<td></td>
<td><strong>Measurement example.</strong> You need 3 lengths of string, each 6 inches long. How much string will you need altogether?</td>
<td><strong>Measurement example.</strong> You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?</td>
<td><strong>Measurement example.</strong> You have 18 inches of string, which you will cut into pieces that are 6 inches long. How many pieces of string will you have?</td>
</tr>
<tr>
<td><strong>Compare</strong></td>
<td>There are 3 rows of apples with 6 apples in each row. How many apples are there?</td>
<td>If 18 apples are arranged into 3 equal rows, how many apples will be in each row?</td>
<td>If 18 apples are arranged into equal rows of 6 apples, how many rows will there be?</td>
</tr>
<tr>
<td></td>
<td><strong>Area example.</strong> What is the area of a 3 cm by 6 cm rectangle?</td>
<td><strong>Area example.</strong> A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?</td>
<td><strong>Area example.</strong> A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?</td>
</tr>
<tr>
<td><strong>General</strong></td>
<td>$a \times b = ?$</td>
<td>$a \times ? = p$, and $p + a = ?$</td>
<td>$? \times b = p$, and $p \div b = ?$</td>
</tr>
</tbody>
</table>

### Table 3: Multiplication and division situations

<table>
<thead>
<tr>
<th>Equal Groups of Objects</th>
<th>Arrays of Objects</th>
<th>Compare</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unknown Product</strong></td>
<td><strong>Unknown Product</strong></td>
<td><strong>Larger Unknown</strong></td>
</tr>
<tr>
<td>There are ( A ) bags with ( B ) plums in each bag. How many plums are there in all?</td>
<td>There are ( A ) rows of apples with ( B ) apples in each row. How many apples are there?</td>
<td>A blue hat costs $B. A red hat costs ( A ) times as much as the blue hat. How much does the red hat cost?</td>
</tr>
<tr>
<td><strong>Group Size Unknown</strong></td>
<td><strong>Equal groups language</strong></td>
<td><strong>Smaller Unknown</strong></td>
</tr>
<tr>
<td>If ( C ) plums are shared equally into ( A ) bags, then how many plums will be in each bag?</td>
<td>If ( C ) apples are arranged into ( A ) equal rows, how many apples will be in each row?</td>
<td>A red hat costs $C and that is ( A ) times as much as a blue hat costs. How much does a blue hat cost?</td>
</tr>
<tr>
<td><strong>Number of Groups Unknown</strong></td>
<td><strong>Unknown Factor</strong></td>
<td><strong>Multiplier Unknown</strong></td>
</tr>
<tr>
<td>If ( C ) plums are to be packed ( B ) to a bag, then how many bags are needed?</td>
<td>If ( C ) apples are arranged into an array with ( A ) rows, how many columns of apples are there?</td>
<td>A red hat costs $C and a blue hat costs $B. How many times as much does the red hat cost as the blue hat?</td>
</tr>
<tr>
<td><strong>A &gt; 1</strong></td>
<td><strong>A &lt; 1</strong></td>
<td><strong>Larger Unknown</strong></td>
</tr>
<tr>
<td><strong>Smaller Unknown</strong></td>
<td><strong>Multiplier Unknown</strong></td>
<td><strong>A as much as the blue hat. How much does the red hat cost?</strong></td>
</tr>
<tr>
<td>A red hat costs $C and that is ( A ) times as much as a blue hat costs. How much does a blue hat cost?</td>
<td>A red hat costs $C and a blue hat costs $B. What fraction of the cost of the blue hat is the cost of the red hat?</td>
<td>A blue hat costs $B. A red hat costs ( A ) as much as the blue hat. How much does the red hat cost?</td>
</tr>
</tbody>
</table>

Source: Progressions for the Common Core State Standards in Mathematics (draft) online at http://commoncoretools.files.wordpress.com/2011/05/ccss_progression_cc_oa_k5_2011_05_302.pdf
CCSS: Multiplication and Division

(4.NBT.5) Use place value understanding and properties of operations to perform multi-digit arithmetic. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

(4. NBT.6) Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
Example of Multiplication: Area Model

Computing products of two two-digit numbers requires using the distributive property several times when the factors are decomposed into base-ten units. For example,

\[
36 \times 94 = (30 + 6) \times (90 + 4)
\]
\[
= (30 + 6) \times 90 + (30 + 6) \times 4
\]
\[
= 30 \times 90 + 6 \times 90 + 30 \times 4 + 6 \times 4.
\]

Example of Division: Area Model

Adding the three regions:

\[7 \times 100 + 7 \times 30 + 7 \times 8\]

Using the distributive property:

\[7 \times (100 + 30 + 8)\]

The unknown side is 138.

Grades 3–5
A Focus on Fractions

★ Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into $b$ equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line. (3.NF.2.a)

★ Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g. by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$. (5.NF.2)
## CCSS Grades 3–5
### Number and Operations–Fractions

<table>
<thead>
<tr>
<th>Examples of Topics</th>
<th>Gr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Introduce fractions as a number on a number line</td>
<td>3</td>
</tr>
<tr>
<td>• Add and subtract fractions (with like denominators)</td>
<td>4</td>
</tr>
<tr>
<td>• Multiply a fraction by a whole number</td>
<td></td>
</tr>
<tr>
<td>• Introduce decimals</td>
<td></td>
</tr>
<tr>
<td>• Add and subtract fractions (with unlike denominators); multiply fractions</td>
<td>5</td>
</tr>
<tr>
<td>• Divide unit fractions by whole numbers and whole numbers by unit fractions</td>
<td></td>
</tr>
<tr>
<td>• Add, subtract, multiply and divide decimals (to hundredths)</td>
<td></td>
</tr>
</tbody>
</table>
CCSS Grades 3–5
Number and Operations–Fractions

Read the standards in 3.NF. At your table discuss:

- How the standards develop understanding of fractions as numbers on a number line?
- What Mathematical Practices are supported?
- How would you compare pairs of fractions using a visual fraction model? Refer to your handout on standard 3.NF.3d.

<table>
<thead>
<tr>
<th>COMMON CORE STATE STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 &gt;, =, or &lt;, and justify the conclusions, e.g., by using a visual fraction model.</td>
</tr>
</tbody>
</table>

(3.NF.3d)

Discuss how you might compare pairs of fractions using a visual fraction model. For discussion purposes, use the following two fraction pairs:

- 7/9 and 4/9 (same denominator)
- 4/9 and 4/7 (same numerator)
Fractions: Sample Solution

\[
\begin{align*}
\frac{7}{9} &< \frac{4}{9} \\
\frac{4}{9} &< \frac{4}{7}
\end{align*}
\]
CCSS Grades 3–5
Number and Operations–Fractions

Example of free resource:
Interactive number line with fractions

http://www.mathsisfun.com/numbers/fraction-number-line.html

Source: http://www.mathisfun.com
CCSS Grades 3–5
Number and Operations–Fractions

ACTIVITY

Watch the video of students locating fractions on a number line. Then at your table discuss:

• How does the number line help students understand fractions as numbers?
• What strategies did the students use?
• What grade 3 standards include similar strategies?

Link to video:
https://docs.google.com/leaf?id=0Bzpm1PDffAnEZmM2NWZjZTkTNzkzMy00NDBhLTlkOWUtNjFkOWZmNjJmOWJm&sort=name&layout=list&num=50

Source: CaCCSS-M Task Force, hosted by the California Mathematics Project at http://caccssm.cmpso.org/home
CCSS Grades 3–5
Number and Operations – Fractions

**Group 1**: Read standards 4.NF

**Group 2**: Read standards 5.NF

Then at your table:

- Discuss how the standards develop fractions and decimals? Identify a few benchmarks at the grade.
- Identify and discuss the use of various strategies (e.g., the use of visual models).
- Which Mathematical Practices standards are supported?
- How might these standards be familiar or unfamiliar to teachers?
## Transition to Common Core Grade Shifts: Grades 3-5

<table>
<thead>
<tr>
<th>Content</th>
<th>1997 CA Standards Grade</th>
<th>Common Core Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to fractions as numbers</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Add and subtract simple fractions, with like denominators</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Multiply a fraction by a whole number and solve related word problems</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Add, subtract and round decimals</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Operations with negative integers</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Dividing fractions by fractions</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
## A Quick Look: Transition to Common Core State Standards (CCSS)

### Mathematics: Grade Three

<table>
<thead>
<tr>
<th>Overview of Standards</th>
<th>Overview of Standards</th>
<th>Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1997 California Mathematics Standards</strong></td>
<td><strong>CCSS</strong></td>
<td><strong>1. Understand and use multiplication and division within 100 to solve word problems; fluently multiply and divide within 100 (multiply and divide a multi-digit number (with up to four digits) and a one-digit number moves from grade three to grade four in the CCSS).</strong></td>
</tr>
<tr>
<td><strong>Algebra and Functions</strong></td>
<td><strong>Operations and Algebraic Thinking</strong></td>
<td><strong>2. Determine an unknown whole number in a multiplication or division equation relating three whole numbers (e.g., (8 \times ? = 48)).</strong></td>
</tr>
<tr>
<td>- Students select appropriate symbols, operations, and properties to represent, describe, simplify, and solve simple number relationships.</td>
<td>- Represent and solve problems involving multiplication and division.</td>
<td><strong>3. Solve two-step word problems using the four operations and an equation with a letter standing for an unknown quantity.</strong></td>
</tr>
<tr>
<td>- Students represent simple functional relationships.</td>
<td>- Understand properties of multiplication and the relationship between multiplication and division.</td>
<td><strong>4. Memorize all products of two one-digit numbers (memorize the multiplication tables for 2s and 5s moves from grade two to grade three in the CCSS).</strong></td>
</tr>
<tr>
<td><strong>Number Sense</strong></td>
<td><strong>Multiply and divide within 100.</strong></td>
<td><strong>5. Understand that a four-digit number represents amounts of thousands, hundreds, tens and ones.</strong></td>
</tr>
<tr>
<td>- Students understand the place value of whole numbers.</td>
<td><strong>Solve problems involving the four operations, and identify and explain patterns in arithmetic.</strong></td>
<td><strong>6. Fluently add and subtract within 1,000 and multiply one-digit numbers by multiples of 10 in the range 10-90.</strong></td>
</tr>
<tr>
<td>- Students calculate and solve problems involving addition, subtraction, multiplication, and division.</td>
<td></td>
<td><strong>7. Round whole numbers to the nearest 10 or 100.</strong></td>
</tr>
<tr>
<td>- Students understand the relationship between whole numbers, simple fractions, and decimals.</td>
<td></td>
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### A Quick Look: Transition to Common Core State Standards (CCSS)

#### Mathematics: Grade Three

<table>
<thead>
<tr>
<th>Overview of Standards</th>
<th>Overview of Standards</th>
<th>Highlights</th>
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<tr>
<td>1997 California Mathematics Standards</td>
<td>CCSS</td>
<td></td>
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<tr>
<td><strong>Algebra and Functions</strong></td>
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<tr>
<td>- Students select appropriate symbols, operations, and properties to represent, describe, simplify, and solve simple number relationships.</td>
<td>- Represent and solve problems involving multiplication and division.</td>
<td>- Understand and use multiplication and division within 100 to solve word problems: fluently multiply and divide within 100 (multiply and divide a multi-digit number (with up to four digits) and a one-digit number moves from grade three to grade four in the CCSS).</td>
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<tr>
<td>- Students represent simple functional relationships.</td>
<td>- Understand properties of multiplication and the relationship between multiplication and division.</td>
<td>- Determine an unknown whole number in a multiplication or division equation relating three whole numbers (e.g., (8 \times _ = 48)).</td>
</tr>
<tr>
<td><strong>Number Sense</strong></td>
<td>- Multiply and divide within 100.</td>
<td>- Solve two-step word problems using the four operations and an equation with a letter standing for an unknown quantity.</td>
</tr>
<tr>
<td>- Students understand the place value of whole numbers.</td>
<td>- Solve problems involving the four operations and identify and explain patterns in arithmetic.</td>
<td>- Memorize all products of two one-digit numbers (memorize the multiplication tables for 2s and 5s moves from grade two to grade three in the CCSS).</td>
</tr>
<tr>
<td>- Students calculate and solve problems involving addition, subtraction, multiplication, and division.</td>
<td>- Students understand the relationship between whole numbers, simple fractions, and decimals.</td>
<td>- Understand that a four-digit number represents amounts of thousands, hundreds, tens, and ones.</td>
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<tr>
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<td></td>
<td>- Fluently add and subtract within 1,000 and multiply one-digit numbers by multiples of 10 in the range 10-90.</td>
</tr>
</tbody>
</table>

#### ACTIVITY

Review the charts, then at your table discuss:

- How are the two sets of standards similar or different?
- How might the shifting of some content to other grades impact your teaching?
A Look at Kindergarten Through Grade Six in California Public Schools

Transitioning to Common Core State Standards in English Language Arts and Mathematics

California Department of Education
Sacramento, 2011
Common Core State Standards Resources

Website http://www.cde.ca.gov/ci/cc

Common Core State Standards Resources
Information and frequently asked questions about the new academic content standards adopted by the State Board of Education on August 2, 2010.

The Common Core State Standards (CCSS) were developed through a state-led initiative to establish consistent and clear education standards for English-language arts and mathematics that would better prepare students for success in college, career, and the competitive global economy. The California State Board of Education (SBE) adopted the standards on August 2, 2010. To learn more about the adoption process, click here.

Common Core State Standards

- **Common Core State Standards for English-Language Arts and Literacy in History/Social Studies, Science and Technical Subjects** (PDF; Outside Source)
  The CCSS adopted by the California SBE on August 2, 2010.

- **Common Core State Standards for Mathematics** (PDF; Outside Source)
  The CCSS adopted by the California SBE on August 2, 2010.

- **Common Core State Standards Initiative** (Outside Source)
  The multi-state CCSS released on June 2, 2010. Includes information about the standards, FAQ, and the appendices to the standards.

- **Superintendent’s Supplemental Instructional Materials Review**
  The Superintendent’s review of instructional materials related to the CCSS.
CCSSO Mathematics CCSS

Tools and resources primarily developed by Council of Chief State School Officers (CCSSO) and the lead writers of the standards to help states as they implement the Common Core State Standards Mathematics.

- Progression Documents for the CCSS Mathematics Standards (Outside Source)
  Narrative documents describing the progression of a topic across a number of grade levels, informed both by research on children’s cognitive development and by the logical structure of mathematics.

- Hyperlinked Version of the Mathematics Standards (Outside Source)
  A version of the math standards that has hyperlinks within the document.

- Visual Depiction of the Mathematical Practices (Outside Source)
  This visual displays some higher-order structure to the Standards for Mathematical Practice.

- Mathematics Lead Writer Bill McCallum’s Blog (Outside Source)
  CCSS Mathematics lead writer, Bill McCallum, provides information regarding implementation projects related to the CCSS for mathematics.
CDE on iTunes U

Source: http://www.cde.ca.gov/re/mm/it/

About | Contribute | FAQ
Common Core State Standards
National Governors Association & Council of Chief State School Officers

Description
The Common Core State Standards Initiative is a state-led effort coordinated by the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO). The standards were developed in collaboration with teachers, school administrators, and experts, to provide a clear and consistent framework to prepare our children for college and the workforce. California adopted the Common Cor...

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<th>Description</th>
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Total: 11 Items

Customer Ratings
We have not received enough ratings to display an average for this collection. Rate this collection: ★★★★★
CDE on iTunes U
Implications for your work

Take a few minutes to discuss with your neighbors:

- What is the most important/valuable piece of information you learned in this session?
- What are some first steps you might take to implement the CCSS?
Contact Us

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