



# *COMMON CORE STATE STANDARDS IMPLEMENTATION, IMPACT, AND IMPLICATIONS*


December 3, 2011

**Missouri Department of Elementary  
and Secondary Education**

# Agenda



- Impact...influence/effect
- Implications...consequences
- Implementation...put into action



What one word best  
describes your thoughts  
when you first heard about  
the Common Core State  
Standards?

# What's your proficiency level?



Advanced

Proficient

Basic

**Below Basic**

# The Common Core State Standards FACT or FICTION?

## The CCSS...

1. initiative was federally mandated.
2. define the knowledge and skills students need to be college and career ready.
3. in mathematics include both content and mathematics practice standards.
4. will replace the Show-Me Standards.

# The Common Core State Standards FACT or FICTION?

## The CCSS...

1. initiative was federally mandated. **Fiction**
2. define the knowledge and skills students need to be college and career ready. **FACT**
3. in mathematics include both content and mathematics practice standards. **FACT**
4. will replace the Show-Me Standards.

**Fiction**

# One-for-one...

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What one thing  
would you like to  
know about the  
CCSS?

# BEGIN at the beginning...STOP at the end!



- Introduction
- Standards for Mathematical Practice K - 12
- Mathematics Content Standards K – 12
- Glossary
- Sample of Works Consulted

# “Standard Language”

- “These Standards define what students should understand and be able to do in their study of mathematics. “  
**(Common Core State Standards, 2010)**
- “These standards (73 in all) are intended to define what students should learn by the time they graduate from high school.” **(The Show-Me Standards, 1996)**



- “However, these Standards do provide clear signposts along the way to the goal of college and career readiness for all students. “  
**(Common Core State Standards, 2010)**
- “However, graduates who meet these standards should be well-prepared for further education, work, and civic responsibilities.”  
**(The Show-Me Standards, 1996)**

# K – 8 Mathematical Focus: Think **BIG!!!**

- What is the major focus of your mathematics content instruction in the grade(s) you teach?
- What major topics/concepts are included?

# K – 8 Instructional Time Focus

- Focus on both procedural knowledge and conceptual understanding
- Focus instruction

**Less topics**  **less = MORE**  **More time**

# K – 8 Instructional Time Should Focus on...

**Mathematics K – 8 instructional time should focus on these critical areas in:**

## **Grade 4**

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

*Very closely aligned to the NCTM Curriculum Focal Points*

# CCSS Mathematics K - 8 Domains 8/2011

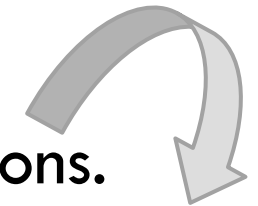
Domain	K	1	2	3	4	5	6	7	8
Counting and Cardinality	K.CC.1, 2, 3, 4a, 4b, 4c, 5, 6, 7								
Operations and Algebraic Thinking	K.OA.1, 2, 3, 4, 5	1.OA.1, 2, 3, 4, 5, 6, 7, 8	2.OA.1, 2, 3, 4	3.OA.1, 2, 3, 4, 5, 6, 7, 8, 9	4.OA.1, 2, 3, 4, 5	5.OA.1, 2, 3			
Numbers and Operations in Base Ten	K.NBT.1	1.NBT.1, 2a, 2b, 2c, 3, 4, 5, 6	2.NBT.1a, 1b, 2, 3, 4, 5, 6, 7, 8, 9	3.NBT.1, 2, 3	4.NBT.1, 2, 3, 4, 5, 6	5.NBT.1, 2, 3a, 3b, 4, 5, 6, 7			
Numbers and Operations - Fractions				3.NF.1, 2a, 2b, 3a, 3b, 3c, 3d	4.NF.1, 2, 3a, 3b, 3c, 3d, 4a, 4b, 4c, 5, 6, 7	5.NF.1, 2, 3, 4a, 4b, 5a, 4b, 5a, 5b, 6, 7a, 7b, 7c			
Measurement and Data	K.MD.1, 2, 3	1.MD.1, 2, 3, 4	2.MD.1, 2, 3, 4, 5, 6, 7, 8, 9, 10	3.MD.1, 2, 3, 4, 5a, 5b, 6, 7a, 7b, 7c, 7d, 8	4.MD.1, 2, 3, 4, 5a, 5b, 6, 7	5.MD.1, 2, 3a, 3b, 4, 5a, 5b, 5c			
Geometry	K.G.1, 2, 3, 4, 5, 6	1.G.1, 2, 3	2.G.1, 2, 3	3.G.1, 2	4.G.1, 2, 3	5.G.1, 2, 3, 4	6.G.1, 2, 3, 4	7.G.1, 2, 3, 4, 5, 6	8.G.1a, 1b, 1c, 2, 3, 4, 5, 6, 7, 8, 9
Ratios and Proportional Relationships	<b>Computations</b>			<b>Fractions</b>			6.RP.1, 2, 3a, 3b, 3c, 3d	7.RP.1, 2a, 2b, 2c, 2d, 3	
The Number System							6.NS.1, 2, 3, 4, 5, 6a, 6b, 6c, 7a, 7b, 7c, 7d, 8	7.NS.1a, 1b, 1c, 1d, 2a, 2b, 2c, 2d, 3	8.NS.1, 2
Expressions and Equations							6.EE.1, 2a, 2b, 2c, 3, 4, 5, 6, 7, 8, 9	7.EE.1, 2, 3, 4a, 4b	8.EE.1, 2, 3, 4, 5, 6, 7a, 7b, 8a, 8b, 8c
Statistics and Probability							6.SP.1, 2, 3, 4, 5a, 5b, 5c, 5d	7.SP.1, 2, 3, 4, 5, 6, 7a, 7b, 8a, 8b, 8c	8.SP.1, 2, 3, 4
Functions			<b>Solving Systems of Equations</b>						8.F.1, 2, 3, 4, 5

# CCSS Mathematics Traditional Pathway HS Domains 8/2011

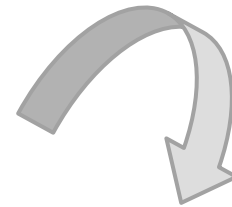
Conceptual Category	Domain	Algebra I	Geometry	Algebra II	Fourth Course
<b>Number and Quantity</b>	The Real Number System	N.RN.1, 2, 3			
	Quantities	N.Q. 1, 2, 3			
	The Complex Number System			N.CN.1, 2, 7, (+)8, (+)9	(+)N.CN.3, 4, 5, 6
	Vector and Matrix Quantities				(+)N.VM.1, 2, 3, 4a, 4b, 4c, 5a, 5b, 6, 7, 8, 9, 10, 11, 12
<b>Algebra</b>	Seeing Structure in Expressions	A.SSE.1a, 1b, 2, 3a, 3b, 3c		A.SSE.1a, 1b, 2, 4	
	Arithmetic with Polynomials and Rational Expressions	A.APR.1		A.APR.1, 2, 3, 4 (+)5, 6, (+)7	
	Creating Equations	A.CED. 1, 2, 3, 4		A.CED.1, 2, 3, 4	
	Reasoning with Equations and Inequalities	A.REI.1, 3, 4a, 4b, 5, 6, 7, 10, 11, 12		A.REI.1	(+) A.REI. 8, 9
<b>Functions and Models</b>	Interpreting Functions	F.IF.1, 2, 3, 4, 5, 6, 7a, 7b, 7e, 8a, 8b, 9		F.IF.4, 5, 6, 7b, 7c, 7e, 8, 9	F.IF.7d
	Building Functions	F.BF.1a, 1b, 2, 3, 4a		F.BF.1b, 3, 4a	(+)F.BF.1c, 4c, 4d, 5
	Linear, Quadratic and Exponential Models	F.LE.1a, 1b, 1c, 2, 3, 5		F.LE.4	
	Trigonometric Functions			F.TF.1, 2, 5, 8	(+)F.TF.3, 4, 6, 7, 9
<b>Geometry</b>	Congruence		G.CO.1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13		
	Similarity, Right Triangles, and Trigonometry		G.SRT.1a, 1b, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11		
	Circles		G.C. 1, 2, 3, (+)4, 5		
	Expressing Geometric Properties with Equations		G.GPE.1, 2, 4, 5, 6, 7		(+)G.GPE.3
	Geometric Measurement and Dimension		G.GMD.1, 3, 4		(+)G.GMD.2
	Modeling with Geometry		G.GMG.1, 2, 3		
<b>Statistics and Probability</b>	Interpreting Categorical and Quantitative Data	S.ID.1, 2, 3, 5, 6a, 6b, 8, 9		S.ID.4	
	Making Inferences and Justifying Conclusions			S.IC.1, 2, 3, 4, 5, 6	
	Conditional Probabilities and the Rules of Probability		S.CP.1, 2, 3, 4, 5, 6, 7, (+)8, (+)9		
	Using Probability to Make Decisions		(+)S.MD.6, 7	(+)S.MD.6, 7	(+)S.MD.5a, 5b

# Standards for Mathematical Practice

- Rest on important processes including:
  - Problem solving, reasoning and proof, communication, representation, and connections.
- Rest on important mathematical proficiencies including:
  - Adaptive reasoning
  - Strategic competence
  - Conceptual understanding
  - Procedural fluency
  - Productive disposition



NCTM—  
*Principles  
and  
Standards  
for School  
Mathematics*



National Research  
Council Report--  
*Adding it Up!*

# Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them. **(3.1, 3.2)**
2. Reason abstractly and quantitatively. **(3.5, 3.8)**
3. Construct viable arguments and critique the reasoning of others. **(1.7, 1.8, 3.3, 3.5)**
4. Model with mathematics. **(1.10, 3.8)**
5. Use appropriate tools strategically. **(1.4, 2.7)**
6. Attend to precision. **(2.1, 1.7)**
7. Look for and make use of structure. **(1.7)**
8. Look for and express regularity in repeated reasoning. **(1.6)**

Red font indicates Show-Me Process standards that align to the CCSS Mathematical Practices Standards.

## Grade 5 Overview

### Operations and Algebraic Thinking

- Write and interpret numerical expressions.
- Analyze patterns and relationships.

### Number and Operations in Base Ten

- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

### Number and Operations—Fractions

- Use equivalent fractions as a strategy to add and subtract fractions.
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

### The Number System

- Gain familiarity with concepts of positive and negative integers

### 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.

Mathematical Practice Standards  
are included throughout K – 12.  
Implementation can begin  
immediately.



# Pathways for Designing High School Mathematics Courses

- The Mathematics CCSS **Appendix A** includes the **Pathways** document with models for possible approaches to organizing mathematics content of the mathematics CCSS into coherent and rigorous courses that lead to college and career readiness.
- In addition, it provides curriculum frameworks for the different Pathways.



# Suggestions for Organizing the High School Mathematics Content of the CCSS

## Pathways



### Traditional

- Algebra I
- Geometry
- Algebra II
- Fourth mathematics course



### Integrated

- Mathematics I
- Mathematics II
- Mathematics III
- Fourth mathematics course



### Compacted Traditional

- Accelerated 7<sup>th</sup> Grade
- 8<sup>th</sup> Grade Algebra I
- Geometry
- Algebra II
- Fourth course Calculus/other collegiate level course



### Compacted Integrated

- Accelerated 7<sup>th</sup> Grade
- 8<sup>th</sup> Grade Mathematics 1
- Mathematics II
- Mathematics III
- Fourth course Calculus/other collegiate level course



# Assessment

# CCSS Assessments-Smarter Balanced Assessment Consortium (SBAC)

- Missouri one of 17 governing states
- SBAC assessments will measure the full range of the ELA and Mathematics CCSS in grades 3 – 8 and 11, including problem-solving and complex thinking
- Assessments will include state-of-the-art, online exams providing more immediate and useful info
- Teachers in participating states are to be involved in all stages of item-writing and test development
- The second draft of the mathematics content specifications are to be released in the near future for review. **YOU** can be involved.

# CCSS Assessments-Smarter Balanced Assessment Consortium (SBAC)

- Common Core Assessments
  - SMARTER Balanced Assessment Consortium
  - SRs, CRs, and PEs
  - Formative, interim/benchmark, summative, performance assessments
  - Adaptive
- Common Core Alternative Assessment(s)

## MO CCSS Rollout Schedule

**Informational Day – Long sessions held in locations throughout the State**

**Statewide Professional Development on curriculum continues**

**Federal requirement for administration of Common Core operational assessments by all states**

**Fall 2010**

**Spring 2011**

**2011-2012**

**2012-2013**

**2013-2014**

**2014-2015**

**Department creates crosswalk between communication arts and mathematics v2.0 GLEs/CLEs and Common Core**

**Statewide Professional Development on curriculum adjustment to Common Core**

**Goal for early administration of Common Core field-test assessments**

*Note: Grade-Level and EOC assessments will continue to be aligned to the v2.0 GLEs/CLEs through the 2013-2014 administration period*

# 2011 – 2015 Assessment At-A-Glance

## Mathematics Assessment Implementation

School Year	Grades 3 - 8	High School
<b>2011 – 2012</b> Aligned to v2.0 GLEs/CLEs	MAP	End-of-Course Algebra I, Geometry, Algebra II
<b>2012 – 2013</b> Aligned to v2.0 GLEs/CLEs	MAP	End-of-Course Algebra I, Geometry, Algebra II
<b>2013 – 2014</b> Aligned to v2.0 GLEs/CLEs →  Aligned to CCSS →	MAP	End-of-Course Algebra I, Geometry, Algebra II
	SBAC (Pilot/Field Test)	SBAC Grade 11 Summative (Pilot/Field Test)
2014 – 2015 Aligned to CCSS	<b>SBAC Grades 3 – 8            Operational Assessment</b>	<b>SBAC Grade 11 Summative            Operational Assessment &amp;            EOC Exams</b>



# IMPLEMENTATION

# Implementation Resources

- Access the Common Core State Standards and support documents/resources created by DESE at <http://www.dese.mo.gov/divimprove/curriculum/common-core-math.htm>

# Implementation Actions



- Identify common content within the v2.0 GLEs/CLEs and CCSS that may not be included in grades or courses now and include the content in instruction and assessment.

# What's Common about the CCSS?

**MATHEMATICS**  
 Common Core State Standards/v2.0 GLE Alignment Analysis  
**DRAFT**

Grades 6-8	Grade 6	Grade 7	Grade 8
Domain	Cluster/v2.0 GLE Alignment	Cluster/v2.0 GLE Alignment	Cluster/v2.0 GLE Alignment
	Solve real-world and mathematical problems involving area, surface area, and volume. G2A6, G4B6, M2C6	Solve real-world and mathematical problems involving angle measure, surface area, and volume. A2A7, M1B7, M2C7	Solve real-world and mathematical problems involving volumes of cylinders, cones and spheres. No alignment to any 8th Grade GLE
Statistics and Probability (SP)	Develop understanding of statistical variability. D1A6	Use random sampling to draw inferences about a population. D3A7	Investigate patterns of association in bivariate data. A1B8, A2A8, A4A8, D1C8, D3A8
	Summarize and describe distributions. I1A6, D2A6	Draw informal comparative inferences about two populations. D2A7, D3A7	
		Investigate chance processes and develop, use, and evaluate probability models. D4A7	
	<u>Alignment to Grade 6 GLEs at Other Grades</u> I1A6, N1B6, N2B6, N3C6, N2D6, N3C6, N3D6, M1A6, M1C6, M2C6, N2B6, D1A6, D4A6	<u>Alignment to Grade 7 GLEs at Other Grades</u> N1B7, N1C7, N2C7, N2D7, N3E7, A2A7, G1B7, G2A7, M1C7, M2B7, M2C7, M2E7, D1C7, D2A7	<u>Alignment to Grade 8 GLEs at Other Grades</u> N1A8, N1B8, N2C8, A2A8, A2B8, G3B8, D1C8, D2A8, D2B8
<u>No Alignment to Grade 6 GLEs</u> I1C6, N3D6, A1B6, A1C6, A1D6, G1A6, G3C6, A4A6, M2B6, D3A6	<u>No Alignment to Grade 7 GLEs</u> A1B7, A1C7, G3C7, G4A7, M1A7	<u>No Alignment to Grade 8 GLEs</u> G3C8, G4A8, M2D8	

CCSS aligns to these Grade 6 GLEs at grade 6.

CCSS aligns to these Grade 6 GLEs at a different grade level.

CCSS does not align to these Grade 7 GLEs at any grade level.

# Implementation Actions

- Make it a priority to begin implementation of all Standards for Mathematical Practice in K – 12 mathematics classes.

Those content standards which set an expectation of understanding are potential —points of intersection between the Standards for Mathematical Content and the Standards for Mathematical Practice. (Common Core Standards for Mathematics, p.8)

# Implementation Actions



- Implement the Kindergarten Mathematics CCSS during the 2011 – 2012 school year

# CCSS Mathematics K - 8 Domains 7/2011

Domain	K	1	2	3	4	5	6	7	8
Counting and Cardinality	K.CC.1, 2, 3, 4a, 4b, 4c, 5, 6, 7						<b>Policy Workshop to develop recommendations for initial professional development efforts in K – 8.</b>		
Operations and Algebraic Thinking	K.OA.1, 2, 3, 4, 5	1.OA.1, 2, 3, 4, 5, 6, 7, 8	2.OA.1, 2, 3, 4	3.OA.1, 2, 3, 4, 5, 6, 7, 8, 9	4.OA.1, 2, 3, 4, 5	5.OA.1, 2, 3			
Numbers and Operations in Base Ten	K.NBT.1	1.NBT.1, 2a, 2b, 2c, 3, 4, 5, 6	2.NBT.1a, 1b, 2, 3, 4, 5, 6, 7, 8, 9	3.NBT.1, 2, 3	4.NBT.1, 2, 3, 4, 5, 6	5.NBT.1, 2, 3a, 3b, 4, 5, 6, 7			
Numbers and Operations - Fractions				3.NF.1, 2a, 2b, 3a, 3b, 3c, 3d	4.NF.1, 2, 3a, 3b, 3c, 3d, 4a, 4b, 4c, 5, 6, 7	5.NF.1, 2, 3, 4a, 4b, 5a, 4b, 5a, 5b, 6, 7a, 7b, 7c			
Measurement and Data	K.MD.1, 2, 3	1.MD.1, 2, 3, 4	2.MD.1, 2, 3, 4, 5, 6, 7, 8, 9, 10	3.MD.1, 2, 3, 4, 5a, 5b, 6, 7a, 7b, 7c, 7d, 8	4.MD.1, 2, 3, 4, 5a, 5b, 6, 7	5.MD.1, 2, 3a, 3b, 4, 5a, 5b, 5c			
Geometry	K.G.1, 2, 3, 4, 5, 6	1.G.1, 2, 3	2.G.1, 2, 3	3.G.1, 2	4.G.1, 2, 3	5.G.1, 2, 3, 4	6.G.1, 2, 3, 4	7.G.1, 2, 3, 4, 5, 6	8.G.1a, 1b, 1c, 2, 3, 4, 5, 6, 7, 8, 9
Ratios and Proportional Relationships	<b>Five initial domains for professional development:</b> <b>•Grades K – 2 Counting and Cardinality</b> <b>Numbers and Operations</b>  <b>•Grades K – 5 Operations and Algebraic Thinking</b> <b>•Grades 3 – 5 Number and Operations – Fractions</b> <b>•Grades 6 – 7 Ratios and Proportional Reasoning</b> <b>•Grade 8 – Geometry</b>  <b>ALL professional development should incorporate the Standards for Mathematical Practice</b>						6.RP.1, 2, 3a, 3b, 3c, 3d	7.RP.1, 2a, 2b, 2c, 2d, 3	
The Number System							6.NS.1, 2, 3, 4, 5, 6a, 6b, 6c, 7a, 7b, 7c, 7d, 8	7.NS.1a, 1b, 1c, 1d, 2a, 2b, 2c, 2d, 3	8.NS.1, 2
Expressions and Equations							6.EE.1, 2a, 2b, 2c, 3, 4, 5, 6, 7, 8, 9	7.EE.1, 2, 3, 4a, 4b	8.EE.1, 2, 3, 4, 5, 6, 7a, 7b, 8a, 8b, 8c
Statistics and Probability							6.SP.1, 2, 3, 4, 5a, 5b, 5c, 5d	7.SP.1, 2, 3, 4, 5, 6, 7a, 7b, 8a, 8b, 8c	8.SP.1, 2, 3, 4
Functions									8.F.1, 2, 3, 4, 5

# Elementary Mathematics Specialist Certification Proposal

## MISSOURI DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION CERTIFICATION REQUIREMENTS FOR MATHEMATICS SPECIALIST (GRADES 1-6)

### I. GENERAL REQUIREMENTS

- A. Valid Missouri permanent or professional certificate of license to teach; and
- B. Two (2) years of successful mathematics teaching experience.

# Common Core Tools...

<http://commoncoretools.wordpress.com/tools/>

- [The Illustrative Mathematics Project](#)
- [Progressions for the Common Core](#)
- Technical manual for the Common Core (Jason Zimba)
- [Hyperlinked version of the mathematics standards](#)
- K–8 Standards by domain: [Counting and Cardinality](#), [Operations and Algebraic Thinking](#), [Number and Operations in Base Ten](#), [Number and Operations—Fractions](#), [Measurement and Data](#), [Geometry](#), [Ratio and Proportional Relationships](#), [The Number System](#), [Expressions and Equations](#), [Statistics and Probability](#), [Functions](#).

Other:

Connections to mathematical practices (processes and proficiencies) --  
[http://www.ted.com/talks/dan\\_meyer\\_math-curriculum\\_makeover.html](http://www.ted.com/talks/dan_meyer_math-curriculum_makeover.html)



# Progressions Drafts Currently Available at...

<http://commoncoretools.wordpress.com/tools>

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.

# *K – 5 Progressions in Number and Operations in Base Ten* **K.NBT1**

5- and 10-frames



*Children can place small objects into 10-frames to show the ten as two rows of five and the extra ones within the next 10-frame, or work with strips that show ten ones in a column.*

# *K – 5 Progressions in Number and Operations in Base Ten* **Grade 1**

**Part of a numeral list**

91	101	111
92	102	112
93	103	113
94	104	114
95	105	115
96	106	116
97	107	117
98	108	118
99	109	119
100	110	120

*In the classroom, a list of the numerals from 1 to 120 can be shown in columns of 10 to help highlight the base-ten structure. The numbers 101, . . . , 120 may be especially difficult for children to write.*

# K – 5 Progressions in Number and Operations in Base Ten **2.NBT7**

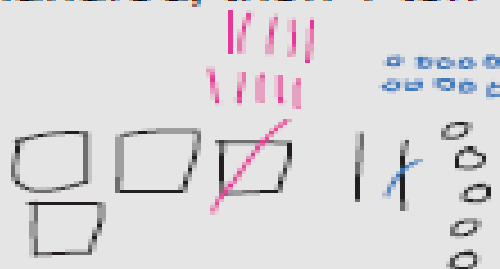
## Subtraction: Decomposing where needed first

decomposing left to right,  
1 hundred, then 1 ten

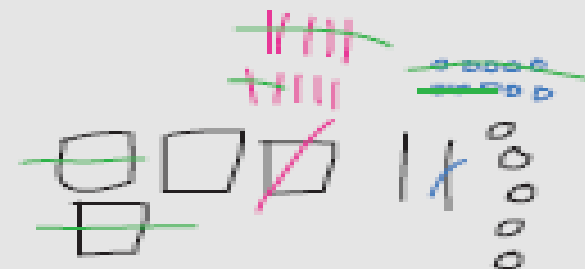
now subtract



$$\begin{array}{r} 425 \\ - 278 \\ \hline \end{array}$$



$$\begin{array}{r} 11 \\ 3 \cancel{12} \cancel{15} \\ 425 \\ - 278 \\ \hline \end{array}$$



$$\begin{array}{r} 11 \\ 3 \cancel{12} \cancel{15} \\ 425 \\ - 278 \\ \hline 147 \end{array}$$

All necessary decomposing is done first, then the subtractions are carried out. This highlights the two major steps involved and can help to inhibit the common error of subtracting a smaller digit on the top from a larger digit. Decomposing and subtracting can start from the left (as shown) or the right.

# CCSS Mathematics Traditional Pathway HS Domains 7/2011

Conceptual Category	Domain	Algebra I	Geometry	Algebra II	Fourth Course
<b>Number and Quantity</b>	The Real Number System	<ul style="list-style-type: none"> <li>•Implementation of Mathematical Practices</li> <li>•Review the “Pathways” recommended the CCSS Appendix A and determine which ones will best benefit your students</li> <li>•Carefully consider the content in each course and use names that are most appropriate.</li> </ul>			
	Quantities				
	The Complex Number System				
	Vector and Matrix Quantities				
<b>Algebra</b>	Seeing Structure in Expressions				
	Arithmetic with Polynomials and Rational Expressions				
	Creating Equations				
	Reasoning with Equations and Inequalities				
<b>Functions and Models</b>	Interpreting Functions				
	Building Functions				
	Linear, Quadratic and Exponential Models				
	Trigonometric Functions				
<b>Geometry</b>	Congruence				
	Similarity, Right Triangles, and Trigonometry				
	Circles				
	Expressing Geometric Properties with Equations				
	Geometric Measurement and Dimension				
	Modeling with Geometry				
<b>Statistics and Probability</b>	Interpreting Categorical and Quantitative Data				
	Making Inferences and Justifying Conclusions				
	Conditional Probabilities and the Rules of Probability				
	Using Probability to Make Decisions				



# Mathematical Modeling Handbook (Sampler)

Available from *COMAP* (The Consortium for  
Mathematics and Its Applications) at

**[www.comap.com](http://www.comap.com)**

Mathematical modeling is the process of using mathematics to study a question from outside the field of mathematics. A mathematical model is a representation of a particular phenomenon using structures such as graphs, equations, or algorithms. ||

(Abrams, 2001, p.2)

# NCTM Resources—something new...

- Mathematics Common Core Coalition (MC<sup>3</sup>) [mathccc.org](http://mathccc.org)
- *Making it Happen*
- *Principles and Standards for School Mathematics*
- *Navigations Series*
- *Curriculum Focal Points*
- *Illuminations*

# One-for-one...



What one thing would  
you **STILL** like to know  
about the CCSS?

NAME:

EMAIL ADDRESS:

# Questions?



[Cindy.Bryant@dese.mo.gov](mailto:Cindy.Bryant@dese.mo.gov)  
**573-751-1395**

## Curriculum Listserv

[http://dese.mo.gov/divimprove/curriculum/curriclistserv\\_subscribe.htm](http://dese.mo.gov/divimprove/curriculum/curriclistserv_subscribe.htm)

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