

# **Common Core Georgia Performance Standards 6<sup>th</sup> Grade**

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Thank you for being here today.

You will need the following materials  
during today's broadcast:

- 6<sup>th</sup> Grade handouts
- Note-taking materials

Activate your brain

Solve real-world and mathematical problems involving area, surface area, and volume.

Determine the area of Figure A below:

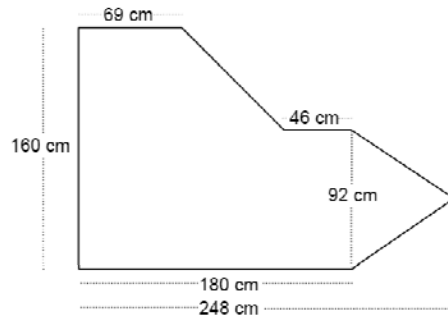


Figure A

## Why Common Core Standards?

- **Preparation:** The standards are college- and career-ready. They will help prepare students with the knowledge and skills they need to succeed in education and training after high school.
- **Competition:** The standards are internationally benchmarked. Common standards will help ensure our students are globally competitive.
- **Equity:** Expectations are consistent for all – and not dependent on a student's zip code.

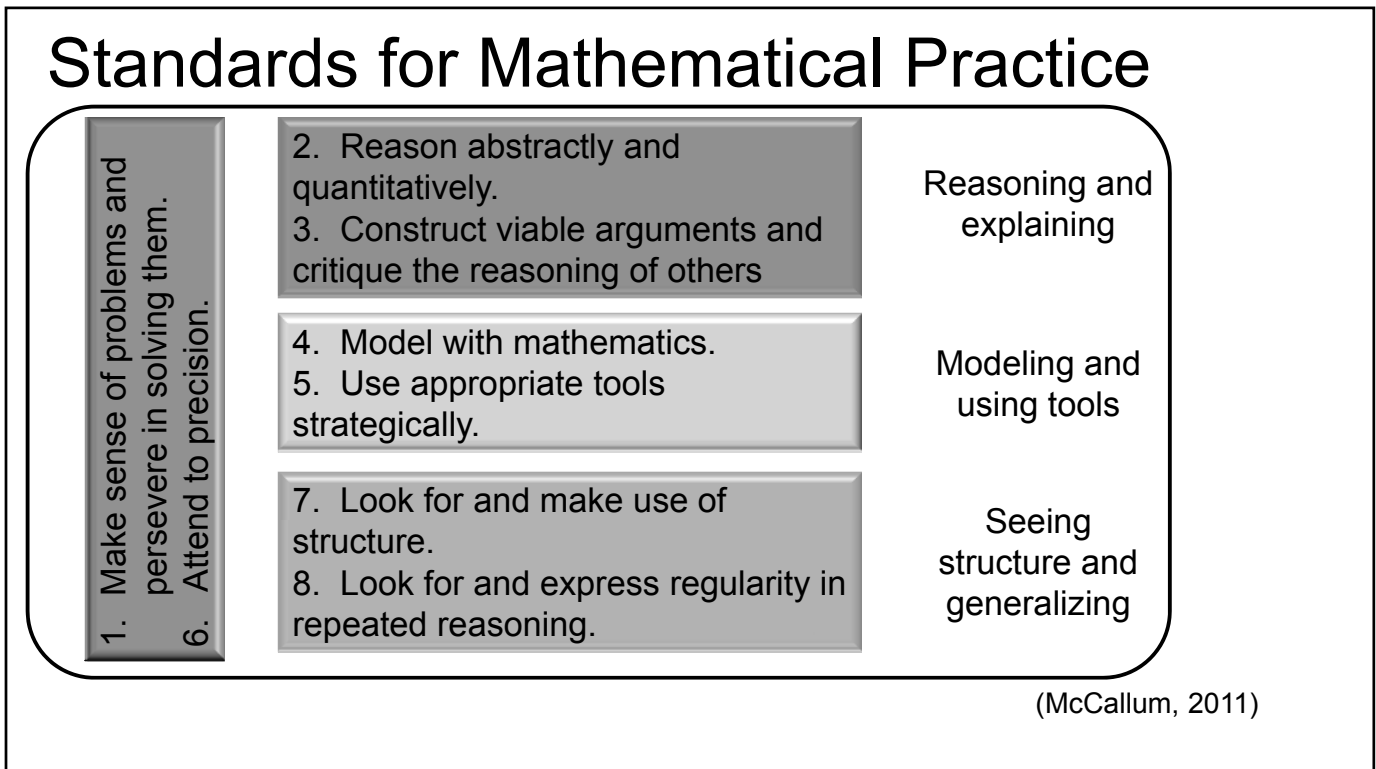
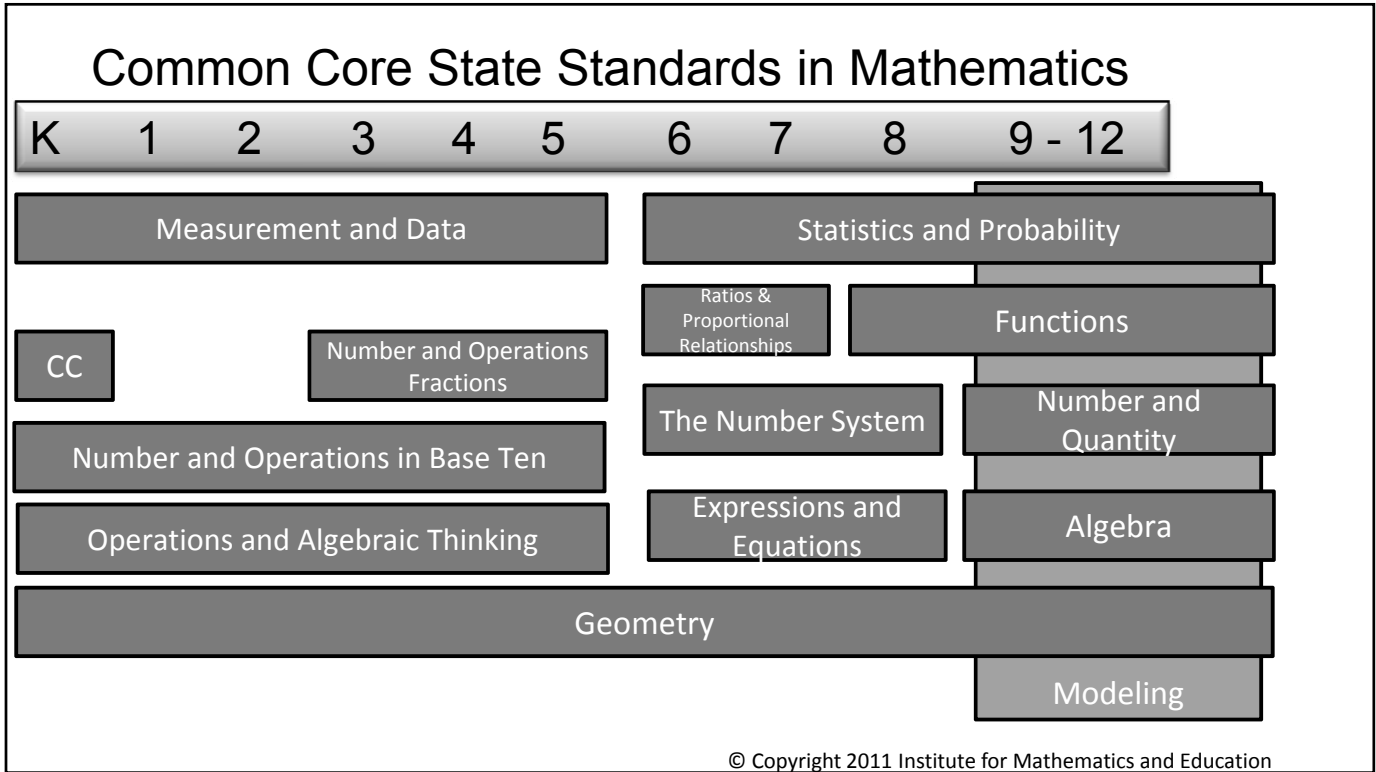
## Why Common Core Standards?

- **Clarity:** The standards are focused, coherent, and clear. Clearer standards help students (and parents and teachers) understand what is expected of them.
- **Collaboration:** The standards create a foundation to work collaboratively across states and districts, pooling resources and expertise, to create curricular tools, professional development, common assessments and other materials.

## Common Core State Standards

Building on the strength of current state standards, the CCSS are designed to be:

- Focused, coherent, clear and rigorous
- Internationally benchmarked
- Anchored in college and career readiness
- Evidence and research based



**Ratios and Proportional Relationships**      **6.RP** ← Domain

Understand ratio concepts and use ratio reasoning to solve problems.

**Standards**  
**CLUSTER** Heading

**MCC6.RP.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

**MCC6.RP.2** Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$  ( $b$  not equal to zero), and use rate language in the context of a ratio relationship.

While the standards focus on what is most essential, they do not describe all that can or should be taught. A great deal is left to the discretion of teachers and curriculum developers. The aim of the standards is to articulate the fundamentals, not to set out an exhaustive list or a set of restrictions that limits what can be taught beyond what is specified.

corestandards.org

## What's a 6<sup>th</sup> Grade Teacher to do?

- Read your grade level standards
- Use the CCGPS Teaching Guide found on Georgia Standards.org and Learning Village
- Discuss the standards with your colleagues

Common Core Georgia Performance Standards: Curriculum Map							
1 <sup>st</sup> Semester				2 <sup>nd</sup> Semester			
Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
Number System Fluency	Rate, Ratio and Proportional Reasoning Using Equivalent Fractions	Expressions	One-Step Equations and Inequalities	Area and Volume	Statistics	Rational Explorations: Numbers and their Opposites	Show What We Know
MCC6.NS.1 MCC6.NS.2 MCC6.NS.3 MCC6.NS.4	MCC6.RP.1 MCC6.RP.2 MCC6.RP.3a MCC6.RP.3b MCC6.RP.3c MCC6.RP.3d	MCC6.EE.1 MCC6.EE.2a MCC6.EE.2b MCC6.EE.2c MCC6.EE.3 MCC6.EE.4	MCC6.EE.5 MCC6.EE.6 MCC6.EE.7 MCC6.EE.8 MCC6.EE.9 MCC6.RP.3a MCC6.RP.3b MCC6.RP.3c MCC6.RP.3d (equations)	MCC6.G.1 MCC6.G.2 MCC6.G.4	MCC6.SP.1 MCC6.SP.2 MCC6.SP.3 MCC6.SP.4 MCC6.SP.5	MCC6.NS.5 MCC6.NS.6a MCC6.NS.6b MCC6.NS.6c MCC6.NS.7a MCC6.NS.7b MCC6.NS.7c MCC6.NS.7d MCC6.NS.8 MCC6.G.3	ALL
Incorporated Standards:							
	MCC6.NS.1 MCC6.NS.2 MCC6.NS.3 MCC6.NS.4	MCC6.NS.1 MCC6.NS.2 MCC6.NS.3 MCC6.NS.4	MCC6.NS.1 MCC6.NS.2 MCC6.NS.3 MCC6.NS.4	MCC6.NS.1 MCC6.EE.2c MCC6.NS.1 MCC6.NS.2 MCC6.NS.3 MCC6.NS.4	MCC6.NS.1 MCC6.NS.2 MCC6.NS.3 MCC6.NS.4		
These units were written to build upon concepts from prior units, so later units contain tasks that depend upon the concepts addressed in earlier units.							
All units will include the Mathematical Practices and indicate skills to maintain.							
NOTE: Mathematical standards are interwoven and should be addressed throughout the year in as many different units and tasks as possible in order to stress the natural connections that exist among mathematical topics.							

# 6<sup>th</sup> Grade Overview

## Unit 1: Number System Fluency

### The Number System

- Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
- Compute fluently with multi-digit numbers and find common factors and multiples.

### New Content

- Computational Fluency – came from Elementary

# 6<sup>th</sup> Grade Overview

## Unit 2: Rate, Ratio and Proportional Reasoning Using Equivalent Fractions

### Ratios and Proportional Relationships

- Understand ratio concepts and use ratio reasoning to solve problems.

### New Content

- Proportional Reasoning without cross multiplication – not specifically mentioned

## 6<sup>th</sup> Grade Overview

### Unit 3: Expressions

#### Expressions and Equations

- Apply and extend previous understandings of arithmetic to algebraic expressions.

#### New Content

- Write and Read Algebraic Expressions – came from Elementary
- Use commutative, associative, and distributive properties to evaluate and simplify expressions – came from 7<sup>th</sup> grade

## 6<sup>th</sup> Grade Overview

### Unit 4: One-Step Equations and Inequalities

#### Expressions and Equations

- Reason about and solve one-variable equations and inequalities.
- Represent and analyze quantitative relationships between dependent and independent variables.

#### Ratio and Proportional Relationships

- Understand ratio concepts and use ratio reasoning to solve problems.

#### New Content

- Solve and graph inequalities – came from 8<sup>th</sup> grade



## 6<sup>th</sup> Grade Overview

### Unit 5: Area and Volume

#### Geometry

- Solve real-world and mathematical problems involving area, surface area, and volume.

#### New Content

- Find areas by composing and decomposing – came from Elementary

## 6<sup>th</sup> Grade Overview

### Unit 6: Statistics

#### Statistics and Probability

- Develop understanding of statistical variability.
- Summarize and describe distributions.

#### New Content

- Box plots – came from 7<sup>th</sup> grade
- Mean Absolute Deviation – came from 9<sup>th</sup> grade

# 6<sup>th</sup> Grade Overview

## Unit 7: Rational Explorations: Numbers and their Opposites

### The Number System

- Apply and extend previous understandings of numbers to the system of rational numbers.

### Geometry

- Solve real-world and mathematical problems involving area, surface area, and volume.

### New Content

- Introduction to Integers (Plotting points in all four quadrants) – came from 7<sup>th</sup> grade

Focus  
Coherence  
Fluency  
Deep Understanding  
Applications  
Balanced Approach

## Focus

Coherence

Fluency

Deep Understanding

Applications

Balanced Approach

## Focus

### The student...

- spends more time thinking and working on priority concepts.
- is able to understand concepts and their connections to processes (algorithms).

# Focus

## The teacher...

- builds knowledge, fluency and understanding of why and how certain mathematics concepts are done.
- thinks about how the concepts connect to one another.
- pays more attention to priority content and invests the appropriate time for all students to learn before moving onto the next topic.

<b>Grade</b>	<b>Priorities in Support of Rich Instruction and Expectations of Fluency and Conceptual Understanding</b>
K-2	Addition and subtraction, measurement using whole number quantities
3-5	Multiplication and division of whole numbers and fractions
6	Ratios and proportional reasoning; early expressions and equations
7	Ratios and proportional reasoning; arithmetic of rational numbers
8	Linear algebra
9-12	Modeling

## Critical Areas

In 6<sup>th</sup> Grade, instructional time should focus on **four critical areas**:

- (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems;
- (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers;
- (3) writing, interpreting, and using expressions and equations; and
- (4) developing understanding of statistical thinking.

## Priorities in 6<sup>th</sup> Grade

- Ratio and Proportional Reasoning
- Early Expressions and Equations

## Focus task

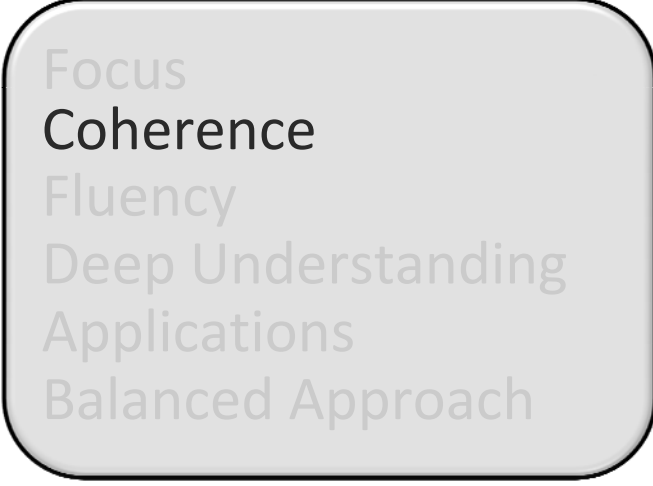
Apply and extend previous understandings of arithmetic to algebraic expressions.

Show (using manipulatives or a drawing):

$$3(2x + 1) = 6x + 3$$

## What is no longer in 6<sup>th</sup> grade?

- Scale Factor
- Symmetry
- Probability
- Categorical Data
- Measuring
- Adding and Subtracting Fractions
- Multiplying Fractions
- Cylinders and Cones



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## Coherence

### The student...

- builds on knowledge from year to year, in a coherent learning progression.

## Coherence

### The teacher...

- connects mathematical ideas across grade levels.
- thinks deeply about what is being focused on.
- thinks how those ideas connect to how it was taught the years before and the years after.

What do 6<sup>th</sup> Grade students bring?  
What are they connecting to later?

Understand ratio concepts and use ratio reasoning to solve problems.

Selina bought a shirt on sale that was 20% less than the original price. The original price was \$ 5 more than the sale price. What was the original price? Explain or show work.



## Ratio Overview

### 4<sup>th</sup> Grade

- Work with unit fractions and equivalent fractions

### 5<sup>th</sup> Grade

- Use equivalent fractions

## Ratio Overview

### 7<sup>th</sup> Grade

- Analyze proportional relationships

### 8<sup>th</sup> Grade

- Understand the connections between proportional relationships and linear equations

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## Fluency

The student...

- spends time practicing skills with intensity and frequency.

# Fluency

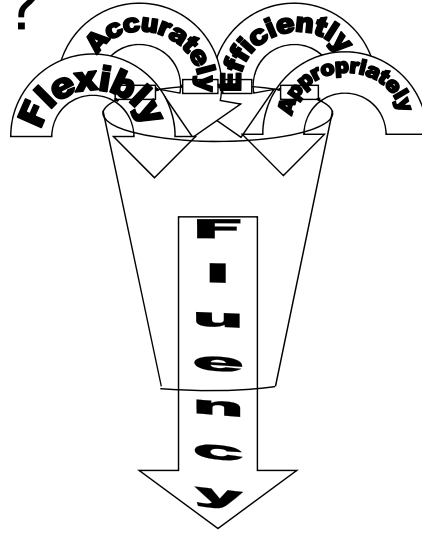
## The teacher...

- pushes students to know skills at a greater level of fluency based on understanding.
- focuses on the listed fluencies by grade level.

Grade	Required Fluency
K	Add/subtract within 5
1	Add/subtract within 10
2	Add/subtract within 20 & Add/subtract within 100 (pencil and paper)
3	Multiply/divide within 100 & Add/subtract within 1000
4	Add/subtract within 1,000,000
5	Multi-digit multiplication
6	Multi-digit division & Multi-digit decimal operations
7	Solve $px + q = r$ , $p(x + q) = r$
8	Solve simple $2 \times 2$ systems by inspection
9-12	Algebraic manipulation in which to understand structure. Writing a rule to represent a relationship between two quantities. Seeing mathematics as a tool to model real-world situations. Understanding quantities and their relationships.

## What does Fluency Look Like in 6<sup>th</sup> Grade?

- **FLEXIBLY**
- **ACCURATELY**
- **EFFICIENTLY**
- **APPROPRIATELY**



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## Deep Understanding

### The student...

- shows mastery of material at a deep level in numerous ways.
- uses mathematical practices to demonstrate understanding of different material and concepts.

## Deep Understanding

### The teacher...

- asks what mastery/proficiency really looks like and means.
- plans for progression of levels of understanding.
- spends the time to gain the depth of the understanding.
- becomes flexible and comfortable in own depth of content knowledge.

# What does depth mean in 6<sup>th</sup> Grade?

Summarize and describe distributions.

Create a dotplot for the following data: {1, 3, 4, 5, 5, 5, 7, 8}

Determine the Distance (deviation) from the mean for each "dot"

How would you find the average distance from the mean for all the data points?

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## Application

### The student...

- applies mathematics in other content areas and situations.
- chooses the right mathematics concept to solve a problem when not necessarily prompted to do so.

## Application

### The teacher...

- contextualizes mathematics.
- creates real world experiences in which students use what they know, and in which they are not necessarily prompted to use mathematics.

## FAL Structure

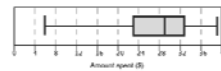
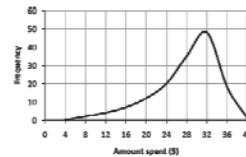
- Pre-Assessment / opening
- Collaborative activity
- Whole-class discussion
- Return to the pre-assessment / opening

## Mathematizing 6<sup>th</sup> Grade

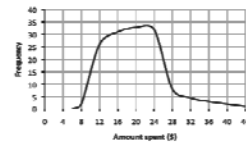
Summarize and describe distributions.

Cell Phones 2

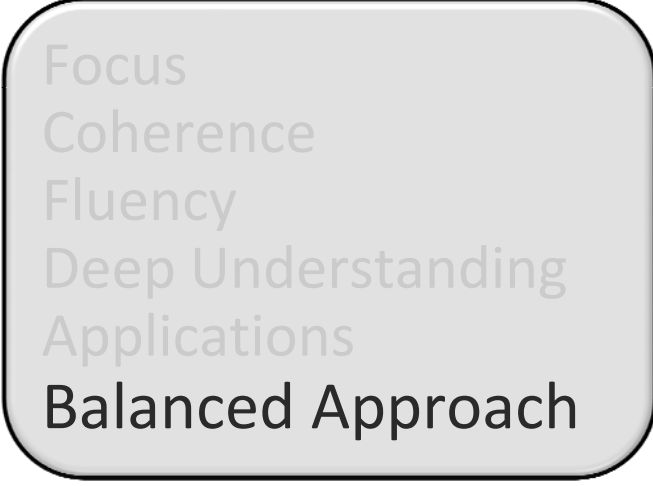
Here is a frequency graph that shows the monthly spending of a group of students on their cell phones:



Here is another frequency graph that shows the monthly spending of a second group of students on their cell phones:







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**Balanced Approach**

## Balanced Approach

The student...

- practices mathematics skills to achieve fluency.
- practices mathematics concepts to ensure application in novel situations.

## Balanced Approach

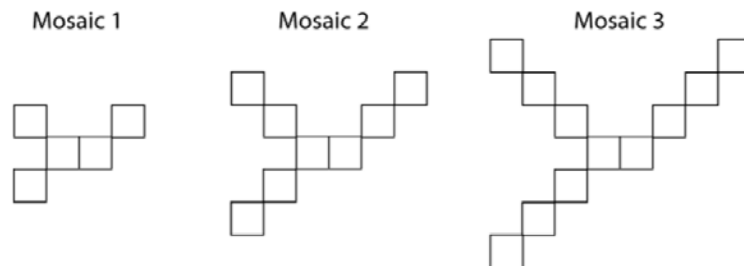
The teacher...

- finds the balance between understanding and practice.
- normalizes the productive struggle.
- ritualizes skills practice.

## Balanced Approach

Represent and analyze quantitative relationships between dependent and independent variables.

Mosaics



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## What's in 6 – 7A

- **Operations with Rational Numbers**
  - Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.
- **Expressions & Equations**
  - Use properties of operations to generate equivalent expressions.
  - Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
- **Ratios and Proportional Relationships**
  - Analyze proportional relationships and use them to solve real-world and mathematical problems.
  - Draw, construct, and describe geometrical figures and describe the relationships between them.

## CCGPS Suggestions:

1. Review the CCGPS. The teaching guide, curriculum map, and standards can all be found in Learning Village, on the Mathematics Program Page and on Georgia Standards.org
2. View the Fall 2011 Grade Level Webinar if you haven't already seen it.
3. Review this broadcast with your team to identify key areas of focus.

## CCGPS Suggestions:

4. Participate in the unit-by-unit webinars beginning in May.  
**6<sup>th</sup> Grade Unit 1: May 1, 2012, 4:30pm**
5. Structure time for grade level/content areas to use framework units as a guide for planning.
6. Plan to get together with your colleagues at the end of each CCGPS unit to analyze student work samples and compare how student learning and performance look.

## 6<sup>th</sup> Grade Support:

Now-

- Fall 2011 Grade Level Webinar
- Standards Document
- Teaching Guide
- Curriculum Map

Coming soon-

- Framework Units (posting April 2012)
- Unit-by-unit webinars:

**6<sup>th</sup> grade Unit 1 May 1, 2012, 4:30pm**

## Takeaways

### 3 Things-

1. What's new?
2. What's different?
3. What resources and support are available for CCGPS mathematics?

“The resources we need in order to grow as teachers are abundant within the community of colleagues. Good talk about good teaching is what we need...”

Parker Palmer  
*Courage to Teach*

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Thank you for participating in this CCGPS Professional Learning Session.  
We value your feedback. Please go to the following website, take the  
anonymous feedback survey, and complete the participation log to  
receive a certificate of participation:

**<http://survey.sedl.org/efm/wsb.dll/s/1g10a>**

If you have questions, feel free to contact any of the English/Language Arts or  
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