Common Core Georgia Performance Standards

Kindergarten

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Thank you for being here today.

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

- Kindergarten handouts/resource packet
- Large index cards, tape, markers
- Note-taking materials

(This session is being recorded, and all materials, including the powerpoint, are available for download)

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Activate your brain

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65	
29	4

- **My height**
- **Age of my oldest child**
- **A zip code**
- **Number of cups of tea each day**
- **Number of siblings**

Number sense builds on students' natural insights and convinces them that mathematics makes sense, that it is not just a collection of rules to be applied.

Hilde Howden, 1989

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?

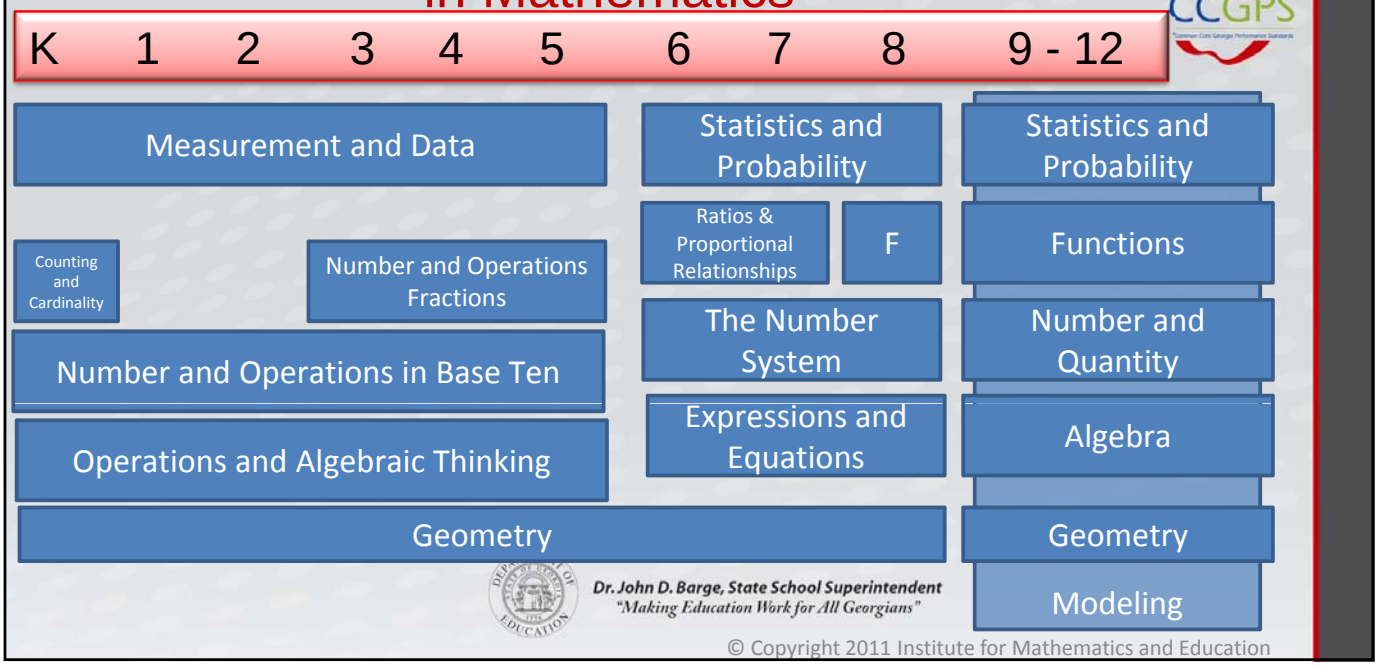
- Clarity: The standards are focused, coherent, and clear. Clearer standards help students (and parents and teachers) understand what is expected of them.
- Collaboration: The standards create a foundation to work collaboratively across states and districts, pooling resources and expertise, to create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

Common Core State Standards in Mathematics



Standards for Mathematical Practice

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

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(McCallum, 2011)

Counting & Cardinality

Domain

- Know number names and the count sequence.

Standards CLUSTER Heading

Standards

MCC.K.CC.1- Count to 100 by ones and tens.

MCC.K.CC.2- Count forward beginning from a given number within the known sequence (instead of having to begin at 1).

MCC.K.CC.3- Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

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

So what's a Kindergarten teacher to do?

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

Kindergarten Curriculum Map

Common Core Georgia Performance Standards: Curriculum Map						
Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7
Sophisticated Shapes	**Counting With Friends**	**Comparing Numbers**	**Measuring and Analyzing Data**	**Investigating Addition and Subtraction**	**Further Investigation of Addition and Subtraction**	**Show What We Know**
MCCK.G.1 MCCK.G.2 MCCK.G.3 MCCK.G.4 MCCK.G.5 MCCK.G.6 MCCK.MD.3	MCCK.CC.1 MCCK.CC.2 MCCK.CC.3 MCCK.CC.4 MCCK.MD.3	MCCK.NBT.1 MCCK.CC.3 MCCK.CC.4a MCCK.CC.5 MCCK.CC.6 MCCK.CC.7 MCCK.MD.3	MCCK.MD.1 MCCK.MD.2 MCCK.MD.3	MCCK.OA.1 MCCK.OA.2 MCCK.OA.3 MCCK.OA.4 MCCK.OA.5	MCCK..OA.2 MCCK.OA.3 MCCK.OA.4 MCCK.OA.5	ALL
These units were written to build upon concepts from prior units, so later units contain tasks that depend upon the concepts and standards addressed in earlier units. All units include the Mathematical Practices and indicate skills to maintain.						

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Kindergarten Overview

Unit 1: Sophisticated Shapes

MCCK.G.1
MCCK.G.2
MCCK.G.3
MCCK.G.4
MCCK.G.5
MCCK.G.6
MCCK.MD.3

Geometry
•Identify and describe shapes.
•Analyze, compare, create, and compose shapes.

Measurement & Data
•Classify objects and count the number of objects in categories.

Kindergarten Overview

Unit 2: Counting With Friends

- **MCCK.CC.1**
- **MCCK.CC.2**
- **MCCK.CC.3**
- **MCCK.CC.4**
- **MCCK.MD.3**

Counting & Cardinality
•Know number names and the count sequence.
•Count to tell the number of objects.

Measurement & Data
•Classify objects and count the number of objects in categories.

Kindergarten Overview

Unit 3: Comparing Numbers

MCCK.NBT.1
MCCK.CC.3
MCCK.CC.4a
MCCK.CC.5
MCCK.CC.6
MCCK.CC.7
MCCK.MD.3

Counting & Cardinality
- Know number names and the count sequence.
- Count to tell the number of objects.
- Compare numbers.

Measurement & Data
- Classify objects and count the number of objects in categories.

Number & Operations in Base Ten
- Work with numbers 11–19 to gain foundations for place value.

Kindergarten Overview

Unit 4:Measuring and Analyzing Data

MCCK.MD.1
MCCK.MD.2
MCCK.MD.3

Measurement & Data
- Describe and compare measurable attributes.
- Classify objects and count the number of objects in categories.

Kindergarten Overview

Unit 5: Investigating Addition and Subtraction

MCCK.OA.1
MCCK.OA.2
MCCK.OA.3
MCCK.OA.4
MCCK.OA.5

Operations & Algebraic Thinking
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

Kindergarten Overview

Unit 6: Further Investigation of Addition and Subtraction

MCCK.OA.2
MCCK.OA.3
MCCK.OA.4
MCCK.OA.5

Operations & Algebraic Thinking
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

Kindergarten Overview

Unit 7: Show What You Know

What's New in Kindergarten

Counting and Cardinality

- Rote count by ones and tens to 100
- Count forward from a given number within 100
- Count to tell how many about orderly arrangements of objects (to 20)
- Count to tell how many about scattered configurations (to 10)
- Compare written numerals (1-10)

Operations and Algebraic Thinking

- Fluently add and subtract within 5

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What's New in Kindergarten

Number and Operations in Base Ten

- Compose and decompose numbers from 11-19 into ten ones and some further ones. Understand that these numbers are composed of ten ones and some further ones.

Measurement and Data

- Describe several measureable attributes of the same object.

Geometry

- Correctly name shapes regardless of their orientation or size.
- Identify shapes as 2-D or 3-D.

Common Misconceptions

Counting and Cardinality

- Not seeing zero as a number
- Confusing count with item being counted

Operations and Algebraic Thinking

- Overgeneralization of vocabulary
- Skipping the development of mental images

Number and Operations in Base Ten

- Unitizing- failing to see ten things as one ten

Geometry

- Overgeneralization of terminology, giving 2-D names to 3-D shapes.
- Connecting orientation to shape

Focus
Coherence
Fluency
Deep Understanding
Applications
Balanced Approach

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Focus

The student…

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

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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.

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Grade	Priorities in Support of Rich Instruction and Expectations of Fluency and Conceptual Understanding
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 Kindergarten, instructional time should focus on **two critical areas:**

- representing and comparing whole numbers, initially with sets of objects;
- describing shapes and space.

More learning time in Kindergarten should be devoted to number than to other topics.

Priorities in Kindergarten

- Quantity and number
- Geometric thinking

Sample high leverage task

10 frame riddles

(Handout set #1, index cards, tape)

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What is no longer in Kindergarten?

Where are

- time?
- money?
- temperature?

Why? How does this look now?

- What about Calendar Time?

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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 about the way those ideas connect to how they were taught the year before and the years after.

What do Kindergarten students bring? What are they connecting to later?

Now-

- Many can rote count, subitize, catagorize, and more. Question to determine depth of understanding.

Later-

- Understanding quantity and number and the operations.
- Foundational place value understanding.

What the heck is a rekenrek?

- Let's make 10 on the rekenrek. Show as many ways as you can to make 10. Share what you see.
- Why is this important?

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Again, where is it going?

- Know that the number word tells a quantity.
- The number you end on represents the whole amount counted.
- Noticing similarities and differences in quantities.
- Add and subtract within 20, and place value for the long haul..

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Fluency

The student…

- spends time practicing skills with intensity and frequency.

Fluency

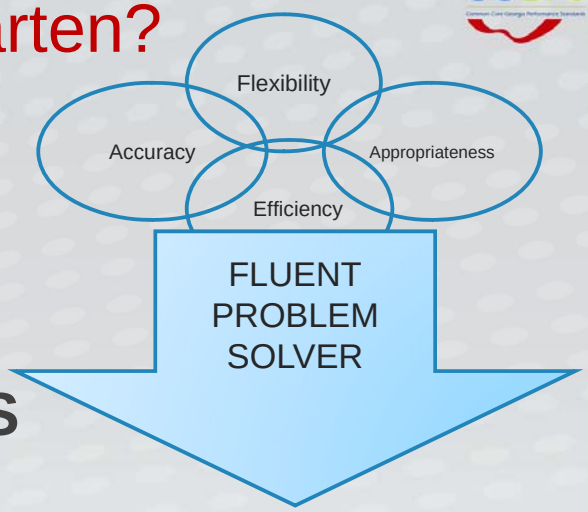
The teacher...

- pushes students to know basic 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 2×2 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 Kindergarten?

- **FLEXIBILITY**
- **ACCURACY**
- **EFFICIENCY**
- **APPROPRIATENESS**



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What does Fluency Look Like in Kindergarten?

Add and Subtract within 5

MCCK.OA.5- Fluently add and subtract within 5.

Build fluency using:

- dot plates
- five frames
- Rekenrek
- meaningful tasks

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

Old McDonald

Old Farmer McDonald needed to put all of his animals into different barns each night. Each barn could have no more than 10 feet. What animals did Old McDonald put in his barn to equal ten feet? Find the different combinations of farm animals that equal ten feet. Be sure to justify your combinations.

Task Structure

- Pre-Assessment/Opening
- Collaborative activity
- Whole-class discussion
- Return to the pre-assessment/opening and bring it all back to the standards

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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.

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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 apply mathematics.

Mathematizing Kindergarten

- What does it mean to apply mathematics in Kindergarten?

Attendance

Lunch count

Snack preparation

Counting, measuring, sorting, classifying, describing everything!

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What does this mean in terms of assessment?

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Balanced Approach

The student…

- practices mathematics skills to achieve fluency.
- practices math 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.

What does balance mean in Kindergarten?

Little Bo Peep loved to play dominoes. One day she had a domino in her pocket and the sum of the pips on her domino was 5. What could the domino on Bo Peeps pocket look like?

How could we launch this task?

- Bo-peep diagnostic- look for potential misconceptions
- Dot card/ten frame flash
- Number talks

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CCGPS Suggestions:

1. Read the CCGPS. The Teaching Guide for next year, curriculum maps and the standards can be found in Learning Village, on the math program page, and on Georgiastandards.org.
2. View the Fall 2011 Grade Level Webinars if you haven't already seen them.
3. Review this broadcast with your team to identify key areas of focus.

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CCGPS Suggestions:

4. Participate in the unit-by-unit webinars beginning in May.

   Kindergarten Unit 1- 3:15, May 1, 2012.

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.

Kindergarten Support:

Now-

- Fall 2011 Grade Level Webinars
- Teaching Guide
- Curriculum map
- Standards document

Coming soon-

- Frameworks units- posting in April, 2012
- Unit-by-unit webinars:

  Kindergarten Unit 1, 3:15 pm, May 1, 2012

Takeaways?

3 Things-

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

Food for Thought

"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

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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 Mathematics staff at the following email addresses:

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